VIENNA CIRCLE COLLECTION

HENK L. MULDER, *University of Amsterdam, Amsterdam, The Netherlands*

ROBERT S. COHEN, *Boston University, Boston, Mass., U.S.A.*

BRIAN MCGUINNESS, *University of Siena, Siena, Italy*

RUDOLF HALLER, *Charles Francis University, Graz, Austria*

Editorial Advisory Board

ALBERT E. BLUMBERG, *Rutgers University, New Brunswick, N.J., U.S.A.*

ERWIN N. HIEBERT, *Harvard University, Cambridge, Mass., U.S.A.*

JAAKO HINTIKKA, *Boston University, Boston, Mass., U.S.A.*

A. J. KOX, *University of Amsterdam, Amsterdam, The Netherlands*

GABRIËL NUCHELMANS, *University of Leyden, Leyden, The Netherlands*

ANTHONY M. QUINTON, *All Souls College, Oxford, England*

J. F. STAAL, *University of California, Berkeley, Calif., U.S.A.*

FRIEDRICH STADLER, *Institute for Science and Art, Vienna, Austria*

VOLUME 23

VOLUME EDITOR: ROBERT S. COHEN

OTTO NEURATH

ECONOMIC WRITINGS
SELECTIONS 1904–1945

Edited by

THOMAS E. UEBEL
University of Manchester, UK

and

ROBERT S. COHEN
Boston University, USA

With an Introduction by

THOMAS E. UEBEL

Translated by

ROBERT S. COHEN, MARIE NEURATH,
CHRISTOPH SCHMIDT-PETRI *and* THOMAS E. UEBEL

KLUWER ACADEMIC PUBLISHERS
NEW YORK, BOSTON, DORDRECHT, LONDON, MOSCOW

eBook ISBN: 1-4020-2274-3
Print ISBN: 1-4020-2273-5

©2005 Springer Science + Business Media, Inc.

Print ©2004 Kluwer Academic Publishers
Dordrecht

All rights reserved

No part of this eBook may be reproduced or transmitted in any form or by any means, electronic, mechanical, recording, or otherwise, without written consent from the Publisher

Created in the United States of America

Visit Springer's eBookstore at: http://ebooks.springerlink.com
and the Springer Global Website Online at: http://www.springeronline.com

TABLE OF CONTENTS

EDITORS' AND TRANSLATORS' NOTE vii

INTRODUCTION: NEURATH'S ECONOMICS IN CRITICAL CONTEXT *by Thomas E. Uebel* 1

PART 1. STUDIES IN ANCIENT AND MODERN ECONOMIC HISTORY 109

1. Interest on Money in Antiquity 111
2. Economic History of Antiquity [Excerpts] 120
3. War Economy 153
4. Serbia's Successes in the Balkan War [1912] 200
5. State Cartels and State Trusts as Organisational Forms of the Future 235
6. The Economic Order of the Future and the Economic Sciences 241

PART 2. EARLY CONTRIBUTIONS TO THE THEORY OF ECONOMICS AND SOCIAL SCIENCE 263

7. On the Theory of Social Science 265
8. Interventions in Discussions of the Social Policy Association 292
    - (I) Remarks on the Productivity of Money 292
    - (II) On the Role of Moral Value Judgements in Economic Science 297
9. Economics in Kind, Calculation in Kind and Their Relation to War Economics 299
10. The Conceptual Structure of Economic Theory and its Foundations 312

PART 3. SOCIALISATION THEORY 343

11. A System of Socialisation 345
12. Total Socialisation 371

13. Economic Plan and Calculation in Kind 405
14. Socialist Utility Calculation and Capitalist Profit Calculation 466

PART 4. ECONOMICS AND SOCIAL SCIENCE IN UNIFIED SCIENCE 473

15. The Current Growth in Global Productive Capacity 475
16. Sociological Predictions 506
17. Inventory of the Standard of Living 513
18. Late Reflections on the Theory of Planning 527
  (I) Planning or Managerial Revolution? 527
  (II) Ways of Life in a World Community 539
  (III) Alternatives to Market Competition 546
19. After Six Years 549

NAME INDEX 557

EDITORS' AND TRANSLATORS' NOTE

In the interest of readability, stylistic features of the original texts that would appear eccentric and distracting in English have been removed. Neurath's paragraph divisions have occasionally been regularised in accord with the steps of his reasoning. His sometimes extremely liberal use of *Sperrungen* (a functional equivalent of italics) has been largely edited. In supplying references sparingly Neurath followed the standards of his day; where these references are significant, they have been completed as far as possible. Obvious mistakes have been silently corrected. Square brackets in the text or in the notes indicate insertions by the editors. For remarks about the dialectical context of the selections, readers are referred to the Introduction. In their selection of the chapters the editors followed, as far as was practical, plans for this volume as devised by Marie Neurath, who also provided first drafts for several of the translations featured here; however, the editors also dropped some chapters or substituted others and supplemented the selection with additional materials. It is to the memory of Marie Neurath that the editors dedicate this work.

THOMAS E. UEBEL

INTRODUCTION: NEURATH'S ECONOMICS IN CRITICAL CONTEXT

Section 1: Contextualising Neurath's Economic Writings. 1.1: Otto Neurath: Philosopher-Economist. 1.2: Heterodox Neopositivism in Political Economy. 1.3: Living the Foundational Debates in Social Science. *Section 2: Parts 1 and 2: Neurath's Pre-1919 Writings on Economics*. 2.1: Turning to History for Systematic Reasons. 2.2: Studies in Ancient and Modern Economic History. 2.3: Contributions to the *Methoden*- and *Werturteilstreit*. 2.4: Neurath and Then-Contemporary Economic Theory. *Section 3: Part 3: Neurath's Writings on Socialisation Theory*. 3.1: The Socialisation Debate in Post-War Central Europe. 3.2: Early Free-Market Criticisms. 3.3: Socialist Criticisms. *Section 4: Part 4: Neurath's Later Writings on Economics*. 4.1: The Meaning of Physicalism and Unified Science. 4.2: Economics and Social Science in Physicalist Unified Science. 4.3: Late Reflections on the Theory of Planning. *Section 5: Conclusion*.

There are many ways to read a characteristically contrapuntal writer like Otto Neurath – and many ways to misunderstand him by taking the part gleaned for the whole. Of none of his varied fields of activity is this more true than his writings on economics. On their account – and on account of his attempts to put his ideas into practice – he was called conflicting names already in his own day: appellations ranged from "romantic" to "fanatic", from "communist" to "bourgeois", from "fool" to "visionary".[1] Here the task cannot be to assess these judgements but only to furnish a framework that highlights the lasting interest of his work in this field.

Like Neurath the philosopher, Neurath the economist can lay claim to the title of neglected pioneer. His claim to historical importance in economics is enhanced by the undiminished relevance of a consequential though deceptively simple thought that lies at the centre of his wide-ranging but less than fully systematic work in the field. Starkly put, Neurath was an 'Austrian economist with a difference': his training as a historian and sociologist and his later turn to socialism are but part of a complex background and development. Sharing the Austrian school's rejection of what was to become orthodox neoclassical equilibrium economics, Neurath also rejected what the Austrians shared with the neoclassicals and returned to Aristotle for his broad construal of the economic domain. His deceptively simple thought was that economic decisions, like many others, are judgement calls comparing expected outcomes between sets of irreducibly incommensurable measures. Only fragmentarily realised during his lifetime Neurath's economic thought points to ongoing attempts in our own time to manage the economic forces at the disposal of humanity for its benefit. But Neurath's economics are significant also for a second reason, one that is marked by the series in which the present volume appears. An understanding of Neurath's work in economics – and social science more widely – is essential if our judgement of the role of Neurath in the Vienna Circle and of the achievement of his contribution is to be a well-rounded one: with some discretion, we may regard it as a test case for his physicalist encyclopedism, the 'pudding' proving his recipe for unified science.

The aim of the present volume, accordingly, is fourfold: first and second, to document both the breadth of Neurath's work in economics and social science as well as the development of his interests and views from his student days in Vienna to his last years in Oxford; and, third and fourth, to highlight those aspects of his work that link up most directly with his work in philosophy of science generally as well as some of those aspects that are likely to be of greatest economic relevance today. Needless to say, different selections address different parts of this agenda. One consideration that has informed the editors has been to provide a historically salient and systematically coherent set of his social scientific writings – without duplicating pieces already translated elsewhere (all of them except for *Foundations of the Social Sciences* appearing in three other volumes of the present series). Hopefully, this constraint has been turned into an advantage. Important aspects of his work and significant statements elsewhere but relevant here are specified in this Introduction.

The selections from Neurath's economic writings are grouped in four parts, with a partial overlap of topics and chronology. Part 1 features Neurath's work from 1904 to 1917 as an economic historian of antiquity and his historical and empirical study of war economics, leading up to the threshold of policy advice for the anticipated peacetime economy.

Part 2 presents Neurath's metatheoretical reflections about social science from 1909 onwards, issuing in his development of an alternative conceptual structure for economic inquiries in 1917. Part 3 presents examples of Neurath's contribution to the post-World War I socialisation debates in Germany and Austria, employing his conceptual innovations in a practical-political capacity in the period 1919–25. Part 4 gathers together later reflections from the 1930s and '40s on the issues of planning and democracy, on the predictive aspects of empirical social science and its descriptive-critical potential as part of the unified science programme of logical empiricism, and, in his last ever piece, on the fate of the movement of logical empiricism itself. In this Introduction, after giving a general overview, only background information for the individual pieces selected will be provided and some interpretive questions will be raised, but no final assessment will be given.

1 Contextualising Neurath's Economic Writings. Otto Neurath (1882–1945) is well known as a founding member of the Vienna Circle, one of several points of origin of logical empiricism.[2] While Neurath's distinctive contribution to the philosophy of science and epistemology in general has come to be recognized after long neglect, his economic thought remains relatively unexplored.[3] A striking fact is thus obscured: Neurath is furthest from the 'positivist' economist one might be excused for expecting.[4] Following an overview of Neurath's project as a philosopher and economist, this section outlines further the unifying framework of his economic work, its continuing relevance and its many-layered background.

1.1 Otto Neurath: Philosopher-Economist. Consider first Neurath the philosopher. While Neurath is by no means the only one to have received extensive critical attention, it is he who held the most surprises in store for recent students of the Vienna Circle. Neurath most strikingly contradicts the common stereotype of the logical positivists. Far from being merely the organisational motor of the Circle's internationalisation in the Unity-of-Science movement of the 1930s and '40s, Neurath has emerged as a philosopher of quite striking originality. Moreover, already in the Circle itself Neurath argued against the failings attested to logical positivism by its external critics, criticising the trend towards seemingly purely logically oriented formal inquiries and the neglect of the social and historical dimension of science. Similarly, Neurath anticipated the turn towards naturalism, commonly associated with Quine's later internal critique, albeit along different, more social scientific lines.[5]

One central theme – perhaps the central one – of Neurath's philosophy is the absence of epistemic foundations and the irreducible contextuality of knowledge and justification. The continuity of this theme is illustrated by Neurath's frequent employment of the simile which subsequently Quine made common coin: we are like sailors, who have to repair their boat on the open sea, without ever being able to pull into dry dock. Neurath first used this simile in 1913 in a long journal article on the methodology of war economics; he re-employed it in 1921 in the course of his critique of Spengler's *Decline of the West*, then in 1932 in the protocol sentence debate with Carnap and Schlick, again in 1937 in the course of promoting the project of the International Encyclopedia of Unified Science, and finally in 1944 in conclusion of his last monograph on the methodology of social science, having just (re-) issued the call for a reflexive theory of science, or, as one commentator calls it, a "reflexive epistemology".[6] Throughout, it is to be noted, the boat simile expresses also a certain constructivist impulse. Knowledge is gained and justification assessed by tools which we ourselves have created.

Like his colleagues in the Vienna Circle – and, it has to be added, like a few of the "school philosophers" he opposed (Cassirer springs to mind) – Neurath sought to comprehend the upheavals in the scientific understanding of the world which the preceding turn-of-the-century and the first decade thereafter had initiated. Neurath explored ways of overcoming the dilemma of foundationalism or relativism, which only grew more intense as the 20th century grew older, but whose roots – and whose pseudo-solutions which waylaid progress all along – he had discerned early on. Neurath's distinctive answer consisted in exploring a guiding idea which may be put as that of a "controllable rationality". Neurath took the old enlightenment idea of scientific knowledge as liberator from the reign of dogma and prejudice and soght to import it from the domain of the natural sciences, the natural world, to that of the social sciences, the social world. (This is not to say, of course, that Neurath believed that science could tell us what "ought to be done".) What allowed science to serve as liberator was its empirical method, its reliance on intersubjective evidence and the adjudication of theory acceptance in its light. This method, so Neurath, was not simply given to us but had been historically developed. The task that he saw facing him was to investigate the conditions under which it was possible, in science, to exercise something like "conceptual responsibility by collective management".

The later Neurath was something of a constructivist therefore, but not a constructivist on the object level, but on the metalevel of epistemological reflection. Scientific knowledge does not simply "flow from its subject matter", as he already urged in his revealing review of Carnap's *Aufbau* (1928b). Importantly, it was not the objects but the standards of cognition that were to some degree socially constructed. Neurath's sketches of a non-reductive physicalism and a non-dogmatic scientific "encyclopedism" – his alternative to the orthodox hierarchical model of the unity of science may be deemed a version of the "patchwork" conception[7] – stressed not only the hypothetical nature of science but also its creative aspect. He saw it as a creation that was negotiated in the collective of scientists so as to answer to criteria of acceptance both internal and external to science itself, criteria which in turn were not pre-given but (ideally) arrived at in collective work and reflection (and which had to be periodically reassessed if one did not wish to run the risk of dogmatism).

The project of Neurath's philosophy, it is plain, is not one which we can declare to have been already completed either by himself or by others who, needless to say, added much needed detail to his bold sketches. Indeed, there is reason to believe that the very "project of modernity", of which Neurath's efforts may count a part, is not such as to allow for completion. The philosophical task which Neurath confronted still confronts all of us. Philipp Frank – fellow member with Neurath not only in the later left Vienna Circle, but also in the precursor of the Schlick circle before World War I, the so-called first Vienna Circle[8] – characterised the situation in exemplary form in his obituary for Ernst Mach. Critical enlightenment thinking uncovers illegitimate uses of merely auxiliary concepts and "destroys the old system of concepts, but while it is constructing a new system, it is already laying the foundation for new misuse. For there is no theory without auxiliary concepts and every such concept is necessarily misused in the course of time." It follows that "in every period a new enlightenment is required in order to abolish this misuse" (1917 [1949b, 78, 73]). What Neurath opposed as "pseudo-rationalism" in fellow philosophers was precisely such misuse, suggesting proof where there was but judgement (1913d).

Pseudo-rationalism was, in short, the counterimage of his own epistemological simile of fallibilist anti-foundationalism at the object-level paired with constructivism at the methodological metalevel.

Consider now Neurath the economist. Returning to Vienna after his doctorate with Eduard Meyer and Gustav Schmoller in Berlin in 1906, Neurath began publishing widely: from discussions of scientific methodology and epistemology to studies in history of science and in social history; from empirical studies of legislative proposals and accounting procedures to proposals for modern citizens' education and urban transport systems. By the time of his habilitation in Heidelberg 1917, he had published in his own field, besides numerous articles in professional journals and specialist newspapers, a monograph on the economic history of antiquity and an introductory textbook in economics, having also co-edited (with his first wife Anna Schapire) a comprehensive anthology of readings in the history of economic theory; most importantly, however, he had developed 'war economics' as a separate discipline demanding new tools of analysis. Empirical research during the Balkan wars and his experience with the Austrian and German war economy confirmed his decision to explore the concept of a central administrative economy with planning in kind. This research focus led him to propose a reconceptualization of economic science itself – away from the preoccupations of both Austrian and Marxian value theories and the emerging neo-classical paradigm. After the war Neurath intervened in the debates on the nature and extent of the possible socialization of the postwar economy and participated in the Bavarian revolution, attempting to put his ideas into practice. Barred from academia because of his conviction for these activities, Neurath increasingly turned in the 'red Vienna' of the 1920s and early 1930s to developing innovations in visual pedagogy (the ISOTYPE system of pictorial representation of statistical data) and pursuing his anti-foundationalist campaign in the philosophy of science and the organisation of the unity of science movement, only occasionally restating his economic ideas.[9]

As an Austrian, having taken his doctorate with the leading figures of the German Historical School, Neurath hit upon a unique solution to both the *Methoden-* and the *Werturteilsstreit*. Abstract deductive theory can be used to enlighten historical problems and the productivity of an economy (as opposed to the profitability of a firm) was assessable in terms that respected Max Weber's strictures on value-statements in science. The price was radical reconceptualisation. Neurath rejected

Menger's Aristotelian essentialism, Schmoller's inductivism and Weber's ideal-types and adopted an instrumentalist conception of economic theory derived from Mach, Poincaré and Duhem; simultaneously he sought to redirect economics from price theory to investigations of how socio-economic institutions affect wealth understood as well-being, working towards a theory of relevant indicators and developing increasingly complex representations of the conditions under which a transfer of goods can be said to increase the welfare of those involved. Due to the minimal assumptions of these calculi, only ordinal rankings are possible and even these are not always complete. In consequence, no unique welfare function is computable (sometimes even for an individual). Moreover, without money as a universal value indicator there is no unit of calculation by reference to which different ensembles of transfers of goods could be measured for their optimality. Multi-criterial forms of representation are needed. With an economy understood as a function from "conditions of life" (*Lebenslagen*) to "qualities of life" (*Lebenstimmungen*), i.e., from objective natural and social conditions to subjective experience, Neurath's economics investigated "correlations between different orders of life (*Lebensordnungen*) and conditions of life". All along, Neurath stressed that many decisions about the allocation of resources, even more so decisions between entire life-orders (systems of rules for goods transfers under given conditions), required judgments for which no scientific calculation could substitute.

This was the methodological background for Neurath's idea of socialisation as the reorganisation of the economy "by society for society" by means of an economic plan. Roughly, a nation's entire economy was to be organized in terms of industry-wide producers' associations who received directives from a "central economic administration" for the production of certain kinds and certain quantities of goods. This plan was based on a "universal statistics" compiled from reports of the central bank and the industries, as well as economic control councils, of social demand and available supply of consumer goods and of production goods and means. It is important to distinguish the organisational from the calculatory aspect of his socialisation models and to note the self-conscious but problematical lacuna of the political. Neurath's conception of command economy is distinct from the Soviet models, comparison with which it readily invites. To be stressed is the distinction, underlying his work but not always clearly enough stated, between directive and indicative planning. Directive planning sets the goals, the plan of an economy, which must be fulfilled; indicative planning explores what kinds of economies or production plans could be developed and provides models for orientation. Neurath's "central economic administration" served both functions, but they can and need be separated, for this central agency did not act autonomously. In its directive function it was subject to the political decision of the "people's representatives" of which plan to realise; only its indicative function was wholly entrusted to this agency. Neurath left open the question of political power in his "socio-technical" schemes as lying outside his remit. Notably, however, Neurath also left open how the different sectors of the economy were organised locally and did not require wholesale nationalisation, also allowing for anarchist collectives and workers' cooperatives.

Neurath soon faced criticisms of the method of calculation-in-kind raised by Max Weber, Ludwig von Mises and Friedrich August von Hayek, that there cannot be rational economic calculation in the absence of the unit of money and the profit motive.[10] Neurath remained remarkably unmoved on this point. Defending his conception against Marxist, Austrian and neo-classical critics, he insisted that they themselves had to admit the insufficiency of monetary calculations for decisions concerning economic policy. The multi-dimensionality of welfare could only be approximated by the further development of sets of indices for standards of living, sets which ultimately were envisaged also to account for the freedom experienced in these social orders. Until quite recently, professional economists – with the notable exception of the Dutch planning theorist Jan Tinbergen – neglected Neurath's work.[11] When viewed in conjunction with his concern for a new empirical base for an economics of welfare, however, it becomes clear that Neurath's resistence to the Weber-Mises-Hayek objection(s) chimes with important present-day efforts: his very own "rational economics" was to open up for investigation just those types of considerations that cannot be taken account of by restricting our concern to *homo economicus* or what Amartya Sen called "rational fools".[12] But it is not just the narrowly individualistic orientation of standard economic conceptions of utility maximisation that Neurath objected to. What makes for the noted simple but consequential thought that vouches for his continuing relevance – attested to by ecological economists like Juan Martinez-Alier and philosophers like John O'Neill[13] – is the observation that this utility maximisation cannot be be effected by a calculus that has rendered commensurate a plurality of values.

1.2 Heterodox Neopositivism in Political Economy. It is apparent that there exists a remarkable convergence between Neurath's work in economics and social science and in epistemology in that in both he opposed pseudo-rationalism and sought to counteract its deleterious influence. Second, just as his radical antifoundationalism rendered him a heterodox neopositivist, so his political economy was traditional in a sense which orthodox economics largely rendered anachronistic: Neurath was an economist not concerned with the market and the determination of prices, but with social welfare in the sense of national real income, its production and distribution. His early work in economics and social science shows well the dialectic between object- and metalevel issues that propelled his development. Neurath's Aristotelian concern with wealth and welfare at the object level required grounding in metatheory: how was scientific concern with welfare to be conceptualised, indeed, how was welfare itself to be conceptualised and best theorised about?

Of course, the trajectory of Neurath's development was not quite as innocent as this makes it sound, for he did not start with a neutral conception of welfare, as it were, and only later realised its inadequacy. Already from the works of his father Wilhelm Neurath, an economist who developed radical but non-socialist reform proposals, he was familiar with a searing critique of the neo-classical concept of marginal utility. His father's critique was based not on theoretically immanent but extraneous grounds, however: that this concept of economic value sanctioned the destruction of goods not sold in the market while there remained want of and need for these goods on the part of those unable to participate in the market rendered the concept simply "absurd".[14] Whether Otto Neurath approached economics from the start with a similarly intuitive conception of use value and welfare is not clear, but something like it certainly seems to have been the motivation for his inception of war economics by 1910. Now Neurath was no war monger. Rather, he noted that in war the satisfaction of certain needs was given primacy over the demand for profit: war economies happened to provide, as it were, laboratory conditions for contemporary forms of a use-value oriented approach to economic organisation.

But while Neurath did not start out as an economic liberal, neither did he start out as a Marxist, but only became one at the end of World War I.[15] Neurath always approached economic problems primarily as technical problems: it was not by coincidence that he considered himself a “social engineer”. His view that the reorganisation of social production was more important than the expropriation of the means of production earned him the endless scorn of Marxists. (At his trial in Munich no other than Otto Bauer attested to his “essentially unpolitical trend of thought”.)[16] Yet his experiences in the failed revolution did teach Neurath the indispensibility of party-political backing for social reform and he became a loyal member of the Austro-Marxist Social Democratic Party. The lacuna of the political in his socio-economic thought was only gradually reflected upon, increasingly so as the chances for the realisation of his socialisation plans became ever smaller. Reported to have been described by his widow as a “mild liberal” in his final years in exile in England,[17] his thought turned to the question of what created and sustained the conditions for social and political tolerance, in particular, to what the conditions were for agreement that tolerated dissent yet did not debilitate significant action.

So if in consequence of his object-level concern Neurath came to reject the conception of economics as a universal deductive science in the fashion of Carl Menger and his followers and took on board some of the particularism associated with the German Historical School, he nevertheless remained an Austrian economist in another respect. As Erich Streissler has noted, one feature that unites all economists of the Austrian school and distinguishes them from their predecessors – though not, as the price of their success, from their epigones – is that they were decision theorists. Ever since Menger, Austrian conceptions of economic action essentially involved choice between alternatives, a choice that was, as Friedrich von Wieser insisted, to be calculable in terms of value and already with Eugen von Böhm-Bawerk appealed to expected utilities.[18] Quite clearly, not only Mises, Hayek and Schumpeter but also Karl Menger (son of Carl and associate of the Vienna Circle) and Oskar Morgenstern stand in this tradition linking Austrian economics to modern rational choice theory.[19] Neurath too stands in this tradition, even though he rejected some of the strictures laid down by Menger and Wieser and accepted by their students. Like them, his thought centered on economic decisions, the allocation of resources to alternative uses, but unlike them he viewed these decisions as irreducibly multi-dimensional and so resisted the demand to commensurate to facilitate calculation. Neurath questioned the way the rationality of the economic decisions was conceived of in the Austrian and the emerging neo-classical school.

His call for an "economics in kind" (*Naturalwirtschaftslehre*) did not envision just a theoretical proposal for instituting a moneyless economy (*Naturalwirtschaft*), but ever more clearly constituted a sustained protest against a basic presumption widespread amongst economists. This was that unless an economic decision was taken in terms of maximising money value it lacked any discernible rationality or, more broadly, that unless a complete ranking of expected outcomes was provided the reasoning was faulty. For Neurath economic rationality was not absent unless decisions were expressed in terms of a money calculations, it was also discernible in in-kind considerations. That was what his explorations of in-kind calculi were intended to prove. Moreover, not only was the exclusivity claim of the standard conception of economic rationality mistaken, the standard conception itself was open to the charge of pseudo-rationalism. In rendering all aims and values commensurate by demanding that they be expressed in money values by hook or by crook (i.e. shadow-pricing or contingent valuation), the standard conception suggested an inevitability and finality to its calculations and the decisions taken on their basis which ill fitted the situation at hand which demanded judgement about and evaluation of incommensurable values.[20] As will be noted in greater detail below, it may be that Neurath himself came to realise only gradually where the strength of his argument lay: not in the plans for total socialisation and economies in kind, but in his insistence on the concrete nature of the economic decision situation which rendered deeply problematic the abstraction of a universal unit of calculation. That the real force of his argument may not have been appreciated fully from the start does not, of course, lessen its significance or the validity of its advocacy – though the historical reconstruction must proceed with some delicacy.

As noted, Neurath provoked the socialist calculation debate which, however, soon eclipsed himself and brought to centre stage the arguments of Mises, Weber and later Hayek in defense of the free market. It was against them in turn that the arguments for so-called market socialism were developed, in the United States and Britain, as early as the late 1920s and 1930s by, amongst others, Fred Taylor and Oskar Lange and as recently as the Reaganite and Thatcherite 1980s, albeit in a much reduced form as far as central planning is concerned.[21] If today we are somewhat better informed about what advantages a market economy does and does not possess, it is due in part to the stimulus of Neurath's early socialisation plans. A more durably 'positive' aspect of

Neurath's originality as an economist is provided by his early ventures into the field of ecological economics. His simple but weighty point was that disregard of the so-called externalities of market activity does not only become extremely costly to succeeding generations, but that the very accounting of environmental cost and benefit in terms of a universal money unit misses the ultimately political, ethical and individually prudential aspects of the decisions to be made. For these decisions no calculus can be substituted because multi-criterial choices do not guarantee determinacy in comparative assessment that extends to a consistent ranking of all alternatives.[22]

Already in virtue of these aspects of his work Neurath must be considered one of the more important political economists of the 20th century. In his *Modern Man in the Making* (1939) he noted the ever increasing rationalisation of production and standardisation of behaviour the world over, processes nowadays viewed as aspects of "globalisation". A confirmed modernist, Neurath took this as given, but he was by no means blind to its dangers. His plea for "economic tolerance" (Chapters 6 and 12), first issued in the Munich revolution against the exclusive rule of state-run industries and enterprises under socialism, has lost none of its urgency in the present era of unfettered free market expansion.

1.3 Living the Foundational Debates in Social Science. Given his aforementioned contrapuntal style, Neurath's writings are best understood when they are re-contextualised in the debates from which they stem: this holds for the social scientist no less than for the philosopher. As the former Neurath had to face the various disputes amongst historians, political economists and sociologist that defined the field in the absence of well established and already widely accepted paradigms.[23] Neurath's views on economics took shape and altered in the course of his participation in these methodological debates. Here it is profitable to consider six of them.[24] To see them in concert, think of them as defining Neurath's past (where he 'came from'), his present (debates he helped shape) and, as it were, his future (his legacy).

We can see better where Neurath 'came from' by placing him in three famous turn-of-the century debates in the foundations of social science: the *Methodenstreit*, the *Werturteilsstreit* and the historians' dispute. These debates possess origins that long preceded Neurath but nevertheless still allowed him to define his social scientific identity in their terms. Intermixed with these methodological disputes is a related but more substantively first-order issue that remained alive throughout his career: the dispute about the nature of economic value. In addition, Neurath's social scientific 'present' is represented by two debates that he himself helped to shape: the socialisation debate and the unified science debate. Finally, Neurath's 'future', his legacy, can be discerned in the ongoing development of adequate sociological indicators of well-being and in the foundational debate in ecological economics about comparability and measurement of environmental cost. (Fittingly, these debates stretch from the 19th to the 21st centuries.)

The *Methodenstreit* was a dispute that raged from the 1880s onwards between Gustav Schmoller, leading light of the German Historical School of economists, and Carl Menger, founder of the Austrian school of theoretical economics, and their followers, and concerned the very nature of economics as a science, in particular the range of validity of its laws and the relevance of inductive generalisations for economics.[25]

The *Werturteilsstreit* was a dispute in the Verein für Sozialpolitik (Social Policy Association) that had been simmering since the 1890s but exploded around its conferences of 1909 and 1913 and concerned the probity of value judgements in social science. It tended to divide Schmoller's older generation of paternalistic "socialists of the chair" (whose 'socialism' in most cases was exhausted by merely taking seriously the 'social question') from the younger generation of the Association's members, represented by Max Weber and Werner Sombart, who rejected the claim to issue unqualified normative judgements under the guise of science.[26]

The historians' dispute was a dispute periodically reignited about the explanatory principles of historiography and the possibility of history as a positive science of cultural development. Just as Droysen had rejected Comte and Buckle in the 1860s, so the German historical profession turned on Karl Lamprecht's ideas for a cultural history in the 1890s to uphold the primacy of the narratives of nations and great men. As Lamprecht capitulated under the charge of materialism, subsequent social historians were under considerable pressure to explain themselves: so-called economism was rejected both for its supposed reductionism and frowned upon for its common political associations.[27]

The methodological debates of the economists also had a substantive complement: just how was economic value best thought of?

Was economic value an ‘objective’ notion, as the classical economists Smith and Ricardo and still Marx thought in different ways, or was it a ‘subjective’ notion, determined only relative to people’s needs or wants or estimations, as the neo-classical and Austrian schools of marginal utility held? Besides furnishing a lasting topic for academic discussions of the validity of socialist theory, this debate also provided a forum to clarify the neo-classical and Austrian alternatives.[28]

The first of the debates that Neurath himself helped to shape arose in close connexion with the issue of the nature of value. This was the socialisation debate in post-World War I Germany and Austria. Provoked by an apparently successful revolution (albeit in conditions of national military defeat), this debate concerned the issue of the way in which the new post-war economy was to be reorganised along socialist lines. As the possibility of realising any of the plans proposed receeded in Central Europe, the socialisation debate as just described was overtaken by the so-called socialist calculation debate about the very possibility of rational economic decision in planned economies.[29]

The other contemporary debate that Neurath helped to shape and that is of interest to us here concerns the nature and standing of the social sciences in comparison to the natural sciences. This is the ‘unified science debate’ about, first of all, the rejection of the claim that the social or human sciences (*Geisteswissenschaften*) were sharply separated not only in domain but also in general method from the natural sciences, typically with ‘understanding’ (*Verstehen*) furnishing a supposedly unique and ontologically significant method of social scientific investigation. This debate pitted Neurath against the tradition of Dilthey and the Neokantians and important contemporaries like Weber.[30] Another aspect of this debate concerned the meaning and plausibility of ‘physicalism’; here as well Neurath was often misunderstood as more reductionist than he intended to be.

Finally, Neurath’s ‘future’ can be traced in ongoing debates and developments in the fields of empirical sociology, of social choice theory and of ecological economics. Something like Neurath’s concerns are discernible – generally without reference to his earlier efforts – in the ongoing programmes to develop a set of adequate social indicators, measures of real income and national welfare, beyond the ambiguous measure of gross national product and in efforts to accustom the economic profession to making do with merely partial orderings of available alternatives.[31] In addition, Neurath’s already noted legacy for ecological economics is to have placed squarely into focus the reasons for an affirmative answer to the question: do decisions concerning environmental disputes require judgements about conflicting claims of incommensurable values, values that resist commensuration in the money calculus?[32]

Few conceptual or methodological issues in social science are left untouched by any of these foundational debates which concern either the nature and justification of social scientific concept formation and generalisation or the normative status of social science and its objectivity claim as such. Significantly, these were not classical debates but live disputes for Neurath. All of them are touched upon in the selections in this volume and, with the exception of the unified science debate, are dealt with extensively. (The dispute about *Verstehen* forms a central part of Neurath's programme for physicalist unified science and his naturalistic programme in epistemology and is already addressed by contributions in Neurath's *Empiricism and Sociology* and *Philosophical Papers*.)[33] The historians' dispute provides an important part of the background of the earliest papers in Part 1 below, while the political economists' *Methoden-* and *Werturteilsstreite* furnish large parts of the background of the papers in Part 2. Various aspects of the dispute about the nature of economic value, meanwhile turn up in papers in Parts 2, 3 and 4. Part 3 also documents Neurath's stance in the early Austro-German part of the socialisation and socialist calculation debate, while Part 4 also presents the later Neurath's considerations of the issues raised there and of the problem of appropriate indicators of welfare and the logic of welfare decisions.

2 Parts 1 and 2: Neurath's pre-1919 Economic Writings. Parts 1 and 2 contain writings from 1904 up to 1917. They take us from Neurath's reception and participation in the turn-of-the-century disputes to the very threshold of his interventions in the socialisation debates dealt with in Part 3. Here we give some more background and ask: how did Neurath respond to the issues that dominate the *Methodenstreit*, the *Werturteilsstreit* and the historians' dispute? Moreover, is there discernible a distinctive answer of his to the longstanding issue of the nature of economic value?

2.1 Turning to History for Systematic Reasons. Let us set the scene close to the beginning. We can get a good sense of what mattered for the early Neurath, and why, by considering the biographical and intellectual context in which Chapter 1, “Interest on Money in Antiquity” (1904a), originated. In a letter of 1942 to his son Paul, Neurath described how he became a social scientist.

> That is a long story, but I would say: partly by chance . . . During my studies in the natural sciences I was also interested in other areas and by chance I wrote a seminar paper on money interest in antiquity, a topic I was interested in due to your grandfather’s theories about monetary interest. Tönnies (Kiel) suggested that I continue my studies with Eduard Meyer and others because I could connect history of antiquity with economics (which was a very unusual combination) because my concentrated work in this field seemed successful . . . it was not my intention to become a social scientist, I only wanted to continue the work which I had begun . . . the problems with which I was occupied were too seductive. (P. Neurath 1982, 230)[34]

It was against the background of an older interest in natural science and mathematics that economic studies claimed Neurath’s sustained attention at university. Chapter 1 must be considered a descendent of the seminar paper mentioned. Of interest is not only the topic, but also the historical approach.

As it happens, Neurath’s very first publication was a report about the summer academy in Salzburg in 1903 where he first met Ferdinand Tönnies and received his advice.[35] The opening and final paragraphs of this report show clearly how the 22 year-old thought of the ‘spiritual situation of his age’ and point to the motivation for his turn to history.

> Between 1800 and 1900 a great number of theoretical and practical attempts were made to reach a principled position on the social conditions. There is a desire to understand the connectedness of the social. Problems of a technical-economic nature assume greater importance not only in the field of technology but also concerning issues of the social order and demand a new type of exact scientific investigation. We seek to collect and assess the experiences of the 19th century. The Salzburg Summer Academy presented important contributions to the solution of social questions since it predominantly dealt with issues in social philosophy . . . .
>
> The 20th century takes over longstanding problems. A number of in part very painful experiences lie behind us. Economic atomism has fallen out of favour. What is to take its place is not at all clear. The questions of power and bread are still rarely distinguished. The dreams of free economic associations (*Vergenossenschaftlichung*) are still very vague. That the foundations of the current economic system are faulty is becoming increasingly clear. Everywhere contradictions emerge which are not only of academic import but effect the welfare and suffering of millions. And this provides further strong motivation to help fight as best we can the secret demonic forces that spread death and decay! (1903 [1998, 1 and 7])

Explicitly noted here were the problems of replacing "atomism" in economics, of separating the "questions of bread and power" and determining the nature of appropriate "economic associations" – quite a handful! The question alone of atomism, of what to put in place of the free market doctrine of *laissez faire* Manchesterism (as it was called then), ranged from the philosophical (concerning principles of social organisation) to the practical (what forms of social organisation are workable) with issues in methodology in between (concerning the principle and form of a theory of social organisation). Already, economics stood in the centre of Neurath's attention and a motivation for his turn to history begins to emerge: he was interested in economic history to gain a better understanding of contemporary economic problems.

Notably Neurath considered the 'social question' properly to belong to social philosophy, but already the beginnings of his 'social engineering' approach are in evidence. In pursuit of this approach Neurath was to find two of the foundational disputes mentioned above centrally involved: the *Werturteilsstreit*, insofar as it had to be clarified to what extent normative matters were at issue and how they were to be dealt with (how could political economy be a normative discipline without becoming unscientific?); and the *Methodenstreit*, insofar as the specific nature of economics and social science was at issue (were the laws of economics to be deduced from a priori axioms of rational action in the framework of what came to be called methodological individualism or were the laws of economics but inductive generalisations, domain-bound and non-universal, of social behaviour?).

Since it was not disinterested knowledge that Neurath's *Problemstellung* called for, the question also arises of how he thought interest and value and theory and fact to be related. This question Neurath was to face repeatedly, of course, and still today the issue clouds the understanding of his theory of social science. His considered position was that, depending on one's inclination, the practical end of social science may be that of a better functioning socio-economic organisation. In that way, applied social science depended on unconditional value judgements on part of the scientist involved. But it was not for the theoretical end of research and education to tell us what these unconditional value judgements should say. Besides furnishing explanations and predictions, theory was to provide a survey of possibilities that could be considered better from the point of view of different preferences. According to this conception, the normative disengagement of theoretical science from social practice was compensated for by recognition of the scientist's role in the selection of problems. Such selection clearly reflected extra-scientific values, but it did not import value-judgements into descriptive science. This differentiation between ends and means and how science relates to either was won gradually and emerged in Neurath's contributions to the *Werturteilstreit* of the Verein für Sozialpolitik (here Chapters 8a and 8b) and his wide-ranging review of Wundt's *Logik* (here Chapter 7). How closely Neurath sailed to the wind can be seen in his projection of the uses of economic science for the reconstruction of the post-war economy (Chapter 6).

Already in 1903 Neurath felt safe to draw one clear conclusion: something was amiss in the foundations of the socio-economic system of his day. To diagnose more precisely what the problem was required that the "experiences of the 19th century be collated and systematically investigated". Since, as Neurath soon noted (1908 [1998, 118]; 1909a, 7), the sciences generally did not develop in a straight path this meant that he could not allow himself to rely on a cumulative idea of scientific progress. The situation was particularly difficult in social science: as an economist he needed to take a position on the *Methodenstreit* (Chapter 7). Once his work got underway, he also recognised that value-relevant problem selection may determine entire research traditions and that a different problem selection required alterations of the conceptual structures of entire disciplines – as in economics (Chapters 9 and 10).

It is not unusual, of course, that to trained readers the first publications of select authors prefigure their life's work, but Neurath's is particularly striking. At the root of his scientific project lay the idea that the socio-economic system of his day invariably incurred crises which unnecessarily reduced the welfare of large parts of the population. This idea had to be grounded by historical and systematic research: was immiseration really inevitable given capitalism? Moreover, this idea called for an alternative to be developed: was immiseration at all avoidable? Not surprisingly, Neurath's historical interest was drawn to the beginnings of capitalism, but already it was prompted by his systematic interest in alternative economic organisations.

Here another foundational dispute was waiting in the wings, the historians' dispute, which involved a number of related but different questions. To start with, the nature of historical agents and social agency was at issue, as was the lawfulness of history itself: were there any laws of cultural development at all? But more still was involved: the possibility of history as a positive science of cultural development.

At the forefront of Lamprecht's concerns stood what nowadays is called social history and what he called "cultural history" (*Kulturgeschichte*). In place of a narrow concentration on political and military events and an exaggerated focus on heroic personalities, cultural history not only stressed relatively neglected areas like economic history, but also considered collectivist phenomena, like the social structures and social movements that it brought to light, as basic to the understanding of legal systems and to political history.[36] The already difficult issue of laws of development further became mixed up with the politically-laden issue of materialism. Thus Eduard Meyer, a leading specialist on antiquity in all of its political, social and economic forms, opposed Lamprecht and similar nomologically oriented approaches to history in a widely read essay. He regarded as impermissible the demand that history had to be conducted along the lines of natural science, for that involved the depreciation of the role of individuals as mere instantiating instances of laws and of the importance of ideas (1902 [1910, 4–5]). Lamprecht's justified protest against Rankean history, which Meyer could have supported given his own way of doing history, came to grief in part over its perceived philosophical allegiances, just as earlier other advances towards cultural history like Eberhard Gothein's (who became Weber's successor in Heidelberg and supported Neurath's habilitation in 1917) had suffered attacks mainly from conservative political historians.[37] Meyer in turn was criticised by Weber, not to defend Lamprecht, but to correct a misunderstanding of the for Weber proper perspective on the historical sciences, namely, Rickert's Neokantianism.[38] Naturally, Weber recognised himself also as a social, indeed cultural historian, albeit not a materialist one as the thesis of his *Protestant Ethic and the Spirit of Protestantism* (1905) makes clear; his works on the history of antiquity nevertheless granted a prominent causal role to economic matters.

Now as someone who, concerned with the social question, turned to history, Neurath was soon faced by the same issues. Just as pursuit of cultural or social history was compatible with conflicting stances towards Neokantianism – Tönnies here serves as a proper contrast to Weber[39] – so such a pursuit did not necessarily endorse claims about historical laws.[40] Neurath's Salzburg report gave prominence to Tönnies' pronouncedly methodological understanding of historical materialism, that "one must always investigate economic conditions" (1903 [1998, 3]) and an anonymous notice of his own *Economic History of Antiquity* stated that it concerned mostly the history of "institutions" (1909).

Fittingly then, Neurath's review of Breysig's *Kulturgeschichte der Neuzeit* (1900–01) expressed sympathy for the new form of historiography that rejected the categorical distinction of natural science and history but kept a clear distance from its nomological wing. Neurath's criticised as "premature" Breysig's view that history consists in the succession of stages of development, an inevitable sequence that is exhibited by all peoples and all parts of a people, but whose stages were experienced by these peoples in very unequal parts (1904b, 166). Though congenial with its emphasis on the totality of social and cultural life within history, Breysig's view was decidedly at odds with the Historical School's emphasis on the individuality of a people's social and cultural development.

Neurath did not reject the idea of a stage theory out of hand, however. The second chapter of his 1906 dissertation "On the Conceptions in Antiquity of Trade, Commerce and Agriculture" presents a taxonomy of logically possible types of theories of history (called "ideal limit forms" (1906–07, 147)) and a brief sketch of their use up to the 19th century. There he simply identified linear, undulatory and periodic variants of the static and the evolutionary conceptions of history and a not further divided anarchic type and outlined how the stage theory might look according to the first two types. Three years later, in his *Economic History of Antiquity*, Neurath noted that historians of antiquity were affected by the dispute between the linear and the cyclical version of the stage theory of history.[41] He supported the view that antiquity possessed many economic formations that were comparable with those of modern times, but noted that such comparability of economic phenomena from different periods and cultures does not yet imply adherence to a cyclical stage conception of universal history. He concluded by distinguishing three periods of economic organisation in antiquity: an original administrative stage, a market economy, and a third which "returned to administrative measures and created new organisations" (Chapter 2). But was this a sequence which every people or culture had to pass through? Neurath noted that while in the East of the old Roman Empire the third stage had led to a bureaucratic system, in the West it had led to fragmentation and a return to smaller economic units. The prospects for a nomological universal history seem dim.[42]

So what did Neurath expect from history, indeed cultural history, when he started out in 1903? What historical facts other than large-scale laws of historical development might illumine the 'social question'?

Neurath is likely to have pointed to history instead as a large-scale social scientific laboratory. In history a variety of social and economic institutions have developed and thrived or perished under varying conditions. History can teach us, for instance, which institutions worked well under what conditions. Moreover, since Neurath had learnt from Mach's *The Science of Mechanics* that the history of scientific concepts held the key to their proper understanding, it was not difficult for him to extend this moral to the concepts of social science: this meant investigating the history of social science and social thought generally.

Yet one other point deserves mention here. Neurath names as "the founder of modern economic history of antiquity" the philologist August Boeckh, author of a study on the political economy of ancient Athens "distinguished especially by its comprehensive use of Greek inscriptions" (1909a, 4; cf. Chapter 1). Nowadays Boeckh, "who stressed the encyclopedic character of philology and was creative in the most different fields" (ibid.), is known as one of the important early figures of hermeneutics and a forerunner of Dilthey. Making interpretation the key to the historical world, Boeckh systematised earlier interpretive ideas in application to classical texts. "The aim of philology is not the writing of history; it is the re-cognition of the knowledge set down in the writing of history." (1886 [1968, 9]) Understanding a text requires relating its individuality, which derived from the intentions of the author, to the structure, which derived from the genre to which it belongs. Interpretation had to comprehend the "subjective" as well as the "objective conditions of the thing communicated" (ibid., 51). Neurath's appreciation of Boeckh's outstanding hermeneutic competence is particularly important in light of his later campaign against a supposedly distinctive category of hermeneutic understanding (*Verstehen*). It suggests that he took for granted the interpretive nature of much work in history and elsewhere and later only objected to its 'metaphysical' interpretation by opponents of the unity of science.

2.2 Studies in Ancient and Modern Economic History. Neurath's work until the beginning of World War I addresses all the aspects just described. His studies in ancient and modern economic history most clearly survey economic institutions in the laboratory of history. (More on these presently.) The two-volume anthology of the history of economic theory jointly edited with his wife was evidently meant to serve the need to gain an overview of the history of economics (Neurath and

Schapire-Neurath 1910). His doctoral dissertation, meanwhile, which Meyer lauded publically as “detailed and excellent” (1910, 121n), had provided an example of the history of learned and popular social thought by means of the study of ancient texts and their interpretation. Dealing with the interpretation of Circero’s *De officiis*, I. 42, from antiquity to the 19th century, Neurath argued that the idea expressed by Cicero, that the free citizen participating in the polity must be financially independent, was not held universally but reflected political interests in antiquity as much as now. He also noted that different conceptions of the course of history had been adopted at different times in response to different desiderata.[43] (Already the young Neurath explored what later would be called critique of ideology.)[44] As to the issues of historiography itself, there remained the question of how the singular events of history were to be comprehended: what regularities was it legitimate to assume and how far was it permitted to use contemporary categories in describing the past?

These issues animate Chapter 1, Neurath’s “Interest on Money in Antiquity”, which was also stoked by yet another historians’ dispute, namely, Meyer’s debate with Karl Bücher.[45] Bücher (1893) had claimed, following Rodbertus, that the economic organisation of antiquity was wholly one of the *oikos*, of autonomous extended households. Meyer objected, with reference to results by Weber (1891), and strongly opposed the underlying idea that the historical development of the Mediterranean peoples was a continuous ascent along the successive categories of antiquity, Middle Ages and modernity (*Neuzeit*): “Against this it cannot be stressed enough, that with the decline of antiquity the development begins anew and returns to primitive stages that once had been long superceded.” (1895 [1910, 89]) While Neurath sided with Meyer, he was aware of the danger of anachronism. “Today people try to trace the same economic tendencies in antiquity as in present times, without committing the mistake of projecting modern conditions into antiquity.” (Chapter 1)

Meyer’s approach to the history of antiquity clearly gives rise to the question intensely pursued by Max Weber: was there capitalism already in antiquity? Weber himself kept a carefully calibrated distance to both parties in the dispute between Meyer and Bücher.[46] In his writings on the topic he insisted that while capitalist forms of economic enterprise did develop in antiquity, they should not be fully equated with their modern forms.[47] This question is also at the forefront of Neurath’s concerns in Chapter 2, his *Economic History of Antiquity*, from which the Preface and Chapters 1 and 8 of the second edition are translated here (with some variants from the first and third editions given in the notes). Meyer approved Neurath's "excellent sketch of the development" in a footnote to the reprint of his 1895 lecture (1910, 90n). Again Neurath supported the view that the economic forms of antiquity are related in many ways to those of modern times, adding the for him soon characteristic twist that it is not clear whether historical development has discarded certain forms for ever.

One of the most important features of Neurath's history is his stress on what Meyer had designated the "system of Egyptian economy in kind" (1895 [1910, 93]), especially in the Concluding Overview of the 1st edition (here translated in fn. 19 of Chapter 2). By 1918, as the Preface of the 2nd edition documents, Neurath had pursued his idea that economies in kind are not phenomena strictly of the past in numerous publications. It may be noted also that Neurath presented a significantly different explanation for the decline of Rome from Weber. Whereas Neurath merely detailed, in Chapter 8, various aspects the "internal disintegration" of which Meyer had spoken (in the quotation taken as motto of the Concluding Overview), Weber had been more specific already in his writings on the topic from the 1890s, naming the decline of the market economy and the increase of economy in kind as causal factors for the decline. In his greatly expanded *Agrarian Sociology of Ancient Civilizations* of 1909, he added to this the increased bureaucratisation by means of which capitalism was "suffocated" by the Roman state.[48] Echoing the pessimistic conclusion of his *Protestant Ethic*, Weber wrote in his conclusion:

> Thus in all probability some day the bureaucratization of society will get the better of capitalism in our age as well as in antiquity. We too will then enjoy the benefits of bureaucratic "order" instead of the "anarchy" of free enterprise, and this order will essentially be the same as that which characterised the Roman Empire and – even more – the New Empire in Egypt and the Ptolemaic state . . . . This is not the place, however, to pursue such reflections. The long and continuous history of the Mediterranean-European civilization does not show either closed cycles or linear progress. Sometimes phenomena of ancient civilization have disappeared entirely and then come to light again in an altogether different world. In other respects, however, the cities of late antiquity, especially of the Hellenistic Near East, were the precursors of mediaeval industrial organisation, just as the manors of late antiquity were precursors of the estates of medieaval agriculture. (1909 [1988, 365–366, transl. altered])

Comparisons with Neurath's Concluding Overview of 1909 and his Preface of 1918 invite themselves.[49] Except for the time-frame within which they conceive of the developments, he and Weber seem to differ mainly in how they evaluate them. Ten years later, as character witness at Neurath's trial for his involvement in the Munich soviet republic, Weber attested to the fact that "his work in economic history of antiquity was always held in high esteem", but in a letter a further three months on Weber also called his schemes for planned economies an "amateurish, objectively absolutely irresponsible foolishness that could discredit 'socialism', indeed for a hundred years, tearing everything that could be created now into the abyss of a stupid reaction".[50] Unlike Neurath, Weber had little sympathy for in-kind economies.

"War Economy", included as Chapter 3, is the first of a long series of papers on the subject the creation of which is credited to him.[51] Being neither pacifist nor war-monger, Neurath's "technical" attitude is fully displayed: the desirability or undesirability of war is no issue here, only its effects on a national economy's productivity. While the only other piece of related work available so far in translation, "The Theory of War Economy as a Separate Discipline" (1913e [1973, 125–130]), argues for the thesis announced in the title on more metatheoretical grounds, "War Economy" also presents the historical material and wealth of financial data which Neurath adduced in support of his contention that economics in war deserves a special field of study.[52] The paper is remarkable in virtually predicting forms of economic organisation that were realised during World War I – and misjudging the tendency towards "humane" warfare, considering the Battle of the Somme.[53]

In war Neurath saw emerging aspects of administrative economy that addressed the failings of free market economies. Forms of organising production and distribution were rediscovered which in times of peace had been superceded and were forgotten. Thus questions of profitability gave way to questions of productivity and monetary exchanges were replaced by barter on the larger scale, gradually introducing an economy in kind. Neurath's arguments were not socialist, for the principle of full employment here follows from the principle of full utilisation of all available resources. Parts of his argumentation have been judged advanced for his day, given its concern with the state as a directive agent, especially his discussion of war bonds and the effects of inflationary increase of money supply.[54] Neurath proposed reorganising the money and credit-order in order to uphold the liquidity of the firms in what remained of a nation's internal market, especially their preparedness to do business for the military, and to cover the costs of warfare for the state. But this new form of administrative economy not only required a power base from which to be implemented (a question which war economics could take for granted and which was not discussed), but it also required new forms of organisation and representation in order to implement the new system of planning and accounting and handle the new data required. While the state was to institute a system of "unredeemable giro money" for internal clearing purposes and organise international trade by agreements on exchanges in kind, it also needed a system that represents real income, an "inventory of real incomes" for planning purposes. (All these are features of his later socialisation schemes.)

Neurath pursued war economics not only by historical but also empirical research. In 1912 he received a stipend from the Carnegie Endowment for International Peace in order to investigate the economic and social conditions of Balkan states and the changes caused by the war there.[55] The first Balkan war began that year in response to unrest in the European territory of Turkey and ended the following year with Bulgaria, Serbia, Greece and Montenegro triumphing over Turkey. Disputes over the distribution of the former Turkish territory prompted a second war between the former allies in which Bulgaria lost Macedonia to Serbia and Greece. Neurath made two extensive journeys which resulted in a series of newspaper and journal articles and related publications. Chapter 4, "Serbia's Success in the Balkan War" gives a fairly comprehensive report of Serbia during the first Balkan war, contradicting many then common assumptions about Austria-Hungary's Southern neighbour. Of interest is the broad sweep of Neurath's analysis incorporating strictly economic and political points of view as well as considerations pertaining to the sociology of the different ethnicities and religions involved. (In light of events after the recent break-up of the Yugoslavian federation, Neurath's report has remained eerily topical.)[56]

It is not the case, however, that Neurath thought that a more efficient economic order would have to emerge only through war, as Chapter 5 documents. In line with a trend of thought shared by revisionists like Eduard Bernstein and orthodox Marxists like Karl Kautsky, Neurath held that the development of the capitalist order towards ever bigger trusts and cartels brought into existence forms of economic organisation that foreshadowed post-capitalist ones. Chapter 5, “State Cartels and State Trusts as Organisational Forms of the Future” of 1910, draws attention to state measures that regiment both firms and labour according to an overall economic strategy without expropriation, capitalist firms having increased in complexity and decreased in numbers while facing an improved organisation of labour. Unlike Rudolf Hilferding’s far more pessimistic assessment of the imperialist trend inherent in this latest stage in the development of capitalism, “finance capital”, Neurath promoted these state-led measures as, in effect, steps towards the implementation of his father’s “pan-cartellism”, the reorganisation of entire branches of industry under the direction of the state under the demand for the full utilisation of given resources.[57]

Soon Neurath drew far-reaching conclusions from his studies of ancient and modern history, even from the events as they unfolded around him. During World War I he served first at the front, then at the War Ministry in Vienna concerned with organisational issues of army provisions: war economy observed up close from an ordnance perspective. Inevitably Neurath got involved in the discussion of what would be the consequences of the ‘militarisation’ of the German economy for the future peace economy, the first phase of which he, like other economists and politicians at the time, called the “transitional economy”. Schematically three types of positions were taken up by various theorists. Apart from those who judged the far-reaching state-interventions characteristic of war economies an abberration of economic life only sustainable under war conditions, those who saw portents of a new and different order split into two: those who saw in it a means of the renewal of the German *Volk* and those who saw in it the beginnings of international socialism. Neurath became one of the representatives of the third group.[58]

Chapter 6, “The Economic Order of the Future and Economic Science” of 1917, outlines what the immediate peacetime economy may gain from the experiences of war economy. Addressing non-specialists, Neurath stressed the need to develop calculational tools for the new economy, the importance of flexible organisational forms and transparency in decision-making. The important question Neurath left unaddressed was to what extent it could be neglected that war constituted a state of emergency.[59] It managed to exact compliance with an economic plan from the subjects not known to be exactable in peacetime.[60] Neurath seems to have thought that the material advantage gained through the transitional economy would secure the allegiance of the populace. But note that Neurath also outlined the possibility of awarding to smaller groups a measure of economic autonomy within the greater whole – precisely the offer he made to the anarchist section in Munich two years later.[61] (Note also that in another piece from the same year, translated as "The Converse Taylor System" (1917d [1973, 130–135]), Neurath observed that a then new trend in the capitalist organisation of the labour process can be turned to the advantage of the workers.)

2.3 Contributions to the Methoden- and Werturteilsstreit. As Neurath turned from ancient to modern economic history and began to develop his war economics around 1910, he paid increasing attention to methodological questions. The papers in Part 2 are all of this nature, reflecting issues that affect the social sciences in general and economics in particular. The first three selections show Neurath still very much engaged with the philosophy of social science of his day; the latter two show him engaged in drawing general conclusions from his investigations in war economics.

Chapter 7, "On the Theory of Social Science", represents Neurath's first major statement in the philosophy of science. This wide-ranging review may seem to be only loosely related to the book under review, but that would be to underestimate the scope of the latter. Schmoller once called Wundt "the leading natural scientist among today's philosophers" (1911, 491) and the *Logik* constituted the summation of Wundt's philosophy of science. First published as *Erkenntnislehre* in 1880 and *Methodenlehre* in 1883, the two volumes were republished as *Logik* in a revised second edition in 1893 and further revised and expanded for the three-volume third edition of 1906–08. Neurath's review is favourable only in the most general terms, in all details he pursued avenues of thought contrary to the author under discussion. In effect, Neurath took the occasion to present an alternative conception of the theory of social science. It has repeatedly been noted that Neurath here sets out a general philosophical framework for social science: the French conventionalists Poincaré and Duhem figure strongly and many of Neurath's later preoccupations, including that of unified science, find an early expression.[62]

Particularly important are the brief and programmatic remarks concerning the nature of economics; the echoes of the *Werturteils-* and *Methodenstreit* deserve amplification. Back in Vienna from his studies in Berlin Neurath undertook post-doctoral studies on the methodology of Thünen and in the theory of value with Friedrich von Wieser and Eugen von Böhm-Bawerk.[63] This suggests that Neurath was concerned to bridge the contrast between the Historical and the Austrian Schools. About that time Neurath also published a textbook of economics for the upper classes of business schools and included a short section about the parties involved in the *Methodenstreit*.

> The Historical School thus ended up regarding the historical investigation of economic conditions as a main goal of political economy in general. Whether an institution was useful or not was to be decided by specific historical research. Against these teachings a theoretical approach emerged which was developed particularly by the Austrian School. It was pointed out that historical research was very important, but that it was possible to gain knowledge independently of it on the basis of in essence theoretical considerations. The point of view was adopted that while everything was related to everything else, one neverthless was able to treat certain fields of investigation in isolation. In particular the theory of value was viewed as the basis for price theory. (1910e, 184–5)

There is nothing remarkable in Neurath's description so far besides his concern to make the *Methodenstreit* appear less acrimonious and personal than it was. What is interesting, however, is what Neurath considered to be the state of play of that debate in his own time. Following a gloss on the conception of marginal utility and mention of its advocates Menger, Böhm-Bawerk, Sax, Wieser and Zuckerkandl, he wrote:

> Other authors too, e.g. Mataja [and] the theorist of social policy Philippovich, have taken over much of the teachings of the Austrian School. Some authors stand midway between the historical and the theoretical approach, like e.g. Adolf Wagner, the political economist known for his work on the theory of finance. The problems of the Historical School, which concerned the connexions between economic, social and cultural phenomena have been pursued by men who deal with such questions exclusively: these are the sociologists. The purely theoretical considerations have currently receeded into the background, replaced in the foreground by questions of economic organisation. It is practical problems that are of particular interest today, e.g. the problem of an international currency, monetary theory, the issue of social insurance and its extension, but particularly the labour question. (Ibid., 185)

Again we can hardly call this an incendiary analysis. His very even-handedness, however, seems to have made things difficult for Neurath. The passage just cited is taken from the 1910 edition of his textbook approbated by the k. k. Ministerium für Kultus und Unterricht on

January 26, 1911.[64] This officially approbated version of his book was preceeded by a slightly different one from the same publisher one year earlier and some four pages longer overall. Amongst the passages missing from the 1910 version were ones dealing with the policies of different parties in Austria, for instance, passages specifying a recent moderation of the Social-Democratic Party or noting anti-semitism as a key of the recent successes of the Christian-Socialist Party (1909e, 191 and 193). Yet also missing from the 1910 version of the textbook was the following continuation of the second sentence in the last block quote above:

> . . . and today the opposition, which once existed partly due to personal conflicts, practically no longer obtains. One can see this from the fact that the Austrian School counts many amongst its younger members, who are close to the Historical School, and the Historical School many who are students of purely theoretical questions. All the same, the opposition did bring with it the advantage that a number of questions were discussed extensively. (Ibid., 188)

Whereas for Weber the positions at war in the *Methodenstreit* appeared irreconcilable still five years earlier (1904 [1949, 106–7]), only five years later Joseph Schumpeter voiced an opinion broadly consonant with Neurath's in his early study of the development of economic doctrines (1914, 124), a view retained still in his monumental and only posthumously published *History of Economic Analysis* (1954 [1986, 813–815]). Unlike in the case of the passages on party-political questions, it seems most curious that this passage from Neurath's textbook was deleted: was it official Austro-Hungarian educational policy to perpetuate the *Methodenstreit*?

It is clear, in any case, that Neurath counted himself amongst those for whom the contrast of the Historical and the Austrian School had become a pseudo-problem. This is confirmed by a contemporary essay published in Böhm-Bawerk's *Zeitschrift für Volkswirtschaft, Sozialpolitik und Verwaltung* where he noted: "Historical analyses often provide occasion for more general considerations, while theoretical research promotes the comprehension of organisational forms and induces historians to focus more closely on certain details. There is no reason to think of historical and theoretical research as opposites, it would not even be practical to conceive of each in isolation from the other." (1911 [1998, I, 517]) Historical and theoretical research had to be combined for economics to achieve progress – and they were combined in Neurath's own version of comparative economics, the basic principles of which found their first formulation in Chapter 7 and detailed elaboration in Chapter 10.

Given his concerns and professional ambitions, it comes as no surprise to find Neurath as a member of the Social Policy Association in the years before World War I. The two short pieces here translated in Chapter 8 under the heading "Interventions in Discussions of the Social Policy Association" are his documented contributions to the Association's debate about value judgements. The first is from its 1909 conference in Vienna, the second from an internal, unpublished document that served as basis for an unminuted discussion of a special meeting of the main committee of the Association on 5 January 1914 in Berlin.[65] Given Neurath's increasing concern with the full utilisation of the productive resources of an economy, the topic of the *Werturteilstreit* possessed immediate relevance. Was it proper to engage science for this or any other socio-political agenda? Moreover, could science even furnish the relevant concepts with which to pursue this agenda? The latter question was raised with some vehemence by Max Weber and Werner Sombart in response to Eugen von Philippovich's pre-circulated paper and his conference lecture on the "The Productivity of a National Economy" already in Vienna in 1909.

Philippovich defined this kind of productivity, in contradistinction to the merely "technical" concept of productivity, as "the capacity to bring about welfare" (1910, 340). Sombart argued that this concept of productivity was to be jettisoned for it inevitably carried value-connotations that prevented objective agreement: preference for competing notions of welfare resembled preference for "brunettes over blondes" (1910, 567, 572). Weber agreed, noting that the concepts 'national wealth' and 'people's welfare' (*Volkswohlstand*) "contain all the ethics in the world" (1910, 581); empirical science does not deal in what "should be the case", it only determines the means to given ends and their consequences, but never the ends themselves: "there are no ideals that science can prove" (1910, 585). Various speakers set out to defend Philippovich's concerns as justified. Characteristically, Neurath's intervention is slightly at odds with the preceeding ones. He raised the question of just how the real income of a population is to be determined, arguing that all aspects of material and intellectual welfare ought to be considered, including the esteem in which certain professions are held – only to finally ask what contribution the money order itself made to productivity so understood.

Clearly, Neurath supported the position of Philippovich who closed the discussion by stressing his "conviction" that economic science had the task to evaluate "the role of the economy for the whole life of people so as to find a basis from which to influence it" (1910, 615). But did he fall foul therefore of Weber's strictures on value freedom in science, as he had laid them out some years earlier (1904)? It is to this question that his contribution to the internal discussion document of 1913 was addressed. Members were asked to comment on "1. the role of moral value judgements in scientific economics; 2. the relation between practical evaluations and developmental tendencies; 3. how economic and socio-political viewpoints are to be characterised; 4. the relation between the general methodological principles and the specific requirements of academic education." (Boese 1939, 145) As the title of his contribution indicates, Neurath addressed only the first of these issues (unlike Weber 1913 [1918]). He claimed that while moral valuations express and are grounded in the pleasure or displeasure felt by agents about the matters they evaluate, economics deals with the pleasures and displeasures felt by individuals or groups under the heading of wealth. Value judgements enter economics on two occasions: when the pleasures or displeasures of individuals or groups are considered or when the systems that bring about pleasure or displeasure are considered. Thus it became possible in principle, on the one hand, to take account of moral evaluations in economics indirectly (if a suitable way of measuring the pleasures expressed by these evaluations could be found); on the other hand, economic orders themselves became amenable to moral evaluation, but only relative to certain desiderata which economics itself did not determine. Neurath did not say so explicitly, but it is clear that he agreed with Weber that the moral measure itself is not provided by economics which only investigates means to given ends.

Importantly, Neurath's definition of value judgements leaves no place for "objective judgements" in the very sense in which Schmoller reaffirmed them as available for economists and policy experts in an encyclopedia article in which he responded to the discussions in Vienna (1911, 493) and against which Weber's renewed intervention polemicised (1913 [1918]). As already in his review of Wundt, Neurath thus sided with Weber against Schmoller in the *Werturteilsstreit* – albeit without for these reasons refraining from considering the very issues of productivity which Philippovich had discussed. Neither party will have been pleased. Schmoller is unlikely to have appreciated that what for him was "the highest motive that ever moves a human heart, the world of ethical ideals" (1911, 497) was equated by Neurath with toothaches (Chapter 7). Philippovich meanwhile stood accused of confusing the causal and the normative: that the effect of institutions, say, on the wealth (however understood) of a given group constitutes the proper object of economics does not make it the inherent purpose of economics to increase wealth. "Whether we approve of 'wealth' has nothing to do with the investigation of the causal connexions involved." (Neurath 1911 [1998 (I), 501]) The fact-value distinction which Philippovich sought to conflate was reaffirmed by Neurath as the dichotemy of normative and causal-descriptive questions. The requirement of objectivity limited the authority of science to descriptive inquiry.

Weber and Sombart, in turn, most likely remained unimpressed by the fact that the value-laden inquiries into 'productivity of a national economy' – inquiries they meant to prohibit – were still being pursued, albeit now safeguarded by conditional and non-binding assumptions that fixed the purpose relative to which economic institutions were to be assessed as means. Neurath endorsed Philippovich's way of phrasing the problem: "What are the consequences for the provision of goods to people that ultimately follow from the interaction of the individuals economies or households, from the entire free and social organisation of a nation's economy?" (Philippovich 1910, 610 quoted at Neurath 1911 [1998, I, 501]). If it were objected that Neurath too investigated the causes of wealth for ultimately ameliorative purposes, his answer would be that this does not make the causal inquiry itself any less scientific. "The content of theoretical economics is not 'ethicised' if one uses its results to respond to problems which are selected according to criteria external to theoretical economics itself, just as chemistry is not 'hygenicised' if one investigates how a certain poison can be destroyed." (Ibid., 503–4). Neurath, in other words, was prepared to make the most of the phenomenon of value-relevance of purely descriptive inquiries. He realised that, short of arrogating to oneself philosophical insight into unconditional normative demands, Weber's strictures still allowed for about as much engaged science as seemed demanded by the problems at hand.

With these metatheoretical matters cleared up more to his satisfaction, Neurath worked mainly on issues of war economy throughout World War I and selected them for his public examination lecture for his habilitation in political economy at the University of Heidelberg in

July 1917.[66] Chapter 9, "Economy in Kind, Calculation in Kind and War Economics" of 1916, provides a summing up of what has been achieved on this theoretical front. Neurath now made the sharp distinction between in-kind economy as an organisational form and in-kind calculus as a way of determining economic decisions, noting the advances made towards the former during the World War and speculating on its further development, hitting on first formulations of what his later socialisation plans will return to. The final sentence highlights the particular point of Neurath's combination of abstract theoretical and descriptive historical considerations: "Theory best serves practice when it is unrealistic in a certain sense: when it is ahead of reality, not just following it." Only abstract theory allowed for the consideration of forms of economic organisation possible in principle but historically as yet unrealised. At this point the theory outlined in Chapter 9 meets the organisational demands envisaged in Chapter 6.

Chapter 10, "The Conceptual Structure of Economics and its Foundation" of 1917, is given over entirely to the conceptual problems of economics in kind. Neurath's combination of doctrinal elements of the Historical and the Austrian Schools only succeeded, indeed, only became intelligible, given his campaign for the reorientation of the economic *explanandum*, as he had already urged in 1910. Whereas the Historical School had neglected theory, Neurath held, the Austrian School had over-emphasised price theory; instead, one had to move towards a theory of "real income" (1911 [1998, I, 496]). His point was "to investigate the significance of different forms of organisation for wealth" (ibid., 495). Such comparative work could not rely on the conceptual tools of traditional economics. Thus Neurath here developed in a systematic fashion a family of concepts centering on that of the condition of life and discussed in greater detail than anywhere else ways of assessing their denotata in the absence of cardinal measures. Though he rarely referred back to it, this paper may be called foundational for both his economics in kind and his later standard-of-living studies (compare Chapters 11–14 and 17). It also represents the culmination of a series of studies in the development of a merely ordinally comparative calculus of utilities, beginnings of which we witnessed in Chapter 7 and one landmark result of which has already been translated as "The Problem of the Pleasure Maximum" (1912 [1973, 113–122]).[67] In fact, calling the object of Neurath's labour a calculus of utilities is misleading in as much as the conceptual tools developed represent the skeleton of a thoroughly de-psychologised theory of goods transfers. Moreover, this theory was mainly a representational system that did not pre- or proscribe any transfers. Instead, by allowing for economic transactions to be embedded in a great variety of social institutions, it was intended for the comparison of different socio-economic orders in terms of their efficiency in delivering specifiable material benefits. Whatever his 1909 intervention may have meant in the Verein für Sozialpolitik, his 1917 reconceptualisations appear to have placed him squarely beyond the pale of the dominant economic theory of his day.[68]

2.4 Neurath and Then-Contemporary Economic Theory. We are led to ask: in what relation, if any, did Neurath's programme stand to the economic research of his day? What command of the literature does his work suggest? And what were the objectives relative to that body of doctrine that he set himself?

First, Neurath was exceptionally well read. The anthology of classical texts in economics which he edited with Anna Schapire-Neurath in 1910 features select passages from Plato, Aristotle, Oresmius, Thomas Morus, Becher, Quesnay, Turgot, Galiani, Hume, Steuart, Adam Smith, Malthus, Ricardo, Sismondi, Thünen, List, Henry Carey, Roscher, Proudhon, Rodbertus, Gossen, John Stuart Mill, Marx, Vogelsang, Henry George. In addition, references in Chapter 7 and Neurath's (1911) betoken familiarity with the main economic authors of his day. These include not only the forerunners and founders of the Historical and the Austrian schools (Roscher, Knies and Gossen, Menger) and their then leading stalwarts (Schmoller, Lujo Brentano, Wagner and Wieser, Böhm-Bawerk, Sax) as well as the protagonist of value-free social science and prominent opponents (Weber, Philippovich), alongside the neoclassical pioneers Jevons and Walras and the synthesist Marshall and standard authors on money like Knapp, but also authors who at the time had not yet reached the level of ubiquity in economic discussion they did reach, at least for a while, at a later date: Othmar Spann, Gustav Cassel, Ludwig von Mises, Joseph Schumpeter, Vilfredo Pareto.[69] Even though Neurath did end up in a theoretical no man's land, it was not for want of orientation in the discipline.[70]

Of particular interest for us right now are the last two theorists mentioned, Schumpeter and Pareto, whose first and second main works respectively were studied by Neurath soon after their publication (Schumpeter 1908, Pareto 1909). Like Cassel, they were equilibrium theorists in the tradition initiated by Walras. What did Neurath appreciate in their work and what did he reject and why? As is clear from his remarks in Chapter 7, Neurath rejected the assumptions constitutive of *homo economicus* because of the a priori restrictions they put on courses of action appropriately considered in economics. One may have doubts whether Neurath was correct to see marginal utility theory as based on psychology – members of the Austrian School following Menger other than Wieser would have rejected any suggestion of empirical modelling while Schumpeter and Pareto would only have credited it with heuristic value – but it does seem correct that the concentration on the *homo economicus* was central to the elevation of price theory into the centre of economics and the virtual elimination of concerns with real income. Conversely, like the Austrian advocates of demand and supply economics, Pareto and Schumpeter were suspicious of attempts like Neurath's to define and develop a different type of economic inquiry: didn't he understand that economic behaviour just was market behaviour?

It is important to note therefore that Neurath deviated quite willfully from the orthodoxy. Seeking to delineate the object of his economics, he defined his subject matter in Aristotelian terms: "wealth" (Chapters 7 and 10). This Aristotelian concern with wealth he interpreted in terms opposite to Schumpeter, not as betokening 'chrematics' leading to price theory, but as dealing with the means for well-being, real income; not as denoting exchange but use value. Consistently so therefore, Neurath explicitly opposed Schumpeter's attempt to reduce the scope of economics to the theory of prices and market equilibrium.[71] On this point, of course, Schumpeter stood for 'modern economics' as such, whatever his own disagreements with the Austrian school.[72] Yet Neurath and Schumpeter were not wholly at odds and in one important respect instead were in significant agreement. Both espoused a similar economic methodology by embracing an empiricist instrumentalism with regard to theoretical concepts and in this they were opposed to the apriorist realism of the Austrians.[73] Likewise, as is evident from comparison with the introductory chapter of Pareto's *Manuel* (1909), there obtained between Neurath and Pareto disagreement concerning the *homo economicus* and some agreement concerning empiricist methodology.

Now given his practical concern with wealth one might expect Neurath to have been sympathetic to a kind of utilitarian calculus. Much of his long 1911 paper on value theory was dedicated to devising means of representing wealth and transfers of goods using only comparative, not cardinal measures. This already meant that the comparative utilities of some allocations of goods to the same person were not determinable, let alone the comparative utility of allocations to different persons. In the subsequent "Problem of the Pleasure Maximum", Neurath discussed the problems of utility scales further and drew more far-reaching consequences.[74] One of these is that since the notion of a pleasure maximum does not find application in some important cases, a utilitarian calculus cannot be made the basis of a general social theory. In then demanding that the solution of the maximisation problem requires what nowadays is called an 'arbiter', it has been noted that Neurath anticipated the response to similar problems developed much later in game, social choice and bargaining theory. If all interpersonal utility comparisons were disallowed, the impossibility of calculating social pleasure maxima would have followed immediately, of course. But Neurath did not go so far and allowed for the possibility of certain types of interpersonal comparisons of utility. Having previously noted that "a unitary measure is not a necessary condition for comparability" (1911 [1998, I, 473]), he based his anti-utilitarian conclusion only on the unavailability of cardinal utility measures.

With this rejection of cardinal utility, of course, Neurath joined forces with Pareto and the so-called ordinalist revolution in economics.[75] Accordingly the question arises not only whether Neurath's rejection is owed to Pareto, but, more importantly, in what relationship, if any, to the ordinalist revolution this rejection places him. New research suggests that Pareto did not reject the concept of cardinal utility altogether.[76] Of course, Pareto showed that "the entire theory of economic equlibrium is independent of (economic) utility" and only requires indifference curves, which he took to rest on "fact[s] of experience, that is, on the determination of the quantities of goods which constitute combinations between which the individual is indifferent" (1909 [1971, 393 and 113]). But he also argued specifically that cardinality can only be computed – that is, that the value is unambiguous or unique up to linear transformation – if it can be assumed that the utility of a unit of a good is dependent only on the quantity of that good and nothing else (ibid., 112 and 395–396). For Pareto, not only was cardinal utility dispensible for economics as a whole, but in itself it was calculable only if no complementary goods were involved.

As for the origin of his own rejection of cardinal utility, Neurath provided no references, but his reasoning suggest that he was influenced in part by considerations from psycho-physics: "In order that pleasures, and not only pleasure intervals, should be measurable quantities, one would have to be able to fix a zero point." (1912 [1973, 117]) Or, as he put it in Chapter 10 with reference to Fechner's method of psycho-physical measurement, "all we can do is unambiguously correlate a series of mutually comparable sensations and a series of measurable stimuli" (cf. Fechner (1860 [1966, 46–58])). Without an independent fixed point zero we are unable to determine a unit measuring in absolute terms the quantity of pleasure involved, as intended by cardinal utility. In addition and on separate grounds, Neurath also rejected the idea of an additive utility function, essential to the idea of cardinal utility: "it is only under all sorts of provisos that one can speak of independent pleasures experienced by an individual. Much more often we have the case that one cannot speak of (Aa) + (Ab) at all, but only of (A(a + b))." (1912 [1973, 120]) Neurath's rejection of cardinal utility sprang from considerations concerning both psycho-physics and the complementarity of economic goods. Despite their outward agreement, the difference in Pareto's and Neurath's argumentation beyond their concern with complementarity is apparent.

Still, his anti-cardinalist stance did put Neurath into the small vanguard of economic theorist wishing to do without cardinal utility before World War I. But this does not render Neurath an early pioneer of the ordinalist revolution of the 1930s. The reason is that the ordinalist revolution did not simply consist in the rejection of classical utilitariani-anism with its notion of additive utility functions; in addition, it also forwarded an interpretation of consumers' indifference curves as no longer denoting a subjective state but as standing for a system of preferences which itself was interpreted only instrumentally.[77] The theory of revealed preferences abstracted from any psychological realism: that consumers' behaviour accorded with the predictions of economic theory was only taken to show that they behaved as if their system of preferences was consistent. Now such an operationalist attitude may be thought appropriate for logical empiricists like Neurath, but whatever his views on this matter in the 1940s (which are not documented), in the 1910s he did not agree with what became the tenets of the later theory of revealed preferences. This is evidenced already by his traditional use of "pleasure" for utility. Moreover, his unwillingness to reject interpersonal utility comparisons altogether sits very uneasily with the ordinalists who devised or adopted various ruses (among them the methods of Pareto-superiority and -optimality) that allowed them to develop a form of welfare economics which made no use of such interpersonal comparisons at all.[78]

Significantly, Neurath's Aristotelian conception of economics also relates to the older English tradition including Pigou that was swept away by the ordinalist revolution, the "material welfare school".[79] Mainly remembered for their assumption of measurable utility, theorists of this school defined economics not in terms of the management of scarce resources and held it to centre on price theory (like Robbins and the Austrians and Walrasians), but instead "were concerned with deriving economic conditions that would bring about improvement of welfare". To do so, they called on interpersonal comparisons of utility which they thought of "in terms of comparing the well-being of people" (Cooter and Rappoport 1984, 514–516). Unlike these English theorists, of course, Neurath was confronted by the problem of effecting interpersonal comparisons of well-being in the absence of cardinal utility.

Caught this between a rock and a hard place, Neurath's distinction in Chapter 10 between a person's quality of life and their condition of life becomes particularly valuable: by developing a suitable set of indicators (conditions of life), comparative reasoning about welfare (quality of life) became possible even though no 'utils' remained to be counted. It may be added that it seems that in later years Neurath could even have switched without loss from talk of pleasures to talk of preferences, though he is unlikely to have taken a reductive, purely operationalist attitude towards them. The important thing was that intersubjectively available criteria for choice were at hand – albeit not criteria that reduced to a unitary measure. In-kind calculation was the price Neurath had to pay for occupying his unusual theoretical niche: an early sceptic of cardinal utility who remained a material welfare theorist at heart.

While Neurath rejected classical utilitarianism on the grounds that its notion of a pleasure maximum was defective, he did not therefore renounce consequentialist reasoning nor did he think that this put an end to any form of economic reasoning about welfare. What was required instead was judgement. It is difficult to overemphasize this point: the required optimum measure was simply incomputable in simple algorithmic fashion. But this did not counsel desparation: there remained plenty of use for economics in laying out, in as much detail as possible, the choice situation one was faced with, for such information could make a difference to an agent in possession of it. It was the task of finding types of reliable indicators for incommensurable criteria in situations of socio-political choice that the reconceptualisation of the basic categories of economics in Chapter 10 was meant to further.[80]

3 Part 3: Neurath's Writings on Socialisation Theory. Chapters 11 through 14 outline and discuss Neurath's highly controversial socialisation plans. The much needed contextualisation is unlikely to dispel all incredulity on part of the reader, but different strands in Neurath's reasoning and its reception must be distinguished.

3.1 The Socialisation Debate in Post-War Germany. The end of World War I produced a sad spectacle in defeated Germany. As the various deceptions of the old regime lay brutally exposed and the revolution got underway, the left was divided, anarchists excluded, into two parties: the Majority Social Democrats (who had supported the war) and the Independent Social Democrats (who had come to oppose it), the latter still containing the soon-to-split Spartacists or Communists (who rejected "bourgeois democracy").[81] Moreover, well into the existence of the first ever German republic but already in the very period of transition – when, after the *de facto* abdication of the Kaiser on 9 November 1918 and the emergence of a Worker's and Soldier's Council with as yet undefined powers, the traditional office of chancellorship was occupied by the Majority Social Democrat Friedrich Ebert – all attempts at far-reaching, even mid-range reforms were undermined by the leadership of the Majority Social Democrats who seemed concerned to preserve as much of the old order as possible.[82] (It is somewhat ironic therefore that around this time Neurath was persuaded to join precisely this party.)[83] The coincidence of military defeat, constitutional crisis of state and the collapse of the economic order, evident to all in November 1918, passed without consequences for the bourgeoisie who had reasserted its dominance in political decision-making by mid-1919. By then, pressure for the 'socialisation' of the economy – a slogan with fairly flexible meaning: enblematic for the revolutionary cause but soon highjacked by the government – previously often supported by strikes, had begun to subside, partly in response to brutal military suppression. It is indicative that the post-election Social Democratic government merely passed a purely declarative law without any consequence in March 1919 and rejected not only the socialisation scheme devised by its own minister for the economy Rudolf Wissell and his assistant Wichard von Moellendorff, but also the in part more moderate recommendations by the Socialisation Commission, which had been convened by the earlier provisional government in November 1918 under pressure from the council movement and directed to work out comprehensive plans for the reorganisation of the economy.[84]

The events in Bavaria – where the declaration of a republic on 8 November 1918 preceded the overthrow of the Kaiser in Berlin – were subject to and part of this process of restauration, its final phase marking one of its tragic peaks.[85] What initially distinguished the Bavarian revolution was that the leadership of the provisional government lay with the Independent Socialist Kurt Eisner, a well-known opponent of the war and internationalist and an idealistic politician who attracted artists and intellectuals to the cause of creating a new society. Eisner's unwillingness to compromise democratic principles even contributed to the restauration: left expressly uncensored, the press (even the organs of the Majority Social Democrats) consistently falsified reports about his policies and person.[86] After his murder on 21 February 1919 – on the way to offer his resignation to the newly constituted parliament – the situation became ever more unstable, ultimately leading to the declaration and violent suppression of two short-lived soviet republics. Relatively independent observers like the painter Paul Klee, who had joined a committee of revolutionary artists only in April, spoke of this end as a "tragedy", "the collapse of a fundamentally ethical movement".[87]

In the Bavarian revolution Neurath saw a chance for practical application of ideas he had been developing over the last decade. Having worked on socialisation plans for Saxony with what came to be known as the Kranold-Neurath-Schumann programme, he presented his ideas to Eisner and his minister of finance, Edgar Jaffé, as well as to the Munich workers' council on 23 and 25 January 1919, respectively.[88] Initially returned to Saxony, Neurath was recalled and appointed "socialisation commissioner" on March 25, in which office he remained as an "unpolitical official" throughout the two short-lived soviet republics. Neurath's talk of January 25, "The Character and Course of Socialisation" (1919d [1973, 135–150]), and excerpts of his retrospective account "Experiences of Socialisation in Bavaria" (1919d [1973, 18–28]) are already available in translation. Little needs to be added here concerning the events at issue – except to stress that Neurath's 'utopianism' managed to land him in the crossfire of opponents from the right and the left.[89]

As it happens, part of that opposition was based on a misunderstanding of Neurath's quasi-technical definition of 'utopian'. All along, Neurath's concern with investigations of the relation between economic institutions and real income was comparative and practical and thereby utopian only in the sense specified in a short essay written for the conclusion of Neurath's 1919 collection, translated as "Utopia as a Social Engineer's Construction" (1919f [1973, 150–156]): "It is quite unjustifiable to describe utopias as accounts of impossible happenings . . . It is much more sensible to describe as utopias all orders of life which exist only in thought and image but not in reality . . . Utopias could thus be set alongside the constructions of engineers, and one might with full justice call them the constructions of social engineers." (Ibid., 151) The aim was the design of economic alternatives informed by historical and theoretical research. Taken in this social engineering sense, there was nothing revelatory or other-worldy about Neurath's conception of utopia, unlike Gustav Landauer's, a fellow revolutionary in Munich.[90] Neurath's utopias were possibilities realised only in thought, Neurath's utopianism was the conceptual exploration of socio-technical possibilities.[91]

Neurath's conception of total socialisation extended Popper-Lynkeus' idea of a *Allgemeine Nährpflicht* (Universal Nutrition Army Service) and Ballod-Atlanticus' similar conception of a *Sozialstaat* (Social State) and joined them in what could be called a tradition of scientific utopianism. Its central tenet was well characterised by the Austrian socialist Anton Menger: "We are confronted with an unscientific utopia only when the invention of the future social system presupposes that after the introduction of the new social order the behaviour of people is guided by very different motives or that the causal nexus would operate differently than it does in the current order." (1886, 106)[92] As long as this restriction was observed, no stigma attached to the design of models of alternative socio-economic organisations according to non-Marxist socialists. (At what price the actual constructions of Popper-Lynkeus and Ballod-Atlanticus, often cited by Neurath, indeed Neurath's own, avoid Anton Menger's charge not to presuppose a change in 'human nature' must remain open here.)

In another sense, of course, opponents objected that Neurath's socialisation plans were 'utopian' in that they were unworkable. As a point of historical fact this was correct, but was this inevitable? Was the failure a consequence of local tactical-political mistakes, did it spring from a general overestimation of the readiness of the population of a developed capitalist country to undergo, even under duress, radical experiment, or was the failure principled in that a contradictory theory was presupposed?[93] We must guard against taking Neurath's involvement and proposals to be more extraordinary than they were already. As noted, with the collapse of the respective empires, forceful though often vague demands for 'socialisation' became the order of the day not only in Germany but also Austria and Hungary. Given that according to Marxist theory it was countries like Germany that were ripe for a socialism (not Russia), it is no suprise that not only 'proletarian socialists' but also many academic 'socialists of the chair' got involved in these debates. The belief that, in some sense, "socialism stands at the door" (Chapter 6) was not uncommon among social scientists.

Roughly, in early 1919 the menu of stances taken by parties of the left vis-a-viz socialisation was as follows: (i) the Majority Social Democratic position, following Eduard Bernstein's 'revisionist' talk of 'growing into socialism', counselled merely intensified social policy without expropriation (nationalisation) or forced catellisation; (ii) the then Independent Social Democrat Kautsky in Germany and the Austrian Social Democrat Otto Bauer opted for the nationalisation of 'mature' firms and forced cartellisation of 'mature' branches of industry. Neither of the two heeded (iii) the call for worker's control at their places of work: to address this issue Karl Korsch devised a system of effective works councils, paralleling the political council or soviet system of democracy from below. (The political council movement in turn was promoted in varying forms, on the one hand by Independents like Eisner to establish it as a control institution of the party-political parliament, on the other by the Spartacists Rosa Luxemburg and Karl Liebknecht to replace parliamentary democracy altogether.) Another alternative then only emergent was (iv) the Bolshevist example of the 'dictatorship of the proletariat' with socialisation-cum-nationalisation and a plan imposed from above, without either effective works or political councils, but instead a 'vanguard' party.[94]

Numerous other conceptions, including Neurath's, fell somewhere in between or used only some of the elements identified so far. Consider the ideas which, as noted, even the elected official government of 1919 was forced to entertain. Of these plans, the so-called

Wissell-Moellendorff plan of May 1919 was the more radical one, arguing for a compulsory grouping of all the branches of industry and agriculture into cartells to be managed by representatives of workers and employers. Besides being represented on these managerial bodies, workers and employers were each to be organised in local and district interest groups and in turn represented, alongside the managerial bodies, in a national economic council that would undertake the not further specified direction of the economy (without expropriation). The Socialisation Commission meanwhile, which the elected government reconvened in 1920, having driven it to resignation in 1919, issued two reports. In the "preliminary" report of February 1919 its majority demanded the nationalisation of coal mines and related industries, as it did when reconvened to issue a report in July 1920; the minority position on both occasions opted merely for a state-run cartell without expropriation.[95] Considering the participation in the Socialisation Commission of well-known political economists like Rudolf Hilferding, Emil Lederer, Josef Schumpeter and Robert Wilbrandt – all of whom voted with the majority in the first report – Neurath's involvement in the socialisation movement was not unusual, nor his work in a governmental agency dedicated to it. Rather, it was the nature of the government he ended up serving under and the nature of his proposals that set him apart.

For Neurath, the Commission's plans, like those independently devised by Bauer and Kautsky, failed in asking only for partial socialisation, unlike the Wissell-Moellendorff plan, and yet went further than needed by requiring expropriation; the Wissell-Moellendorff plan, meanwhile, left the complex issue of the overall economic plan out of consideration. Nevertheless, there are certain basic commonalities between the Wissell-Moellendorff plan and the Kranold-Neurath-Schumann programme in so far as the former incorporated some of the pan-cartellist ideas which also found employment in the latter.[96] What distinguishes Neurath's plans was the idea that a socialised economy required altogether different tools than a market economy, an economic plan and calculation in kind. In consequence, his schemes, unlike those devised by Korsch, left no room for works councils in managerial-entrepreneurial capacities.[97]

Most commentators tend to agree with Neurath's repeated complaint that the revolutions in Germany and Austria-Hungary found the parties of the left without any concrete plans for the reorganisation of the economy and the state apparatus.[98] This unpreparedness at the point of revolution did not distinguish the German and Austrian socialists from the Russian Bolsheviks, of course. By contrast, Neurath did stand out. Important questions arise here, but it would appear to be misleading to claim that the system of centralised planning that was introduced into the Soviet economy was significantly indebted to the conception of an administrative economy as outlined by Neurath in his 1919 collection of essays.[99] To be sure, the lacuna of the political which characterised Neurath's plans would have provided a welcome opportunity for the communists to ridicule his leading idea that reorientation of the production process was more important than nationalisation as "menshevist" and "fake socialisation intended to blind the masses", all the while it also enabled them to employ his large-scale economic schemes in the service of the dictatorship of the proletariat.[100] Central aspects of Neurath's concept of socialisation, however, never made it to Moscow whereas the concept of an administrative economy as such was at least implicit already in the writings of Marx and Engels.

Still readers will wonder whether the implementation of Neurath's plans does not, after all, require an authoritarian state.[101] Here it is important to note that, according to his proposals, the ratification of any particular socialisation plan, indeed, of the entire socialisation project, by the "representatives of the people" was presupposed throughout.[102] Moreover, as noted, Neurath preached tolerance of different economic forms within the overall economic plan. But what about the *allgemeine Arbeitspflicht*, the legally binding obligation for individuals to work of which also the *Communist Manifesto* and other socialist projections like Bebel's *Woman in Socialism* had spoken? Neurath's plans also upheld the *allgemeine Arbeitspflicht*, like fellow scientific utopians Ballod-Atlanticus and Popper-Lynkeus, and like them complemented this universal duty to work with a guaranteed allocation of income. Various of our chapters show Neurath concerned with liberty and diversity under socialism, but in this respect the Kranold-Neurath-Schumann programme remains unyielding.[103]

The organisational schemes developed in Chapters 11, 12 and 13 are versions of the Kranold-Neurath-Schumann plan.[104] Chapter 11, "A System of Socialisation", and Chapter 12, "Total Socialisation", were written shortly after the Munich experience and systematise in greater detail what his lecture to the worker's council (1919e [1973, 135–150]) only sketched. Overlapping largely in content they show well how Neurath modulated his message for different audiences.

Chapter 11 was addressed to the academic readership of the respected *Archiv für Sozialwissenschaft und Sozialpolitik*[105] where at the time problems of socialisation were discussed by prominent economists, some of whom were also members of the Socialisation Commission.[106] Chapter 12 originally was a small brochure addressed to the public at large as the fifteenth in the series *Deutsche Gemeinwirtschaft* (German Communal Economy), published by the well-known Eugen Diederichs Verlag, whose 18 volumes included the Wissell-Moellendorff plan and sold a total of more than 40.000 copies.[107] Chapter 13, "Economic Plan and Calculation in Kind" of 1925, originally a small book put out by a Berlin publisher of Austro-Marxist literature, carried on the theme but now clearly and directly addressed the workers' movement and sought to respond both to Marxist critics and to Mises. Chapter 14, "Socialist Utility Calculation and Capitalist Profit Calculation", an unduly overloooked 1925 article from *Der Kampf*, the theoretical journal of the Austrian socialist party, leaves organisational problems alone and instead addressed once more the question of the distinguishing feature of socialist economic calculation with an important argument not featured in the book of the same year. In the article Neurath argued that unlike monetary profit calculation, in-kind calculation can address issues of environmental sustainability and intergenerational ecological concerns precisely by allowing for judgement concerning incommensurables in the reasoning employed.[108]

Chapters 11 and 12 were published in 1920: the immediate pressure for practical socialisation measures on the government had been averted by then, but the theoretical discussion amongst proponents continued (as attested by the reconvened Socialisation Commission). By 1925, when Chapters 13 and 14 were published, the possibility of concrete actions had receded even further and the in-principle discussion had taken a new turn: now it was not so much the 'how' of socialisation that stood at the centre of attention, but the 'whether'. Neurath's emphasis too began to turn from the organisational to the calculatory aspect; moreover, his discussion shows that he had abandoned his previous unpolitical stance and sought to anchor his views in the Marxist tradition. Both shifts of emphasis reflect the reception which his previous proposals had received: Neurath's challenge to the very principles of capitalist economics, his championing of an alternative way of calculating economic efficiency, calculation in kind, had raised and run into most determined opposition on the right and on the left.

Critics questioned the plausibility of his proposals and the propriety of his motives. Recall that behind Neurath's demand for the socialist transformation of the economy lay the same idea that also motivated his scientific project from early on: the socio-economic system of the day did not deliver. In early 1919 he too invoked the complaint of the injustice of private ownership of the means of production, but mainly focussed on the "repeated convulsions and crises" of the economy resulting in "millions going hungry" and "mass unemployment": "It is a major object of socialisation . . . to end this state of madness." (1919a, 3) Neurath himself favoured discussion of the technological reason for socialisation, but he also noted: "Whether one opts for socialisation or against it is a political question, a question of will." If those who opt against it wish to influence those who opt for it then they must show "that the traditional economic order is more economical and brings with it less disease, misery and hatred than a socialised one or that socialisation is impossible in principle." (1919b, 37) Soon Neurath got what he asked for: by 1921, arguments of precisely such types had begun to be levelled at him from critics on the right and left. Liberal critics questioned the plausibility and practicability of his proposals, while Marxists questioned the probity of his schemes by questioning provenance of his ideas.

3.2 Early Free-Market Criticisms. Defenders of the market economy were Ludwig von Mises, Max Weber and later Friedrich August von Hayek: in fact, some of their arguments in what became known as the socialist calculation debate are much better remembered than the theorist against whom they were first directed. Even so, their calculation arguments are not often enough distinguished. Whereas Mises and Weber predominantly argued for the need for precisely what Neurath claimed could not be provided, namely, a universal unit of value that allowed one to determine an economically rational course of action, Hayek brought to the fore the practical issue of how to gather, encompass and process all the statistical data that planning in kind was to be based on.[109] Mises and Weber were concerned with what can be called the rationality problem, Hayek with the information problem. But even between the former we have to draw distinctions.[110]

Weber, having distinguished between formal and material or evaluative rationality, determined only the former to be a proper object of economic inquiry, the latter carrying value concepts that, we saw, he felt science had no business investigating. Formal rationality determined the best means for a given aim and did not consider the aims themselves. Weber also distinguished between household accounting, which weighs the marginal utility of goods of consumption, and the accounting of a firm, which computes the profitability of different uses of production goods. The importance of the distinction lay in allowing Weber to stress that calculation in kind was formally effective in household accounting in selecting an optimal allocation as long as goods were not heterogeneous, whereas in other cases it could not reach such unicity. For Weber, however, this meant that formal rationality could never be fully realised in economies operating with economic calculation in kind, for outside of the household, where a schedule of comparative costs and benefits was imperative, especially with regards to labour and production or higher-order goods, calculation in kind was impossible altogether. "The problem is fundamental to any kind of complete socialisation. We cannot speak of a rational 'planned economy' so long as in this decisive respect we have no instrument for elaborating a rational 'plan'." (1921a [1978, 103])[111]

Weber argued with the authority of an economic historian who met Neurath on his own patch, pointing to the limitations of ancient in-kind economies and stressing that modern war economy provided an inappropriate example for modern peacetime economies. Whereas the former returned to the principles of household economy, the latter essentially developed on the market principle. Beyond the calculation problem, Weber also pointed to the "independent problem of the comparative importance of the satisfaction of different wants, provision for which is, under given conditions, equally feasible". In a market, of course, this problem was solved by profitability considerations in light of consumer purchasing power, in its absence it could be solved only "by adherence to tradition or by an arbitrary dictatorial regulation" (ibid., 104). For Weber, the problem of missing consumer sovereignty underscored that money calculation was necessary as a measure of formally rational economic decisions not only as regards the issue of how to produce but also of what to produce and how to distribute it. Finally, Weber noted the motivation problem of planned economies, the weakening of the "incentive to labour" (ibid., 110). In effect, Weber presented a philosophically, economically and historically grounded updating of Albert Schäffle's by then canonical three-part argument against socialism in his often reprinted *Die Quintessenz des Sozialismus*.[112]

Whereas Weber remained ambivalent about capitalism in terms of its material rationality, Mises had no such qualms that the market mechanism provided the unqualifiedly best outcome. Mises lauded Neurath only to condemn him. Recognising correctly that a truly socialist economy must do without money, "Neurath merely overlooks the insuperable difficulties that would have to develop with economic calculation in the socialist commonwealth" (1920 [1935, 108n]). These difficulties were very similar to those Weber had outlined. Mises also cited the motivation problem and the absence of consumer sovereignty but laid particular stress on the rationality problem. Like Weber, he did not tie all economic rationality to monetary calculation but held that

> Calculation in natura, in an economy without exchange, can embrace consumption-goods only; it completely fails when it comes to deal with goods of a higher order. And as soon as one gives up the conception of freely established monetary prices for goods of a higher order, rational production becomes completely impossible. Every step that takes us away from private ownership of the means of production and from the use of money also takes us away from rational economics. (Ibid., 104)

Thus Mises concluded that we are faced with "the spectacle of a socialist economic order floundering in the ocean of possible and conceivable economic combinations without the compass of economic calculation. . . . Socialism is the abolition of rational economy" (Ibid., 110).

It would lead too far here to analyse Weber's and Mises' arguments in detail. But we may note that there seem to be two complementary strands involved: one to the conclusion that, as a matter of principle, calculation in kind does not measure up to what economic rationality requires; the other to the conclusion that, as a matter of practical fact, calculation in kind does not help in the imputation problem concerning the weight of different factors of production. Weber claimed that by calculation in kind "the problem of imputation of the part contributed to the total output of an economic unit by the different factors of production and by different executive decisions is not capable of the kind of solution which is at present attained by calculation of profitability in terms of money", namely, an "objective solution" (1921a [1978, 104]). Not only is money calculation more precise in practical terms – he contrasted the "very crude estimates" of calculation in kind with the capacity of money calculation to "always" deliver "a determinate solution in principle" (1921a [1978, 104]) – but calculation in kind also relates essentially to substantive rationality and so to subjective valuations and thereby endangers the scientific standing of the calculation. Only monetary calculation, so Weber, escapes this slide from science into mere opinion. It would seem that the root of Weber's rationality argument lies in the sharp delimitation of what objective science may or may not consider.[113]

For Mises the principled and practical aspects of the rationality were likewise closely interlinked. He also noted that calculation in kind, by appealing to use values, remains invariably subjective (1920 [1935, 97], 1922 [1951, 115]) and he stressed that only the commensurability afforded by monetary calculations affords objectivity. To this end he offered a variety of interlinked considerations. There is an argument definitional in nature (socialism means the absence of a market in and prices for production goods which entails the impossibility of rational disposition of them); the claim that use-values offer no unit measure (again rendering rational disposition of production goods impossible); and some remarks about the daunting complexity of facts that market price automatically takes account of and renders managable (1920 [1935, 92, 96–7, 103]; 1922 [1951, 158, 114, 118]). The latter is of course the point that Hayek later on was to make his central anti-socialist platform as the information argument – economic planning is thwarted by the practical impossibility to process all the information required – but as yet it was not clearly foregrounded.[114] For Mises, the rationality argument proceeded from the belief that without recourse to exchange value expressed in money terms we are left with use values which resist representation that allow all imputation problems to be solved unambiguously.

It would appear that Neurath had certain difficulties facing up to the argument that without a market in goods and means of production, no economic rationality was possible. That the quantitative-comparative in-kind calculus did not offer solutions to all sorts of situations – it did not always assign an optimum in the choice between alternative uses of a resource – was a point Neurath had made since his 1909. Did this really mean, however, that such incompleteness disqualified calculations in kind as non-economic, as Mises had it, for they could not handle production goods? And was it correct that in-kind considerations were insufficiently grounded in fact to count as scientific, as Weber suggested? Was that not to render capitalist profit calculation absolute? Over the next 25 years Neurath responded in different ways to these challenges. Besides his comments on Mises in Chapter 13, the argument of Chapter 14 and his late comments in Chapter 17 (in Part 4), readers are also advised to consult a short monograph of 1935, translated as "What is Meant by Rational Economic Theory" (1935a [1987, 67–109]).[115] There Neurath offered a restatement only of his proposals for calculation in kind – albeit one that due to his decision to forego "discussion of particular theses by particular authors" remained unnecessarily cryptic (ibid., 71). The readers must decide whether Neurath did have an adequate answer to Weber and Mises, but the following considerations may be taken into account.

Neurath responded most consistently to the charge that calculation in kind was inappropriate in principle. It was wrong to argue that the indeterminacies of in-kind calculation indicated the impossibility of its employment in economics; rather, they presented a challenge for a new economics – an economics of welfare in terms of real income.[116] The very incompatibility of the definitions of Mises' and Neurath's preferred types of economics only gives weight to the dismissal of calculation in kind if Mises' claim to be the exclusive representative of economic science is granted. For Mises, "economic science originated in discussions of money price of goods and services" (1922 [1951, 111]). Neurath, by contrast, took "rational economic theory to mean: a representation of the correlation between life orders and life situations" and for good measure declared monetary calculation "an idol" and rejected it as "neither logically adequate nor scientifically adequate", namely, for the type of economics he wanted to develop (1935 [1987, 109 (transl. altered), 94, 68]). That Neurath chose to haggle with Mises over the title "rational economics" without offering a direct response to the problem Mises had raised leaves his counter deeply unsatisfactory – as long as two points are not noticed. There is, first, his ecological argument in Chapter 14 which seeks to establish that monetary calculation alone is insufficient for rational economic behaviour in its own terms. It complements his argument in Chapter 13 that Mises too admitted in-kind measures of economic efficiency and seems immune to Mises' counterclaim in (1928) that his concession was limited to monopoly goods and so ultimately insignificant. Second, note that in 1935 Neurath had begun to disaggregate what had become too closely associated in the socialisation plans of 1919/20: calculation in kind and economy in kind. Neurath's stress on their separability is justified as there can arise a need for calculation in kind independently of administering an economy in kind, as in the ecological considerations explored in Chapter 14. Moreover, the decoupling of calculation in kind and economy in kind was not entirely new: already before World War I Neurath had explored the former and while he had insisted all along on the latter as a theoretical possibility to be kept in mind, it was only his experience of the war that propelled him to argue for its practical implementation.

The long-term trajectory of development which these observations suggest is that of a return to something like his original position after an intensely political phase up to the early 1930s. If indeed Neurath did so reconsider, then his refusal to engage with the imputation problem in "What is Meant by a Rational Economic Theory?" may be taken as conceding the point that calculation in kind cannot deliver the determinate costs of the factors of production as money calculation can (however arbitrary that may be at bottom). But while the imputation problem pertained to running an economy in kind, Neurath would now be concerned to defend calculation in kind as a sound approach on its own – albeit suitable for different problems. Accordingly, Neurath would have come to distinguish sharply between arguments for an economy in kind as a desirable social institution and arguments for calculation in kind as a superior mode of computing welfare. Once the incommensurability of different goods is accepted, only the former is adversely affected by the calculation problem – and only the latter was defended by Neurath as staunchly as ever, insisting on a notion of economic efficiency that was not market-determined.[117] Against Mises and Weber, Neurath rejected the claim that profitability represented the only measure of rationality that pertained to economic activity and insisted on the propriety of a notion of productivity by which to compare the efforts not only of individual households but also entire social orders. Welfare economics had to proceed by means of in-kind calculations for welfare itself is a multicriterial concept and cannot be flattened into monetary units. (Of course, even if this somewhat deflationary interpretation of his later efforts were correct and had been evident at the time, it would not have endeared Neurath to the economic profession either.)[118]

3.3 Socialist Criticisms. Turning to Neurath's critics on the left, we may note right away that the reading of Neurath's political economy just developed is consistent with the fact that in response to Weber's, Mises' and, later, Hayek's arguments, Neurath never opted for one common socialist response to the calculation problem, namely, market socialism, indeed, hardly ever discussed it in print. There have been many forms of market socialism; the best-known, Oskar Lange's (1936–37), envisaged a market in consumer goods and labour only, promising to solve the imputation problem by mimicking a competitive process for production goods with a kind of shadow-pricing system for the costs of factors of socialist production, to be updated in light of consumer market response.[119] While still insisting on planned production – unlike the more recent versions of market socialism involving independent and self-governing cooperatives, this earlier version allowed no market in production factors – Lange conceded the claim that economic calculation of production costs required prices and so retained money and the market. Not only is Neurath likely to have disagreed with Lange and to have rejected market socialism as self-contradictory, but he also never responded positively to the forms of market socialism proposed in the prior Austrian and German debate until the early 1930s.[120]

Whether his inattention to discussions of what Hayek was to call "the competitive solution" is yet another instance of his disinterest in solving the imputation problem and arguing for economies in kind in the mid- and later 30s is, again, debatable. There can be no doubt, however, that Neurath was long familiar with the various issues involved. What Wieser first called the 'imputation problem' was but a successor to the problem in classical economics of how to derive the proportional contribution of the factors land, capital and labour to cases of joint production: objectors held that marginal utility only allowed the computation of the price of consumption goods present in given quantities but not for that of production goods. In response the Austrians developed the theory of opportunity cost and derived the utility functions of production goods from given utility functions of consumer goods, in contrast to neo-classicals who preferred to solve the problem on the basis of knowledge of consumers' preferences, technological conditions of production and the initial ownership of the factors of production. But the imputation problem also furnished one of the points of contention in the argument between subjective value-theory and the labour theory of value, its complement in Marxism being the so-called transformation problem of deriving the prices of commodities from their values as determined by the amount of socially necessary labour contained in them. Marx's solution in the third volume of *Capital* was famously criticised by Böhm-Bawerk (1896), setting off numerous responses and even playing a role in the split between orthodox Marxists around

Kautsky and the revisionists around Bernstein. Not all of those who criticised Marx' labour theory of value as inadequate opted for either the Austrian or the neo-classical value theory, however, or even rejected Marxism *tout court*. While Bortkiewicz' pioneering efforts in this direction remained generally unheeded, Sraffa's more recent analysis that a Marxian surplus analysis of wages, profits and prices can be given indepedently of the labour theory of value has become widely but not universally accepted.[121]

Now the labour theory of value is notable for its absence throughout Neurath's writings.[122] A sometime student of Bortkiewicz and participant in Böhm-Bawerk's seminar, Neurath did not specify why he rejected it, but he was familiar with the standard arguments against it as well as its competitor conception.[123] Though he had pledged allegiance to the subjectivist conception of economic value in his textbook (1910e, 1) and remained sceptical of objective values as such, his opposition to Austrian and neo-classical economics suggests that he went on to historicise subjectivist claims to have determined the laws of economic value as such. (Their theory represented one way to determine price in a capitalist economy under certain conditions.) In any case, Neurath never seriously considered solving the imputation problem by recourse to the labour theory of value, a common response not only for orthodox defenders of Marx against Böhm-Bawerk and Bortkiewicz, but also for some Marxists responding to Mises' challenge. Thus in Chapter 13 Neurath also argued that the concept of labour did not furnish the units of measurement with which to cost factors of production.[124] Neurath's defense of calculation in kind set him at odds not only with 'fellow' Austrians like Mises but also with 'fellow' Marxists. He joined the latter in arguing for a criterion for economic decision alternative to that of entrepreneurial profit, while he joined the former in arguing that price did not reflect an underlying objective quantity.[125]

The basic tone of Marxist opposition to Neurath was set by Karl Kautsky. In the socialisation debate of 1919–20, he belonged to the moderate socialisers and the opponents of total socialisation. More than that, Kautsky represented the very Social Democratic orthodoxy whom Neurath and others accused of having stifled constructive thinking about the socialist society of the future. Still in 1922, as throughout the pre-war years, Kautsky proudly defended his stance that persuaded the self-consciously scientific socialists of the Social Democratic Party, reconstituted after the repeal of Bismarck's anti-socialist laws, to eschew utopianism in its Erfurt Programme of 1891 (1922 [1925, 11–12]). At the same time, Kautsky must have felt aggrieved that his own sober projections of the socialist future were disrespected: didn't he contribute a sympathetic though critical preface to the first edition of Ballod-Atlanticus' *Zukunftsstaat*?[126] And was it not him who had spoken about "The Morrow of the Revolution" already in 1902, theorising about the anticipated future and jettisoning there for the first time the previously cherished belief that socialism meant the absence of market and prices?

In 1922 Kautsky argued against what Mises and Neurath were agreed on – that socialism meant the absence of money and market – as someone who had opposed this position all along. After the "labour revolution", money calculation would continue and the market remain, even though the means of production would be socialised and "anarchical production for the market" overcome:

> In a socialist society . . . [t] he means of production would belong to the whole of the consumers, who would then be synonymous with the whole of the workers. The whole body of consumers, in conjunction with the producers of every branch of production, would determine the scale of production and the level of prices on the basis of their knowledge of the economic conditions. Production as well as prices would thenceforth move on far more uniform lines. . . . The figures of production and of the prices of particular commodities could then deviate from those transmitted from the capitalist period, if social interest required it. (1922 [1925, 268])

Kautsky's answer to Mises' challenge that the labour theory of value could not solve the imputation problem consisted in the simple insistance that it could solve after all the transformation problem such that, with surplus calculations removed, socially necessary labour units would yield the money prices necessary for rational economic calculation.[127] Kautsky restated his position of 1902 which marked him as an early opponent of the idea of a money-free socialist economy. He conceded that "[i]n a communist society work would be regulated by a plan such that workers are assigned to the different branches of production according to a plan." (1902 [1911, 18]) How then was it possible to "fix the level of production of every nationalised enterprise on the basis of a calculation of the existing state of the forces of production (labour, means of production) and the given demand" such that it can "ensure that every enterprise receives not only the necessary workers but also the necessary production goods and that the finished products find their consumers" – without "end[ing] in a barrack nation, a prison state?" (Ibid., 28–9)

> It only is required to render the organisation which so far was an unconscious one . . . into a conscious one, in which the calculation in advance of all relevant factors takes the place of corrections due to the play of supply and demand. An incomplete and unsteady proportionality of the different branches of production is already in existence, we need not create it from scratch but only have to complete it and render it steady. As with money and prices, there is no need to begin afresh but we can continue from what is historically given, only to extending some aspects and restricting others and tightening loose connections. (Ibid., 29)

As he did twenty years later, given the "social direction of production" under socialism, Kautsky held that "the labour time invested in products will retain its decisive weight for their evaluation and it is natural to continue on from the historically given prices." (Ibid., 19) Somehow or other, the labour theory of value was expected to correct and thereby redeem market prices. Far too many details are missing here, though clearly anti-socialists would dismiss his idea that he could mimick a market in production goods when there was none – as did N.G. Pierson who argued against Kautsky early on that the non-homogeneity of labour precludes the computation of the value of factors of production by its means (1902 [1935, 82–83]).

Against this background, it was not surprising that Kautsky argued against Neurath by mixing criticism of the alleged authoritarian nature of his economic scheme with a hapless confusion of Neurath's plan with Wissell's in order to render its supposedly anti-socialist tendency plain; in addition Neurath was criticised for being unconcerned with production (1922 [1925, 146–52]).[128] But what really had to be shown was that a theory so vulnerable to objections as Neurath's appeared to be to Mises', was not a theory a right-thinking socialist would embrace, indeed, not a Marxist theory at all.

> According to Dr. Neurath, money follows its own course, which is quite anarchical and not to be influenced by anything. I agree with Marx who regarded this idea as a mere appearance: 'Although the movement of money is merely the expression of the circulation of commodities, yet the contrary appears to be the actual fact, and the circulation of commodities seems to be the result of the movement of money.' . . . With the character of the circulation of commodities, that of the movement of the money also alters. There is no such thing as a movement of money, which operates as a socially independent and utterly uncontrollable force. (Ibid., 256)

Thus “Neurath shows himself to be far inferior to Marx in his knowledge of these matters.” (Ibid., 258) Whether Neurath ascribed to money such an agency is of course very much debatable. In conclusion Kautsky noted that “[w]ithout money, only two kinds of economy are possible”: the not yet realisable communist one of which Marx spoke when he coined the phrase ‘from each according to his ability, to each according to his need’; and one where “the whole of the productive activity in the state would form a single factory, under one central control, which would assign its tasks to each single business, collect all the products of the entire population, and assign to each business its means of production and to each consumer his means of consumption in kind”. With consumer sovereignty denied, “[t]he ideal of such a condition is the prison or the barracks. This barbarous monotony lurks in fact behind the ideas of the ‘natural economy’ of socialism.” (Ibid., 260)

Kautsky’s charge that outside of Marx’ utopia an economy in kind means a “socialism of the barracks” can be granted only if Neurath’s remarks on how the practice of “economic tolerance” is possible within his framework are entirely disregarded.[129] Yet supposedly exposed as un-Marxian, Neurath was abandoned to Mises’ critique.[130] Since he relied on the labour theory of value, however, Kautsky’s own argument was on shaky ground and no better off than Neurath’s, as Mises argued, again, with reference to the assumption of the homogeneity of labour (1920 [1935, 113–14]).[131] Still, Kautsky’s criticisms of Neurath were soon considered canonical, not only by his son Benedikt, who extended the feud even to Neurath’s visual education efforts and methodology for pictorial statistics, but also by Austro-Marxists like Helene Bauer and Käthe and Otto Leichter who expanded on it in various respects.[132]

Of course, Neurath’s Marxist critics were right in one sense: he wasn’t one of them in that if ever he invoked injustice, he was concerned more with the needless suffering than the property relations of capitalism. In fact, most Marxists are likely to have been offended by some part of Neurath’s mid-1920s Marxism. For instance, like Korsch and Lukacs, Neurath was anti-orthodox, but unlike them not of Hegelian-Leninist inspiration; like Kautsky, Neurath aimed for a scientific conception of Marxism, but unlike him did not endorse the mechanistic interpretation of historical materialism.[133] Neurath belonged in the first place to the tradition of non-Marxian socialists, but he was no less radical for it. (Needless to say, he was not a Pareto-optimum welfarist, such that current peaks of allocation would be untoucheable.)

Neurath's revolutionary voluntarism was derived from the tradition of scientific utopians and his humanist socialism anticipated the rediscovery of the young Marx who by then was still largely unknown. (It points in the same direction that in a monograph of 1928, partly translated as "Personal Life and Class Struggle" (1928a [1973, 249–298]), Neurath backed up his Marx with social Epicureanism.)

Neurath's humanism in Chapter 13 too found a mixed reception. His concern with "the foundations of a significantly higher development of society" was lauded by a reviewer in the Austro-Marxist *Der Kampf* (Weiss 1926), whereas a review in *Grünbergs Archiv* considered it a "superfluous and boring" diversion from the overdue specification of "concrete methods for the statistical determination of demand, for the management of trusts" and from the overdue recognition of the political power base required for socialisation (Weil 1926).[134] Given that the material of Chapter 14 which engaged the opposition at its most vulnerable was not contained in Chapter 13, the latter reviewer's impatience with its lack of positive advice or details on practical economic planning is not wholly unjustified.

4 Part 4: Economics and Social Science in Unified Science. The papers in Part 4 all date from the last 15 years of his life when Neurath was most active, at first via the Social and Economic Museum in Vienna which he had founded in 1925 and later by self-styled institutes in exile, in the development, propagation and application of new tools for visual education (the Vienna Method of Pictorial Statistics which later was renamed ISOTYPE (International System of Typographic Picture Education)). At the same time Neurath was also significantly involved in the philosophical discussions of Moritz Schlick's Vienna Circle with, amongst others, Rudolf Carnap and his fellow discussion partners from before World War I Hans Hahn and Philipp Frank, and by the mid-1930s he took a leading role in the ever more international Unity of Science movement. The programmatic manifesto of the Circle, co-authored by Neurath, as well as some of his own important writings on unified science and other topics in the philosophy of science are available in translation in the two previous volumes of Neurath papers in this series (1973, 1983).

In these two volumes there are a number of Neurath's writings from the period under discussion that, together with two further monographs, also bear on social science and economics in particular. For comments on social science generally readers are advised to compare the excerpts from *Empirical Sociology* (1931a [1973, 319–421]), the slightly later *Erkenntnis* article "Sociology in the Framework of Physicalism" (1932b [1983, 58–90]), the short conference paper "The Social Sciences and Unified Science" (1939b [1983, 209–212]) and the somewhat idiosyncratic contribution to the International Encyclopedia of Unified Science *Foundations of the Social Sciences* (1944). The latter also contains remarks on economics which reflect earlier comments in his translated monograph *What is Rational Economic Theory?* (1935 [1987, 67–109]) presenting Neurath's response to his critics in the calculation debate up to that date. Some of Neurath's later thoughts on the theory of planning are available in his paper "International Planning for Freedom" (1942 [1973, 422–440]) and his last views on new forms of global governance in an unfinished manuscript are now available in full as "Visual Education: Humanisation vs. Popularisation" (1996), which complements his ISOTYPE-illustrated comments on global modernisation and cultural modernity in his *Modern Man in the Making* (1939a).

4.1 The Meaning of Physicalism and Unified Science. Neurath's contributions from this later period require less contextualisation than do his earlier ones. It will be helpful nevertheless to begin with a few words on a characteristic doctrine of Neurath's from this period that has been consistently misunderstood, most spectacularly so by his critic Hayek: physicalism.[135] Long thought to signify reductionism at its most rabid, its use by Neurath hides different doctrines of quite different intent. We can distinguish between three of them: the epistemological, the metalinguistic and the nomological conception of physicalism.

The first of them, important though it is, need not detain us here. This is his conception of physicalism as a "comprehensive attitude", which has been identified as the position of what is nowadays called 'epistemological naturalism', the denial of epistemological aprioricism. Roughly, such a position seeks to explain – and legitimate – scientific knowledge claims in a scientific manner. Importantly, Neurath's early version of this doctrine differs from Quine's later one in allowing social science also to play a role in this 'explanation' of scientific knowledge. Moreover, Neurath's epistemological naturalism does not rely, like many contemporary versions, on a scientific realism that invokes the correspondence theory of truth, but incorporates certain constructivist elements on the metaepistemological level concerning notions such as 'justification'.[136]

The second conception of physicalism that we need to distinguish is the metalinguistic notion which concerns the guiding conception of the language of science. It is instructive to compare Carnap here. For him, "physicalism" simply meant that every language of science, that is the languages of all its different disciplines, can be translated into the language of physics (1932). This is easily read as materialism clad in metalinguistic garb, but Carnap intended to make no ontological claims whatsoever. Carnap's physicalism originally required the complete translatability of the languages of all the sciences into that of physics, but this was gradually relaxed. Neurath's metalinguistic physicalism was centered differently. "Every scientific statement is a statement about a lawlike order of empirical facts." (1931a [1981, 424]) Neurath linked his metalinguistic thesis of physicalism closely to the empiricist criterion of meaningfulness and already at a very early stage sought to allow for nonreductive forms of it: "Physicalism . . . only makes pronouncements about what can be related back to observation statements *in some way or other*." (Ibid., 425, italics added) Beyond this, Neurath determined meaningfulness as inextricably linked to the availability of intersubjective evidence and he rejected the possibility of private (protocol) languages already in 1931. Importantly, he determined that the language in which such test procedures are formulated (the protocol language) was to be not the theoretical language of physics itself, but the "physicalistically cleansed" everyday language ("universal slang"). Neurath's conception of the physicalistic language was never bound to the language of physics as such. In concert these points result in a conception of metalinguistic physicalism which compensates for its explicit lack of precision in comparison to Carnap by presenting an alternative. In place of Carnap's translatability Neurath put testability. For him, metalinguistic physicalism did not represent a logical condition on the relation of individual expressions of high theory in the different disciplines of unified science, but an epistemological condition on the admissability of whole statements into unified science.

Two points are notable here. First, for Neurath, metalinguistic physicalism expressed the condition of empiricism. For him, physicalistic statements are statements about "spatio-temporal structures" (ibid.). Only those statements are admissable, that can be tested – or, as Neurath put it, "controlled" – by direct or indirect reference to intersubjectively available observational facts. It follows that also social scientific theories must allow for derivations that can be formulated in the everyday language speaking of spatio-temporal structures and can be tested as such. Neurath's adoption of the term 'behaviourism' is also to be understood in this spirit. It meant simply the limitation to physicalistic statements, that is, to statements about human activities as taking place in space and time (e.g., 1932b [1983, 73]). While he did not stress it, we may note that this includes talk of many of the 'intervening variables' which for the psychologists mentioned had become illegitimate. Thus note not only that Neurath was open in principle to Freud's psychoanalysis – he headed a working group dedicated to the 'physicalisation' of Freud's texts – but also that his own theory of scientific evidence statements (protocols) makes explicit reference to intentional phenomena via locutions like 'speech thinking', 'thinking person', etc.[137] Thus Neurath wrote:

> While avoiding metaphysical trappings it is in principle possible for physicalism to predict future human action to some degree from what people 'plan' and 'intend' ('say to themselves'). But the practice of individual and social behaviourism shows that one reaches far better predictions if one does not rely too heavily on these elements, which stem from 'self-observation', but on others which we have observed in abundance by different means. (1936a [1981, 714])

It was in this sense that Neurath expounded a "social behaviourism" that "ultimately comprehends all sociology, political economy, history etc." (1932c [1981, 565]). We may be sceptical about the value of the exclusive use of overtly behaviouristic procedures; the point here is that Neurath's physicalism was not limited to them.

The second point to be noted is that Carnap's physicalism originally required the translatability of individual terms. This amounts to the reducibility of all the terms of the special sciences to the terms of the language of physics. Neurath's epistemological take requires only that admissable statements be logically related to statements that can be correlated as wholes with statements of the physicalistic common language of observation. From Neurath's metalinguistic physicalism therefore does not follow what followed from Carnap's: that all the individual terms admissable into unified science be definable in the terms of physical theory. (Later on Carnap switched to non-eliminative reductions and the "thing-language" as basic but this resulted in a different repertoire from Neurath's universal slang (1936/37, 12)).

All this suggests that we interpret Neurath's metalinguistic physicalism as at least in intention a partial form of what nowadays is called "non-reductive physicalism" (minus its ontological dimension). Of course, Neurath did not employ many of the terms used in the exposition of the latter like "supervenience" (ontological dependence without reducibility), but a careful assessment of his writings strongly suggests that his metalinguistic physicalism allowed for the conceptual autonomy of the special sciences (within the framework of empiricism).

The third aspect of physicalism concerns nomological reducibility, the supposed reducibility of the laws of the various individual sciences to the basic science of physics. Here the doctrine of physicalism bears on Neurath's non-standard conception of the idea of the unity of science. (Note that already in 1904 – our Chapter 1 – Neurath spoke of the need to combine the "use of several sciences" in the pursuit of economic history.) The standard conception of the unity of science envisaged that unity as a pyramid of reductively related disciplines with physics at the base and accordingly demanded, at least in principle, the reduction of sociological laws to those of physics. By contrast, Neurath wrote:

> The development of physicalistic sociology does not mean the transfer of the laws of physics to living things and their groups, as some have thought possible. Comprehensive sociological laws can be found as well as laws for definite narrower social areas, without the need to be able to go back to the microstructure, and thereby to build up these sociological laws from physical ones. (1932b [1983, 75])

Two things are important here: the rejection of the postulate of the reducibility of the laws of social science to those of physics and the rejection of the postulate of methodological individualism (in some of its guises). The rejection the reducibility of the laws of social science follows already from the rejection of the reducibility of the individual terms of social science to those of physics. Neurath owes an explicit argument to this effect, but significantly enough he wrote: "One can understand the working of a steam engine quite well on the whole without surveying it in detail. And indeed, the structure of a machine may be more important than the material of which it consists." (1931a [1973, 333]) This means that the explanatory functional or structural kinds that are invoked in the social sciences need not be reducible to those concerning material constituents. Thus it was not only the distinction between the contexts of discovery and justification that Neurath exploited – such that only in the latter intertheoretic reductions of laws are required – when he concluded: "The sociological laws found without the help of physical laws in the narrower sense must not necessarily be changed by the addition of a physical substructure discovered later."

(1932b [1983, 75]) Indeed, Neurath noted in an abstract of a popular talk in Vienna: “According to physicalism, sociological laws are not laws of physics applied to sociological structures, but they are also not simply reducible to laws about atomic structures.” (1933, 106)

Yet nomological antireductionism also has a still more specific dimension of relevance to social science, namely, the rejection of methodological individualism in its conceptual and nomological sense. Concerning sociological laws Neurath wrote: “Naturally certain correlations result that cannot be found with individuals, with stars or machines. Social behaviourism establishes laws of its own kind.” (1932b [1983, 75]) Given the strenuous opposition to metaphysical social science in his *Empirical Sociology*, where he explicitly opposed the invocation of the supra-individual entities that populated the rising *völkisch* ideologies, it is clear, that Neurath did not aim for an ontological holism of any kind. Rather, he once again stressed the conceptual and nomological autonomy of social science. For Neurath then, the claim of unified science was minimalist: “all laws of unified science must be capable of being linked with each other, if they are to fulfill the task of predicting as often as possible individual events or groups of events.” (1932b [1983, 68]) Neurath did not require that social science be conducted just like natural science. “The programme of unified science does not presuppose that physics can be regarded as an example for all the sciences to follow.” (1937 [1981, 788]) Neurath also issued warnings against the consequences the neglect of the peculiarity of social science would have for the general theory of science, but to little avail (see also Chapters 16 and 19 in this volume).

4.2 Economics and Social Science in Physicalist Unified Science. Chapter 15, “The Current Growth in Global Productive Capacity”, is the text of an illustrated lecture given on the opening day of the World Social Economic Congress of 23–29 August 1931 in Amsterdam under the aegis of the International Industrial Relations Institute. It is of interest in a number of ways. First, it provides a good example of how Neurath’s method of pictorial statistics could be used in rendering intelligible complex economic data and correlations; second, it shows how Neurath employed it to continue to promote the idea of economic planning.[138] Third, the lecture shows how Neurath began to adopt his planning concept away from the radicalism of his total socialisation programme for application in non-revolutionary contexts. At a time of world-wide economic crisis, the lecture also documents, fourth, Neurath's then still undiminished enthusiasm for the economic achievements of the USSR at a time when, by contrast, in the USA and Europe production in virtually all branches was diminishing and unemployment was soaring higher than ever.[139] Keith Tribe has argued that Neurath's picture statistics represent an "unanticipated pay-off" of his earlier arguments for calculation in kind (1995, 164): here, in any case, we can see both still in relatively close proximity.

Chapter 16, "Sociological Predictions", a paper given at the Second International Conference on the Unity of Science of 21–26 June 1936, not only continues Neurath's long series of remarks on what many take to be a distinguishing feature of the social sciences, their liability to issue reflexive predictions, but here he also made explicit two points all too often overlooked. First, as noted in the remarks on physicalism above, that he fully respected the autonomy of social scientific concept formation (within the general empiricist framework) and, second, that he rejected, along with the general claim of Austrian theoretical economics to represent any and all scientific thinking in economics as such, also its claim that all economic generalisations had to be universal in form.[140] Against this, Neurath argued that the generalisations of social science – including economics – could be generalisations of middle range, indexed to hold for particular periods or societies of particular sorts.

As it happens, this difference from Austrian orthodoxy parallels Neurath's earlier reconceptualisation of the relation between historical-empirical and deductive-theoretical work in economics that led to his so-called utopianism – which in turn is closely related to his early attention to the phenomenon of reflexive predictions.

> Historical-empirical research links up particularly intimately with theory when we turn to considering future developments. He who wants to describe a future order must be able to construct it. He who deduces an order which provides more pleasure than our present one becomes a scientific utopian. His views can stimulate himself and others to work for their realisation. Predictions of the social world influence developments, after all. They differ in this from, e.g., astronomical predictions which have no influence on the course of the stars. In the social world, determinate predictions are often a part of the conditions that allow their own realisation. Thus a utopian becomes a historian of the future while the historian of the future becomes a utopian (as long as the future is better than the present). (1911 [1998, I, 517])

Note that this was written some 25 years before Robert Merton's "self-fulfilling prophecies" (1936, 1948) and 17 years before W. I. Thomas' pregnant “If men define their situations as real, they are real in their consequences” (1928 [1951, 81]) – and even longer before Popper made heavy weather of these points.[141] Already in 1911, we note, Neurath viewed utopias as constructions in thought of alternative orders that can play a causal role in their own realisation, constructions that build upon both historical research and pure theory. In 1936 he no longer discussed his economic utopias, but the general phenomenon remained of interest. Importantly, neither did Neurath see in the phenomenon of reflexive predictions reasons to doubt the scientific probity of social inquiry as such, nor did he see in it, early or late, a principled bar to all long-term social predictions.

Chapter 17, “Inventory of the Standard of Living”, documents how Neurath’s earlier concern with social indicators (as shown in Chapter 10) had developed further, through the in-kind categories in terms of which a totally socialised economy was to conduct its planning calculations, to a concept for the comparative assessment of the effects of social institutions and measures as a tool for social policy. Not much elucidation is needed here. However, given that “Inventory” was published in the Frankfurt School’s *Zeitschrift für Sozialforschung* in 1937 in the same issue as Max Horkheimer’s “The Latest Attack on Metaphysics” some comment is required on its publication history.[142] With a liberal dose of misinterpretation Horkheimer’s article attacked the Vienna Circle’s neopositivism for political quietism, indeed, for furnishing unwitting assistance to fascism.[143] The publication of Neurath’s article in this neighbourhood raises the question, of course, not only why no response by Neurath to Horkheimer’s paper was ever published, but also what “Inventory” was doing in the *Zeitschrift* in the first place. Research by Hans-Joachim Dahms has documented that this confrontation was preceded by a period in which Horkheimer, having relocated his Institut für Sozialforschung to New York, actively sought the cooperation of Neurath and other social scientists back in Europe, but that he came to regard the Vienna Circle’s logical empiricism as an obstacle in his quest to promote the Frankfurt School as the sole representative of German philosophy in exile. The opening issue of volume 6 of *Zeitschrift* was designed to feature a clear statement of philosophical intent on part of the Frankfurt School and a suitable critique of their opponents: Horkheimer’s anti-positivist “Attack” and a consonant article by Herbert Marcuse thus began a series of articles arrayed on a continuum of philosophical positions specifying their relation to social science, a continuum that concluded with Neurath's positivist "Inventory". Neurath's urgent and repeated request to publish his response to Horkheimer's "Attack" in the pages of the *Zeitschrift* – a procedure which was, as Neurath noted, only customary by accepted academic standards – was flatly refused by Horkheimer as editor. Neurath's response remains unpublished to this day.[144] "Inventory" meanwhile remains an example of the attempt on Neurath's part – continuous with his own independent efforts since before World War I – to contribute to the interdisciplinary and self-consciously critical social science project of the Frankfurt School before that was abandoned.[145]

Before turning to Neurath's late re-engagement in the aftermath of the calculation debate, a brief comment on the concluding Chapter 19, "After Six Years". Completed only days before his sudden death and published in a then still obscure *Synthese* – in its first issue after it emerged from being the Dutch journal of the Society for the Study of Significs, having joined forces with the "Unity of Science Forum" and the International Industrial Relations Institute[146] – this piece shows Neurath summing up the fate of the members of the unity of science movement during World War II and drawing up a list of the tasks ahead. Continuous with *Foundations of Social Science* and Chapter 15 in its call to fellow unity-of-science theorists for heightened attention to the phenomenon of unpredictability and, indeed, to the social sciences as a whole and the "analysis of social organisation", it bears witness not only to the relative philosophical isolation in which Neurath found himself after the increased formalisation of logical empiricism promoted by Carnap and younger members like C.G. Hempel. Importantly, this piece also serves notice of the forceful counter which Neurath was expecting to lead in providing, as the Circle's manifesto once had it, "intellectual tools for everyday life, for the daily life of the scholar but also for the daily life of all those who in some way join in working at the conscious re-shaping of life" (Carnap, Hahn, Neurath 1929 [1973, 305]).

4.3 Late reflections on the theory of planning. Neurath's "What is Meant by a Rational Economic Theory?" (1935 [1987, 67–109]) appeared in *Einheitswissenschaft* (Unified Science), a series of monographs edited by Neurath from 1933 to 1939, and so belongs to the period currently under consideration: economics and social science in unified science. We noted above one interpretation of the development of Neurath's views on total socialisation that is encouraged (but by no means forced) by this work: that he quietly dropped the advocacy of centrally planned economies in kind but staunchly defended calculation in kind. If this interpretation (call it “interpretation B”) is correct, one must blame Neurath’s reticence in announcing his change of mind clearly for allowing the false impression to continue that he still advocated the economies in kind he had advocated in 1920 (call this the traditional ‘interpretation A’), as claimed by Hayek (1940 [1948, 182]; 1942–1944 [1979, 170]). Of course, one cannot preclude a priori that Neurath’s ideas were contradictory and that he no longer possessed a consistent position at all (call this ‘interpretation C’) or, more charitably, that Neurath simply wished to keep the planning issue open as not yet finally decided (call this ‘interpretation D’). Only one reviewer seems to have understood Neurath’s arguments: the Dutch econometrician and later planning and development theorist Jan Tinbergen. Having also accepted his definition of the task of economics, he granted Neurath’s argument of the irrelevance of the imputation problem and gave it a little twist. “The imputation [of value to factors of production] only tells us what quantities of money as a matter of fact go to certain groups of producers given certain forms of social organisation, but it does not tell us what sums of money would be the equivalent of their contribution to the quality of life”, he noted. “It is remarkable”, Tinbergen concluded, “that the author who rehearses the issues noted, as he has done previously, with, it seems to me, uncontradictable logic, has found so little positive response in the world of theoretical economics so far” (1936, 71).

Chapter 18 and a companion piece already reprinted (“International Planning for Freedom” (1942 [1973, 422–440])) provide an opportunity to ask whether Neurath’s views in the 1940s support interpretation A, B, C or D. All of the three short pieces in Chapter 18 and its companion piece were published in the journal of the London Institute of World Affairs, a non-party political, “self-governing organisation for the study of problems of world affairs by research, discussion, lectures, teaching, publications and . . . other educational means”.[147] Neurath’s attention turned to questions of global governance: to what extent did a more peaceful and just world require planning? In an earlier contribution to the same journal his old adversary Hayek had set out his own answer: “an essentially liberal economic regime is a necessary condition for the success of any interstate federation” such that “there must be no substitution of day-to-day interference and regulation for the impersonal forces of the market" (1939 [1948, 268–9]). Clearly, a new forum for the discussion of the institutional aspects of possible implementations of Neurath's strongly defended calculation in kind had become available here.[148]

Not surprisingly, Neurath's answer was different from Hayek's. In "International Planning" he reaffirmed the belief that "even a fragmentary planning is sufficient to overcome unemployment and the intentional destruction of goods" (1942 [1973, 432]). Neurath envisaged a "*societas societatum*", a society of societies, in particular, a society of nation states with somewhat reduced powers alongside a new network of "overlapping authorities", international organisations with specific briefs for certain industries and/or resources (ibid., 432–4). Neurath did not specify how such a scheme could work, except to stress that the exclusive role of profit in the determination of production plans must be broken and his preference for the system "usually called 'Democratic Socialism' " shone through.[149] Neurath's now explicit stress on freedom would seem to suggest that total socialisation was no longer promoted.[150] "It is not a matter of course . . . that a social engineer should test the efficiency of freedom by its business efficiency; he can test . . . a social order and its institutions . . . by its ability to produce food, shelter, education, health, and . . . freedom." (Ibid., 440) Is it too fanciful to speculate that the news from Russia ever since the mid-1930s encouraged Neurath to accept the criticism once levelled against the "socialism of the barracks"? More importantly, however, aren't we back where we started? With calculation in kind unfit to deal with the imputation problem, how was international rational planning of production to be effected? Here we must consider first what happened since Neurath wrote "Rational Economic Theory" in 1935. In the same year, Hayek published the anthology *Collectivist Economic Planning* which featured English translations of the 1920 paper by Mises and Pierson's response to Kautsky as well as papers by Georg Halm and Enrico Barone, along with his own introduction and an afterword. Under the guise of chronicling the debate Hayek effected a subtle but consequential reorientation of the calculation debate.[151] Before returning to Neurath to see if and how he adapted, we must consider how Hayek changed the scene.[152]

Introducing a previously predominantly German-language discussion to the English-speaking public in *Collectivist Economic Planning*, Hayek carefully developed the calculation problem and outlined its history of having been insufficiently recognised until it was "formulated . . . in such a form as to make it impossible that it should ever again disappear from the discussion" by Mises, despite various anticipations (1935a, 32). It was in the afterword that Hayek effected the change in how the calculation problem was perceived. There he argued that while Barone had no doubt shown that mathematically the solution to the calculation problem would involve – in a socialist system just as much as in a capitalist one – the solution of a system of simultaneous equations, this did not entail an easy solution such that conscious planning could replace the automatism of the market. Besides also disagreeing with Barone's and Lange's neoclassical equilibrium assumptions, Hayek argued that the problem was primarily practical yet nevertheless principled in consequence. For the claim that "the values and the quantities of the different commodities to be produced might be determined by the application of the apparatus by which theoretical economics explains the formation of prices and the direction of production in a competitive system" proceeded on the "assumption of a complete knowledge of all relevant data" and Hayek pointed out that "in practice" this was "rule[d] out as humanly impracticable and impossible" (1935b, 208). This is what above we called "the information problem".

In a later paper, Hayek restated his argument first developed in 1935 against a schematic outline of market socialism – that a planning authority of a socialist economy cannot simply be a "superbank" lending money for production goods but must make decisions about the economic viability of proposed projects – against Oskar Lange's version of market socialism. Hayek now stated categorically that "it is the main merit of real competition that through it use is made of knowledge divided between many persons which, if it were to be used in a centrally directed economy, would all have to enter the single plan. To assume that all this knowledge would be automatically in the possession of the planning authority seems to me to miss the main point" (1940 [1948, 202]). It would seem that Hayek gradually brought to the fore the information argument that in Mises remained in the background.[153] What then is the relation of the information argument to the rationality argument? Like Mises, Hayek assumed throughout that price solutions to the imputation problem were the only adequate solutions in terms of economic rationality. Yet in Mises the information argument was not distinguished as such but it was present (unlike in Weber), while in Hayek it was gradually recognised as distinct. By 1945, the information argument had become a self-standing vindication of the free market: “Fundamentally, in a system in which the knowledge of the relevant facts is dispersed among many people, prices can act to coordinate the separate actions of different people in the same way as subjective values help the individual to coordinate the parts of his plan.” (1945 [1948, 85]))

The consequences of Hayek’s elaboration of Mises’ point are far-reaching. Suppose we agree with Neurath that rational choice between alternative uses of resources is multicriterial and can only satisfactorily be expressed in money terms in certain circumstances under very specific, albeit historically dominant conditions. Even then Mises would win if economics just were the science of market-relations, but he would loose granted any wider conception of economic rationality (as Neurath argued ever since 1925). By contrast, Hayek might as well have condemned the ‘pseudo-rationalism’ of comprehensive central planning and so have turned the tables on Neurath.[154] Now Neurath never officially conceded Hayek’s information argument, maybe in part because even though Hayek exempted mixed economies from his earlier arguments over socialist calculation, his reaction to Labour’s ascent to power in Britain was extreme.[155] To many readers Hayek appeared to reject all state intervention in the automatism of the market. In Chapter 18c Neurath therefore questioned what looks like an over-extension of Hayek’s argument. Likewise, in Chapter 18a, Neurath condemned the arguments of James Burnham’s *The Managerial Revolution* (lauded by Hayek as “significant” (1944, 222)) as equal in epistemological standing to Oswald Spengler’s world-historical spleen *The Decline of the West* (which he had debunked some 25 years earlier).[156]

So far it may sound as if Neurath was rather defensive in his late reflections on planning theory. Chapter 18b tells us differently, though one cannot but wish that Neurath had been less cryptic. Still it is clear that he is bringing together the issues of physicalism and planning, as well as democratic tolerance and global governance, with the analysis of “the educational and organisational conditions under which a world community may grow up”. Indicative planning requires a language that communicates the same facts to adherents of different world views, a language that is required on independent grounds for tolerant ways of arguing. “Planning” aims for “social security” on national and international levels. One senses a unique mix of the schemes of Popper-Lynkeus, Ballod-Atlanticus and William Beveridge, on the one hand,

and of a much improved League of Nations with enhanced competencies on the other. “Serious discussion concerning post-war reconstruction” leads to a “world plan”, to “conventions aiming at a planned world society”, for which “comparative studies in ‘social engineering’ will try to classify the various ways of life, presenting, as it were, kinds of silhouettes, composed of the various qualities of such ways of life”, that is, for which “reckoning in kind” provides “the appropriate tools”. Clearly, Neurath by no means had given up on “the planning argument”; instead, he stressed that planning “may tend to increase the variety of possibilities”. While Barry Smith’s quip about his “crackpot schemes for ‘international planning for freedom’” (1994, 11) seems unduly harsh, it is undeniable that Neurath left many important questions open.

5 Conclusion. In place of a summary or the resolution of the queries that have accumulated so far, this Introduction closes with some remarks on aspects of the development of Neurath’s economic and social scientific thought that have been thrown into relief by the contextualisation provided.

What kind of planning theorist did Neurath end up as? Importantly, like Hayek’s, Neurath’s position and argument took time to develop and find proper focus. If, as seems highly likely, Neurath admitted the impossibility of complete insight on part of the central planning board, what consequences did he draw? Did he remain unmoved as regards the consequences and hold that the planning board will have to do with rough estimates and the socialised economy with rough and ready directives? Or did he give up on comprehensive central planning and total socialisation and advocate a mixed economy (like Ballod and Popper-Lynkeus originally), or even go for partial interventions only, allowing the market to continue in its present function to a large degree? Joining Hayek in the rejection of pseudo-rationalism would not decide this issue. Since under conditions of scarcity of resources total socialisation would seem to involve a not inconsiderable unfreedom, consistency forbids Neurath’s advocacy thereof in the 1940s but rather demands separating the calculatory aspect of in-kind reasoning from its institutional realisation, in other words, the in-kind welfare questions from his plans for total socialisation. Note that, since in mixed economies there is a market in labour and productions goods, the imputation problem would have receded in importance.[157] Accordingly, while in 1919 Neurath argued for total socialisation on the grounds of efficiency in meeting material needs, by the 1940s, he would thus have conceded the retention of a market on the grounds of increasing freedom, but argued for international planning interventions on the grounds of persistent market failures.[158]

Where interpretation A suspects one grand scheme for a centrally planned non-market global commonwealth, there interpretation B sees some nationalised industries and a network of international trade agreements overseen by an appropriate world-wide organisation. Interpretation A discounts Neurath's later anti-totalitarian remarks, interpretation B discontinues his advocacy of earlier plans for total socialisation (while interpretation C discounts and discontinues neither for the price of incoherence, whereas under interpretation D Neurath continues to sit on the fence). Whatever the answer here, note that current socialist theory faces a similar question: a variety of adherents of some kind of contemporary 'market socialism' are opposed by a variety of adherents of 'democratic planned socialism'.[159] Neurath's development represents a poignant dramatisation of the question facing socialism today no less than in his own day.[160]

Earlier I called Neurath an 'Austrian economist with a difference' to bring out that Neurath was indebted to the same tradition to which Robbins was indebted for his famous characterisation of economics as "the science which studies human behaviour as a relationship between ends and scarce means that have alternative uses" (1932 [1949, 16]). Neurath too was a theorist of choice, albeit not of consumer but of social choice. In many respects, of course, Neurath differed from the Austrian tradition in economics, as we had occasion to note.[161] Yet importantly, he shared with them the disapproval of the assumptions of economic equilibrium theory – albeit for different reasons, just as his response was different: in place of the entrepreneur, he trusted in the planner.[162] As noted, this trust seems mitigated in the end, but not shaken. Even at his most 'liberal', Neurath remained convinced that the market needed not only regulation but could not be trusted to provide a fair allocation to all members of society, in short, it failed to ensure social justice. Moreover, as regards health provision, education and social care, for instance, the market leaves its weaker participants disadvantaged to the point of being physically and mentally endangered – with detrimental consequences for all.[163] As for the issues of third world development and environmental sustainability, again unregulated markets fail since a demand without financial muscle will not bring forth the needed supply.[164] On all three accounts, some planning would appear to be required.[165] Like another economist hailing from Austria-Hungary, and at about the same point in time, Neurath contrasted his own 'substantive' interest in real income welfare with the 'formalist' rationality of the market and called for a 'protective response' aimed at limiting the disruptive and dislocating effects of the free market on individual societies and the developing world community – in modern terms, even at his most 'liberal' Neurath strongly opposed 'market fundamentalism'.[166] If only this opposition were recognised as its lasting message, of course, Neurath's work in economics would constitute no unique, but also no mean achievement.

Neurath's concern of later years with global governance is continuous with his distrust of the automatism of the market and ultimately went back to the problem of the pleasure maximum he discussed in 1912: how to deal with questions of collective choice when aggregation of individual choice fails? Hayek considered the issue as one of conscious creation versus trust in invisible hands, while Neurath viewed it in terms of finding conditions for negotiated consensus. Now Neurath presented his concern as an issue in economics, but we may ask whether it is best understood that way, for what he was after was only tenuously related to economics in the Austrian or neoclassical vein.[167] Bearing in mind that Neurath's old-fashioned Aristotelian orientation was towards material welfare, we can ask about the relation of his thought to welfare economics commonly understood: his development illustrates the gradual breaking apart of the traditional understanding of economics as comprehending both 'wealth and well-being' and 'markets and prices'. The divorce of real income welfare economics and the economics of market relations is detectable in two respects, formally and materially. Formally, both types of inquiry need to use entirely different theoretical (conceptual and representational) tools, as Neurath never ceased to stress. Materially, both types of inquiry develop quite distinct types of decision procedures and choice criteria and both aim, in short, to capture different types of rationality. Neurath was concerned not with individual consumers' choices, which the market aggregates automatically, but with social or collective choice, the welfare policy decisions of a self-governing group of independent individuals with conflicting opinions which do not allow for automatic solution.

The theory of collective choice requires both a method of aggregating preferences and a representational system to express and differentiate preferences and their orderings. Having stumbled onto it so early, Neurath did not, of course, solve the aggregation problem, but, especially as his commitment to formal democracy increased, it became a central issue for him. Chapter 18b, like his (1942) and parts of his (1996) – and, significantly, also like Frank (1951) – shows his concern to determine conditions which allow a consensus to be formed that does not come automatically.[168] Mostly, however, Neurath engaged with the formal representation problem and argued that the comparative investigations and assessments of alternative social orders and alternative courses of economic action required concepts not found in market economics. Calculation in kind was to allow for non-compensatory multi-criteria evaluations of choice alternatives. As Tinbergen summarised: "The quality of life is a quantity which cannot be measured cardinally but only compared ordinally, while the condition of life is not one quantity but a system of quantities (or a multidimensional quantity)." (1936, 70–1) While multi-criterial choices mostly do not have a unique solution, at least they clearly exhibit the conditions at issue. By comparison, rendering these choices in terms of a common unit like money is to conceal the criteria the choice is concerned with.[169]

It may appear that what led Neurath into the professional wilderness was his failure to link up his self-consciously old-school approach to political economy with developments in economic theory that already began in his lifetime.[170] That is particularly striking with regard to the 'new welfare economics' that was emerging in the later 1930s and 1940s, roughly along the following lines.[171] Spurred on by Robbins' criticism of the supposed value-freedom of the interpersonal comparisons required for the welfare economics of Alfred Pigou and the Cambridge school, theorists like John Hicks and Nicolai Kaldor sought a position that allowed them to reject interpersonal comparisons of utility altogether. They supplanted the employment of cardinal utilities in search of optimum solutions with merely ordinal rankings of alternatives, considerations of welfare now being governed by Pareto-optimality and aided by supposedly objective compensatory mechanisms.[172] Another group of theorists comprising Abram Bergson, Paul Samuelson and later Ian Little, ordinalists who preferred to speak of preferences in place of utilities, instead made no assumptions concerning interpersonal comparability but, being critical of the compensation criterion, rejected the idea that welfare economics was non-normative. Their concern therefore became the articulation, axiomatisation and evaluation of the normative claims that were needed to get from the 'positive economics' of supply and demand to welfare economics as an inquiry into conditions of maximal efficiency.[173]

Now apart from Bergson's early and predominantly formal paper and Hick's and Kaldor's responses to Robbins, most of the important publications in that development were published after Neurath's death. Still, Neurath could not have accepted that the new welfare economics was based on the same assumptions about *homo economicus* that grounded the classical, neo-classical and Austrian economics of supply and demand. Still more important, however, Neurath would have rejected the conception of welfare itself that the new welfare economics accepted. This was the view that welfare is properly assessed by the mere aggregation of money incomes of a population without any regard to or concern for either what such income can buy or for equitable distribution.[174] As we put it earlier, in important respects Neurath remained a material welfare theorist.[175]

Yet given that the 'new welfare economics' also gave rise to social choice theory, albeit after 1945, we must also ask therefore what interest if any Neurath would have taken in the latter.[176] Here matters are somewhat different. In social choice theory Neurath would have found a natural home for two of his favourite views: that what's at issue is welfare in kind and that often these problems have no unique solutions. Of overarching importance here, of course, is the question whether social choice theory as a theory of the aggregation of political preferences is viewed as either embodying "a confusion between the kind of behaviour that is appropriate in the market place and that which is appropriate in the forum" (Elster 1986, 111) or whether it is recognised that "the format of social choice theory can be – and has been – used extensively to analyse aggregation problems with different types of preference inputs", including "other-regarding preferences" (Sen 1986, 233). Clearly, Neurath would have had little interest in the former type of social choice theory, but all the more in the latter. Given that already in 1910 (see Chapter 7; cf. 1911 [1998, I, 484]) he allowed for other-regarding pleasures he certainly would have been interested in attempts to widen the scope of rational and social choice theory. As his life-long campaign against pseudo-rationalism suggests, in rational choice theory, Neurath would have welcomed explorations of the concept of bounded rationality as initiated by Herbert Simon. As suggested by his concern for the plurality of values we bring to bear on social problems, in social choice theory Neurath not only would have been interested in what Amartya Sen calls "non-utility information" but especially in explorations of how to deal with incommensurate values and "partial orderings".[177] Neurath would also have welcomed Sen's development of parameters like "functionings", "capabilities", perhaps even "degrees of freedom of choice", to serve as indicators in his multi-criterial silhouettes for in-kind welfare reasoning. All of these developments answer to his insistence on the inescapable need for non-compensatory multi-criterial evaluation that turned Neurath into a pioneer of ecological economics.

Insofar as Neurath's project to reorient economics concerned the development of a discipline within which in-kind welfare considerations are pursued and where principles of social choice beyond pure market rationality are explored, understanding his non-standard economics means to read them as at least in part explorations of a discipline that was not yet founded in his day. Combine this with his opposition to market fundamentalism and Neurath becomes a virtual contemporary from whose insights and mistakes we might still be able to learn.[178]

NOTES

1. One well-known economist called him a "romantic economist of the Ancient Egyptian school" (*alt-ägyptischer Wirtschaftsromantiker*: Lujo Brentano quoted in Niekisch 1958, 54, 56; cf. Brentano 1931, 364). On account of his socialisation plans he was called a "communist" (*Kommunist*: Gesell 1920, 107), "Marxist economist" (Grunberger 1973, 69), "well-known social democratic theroetician" (*bekannter sozialdemokratischer Theoretiker*: Niekisch 1958, 53), "bourgeois professor" (Bukharin 1920 [1979, 217]) and "petit-bourgeois intellectual" (*kleinbürgerlicher Intellektueller*: Ay 1969, 263). On account of his activities in Munich he was designated a "fool" (*Narr*: Karl Renner, reported in Mohn 1978, 13), a "control fanatic" and "strange patron saint of the socialist revolution" (*Ordnungsfanatiker, sonderbarer sozialistischer Revolutionsheiliger*: Schippel 1920 quoted in Gehrig 1921, 282) and "insane Austrian" (*geisteskranker Österreicher*: Schricker 1934, 76).
2. See Haller (1993) and Stadler (1997) for authoritative accounts of the Vienna Circle as a whole with bibliographies of primary sources. For assessements of various aspects of logical empiricism in light of current scholarship and a bibliography of secondary materials see Richardson and Uebel (forthcoming).
3. Serious discussions of Neurath's work in English seem to have started considerably later than that of his Vienna Circle colleagues, certainly later than in other languages. See Cohen (1967); the essay collections Haller (1982), Uebel (1991), Nemeth and Stadler (1996); the monographs Zolo (1989), Uebel (1992), Cartwright, Cat, Fleck and Uebel (1996); besides a number of important essays in journals and other collections on the Vienna Circle – and further important contributions especially in the German and Italian language (e.g. Nemeth 1981).
4. While Neurath remained virtually invisible in Bruce Caldwell's survey of economic methodology (1982 [1994]), he has begun to gain recognition in D.Wade Hands' survey of the philosophy of

economics (2001) and merited an entry in Davis, Hands and Mäki (1998) – unlike in the otherwise comprehensive histories Schumpeter (1954) or Blaug (1962 [1986]) where he is not mentioned at all.

5. The thesis of Neurath as a naturalistic epistemologist was pioneered by Rudolf Haller and C.G. Hempel (see Uebel 1991) and has since been elaborated both historically and systematically (see Uebel 1992, 1996b).

6. Neurath (1913c [1998, II, 215–6]), (1921a [1973, 199]), (1932a [1983, 92]), (1937a [1983, 181]), (1944, 47). The story of Neurath's boat is told in Uebel (1996a), the phrase "reflexive epistemology" is due to Zolo (1989).

7. See Cartwright (1994) and Cartwright and Cat (1996).

8. For the first Vienna Circle see Frank (1949a), Haller (1985), Uebel (2000).

9. For Neurath's scientific biography see Fleck (1979 [1996]) and P. Neurath (1994), (1996), as well as the collage of memories of Neurath and auto-biographical passages assembled by R.S. Cohen and M. Neurath in Neurath (1973, 1–80). On the interplay of Neurath's economics and visual pedagogy see Leonard (1999).

10. Mises (1920), (1922); Weber (1921a [1978, 103–111]); Hayek (1935a).

11. See Tinbergen (1936) and Jolink (1998). The brief but sharply critical discussions of, respectively, Neurath's invention of war economics and his proposal for a moneyless economy by Adolf Weber (1925, 9) and Melchior Palyi (1925, 467–9) seem to have been the last Neurath received in the academic literature of his time (apart from Mises' and Hayek' periodic returns to the fray of the socialist calculation debate). Earlier reviews and discussions are mentioned below where appropriate.

12. Sen (1977); the phrase 'rational economics' is taken from Neurath (1935). For discussion of Neurath's opposition to *homo economicus* see Nemeth (1999a), of contemporary misgivings, see *History of Political Economy* 32 (2000) no. 4.

13. See Martinez-Alier (1987) and O'Neill (1996b), (1998). Though the distinction is not universally observed in the literature, here I follow Munda (1997) in designating by "ecological economics" an economic approach to environmental problems that is not committed to the assumptions of neo-classical economics, unlike "environmental economics" as a subdiscipline of the latter. It so happens that Neurath's remarks on the matter properly fall under the former heading. For a recent discussion of the suitability of Neurath's philosophy of science for ecological economics, see Deblonde (2001).

14. E.g., Wilhelm Neurath (1894); for discussion of his work in economics, see Uebel (1995).

15. Whether it is justified to call the early Neurath an "authoritarian liberal" like Freudenthal (1989) is another question but one that cannot be discussed here. What must be stressed here, however, is that despite his early interest in German revisionism, Neurath's socio-political engagement was rooted rather in the scientific utopianism he shared with the much admired Popper-Lynkeus and to a degree with his father Wilhelm Neurath.

16. See Fleck (1979 [1996, 54–5]).

17. To be sure, a liberal in the political, not the economic sense, even though his attitude to the market is thereby implied to have become more relaxed; see Neider (1977, 41).

18. See Streissler (2002a), (2002b); note Endres (1991) for some possible qualifications. Note also that Elster (1993, 183) considers Neurath a rational choice theorist in virtue of his repeated and early attack on pseudo-rationalism (1913d).

19. For the role of the latter two, see Leonard (1995, 1997).

20. For a variety of current views on incommensurability, see Chang (1997). Here the term is so used that, logically speaking, incommensurability does not entail incomparability, so that rational choice between incommensurables remains possible.

21. See for the former Taylor (1929) and Lange (1935–36); for the latter see e.g., Schweickart (1983), Miller (1989), Le Grand and Estrin (1989) and Roemer (1994). Austrian and German versions of market socialism from the earlier in the century are discussed in section 3.3.

22. For these points, in addition to references in fn. 13 above, see Martinez-Alier, Munda and O'Neill (1999).

23. Here we must remember that until after World War 1 sociology was not properly institutionalised as such in Germany or Austria and that social science and political economy were often conducted in philosophical modes. (Similar observations hold about psychology; see Kusch (1995).) For the social and "cultural" sciences around 1900 in Central Europe see Bruch, Graf and Hübinger (1989) and Hübinger, Bruch and Graf (1997); for the story of sociology in the European context see Lepenies (1985) and Rammstett (1988), particularly in the German context see Käsler (1984) and Stölting (1986), in the Austrian context Christian Fleck (1990).

24. There are still other debates that could be so considered, for instance, the debate over the sociology of knowledge, prompted by Karl Mannheim's *Ideology and Utopia* (1928). See Meja and Stehr (1982) for documentation, Neurath (1930a) for his contribution and Uebel (2000c) for discussion of the latter. Yet another instance is provided by the philosophical debate in the Vienna Circle over the form, content and status of empirical evidence statements; see Uebel (1992) for one reconstruction of it.

25. See the general discussions in, e.g., Ringer (1968, Ch. 3), Hansen (1968) and Mäki (1997). On the Historical School see Riha (1985, Chs. 4–6) or, more evaluatively, Schumpeter (1954, pt. IV, Ch. 4); on recent (re)evaluations of Schmoller see Peukert (2001). On the philosophical background of the Austrian School see Grassl and Smith (1986) and Smith (1994, ch.10); here note that Streissler (1990) showed that subjectivism in value theory was not an innovation of the Austrian school. Discussions of the dispute mediated through its influence on Weber are Hennis (1987), Schön (1987) and Tribe (1995, Ch.4).

26. See the general discussions in, e.g., Lindenlaub (1967, Ch. 6), Ringer (1968, Ch. 3), Gorges (1980, Ch. 6), Aldenhoff (1989), Turner and Factor (1984); again supplemented for the central figure of Weber by Krüger (1987) and Schön (1987).

27. See Hübinger (1989), Schleier (1993) and the general discussions in Ringer (1968, Ch. 5), and Iggers (1969), supplemented with a focus on Weber by Whimster (1987) and on Lamprecht by Schleier (1988).

28. For differently weighted discussions see, e.g., Dobb (1973) and the contributions in Steedman (1995).

29. For the socialist calculation debate see the references in note 10 above and differently weighted discussions in, e.g., Lavoie (1985) Chaloupek (1990), Steele (1992), Vaughn (1994), O'Neill (1996a), Desai (2002, Ch.12). For discussions of the socialisation debate see note 84 below.

30. Notably Neurath faced a moderate form of such opposition by a frequent visitor to the Circle, Felix Kaufmann in his (1936). Nowadays, naturalists concede the need for interpretation without, however, conceding the consequences alleged to follow by anti-naturalists.

31. On the concept of condition of life (*Lebenslage*) in German sociology, see Weisser (1959), (1972) and Amann (1996); on that of the standard of living generally, without any reference to Neurath, Sen (1987a). (It may be noted that Weisser claimed to have developed his concept of *Lebenslage* from that of Neurath and one developed by (the later logical empiricist) Kurt Grelling in an unpublished internal communication of Leonard Nelson's Internationale Jugendbund in 1921. Amann (1983) demonstrates the need to distinguish between Neurath's and Weisser's concepts and Lessmann (2004) argues convincingly that Grelling, who provided the blueprint for Weisser, knew of Neurath's concept but was not familiar with his theory as set out in his (1917a). Systematic comparisons between Neurath and Sen are undertaken in Nemeth (1999b) and Lessmann (2004).) For social indicators see also the discussion, without reference to Neurath, in Zapf (1973) and note the journal *Social Indicator Research*, founded in 1966. For independent discussions of Neurathian concerns in the interdisciplinary theory of social choice see Sen (1985) and in disciplines bearing on development theory see Nussbaum and Sen (1993).

32. See references in fns. 13 and 22 above and O'Neill (1993).

33. It is noted in this introduction mainly to complete the picture of Neurath as social scientist; its 'physicalist' and 'unified science' aspects are further discussed as background sect. 4.1 below.

34. In this introduction, translations from sources listed in the bibliography without English translations are by the present author. Where possible, existing translations have been used and any deviations from them are indicated specifically.
35. It was published in Viktor Böhmert's *Der Arbeiterfreund*, one of the few journals that carried an obituary for his father.
36. See Lamprecht (1886). In the course of responding to his critics in the 1890s, however, Lamprecht increasingly 'psychologised' his views; see Schleier (1988).
37. In Vienna, cultural history found notable champions in the philosopher Friedrich Jodl (1878) and in the educationalist Ludo Moritz Hartmann and the legal theorist Carl Grünberg, the later 'father of Austro-Marxism', who founded the *Zeitschrift für Wirtschafts- und Sozialgeschichte* in 1893.
38. Compare Meyer (1902) and Weber (1906). Weber shared Meyer's anti-positivism but defended against his misunderstanding Rickert's conception of *geisteswissenschaftlich* history as making inevitable reference to contemporary significance.
39. See Tönnies (1900), a sharp polemic against Rickert's rigid separation of nomothetic or generalising natural sciences from the ideothetic or individualising historical sciences.
40. Like Weber in his critique, Neurath may have viewed with suspicion also Meyer's dichotemy of free will and historical causality and approved efforts to replace his contrast of accidental and necessary events with that of events at best accidentally related and those whose causal relation is adequately understood, even though Weber's own Neokantian allegiances may have worried him. However, Neurath did not yet comment on either of these points.
41. This is also one aspect of the debate between Meyer and Bücher, discussed below.
42. Compare Neurath's discussion of "Phases of Culture" in the translation of his *Anti-Spengler* (1921 [1973, 163–175]).
43. The demands of psychologically based comparative political histories in antiquity and early modern times required a different conception (undulatory-static) than did the Christian philosophy of history (linear-evolutionary). Neurath noted that the stage theory did not find systematic use until the middle of the 18th century.
44. In this respect too, his father's writings provided examples: "[T]hose theories of money always and everywhere appear correct which correspond to the needs of those countries which possess preponderance in the world market . . ." (Wilhelm Neurath 1880, 503)
45. See Finlay (1979) for relevant reprints of contributions by Bücher, Meyer and Beloch.
46. Weber seems to have misread Meyer when he objected that Meyer falsely rejected all use of specific economic categories for the history of antiquity (1909, Introduction). In any case, the inclusion of Bücher (1914) in the multi-volume *Grundriss der Sozialökonomik*, which Weber edited, suggests that in the end he sided with Bücher (cf. Tenbrück [1987]).
47. Weber argued in (1896), (1989) and (1909) that capitalism was faced by severe impediments to its development. For discussion and comparison of Weber's thesis with recent research see Love (1991); for other recent scholarship on the economic history of antiquity, see also Heichelheim (1958–70); for a useful supplementary bibliography on the economics of antiquity see Sect. 6 of the "Translator's Introduction" in Weber (1976).
48. Compare Weber (1896 [1988, 408–411]), (1898, 82–84) and (1909 [1988, 360–363]).
49. Readers of Neurath's monograph also may wonder why Weber's great encyclopedia article of 1909, *The Agrarian Sociology of Ancient Civilizations*, or indeed its precursor of 1898, are not referred to in the brief references to the literature in the Preface. The short answer is that the publication of the former coincided with that of the first edition of Neurath's monograph, whose references were not enlarged for the second edition. (Weber's name is mentioned, however, in the reduced introductory chapter "The Development of the Economic History of Antiquity" of the second edition.) The longer answer would seem to be, first, that the 1898 version was much shorter and did not compare with the many-volume studies which Neurath did list and, second, that both it and its book-length successor appeared only as encyclopedia articles and remained inaccessible on their own. Precisely that was the criterion of relevance by reference to which Neurath decided to restrict his references to easily available classical authors only and do without a proper

scholarly apparatus. In his time, this frugality does not seem to have counted against Neurath's monograph. The Social Democratic historian Heinrich Cunow in his 1918 review of the second edition spoke of the "justified esteem" in which the first edition was held, bemoaning its reduction by more than a third (and the "increase in contemporary analogies"!). Also the editors of Weber's lectures on universal social and economic history list the second edition under "Bibliographical aids and general overviews" (see Weber 1923 [1924, 18].)

50. See Weber (1988, 495) and (1921b, 488), respectively; the relevant part of the letter of 4 October 1919 is translated as the motto of Tribe (1995, Ch. 6).

51. The very first of these, Neurath (1909b), developed proposals for "unredeemable giro money in war" which Neurath incorporated in the present selection.

52. Neurath himself deemed it important enough to include it in his collection of essays *Durch die Kriegswirtschaft zur Naturalwirtschaft* (Through War Economy to Economy in Kind, 1919), like "War Economics as a Separate Discipline".

53. For helpful discussions of Neurath's war economics – mostly independent of each other – see Raupach (1966); L. Fleck (1979 [1996, 14–18]); Tribe (1995, Ch. 6); Pircher (1999).

54. See Raupach who also notes that the introductory passages of "War Economy" reveal "*in nuce*" important components of economic theories developed since: "the macro-economical welfare calculus, the holistic approach to the national economy and the dynamic theory – all viewed under the desideratum of mathematical representability" (1966, 89).

55. According to Neurath's curriculum vitae submitted for his habilitation at the University of Heidelberg, June 1917, this project was delegated to him by Philippovich and Böhm-Bawerk. (See Uebel (2000a, 311–312) for a quote of relevant parts.) Neurath's brief correspondence with Böhm-Bawerk supports this reading.

56. The economic focus of Neurath's observations may be compared with the political one of Trotsky's articles on the Balkan Wars in (1980).

57. Compare Hilferding (1910) and see Wilhelm Neurath (1896, 1897, 1899) and the discussion in Uebel (1995).

58. Franz Eulenburg and Max Weber may serve as an example of the first category; Johann Plenge, author of the notoriously chauvinist and *völkisch* "ideas of 1914", exemplifies the second category in a fashion diametrically opposed to Neurath. For discussion of the debate see Krüger (1983, Chs. 7–8).

59. Some critics like Franz Eulenburg (1916/17, 1918) questioned whether the success of war economy was not at the cost of private consumption and long-term private investment, suggesting that the principles of market economy were at best suspended in war. (Neurath obviously had a different prognosis: his answer (1918) to the first Eulenburg paper prompted the rejoinder.) In his letter to Neurath of October 4, 1919 (noted above) Weber in effect sided with Eulenburg's judgements there and his comment at the meeting of the Verein für Sozialpolitik in September 1919, dedicated to the issue of socialisation, that Neurath's socialisation ideas were "naive" (1920, 213n). Given his own remarks on in-kind economies in (1921a), however, Weber did not deem them unworthy of discussion, as Eulenburg did.

60. This is a point also made in Günther (1921), a sympathetic review of Neurath (1919c) which selects as "most valuable" the essays of this collection dealing with war economy, contrasting them in this regard with his socialisation plans for Saxony (1919g).

61. See Neurath (1919d [1973, 22]), Mühsam (1929 [1978, 48]) and Nielsen and Uebel (1997).

62. See Fleck (1982) and Uebel (1996, 107–111).

63. See again Neurath's curriculum vitae, submitted for his habilitation at the University of Heidelberg, June 1917; the relevant parts are quoted in Uebel (2000, 311–12).

64. (1910e, title page). It would seem to follow that the note of approbation was inserted prospectively or that the re-publication of the book was delayed until early in 1911, the official date of publication notwithstanding.

65. See Verein (1913); its small edition was sent only to committee members, presumably contributors and association members who registered to attend the discussion meeting (Boese 1939, 145).

Boese (ibid., 147–148) appears to be the only report about this meeting. He named the Marxist social historian and political economist Carl Grünberg as the main adversary of Weber and Werner Sombart as his only supporter. Whether Neurath was present at the meeting is unclear since he is not mentioned by Boese.

66. The lecture was entitled "Kriegswirtschaft, Verwaltungswirtschaft, Naturalwirtschaft" (War Economy, Administrative Economy, Economy in Kind) (see Dahms 1994). A paper of that name (1917c) was published in the same year and reprinted in Neurath's 1919 collection. Its content overlaps with our Chapters 6 and 9.

67. Another important document is his (1911), a translation of which could not be included in this volume.

68. It would seem that Neurath was not aware of the work of American institutionalists like Thorstein Veblen and a certain convergence of their criticisms of neo-classical economics, as in Veblen (1909).

69. Spann became a leading advocate of the increasingly *völkisch Ständestaat* in Austria before the *Anschluss* in 1938. (Neurath criticised his metaphysical sociology in his *Empirical Sociology* of 1931). Cassel became the leading exponent of equilibrium economics in Germany in the 1920s.

70. In addition we must note Neurath's familiarity with then cutting-edge philosophers of science like the French conventionalists Henri Poincaré and Pierre Duhem, the English Machian Pearson and the Italian Frederigo Enriques.

71. See Neurath (1911 [1998, 500]) for comments on Schumpeter's delimitation of economics in price theory in (1908, 28–29); see Schumpeter (1914, 22–23) for his interpretation of Aristotle.

72. Thus note also Mises' categorical determination: "Economic science originated in discussions of money price of goods and services." (1922 [1951, 111]).

73. Mises commented on this opposition to Schumpeter in his (1933 [1960, 33]). Much of Mises' and Hayek's rhetoric to the contrary, then, anti-apriorism is not to be equated with a derogatory attitude towards mathematical economics or the embrace of historicism.

74. See Köhler (1982 [1991]) and Bergström (1982) for discussion of Neurath (1912).

75. E.g., Hicks and Allen (1934) and Stigler (1950), though both also note that Pareto's exposition does not always bear this out. Pareto himself noted that his argument was anticipated by Irving Fisher, a theorist nowhere mentioned by Neurath.

76. See Bruni and Guala (2001) for a review and critique of interpretations to this effect. Interestingly enough, Neurath does not mention their point of apparent agreement, even though he includes Pareto under the heading of "authors who in many respects are of the same opinion" as himself (1911 [1998, 494]). Instead, in his (1910) he criticised Pareto's employment of *homo economicus* and his failure to provide a theory of economic crises (as he also did later in his (1931a) and (1944)), while in his (1911) he criticised Pareto's decision only to consider continuous functions, his use of the concept of "closely adjacent utilities" – and his residual tendency to think in terms of cardinal utility ("hills of pleasure").

77. See Hicks and Allen (1934) for the former and Samuelson (1938) for the latter; for a recent criticism of the latter see Hausman (1992, 20–22).

78. For more on Neurath's relation to the so-called 'new welfare economics', see sect. 5 below.

79. The term is taken from Cooter and Rappaport (1984) who denote by this theorists like Marshall and Pigou. The latter was explicitly concerned with "economic welfare" (1920, Ch.1). Significantly, this school of economic thought was only gradually replaced once Robbins definition of economics had become common coin in the 1930s and 40s – even though the possibility to do without utility for supply and demand theory had been known for much longer (as was also noted by Stigler (1950) whose assessment of the advance of the ordinalist revolution differs from that of Cooter and Rappaport).

80. Note also that Neurath did not reject neoclassical economics *tout court* but rather wished to broaden the scope of possible economic investigations beyond those that took its axioms as given – a point also clearly made at the end of Chapter 6. What may be called his 'rejection' of neoclassical economics must be understood in this sense.

81. On the history of the German revolution, see the reasoned resumée by Kluge (1985) and compare, e.g., the near-contemporaneous participants' reports by Ströbel (1920) and Müller (1925).
82. The standard apology was canonised early on by the Majority Social Democrat Paul Kampffmeyer writing in the revised fifth edition of his standard history of German Social Democracy that it was the opposition of the radical left that "forced" Ebert and Scheidemann "to rely on the support of the old army, mostly still lead by reactionary officers" (1920, 146). Importantly, this line accused not only the anti-parliamentarian agitation by the Bolshevist Spartacists but especially the unwillingness of the Independent Social Democrats to grant Majority Social Democrat Noske *carte blanche* for the military suppression of the Spartacists still before the armed revolt that ended with the murder of Luxemburg on 15 January 1919.
83. See Schumann in (Neurath 1973, 16). In the view of an anarchist leader of the later Munich soviet republic who valued the radicality of some of his ideas, Neurath did so out of (midguided) "opportunistic motives" (Mühsam 1929 [1978, 47]).
84. For overviews of the socialisation debate in Germany and Austria see the reasoned resumée by Weissell (1976) and compare, e.g., the near-contemporaneous report by Ströbel (1921), the analyses by Weil (1921) and Greiling (1923). For a *real*-political assessement for the foreign public of the outcome of the discussions about works councils see Frenkel (1923), of the socialisation proposals see Frenkel (1924). For a reasoned resumée of the force of the political council or soviet movement in the German revolution see Kolb (1972).
85. For overviews of the Bavarian revolution see, e.g., the succinct summary in Kluge (1985, 129–135) and compare the conflicting and not always reliable histories in Mitchell (1967) and Beyer (1982); see also Neurath's autobiographical report (1919d).
86. See Eisner (1979) and Friedel (1993).
87. Letter to Alfred Kubin 12 May 1919, quoted in Hoffmann (1979, 32–33). We may note a special status of Munich revolution in three respects: (i) it was the most pronouncedly revolutionary episode of the German revolution of some endurance; (ii) it was the focus of an artistic and ethical movement that sought to counteract the authoritarian mentality of the past with educational and cultural measures; (iii) years later, it became a Nazi enblem of the widely projected bolshevik-Jewish conspiracy and of the threat from within that earlier had supposedly undermined the promising German war effort.
88. For a study of Jaffé, a noted academic economist and former colleague of Weber who became involved in the Bavarian revolution, see Krüger (1983).
89. See also the biographical accounts by Fleck and Paul Neurath (note 9).
90. For a comparative analysis see Nielsen and Uebel (1998); on Neurath's utopias also Nemeth (1982).
91. Famously, Weber also called his 'ideal types' – thought constructs which distill certain phenomena to a degree of purity that is not met with any experience and whose employment Neurath was to reject strongly in later years – "utopias" (1904 [1949, 90]). The obvious difference is that for Weber ideal types are constitutive of distinctive forms of understanding not found in the natural sciences, whereas for Neurath utopias but inform decisions about action.
92. Ballod (1898 [1919, 2]) quoted this passage with evident approval.
93. Neurath divided opinions also along metascientific lines: Gitterman (1921) denied the Munich *Gutachten* any scientific standing and Gehrig (1921) bemoaned that even scientific journals considered his a scientific achievement.
94. For variants of these types see Kautsky (1919), Bauer (1919), Korsch (1919) and Carr (1951, Ch. 20).
95. See Reichswirtschaftsministerium (1919), Wissell and Moellendorff (1919) and Sozialisierungskommission (1920). The composition of the commission changed over time. For the 1919 report the following members are listed: the well-known economists Ballod, Hilferding, Lederer, Schumpeter, Wilbrandt, the historian Cunow, the trade unionists Hué and Umbreit, the conservative *Sozialpolitiker* Vogelstein and one Francke, alongside Kautsky. The 1920 commission included of these only Ballod, Hilferding, Hué, Kautsky, Lederer, Schumpeter, Umbreit,

Vogelstein, but had new members including Wissell and the industrialists Rathenau and Siemens.

96. What Wissell called "planned economy", Neurath called "administrative economy" and, together with Ballod, comprehended under "total socialisation". Unlike in the first edition of (1898), Ballod also demanded total socialisation in its second edition in 1919, and preferred territorially limited total socialisations to the proposed partial socialisations of certain branches of industry still in the third edition of 1920, but gave up these demands in light of the changed situation in the last edition of 1927. (According to a newspaper report of the trial of Neurath in July 1919, however, Ballod expressed himself sceptically about total socialisation even then (in Weber 1988, 493n).)

97. For a comparison of Neurath's programme with Karl Korsch's and Otto Bauer's, see Fleck (1979 [1996, 22–9]). While nowadays – and here – "planned economy" and "(centralised) administrative economy" are used as synonyms (following Weber 1921a [1978, 111]), they were associated with different plans at the time: "planned economy" with Wissell-Moellendorff's scheme, "centralised administrative economy" with Neurath's.

98. For instance, see Ströbel (1921 [1922, 14–15]) and Landauer (1959, 1611). Kluge notes that in certain respects, as in constitutional matters, the Social Democratic leadership may have consciously aimed to "accomodate the 'progressive bourgeoisie' " (1985, 168). For a more recent condemnation of the anti-utopianism of Marxism see Lukes (1984).

99. Raupach (1966) advanced the hypothesis that some of the concepts realised in the Soviet Union's centralised administrative economy found their origin in Neurath's *Durch die Kriegswirtschaft zur Naturalwirtschaft* (1919c) which, given the news about the Bavarian revolution, was bound to have found its way to interested Soviet planning theorists. (Grossman (1990) simply asserts that the Soviet command economy's conceptual origins "go back" to Neurath.) Raupach is vague as to which aspects of "the Soviet economic planning in *statu nascendi*" (1966, 100) are indebted to Neurath. Following Carr (1951, 373), he noted that by the end of 1920 Lenin himself was familiar with the (translated) 2nd edition of Ballod's *Zukunftstaat* (which adopted Neurath's concept of total socialisation but did not discuss him further). On the other hand, Pollock's detailed account of the various forms of planned economy in the first ten years of the USSR (1929) does not mention Neurath at all and Kowalik (1990a) notes that comprehensive central planning was first realised only with the first five-year plan of 1928. Raupach's hypothesis may appear to find support from the fact that earlier attempts to do without a market altogether were made in the last phase of war communism, before the market was reinstituted as a central part of the 'new economic policy' in 1921. Importantly, however, even these early radical attempts were undertaken, despite all the official rhetoric to the contrary, without an overall comprehensive economic plan. The practical 1920 plan for the electrification of the entire USSR – which Lenin compared with Ballod's theoretical "lone-wolf effort" (1921 [1989, 295]) – remained, as Lenin also stressed, "the only serious work" on integrated economic planning (ibid., 292). On account of this failure, Ballod published a critical first-hand study of Soviet war communism (1920) and Ströbel stressed that Neurath's plans have "nothing in common with the manner in which 'total socialisation' has been carried out in Russia" (1921 [1922, 78]). This would suggest that Neurath's influence on war communism, if it obtained at all, was only fragmentary. Now Bukharin, who both had a hand in war communism and devised the new economic policy, was familiar with Neurath's talk to the Munich workers council (1919e) as documented by various criticisms of Neurath's unpolitical stance there in his own treatise on war communism (1920 [1979, 217, 230, 232]), where an economic plan is vaguely presupposed but not discussed in any detail, and Neurath's schemes can also assumed to have been known to Eugen Varga, the later Comintern economist, whose account of the economic efforts of the also short-lived Hungarian Soviet republic (1920) was published by the same cooperative as Neurath (1919d). Schematic outlines of central planning and steps to the moneyless economy that broadly agree with Neurath's proposals were also given in Bukharin and Preobrazhensky (1919 [1972, 32–40]), yet without mentioning Neurath or the attendant problems which are at least catalogued in Neurath's talk. (Previous remarks by Soviet leaders on the socialist

economy were even less detailed, as in Lenin (1917 [1972, 26]).) By 1924, however, Bukharin argued that central planning had become obsolete (Schlesinger 1969, 316) and he was no longer involved in instituting the command economy of the five year plans from 1928 (which in part still used monetary calculation in computing its measures, as did the earlier "balance of the national economy" for 1923/24, published in 1925–26). This strongly suggests that the long-term influence of Neurath's writings on the Soviet command economy, if any, was extremely diffuse. – Note, by the way, that the question of Neurath's influence is tangentially related to a recent debate about whether Soviet war communism exemplified the shortcomings of marketless criticised by Mises (Boettke 1988, 1990). It would appear that with war communism lacking an "integrated economic plan", Mises victory was assured but (*pace* Boettke) far too easy to be as yet generalised. – For an assessment of Soviet economic theory, see, e.g., Howard and King (1989, Ch. 15) and (1992, Chs. 1–3) and of the Soviet planning experience, e.g. Ellman (1979); for documentation of the Soviet discussions of 1924–1930, see Spulber (1964).

100. See Werner (1920, 39) for a contemporary and Beyer (1982, 61) for a retrospective expression of the communist party view of Neurath. For criticism of the communists in Munich from the Austrian socialist perspective in direct response to Werner, see Helene Bauer (1920).

101. Such suspicions may even be encouraged by our translation of *Vollsozialisierung* as "total socialisation", following on from Neurath (1973). It should not: the term *Vollsozialisierung* was widely used, even by socialisation commission in 1920 for whom it meant something different, namely, 'nationalization' of certain industries. That for Neurath 'socialization' made sense only when applied to all of industry was the point of his use of *Vollsozialisierung*, where *voll* – translated as 'total' – is used in the sense of 'whole' as in 'wholemeal'.

102. See the socialisation schemata in Neurath (1920c), (1920d), (1920e) and (1920f). This explicitly "political" dimension of his socialisation schemes – so designated as distinct from the "economic" dimension in (1920c) and (1920e) – was left out in the schemata concentrating on the economic organisation in (1920a) and (1920b): it superordinates to the Central Economic Administration a not further specified form "government" which in turn is subordinate to a not further specified body of "representatives of the people".

103. The *allgemeine Arbeitspflicht* was affirmed in Schumann (1919) and Neurath and Schumann (1919); note also that Ballod (1899 [1919, 25]) spoke of an *Arbeitspflicht*, unlike its first edition, and that Popper-Lynkeus all along spoke of a *Nährpflicht*, a conscription to a work (not military) service in (1878), (1912). The Kranold-Neurath-Schumann programme's "refusal to recognise unearned income" can be widely interpreted so that it disallows, as intended, only the 'rentier' but allows for independent artists as well as capitalists-turned-administrators (owners of means of production without executive power over them). Note also that even far less centralistic and "technocratic" schemes than Neurath's, like the political council systems, were severely restrictive in another sense in denying to those capitalists the right to vote in the elections of the political councils (Schneider and Kuda 1968, 41). It would appear that few socialists, if any, of the first half of the 20th century were prepared to provide basic income to wilfully 'unproductive' members of society, just like unadulterated free-market systems and even the 'welfare state' – with the difference, of course, that the latter systems allow for private ownership of means of production with executive power and 'rentierdom'.

104. Readers who find this focus excessive may not that other publications of Neurath's in which versions of this socialisation plan are promoted include Neurath and Schumann (1919), Neurath (1919d, 1919g, 1920c, 1920d, 1920e, 1921c, 1922a).

105. Its editors at its relaunch in 1904 were Max Weber, Edgar Jaffé and Werner Sombart. By 1920, the editorship had effectively become Emil Lederer's, with Joseph Schumpeter and soon Alfred Weber as co-editors.

106. In the same volume 48 there are contributions to this topic also by Josef Schumpeter, Emil Lederer, Carl Landauer; volume 49 contained an important essay by Karl Polanyi. Mises had begun the calculation debate already in volume 47 and was to continue it in volumes 51 and 60. That Neurath's "A System of Socialisation" does not contain any recognition of Mises' challenge is

explained by having been written before the latter was published. Both volumes 47 and 48 are dated identically, namely, "1920/21", and, as their outside front covers indicate, their issues were published alternately: 47.1 (containing Mises) in April 1920, 48.1 (containing Neurath) in August 1920, 47.2 in January 1921, 47.3 in August 1921, 48.3 in December 1921 (only 48.2 contained no indication of its date of publication). The inside front cover of issue 47.1 previewed the table of contents of 48.1 (including Neurath). (Neurath's parallel publication "Total Socialisation" has its preface dated July 1919 but was not published until 1920.)

107. Other authors in the series were Walter Rathenau, his secretary and editor Erich Schairer, Neurath's own collaborator from Saxony, Wolfgang Schumann. (Wissell's collaborator Moellendorf had been, together with Rathenau, one of the organizers of the German war economy, installed by the military.) See the back cover of the original of Neurath (1920a) and Stark (1981, 144).

108. Having found its previous first formulation in Neurath and Schumann (1919, 15), this argument was later briefly summarised in (1928a [1973, 263]) and from there found its way into the modern ecological literature; on the 1928 reprise, see Martinez-Alier (1987 [1990, 216]) and O'Neill (1993, 116), on the 1925 argument, see Uebel (forthcoming).

109. The differentiation of these arguments is not uncontroversial. See Boettke (1998) for the view that while differences remain there is no conflict between Mises' and Heyek's arguments; for other views, see note 154 below.

110. Weber's and Mises' arguments were developed independently of each other (and of Brutzkus who developed similar arguments at the time in Russia). Weber's arguments are part of a manuscript left incomplete at his death in April 1920 and later edited by his widow as *Economy and Society*, published in 1921; the cross-reference to Mises' article there (1921a [1978, 107]) as about to appear while the book was in print was inserted still by Weber himself (see editorial comment in Weber 1921a [1956, xxvii]). Yet note that Weber's negative assessment of socialism in a lecture of 13 June 1918 in Vienna was still entirely innocent of the calculation argument even though it prefigured his 1919 criticism of Neurath by stating that the political advance of a revolution would be undermined by economic disaster (1918 [1994, 301]). Again, Neurath's forceful advocacy may have provided the prompt for further specification of the anti-socialist argument.

111. For discussions of Weber's argument, see Steele (1992, 85–87), Tribe (1995, 159–161) and Parsons (2003, 55–59); for a controversial comparisons with Mises' argument see Hutchison (1953, 300–302) and Parsons (2003, Ch. 7).

112. Weber did not mention Schäffle. Besides alleging motivation deficits and infringements of the sovereignty of labour and consumption, Schäffle had argued that with the labour theory of value unable to allow for the proper mediation of supply and demand and no replacement in sight, under socialism supply and demand "would fall into a hopeless quantitative and qualitative discrepancy" (1875 [1892, 87]). The prehistory of the socialist calculation debate must remain undiscussed here, but for some brief remarks on Schäffle see Hutchison (1953, 293–296) and for sketches of the pre-Misean debate see Mises (1922 [1951, 135n (added in 2nd ed.)], Hayek (1935a, 24–9) and Steele (1992, 73–84).

113. Robbins' later arguments (1932) against welfare economics as based on assumptions of intersubjective comparability of utility also turned on the unscientific nature of subjective valuations.

114. Since Neurath responded to Hayek only after the latter's campaign started in 1935, I return to the Neurath-Hayek debate below in section 4.3.

115. It is regrettable that Neurath did not specify his reaction to the synpathetic criticism of his work received from Arthur Cohn which he mentioned in passing in his (1925a). Cohn's attempt in (1920, 129) to recommend Neurath's talk of "general system of wages and prices" in (1920a) as a promising development of Schäffle's idea of socially determined wages (an idea shared by Wilhelm Neurath) was, predictably, sharply criticised in Mises (1924). For critical responses to Neurath (1925a) see Mises (1928) and Chaloupek (1990). Neurath (1925b) has been wholly overlooked by opponents and supporters alike, even more so than his (1935).

116. "We see at once that a description in terms of business cycles which reports, e.g., on prices and wages, but not on the amount of products consumed or on unemployment, may perhaps be important for the theory of monetary profit, but not for the theory of economic productivity." (1935a [1987, 86; transl. altered]) "*Wirtschaftlichkeit*" is here translated with economic productivity; in the translations in this book it has often been translated also as economic efficiency.
117. Even the passage in his *Foundations of Social Science* which scandalised American colleagues and which seemingly placed Neurath to the left of Stalin – "The money taboo is so general that even in the Soviet Union the study of money-free societies has been abandoned as a kind of 'left deviation'." (1944, 40) – only (again) speaks of the study, not of the creation, of money-free societies in the context of arguing for the calculation in kind as appropriate to considerations of welfare.
118. On the basis of the same inconclusive evidence, of course, it might also be held by contrast that Neurath simply preferred to keep quiet about his continued advocacy of centrally planned economies. Neurath's options are discussed further in section 5 below.
119. Incidentally, this system was not adopted in the USSR, Eastern Europe or China. For discussion of the Lange-Lerner system see Kowalik (1990b), of Yugoslavian and Hungarian experiments in 'real existing' market socialism see Brus (1990) and Nove (1990).
120. For an overview of that discussion, see Chaloupek (1990).
121. For a discussion of the turn-of-the-century debates around Böhm-Bawerk's critique, see Kurz (1995) and compare Schumpeter (1954 [1986, 912–916]); for a succint summary of the post-Sraffa debate of the labour theory of value, see (Steedman 1979); for discussions of both see also Howard and King (1989–92).
122. This is one, but not the only indicator of Neurath's for his time non-standard Marxism represented in Chapter 12, another being his 'humanist' Marxism before the redicovery of the early Marx.
123. In Berlin, Neurath also studied statistics with Bortkiewicz and his (1910b) and (1911) he cited Bortkiewicz' critique of Marx (1906–07) which contains a review of the debate of the transformation problem to date; on his return to Vienna he attended seminars by Böhm-Bawerk whose attempted refutation of Marx (1896) had precipitated the debate between Austrian and Marxist economics and also featured in the seminar discussions (Kurz 1995, 13).
124. See also Neurath's debates with Helene Bauer (Neurath 1923a, 1923b; H. Bauer 1923) and the monograph by Otto Leichter (1923), who opposed Kautsky's strictures (1902), (1922) against calculating in labour units.
125. "Money is neither a yardstick of value nor of prices. Money does not measure value. Nor are prices measured in in money: they are amounts of money." (Mises 1920 [1935, 98] and 1922 [1951, 115]) "[T]he same monetary value is not the equivalent of some other quantity, nor is it somehow correlated with one." (Neurath 1935 [1987, 88]))
126. Fittingly though, when praising its demonstration of the greater productivity of socialist form of production he stressed that Ballod's model should only be consider an illustrative example, not a blue-print (Ballod 1898, xviii).
127. Kautsky's answer was not free of a somewhat utopian streak of its own: "Once workers and consumers are combined in one organisation in such wise that neither can dominate the other, they would have to endeavour to overcome their antagonism by means beneficial to both. To find the solution is the task of the men of science who are to be recruited for the organisation of the economy as a third factor. They have to bring it about that the most perfect technique and organisation is applied in every enterprise and that the smallest effort effects the greatest result. Under socialism there are no more profits, but its driving force is replaced by an at least equally strong one once the contrast between consumers and producers is properly organised and is enabled to be overcome by scientific intervention." (1919, 14)
128. Kautsky cited only Neurath's Munich talk; we must leave it open here whether already Chapter 10 and 11 present arguments to counter him.

129. Similarly, Käthe Leichter (1923) opposed Neurath's attempts in (1922a) to marry the concept of guild socialism with his socialisation plans as contradictory and running roughshot over the former's aim to effect socialisation from below, but she disregarded entirely Neurath's self-conscious effort to wean guild socialism of its tendency towards what theorists like Korsch had called 'worker capitalism'.

130. It may be noted that Neurath (and Mises) received support from an unlikely corner: still in 1932 Friedrich Pollock of the Frankfurt Institute für Sozialforschung declared his "conviction" that the idea of "a socialist economy which retains the market, money, credit, etc. is self-contradictory" (1932, 411).

131. Kautsky's argument shows a trend positivists later would be tempted to call 'metaphysical'. "We may . . . regard the labour-value as a reality. All the same, it remains merely a tendency. It is real, but not tangible and exactly measurable. Measurements are only possible in the case of its temporary phenomenal form, price. We are unable exactly to calculate and to fix the value of a commodity. Value is a social magnitude which can only be detected through observation of the conditions of production. The law of value operates in the following manner. Whenever the market prices of commodities exhibit wide or continuous deviations from their value, certain factors of resistance are set up, in consequence of which alterations are introduced into the conditions of production which have the effect of counteracting the deviation of price from value." (1922 [1925, 266]).

132. See B. Kautsky (1926) and (1932) and the references given in fns. 124 and 129.

133. For a fairly balanced assessment of the Marxist credentials of Neurath's socialisation schemes, see Greiling (1923).

134. The latter reviewer's earlier study of concepts of socialisation had lauded Neurath's conception of total socialisation for its consistency but criticised that the comprehensive economic plan and its central agency could only be the end result of socialisation and could not stand at its beginning (Weil 1921). As Weiss (1922) pointed out, this point rendered Weil's criticism of Otto Bauer's gradualism moot. Incidentally, like Friedrich Pollock and Max Horkheimer, Felix Weil had been in Munich during the time of the Bavarian revolution; later, backed by his father's funds, he was the major force in the creation of the Frankfurt Institut für Sozialforschung, first under Carl Grünberg and later under Max Horkheimer (see Migdal 1981). Weil (1926) also betokens a great interest for the Soviet experiment at the Frankfurt Institute, as does Pollock's work at the time: (1929), (1932).

135. Compare Hayek (1942–44 [1961, 78–85]); for discussion see Uebel (2000b) and O'Neill (2003).

136. The original term used by Neurath in a letter to Carnap of 21 June 1935 was "Gesamthaltung". See also note 5.

137. On Neurath's protocol statements see Neurath (1932a) and Uebel (1992, Ch. 11).

138. After the Amsterdam congress Neurath travelled on to give a presumably related presentation at a summer academy in Geneva organised by the League of Nations (according to letters to Carnap of 22 July and 17 August 1931).

139. Given that several high-ranking members of the Soviet State Planning Commission (Gosplan) participated in the Amsterdam conference (they gave a report on the Soviet planning experience (see Fledderus 1931, 492)), Neurath's lecture may well have combined, together with other contacts, to lead to the subsequent appointment of Neurath and members of his team at the Social and Economic Museum in Vienna as director and instructors at the newly founded Institute Isostat (Institute for Pictorial Statistics) in Moscow in November 1931, on a contract to develop information and propaganda material and train local staff that ran until the end of 1934 and was not renewed. See Stadler (1984) for information about the extent of this cooperation and Neider (1977, 41) for Marie Neurath's retrospective question to her husband: "Tell me, how can you explain that we got fooled so much in Moscow? After all, we had no idea of the scandalous states of affairs."

140. This claim was later turned into an inflexible dogma by Popper for all of science and turned agianst Neurath: "It would not be a sign of laudable scientific caution if we were to add such

a [validity-limiting] condition [on laws], but a sign that we do not understand scientific procedure." Popper (1944–45 [1961, 103]).

141. Eg.: "[F]or strictly logical reasons, it is impossible for us to predict the future course of history." (Preface to 1961 reprint of Popper 1944–5)

142. See Horkheimer (1937). Below I follow the revealing research of Dahms (1994) and (1997).

143. Given that both Horkheimer and Pollock, as well as Felix Weil, had been present as students in Munich during the time of the Bavarian revolution and so witnessed Neurath's engagement there; that via Weil (1921) they can be presumed to be acquainted with Neurath's socialisation plans; that Pollock even shared Neurath's conception of market-free socialism; and that at their first meeting in 1935 Horkheimer was given relevant Vienna Circle literature by Neurath – including, we can presume, his own *Empirical Sociology* (which for Schlick was too Marxist by half) – one may add that Horkheimer's charge of conservatism and facilitating the "transition to an authoritarian philosophy" like Mussolini's cannot be considered other than as an intentional misinterpretation better befitting party hacks in the intra-left warfare that followed the collapse of the 'popular front' against Nazism in 1937–38.

144. Descriptions and analyses are given in Dahms (1994, 166–174) and O'Neill and Uebel (2004).

145. For discussions of the early Frankfurt School's research project and its abandonment see Dubiel (1978) and contributions in Benhabib, Bonss and McCole (1993).

146. According to the inside of its front cover, the new journal was dedicated to "establishing and developing an Anglo-American-Russo-Western-European cultural co-operation". The first issue (nos. 1 and 2) was planned for 1940 but delayed until 1946 by the war. It included a General Part (featuring now, besides different introductions, an obituary for Neurath), a Dutch Section, a British Section (featuring an essay by Joseph Needham on the "International Science Co-operation Service Plan"), an American Section, a French Section, a Significs Section, a Section: Unity of Science Movement (edited by Philipp Frank and Charles Morris and containing now Neurath's last piece), as well as a Russian Section (containing a page on "Stalin on Science").

147. So the constitution of the Institute as rendered in *London Quarterly of World Affairs*, July 1944, 33. *The London Quarterly of World Affairs* (in which Chapters 18b and 18c appeared) was the successor of *The New Commonwealth Quarterly* (where Chapter 18a was published as was "International Planning for Freedom"). Neurath was member of the editorial board of both.

148. It may be noted that the international dimension of Neurath's ideas about planning was nothing new in the 1940s. Already in the context of war economics he discussed "international trade by exchange" (1917d); after the upheavals of the German revolution he argued for a pluralist conception of international socialism on the basis that socialism does not require identical organisation in all countries (1921b, 1922b); and in sect. 3 of his *Personal Life and Class Struggle* he again discussed ethnic and racial tolerance and "world justice" as well as forms of social and economic organisation independent of "detachable national units" (1928a [1973, 266–275]).

149. About democratic socialism, whose brief description here is reminiscent of G.D.H. Cole's guild socialism – which in his (1922a) he had briefly championed in part as an initial step towards total socialisation – Neurath noted that "up to the present such an organisation is only a programme" (1942 [1973, 436]).

150. "Personal independence and rigid order, voluntary cooperation and superimposed regulations, democracy and one-party system must not only be regarded as 'measures' in accordance with which the standard of living may rise or fall, but also as elements of this standard of living, perhaps competing with technical efficiency. . . . Taking all arguments into account we may discuss freedom as a pattern of habits and behaviour, characterised by a certain multiplicity and disparity of actions and ask how a society, a single state or a world commonwealth, may 'produce' this pattern of freedom." (1942 [1973, 423, 431])

151. How much Hayek was aware of this reorientation at the time or recognised it as such even later is not easy to say. As it happens, the very nature of the relation between Mises' and Hayek's

arguments has long been a matter of debate. Already Abram Bergson's 1948 review of the debate noted "two views" (1948 [1966, 233]): according to the "logical" interpretation adopted by Lange (1935–36) and Schumpeter (1943) Mises' claim that rational calculation was impossible in a socialist economic system had been refuted already by Pareto and Barone (and again by Lange and Lerner), whereas for Hayek (1935b, 1940) Mises's point was that "there is no practical way of realising" this rationality (Bergson 1948, [1966, 233–4]). Ian Little also held that "at a logical level" Mises' argument was answered by Lange and Lerner, but considered their "competitive solution to be of "highly dubious applicability" (1950 [1957, 260, 273]). More recent commentators are still divided on the matter. Rajiv Vohra has it that Hayek "changed the focus" of Mises arguments (1990, 198), while for Albert Weale Hayek "pressed the argument further" (1992, 332). Historians and sympathisers of the Austrian school tend to side with Hayek and reject the claim that he provided a new or different argument: Don Lavoie denies that Mises ever denied the logical possibility of socialism but concedes that Hayek provided "clarification, redirecting the challenge" to market socialism (1985, 20–21). But while Lavoie admits that "some of Mises' remarks to the contrary, Mises does not offer a strict proof or demonstration that [non-factor-market] socialism cannot work", David Ramsey Steele's reconstruction holds Mises' argument to be essentially the same as Hayek's even though he concedes that in the course of Hayek's argument "a new understanding of the market developed" (1992, 21 and 121). Similarly, Karen Vaughan has Hayek paying only "greater attention to the details of individual economic decision making" (1994, 54) and Peter Boettke holds that any difference between their arguments is essentially expository (1998). By contrast, for the Hayek interpreter Jeremy Shearmur there are "important developments in Hayek's work on the problem of socialist calculation which go beyond what is to be found in Mises" (1996, 48), while for John O'Neill Hayek "shifted the debate onto different grounds" such that the currently favoured judgement that Mises won the debate is in fact misleading (1996a, 433). (For further references to recent arguments internal to Austrian economics (Salerno, Yeager), see Boettke (1998).)

152. Note that, of the critics mentioned in the previous note, neither Lange, Schumpeter, Bergson or Little (or Vohra's and Weale's short entries) even mention (let alone discuss) Neurath: Hayek's phrase "the most interesting and in any case the most representative for the still very limited recognition of the nature of the economic problems involved is a book by Dr. O. Neurath which appeared in 1919" (1935a [1948, 30]) seems to have rendered further mention otiose. Steele rehearses and Vaughn briefly revisit Hayek's scenario, while Lavoie focusses only on the post-1935 English-language debates and wrongly claims that the preceding "German debate in almost all respects involves the same arguments" (1985, 6). Except for O'Neill neither of these authors reassesses Hayek's scenario, however.

153. How gradual this process was is easy to miss. After the first sentence in the last quote above from the 1940 paper Hayek referred to his (1937), but there the issue of a plan replacing the automatic function of the market was not raised explicitly, but only obliquely: "The problem which we pretend to solve is how the spontaneous interaction of a number of people, each possessing only bits of of knowledge, brings about a state of affairs in which prices correspond to costs, etc., and which could be brought about by deliberate direction only by somebody who possessed the combined knowledge of all those individuals. Experience shows us that something of this sort does happen . . ." (1937 [1948, 50–1]). Importantly, Hayek's (1937) originally did not contain in footnote 16 the reference to Mises' argument against economic planning (a passage from Mises (1920) retained in Mises (1922 [1932])) but a reference, deleted in the reprint, to a different distinction drawn by Alfred Ammon. The epistemological argument for the market and prices was stated in full clarity and generality only in Hayek (1945).

154. O'Neill (1996a) suggests that on the purely epistemological level Hayek and Neurath in effect, but unbeknownst to them, join forces.

155. Hayek explicitly excluded so-called socialisation proposals that proposed "individual socialised industries in an otherwise competitive system" (1935a [1948, 142]) from his criticisms and accepted in passing "the very necessary planning which is required to make competition as effective and beneficial as possible" (1944, 42). Yet in his Finlay Lecture of 17 December 1945 in

Dublin he claimed "we are in fact rapidly moving from a society of free individuals toward one of completely collectivist character" (1946 [1948, 1]).

156. Neurath's reference to Spengler at the end of his Preface to Chapter 12 suggests that his opinion of his work was more positive at this point in time, that is, before he witnessed the public discussion between him and Max Weber in February 1920 in Munich; see Dahms and Neuman (1994, 132–133) and Baumgarten (1964, 554).

157. How welfare goals determined by reasoning in kind are most economically implemented in production decisions remained an issue, of course, but it was one whose solution obviously depended on the computational principles along which given production systems operated. For formal discussion of "output and price policy in public enterprises" see Little 1950 [1957, Ch. 11]). For informal dicussion, see the chapter on "Measurement of Efficiency" in a reader on nationalization published under the aegis of the Royal Institute for Public Administration in 1963 reprinted a paper accepting the need for "rational pricing" and arguing for money costing of factors of production and internal competion in nationalised industries (Ardant 1953), an overall aim also accepted by a reprinted study on public transport which nevertheless defended keeping some unprofitable services to fulfill a public obligation (Elliot 1958).

158. This does not mean, of course, that Neurath had no more arguments with Hayek besides their methodological disagreements. Rather, following the publication of of *Roads to Serfdom*, Neurath attempted to arrange for a public debate and even prepared an initial document for discussion, albeit with little success or interest from his critic. See the correspondence Neurath-Hayek in Wiener Kreis Archiv, Rijksarchief Noord-Holland, Haarlem.

159. For the former see references in fn. 21 above, for the latter see Albert and Hahnel (1991), Laibman (1992), Cockshott and Cottrell (1993), and Devine (1988) and (2002). For debates between market and non-market socialist, see, e.g., Roemer and Bardan (1993) and Ollman (1998).

160. One eminent Marxist scholar who not only early on noted Neurath's connexion to Austro-Marxism (1973, 5) but appears to have taken on board some of Neurath's views of what the issue is was Tom Bottomore; see especially the penultimate paragraph of his (1990, 134–135).

161. For instance, methodologically, Neurath was neither an Aristotelian like Menger nor a radical apriorist like Mises, but a post-Machian non-reductivistist positivist whose fallibilism resembled Popper's who, however, espoused an explicitly anti-positivist stance; see Section 1.1 above.

162. Saul Kripke's footnote comment in his much discussed book on Wittgenstein concerning a potential parallel between Mises' calculation argument and Wittgenstein's private language argument (1982, 112–113n) was picked up and 'corrected' from the Misean perspective by Don Lavioe (1985, 173n.). Jordi Cat recently provided a Neurathian response, arguing that no incoherence resulted from the joint championing of central planning and of his own private language argument (2000).

163. For a recent argument to similar conclusions on the national scale from contemporary social policy theorists see Le Grand, Propper, Robinson (1992).

164. For the global and environmental argument see, e.g., Martinez-Alier (1995).

165. Significantly enough, the route towards development planning was taken by Jan Tinbergen – whatever his personal differences with Neurath in the late 1930s (when he was still immersed in business cycle problems) and whatever the differences in calculation methods used by the Netherlands Central Planning Bureau (which he directed from 1945) – who combined interest in economic planning and policy in non-socialist societies with efforts to assess material welfare. In 1967 he published his *Development Planning*, a survey of issues and methods in third world development and in the mid-1970s he directed a multi-author study for the Club of Rome on the need for and possibilities of a new "international order" (Tinbergen, Dolman, Ettinger 1977).

166. See Polanyi (1944). The phrase 'market fundamentalism' is taken from Soros who defines it as the belief that "efficient markets assure the best allocation of resources and that any intervention, whether it comes from the state or from international institutions, is detrimental" (2000, xxiv).

167. Neurath himself seems show some oblique awareness of this when he suggested that orthodox economics be treated "anthropologically as a piece of modern ethnology" (1944, 39).

168. Whatever that consensus-forming mechanism would be, the consent required now had better be an informed one and Neurath stressed again, as he had done in Munich, the information providing role of planning theorists and experts: "only to prepare arrays of possible solutions" (1942 [1973, 426–7]; cf. 1919f [1973, 152–3]).

169. Importantly, Neurath's idea of multi-criteria evaluation is different from recent economic theories of this name which deal with portfolio analysis and the like (see, e.g. Zeleny (1982)). For developments in non-compensatory multicriterial evaluation in the sense intended by Neurath, see Martinez-Alier, Munda, O'Neill (1999, sects. 3 and 4).

170. Neurath noted early on the tendency of 'the modern school' to write old-fashioned welfare theory (*Reichtumslehre*) out of the discipline and the profession. Neurath's defense did not succeed: in the end he himself was written out of the profession. Thus note that the International Encyclopedia of Unified Science monograph dedicated to economics does not have a single reference to Neurath, even though it discusses not only econometrics but also welfare economics and economic policy: see Tintner (1968).

171. For remarks on the emergence of the 'new welfare economics', see, e.g., Samuelson (1947 [1953, Ch. 8]) and Little (1950 [1957, Ch. 1]). The current received history is succinctly summarised in Sen (1970, 56–7) and Gibbard (1986, 166–67). For a critical view of the new welfare economics in historical perspective see Cooter and Rappoport (1984).

172. E.g.: "If A is made so much better than off by the change that he could compensate B for his loss, and still have something left over, then the reorganisation is an unequivocal improvement." (Hicks quoted in Sen 1970, 56).

173. See Bergson (1938), Samuelson (1947 [1953, Ch. 8]), Little (1950).

174. Neurath would have agreed with Jacob Viner's judgement that "a calculus of welfare which abstracts from inequalities in the distribution of wealth and income is a *Hamlet* with Hamlet omitted form the cast" (1925 [1966, 307]).

175. Tinbergen may be remembered in this context too. Long after his interactions with Neurath, he not only sought to return welfare economics from its overwhelming concern with questions of "how much work we must do and how much consumption and investment [is needed], and at what prices all goods and services will be sold" (1972, 26) back to the issue of "the complete set of institutions and their instruments" (1964, 592) or "the set of social institutions and the instruments of socioeconomic policy they apply" (1965 [1985, 145]) – including the issue of "what flows of information are needed for the decision-making processes that characterizing the optimum" (1969, 129) – but he also explored the question of measures of social welfare to include not only the means to satisfy "material" individual and social needs but also "non-material" ones like education, culture, justice and freedom" (1959, 269) as well as other criteria of "happiness" well beyond the criterion of national expenditure (1981, 1983). Tinbergen's global environmental concerns are evident in the Club of Rome report Tinbergen, Dolman, Ettinger (1977).

176. The thematic connexion between the two disciplines is made evident in Arrow (1951, Ch.1); see also Sen (1970, 33–35).

177. For the theory of bounded rationality, see papers collected in Simon (1982); for the relevant parts of social choice theory see Sen's remarks in the Introduction to his (1982, 25–31), the papers collected there in Part IV (ibid., Chs. 13–16) as well as Sen (1985), (1987b), (1988), (1999, Ch. 3).

178. For patient encouragement and many helpful comments I wish to thank my co-editor Robert S. Cohen and for numerous discussions also Elisabeth Nemeth and John O'Neill. For bibliographical help and other assistance with editorial matters I am happy to thank, in addition, Norman Geras, Eckehart Köhler, Ortrud Lessmann, Paul Neurath (†), Christoph Schmidt-Petri, Friedrich Stadler and Sang Yi. Assistance from the University of Manchester Research Support Fund is gratefully acknowledged. Special thanks go to Susan Watt and young Felix for their love and support.

REFERENCES

Albert, Michael, and Robin Hahnel, 1991, *The Political Economy of Participatory Economics*, Princeton University Press, Princeton, NJ.

Aldenhoff, Rita, 1989, "Nationalökonomie und Kulturwerte", in Bruch, Graf, Hübinger 1989, 45–62.

Amann, Anton, 1983, *Lebenslage und Sozialarbeit. Elemente zu einer Soziologie von Hilfe und Kontrolle*, Duncker & Humblot, Berlin.

Amann, Anton, 1996, "Theories of Life Conditions since Otto Neurath – Some Fragments", in Nemeth and Stadler 1996, 215–221.

Anon., 1909, "[Notice] O. Neurath, *Antike Wirtschaftsgeschichte*, Teubner, Leipzig, 1909", *Archiv für Sozialwissenschaft und Sozialpolitik* 24, 622.

Ardant, Gabriel, 1953, "The Measurement of Productivity in State Undertakings", *Annals of Collective Economy* 24, repr. in Hanson 1963, 422–429.

Arrow, Kenneth J., 1951, *Social Choice and Individual Values*, Wiley & Sons, New York, 2nd ed. 1963.

Atlanticus [= Ballod], 1898, *Prodution und Konsum im Sozialstaat*, Dietz, Stuttgart.

Ay, Erwin, 1969, "Zur Rolle Otto Neurath's in der Novemberrevolution (Ein Beitrag zur Auseinandersetzung mit revisionistischen Auffassungen)", *Wissenschaftliche Zeitschrift der Ernst-Moritz-Arndt-Universität Greifswald, Gesellschafts- und sprachwissenschaftliche Reihe* 18, 259–264.

Ballod, Karl, 1919, *Der Zukunftsstaat. Prodution und Konsum im Sozialstaat*, Dietz, Stuttgart (= rev. ed. of Atlanticus 1898), 2nd rev. Aufl. 1920, 3rd rev. ed. *Der Zukunftstaat. Wirtschaftstechnisches Ideal und volkswirtschaftliche Wirklichkeit*, Laub, Berlin.

Ballod, Karl, 1920, *Sowjet-Russland*, Verlagsgenossenschaft Freiheit, Berlin.

Barone, Enrico, 1908, "Il Ministro della produzione nello Stato Coletivista", *Giornale degli Economisti* 37, trans. "The Ministry of production in the Collectivist State" in Hayek 1935c, 245–290.

Bauer, Otto, 1919, *Der Weg zum Sozialismus*, Wiener Volksbuchhandlung, repr. in Bauer, *Werkausgabe vol. 2*, Vienna, 1976.

Bauer, Helene, 1920, "Die Kommunisten und die bayrische Räterepublik", *Der Kampf* 13, 178–184.

Bauer, Helene, 1923, "Geld, Sozialismus und Otto Neurath", *Der Kampf* 16, 195–202.

Baumgarten, Eduard (ed.), 1964, *Max Weber: Werk und Person*, Mohr, Tübingen.

Benhabib, Seyla, Wolfgagg Bonss and John McCole (eds.), 1993, *On Max Horkheimer. New Perspectives*, MIT Press, Cambridge, Mass.

Bergson, Abram [pseud. Burk], 1938, "A Reformulation of Certain Aspects of Welfare Economics", *Quarterly Journal of Economics* 52, repr. in Bergson 1966, 1–26.

Bergson, Abram, 1948, "Socialist Economics", in H. Ellis (ed.), *A Survey of Contemporary Economics*, Philadephia, Penn., repr. in Bergson 1966, 193–236.

Bergson, Abram, 1966, *Essays in Normative Economics*, Harvard University Press, Cambridge, Mass.

Bergström, Lars, 1982, "Interpersonal Utility Comparisons", in Haller 1982, 283–312.

Beyer, Hans, 1982, *Die Revolution in Bayern 1918–19*, Deutscher Verlag der Wissenschaften, Berlin.

Blaug, Mark, 1962, *Economic Theory in Retrospect*, Richard Irwin, 4th rev. ed., Cambridge University Press, Cambridge, 1985.

Boeckh, August, 1886, *Enzyclopaedie und Methodologie der philologischen Wissenschaften*, 2nd ed., Teubner, Berlin, excerpts trans. and ed. by J. Pritchard *On Interpretation and Criticism*, Norman, Oklahoma, 1968.

Böhm-Bawerk, Eugen von, 1896, "Zum Abschluss des Marxschen Systems", in O. V. Boenigk (ed.), *Staatswissenschaftliche Arbeiten. Festgabe für Karl Knies*, Haering, Berlin, transl. *Karl Marx and the Close of his System*, 1898, repr. ed. by P. M. Sweezy, Augustus M. Kelley, New York, 1949.

Boese, Franz, 1939, *Geschichte des Vereins für Sozialpolitik*, Berlin.

Boettke, Peter J., 1988, "The Soviet Experiment with Pure Communism", *Critical Review* 2, repr. in Boettke 2001, 77–104.

Boettke, Peter J., 1990, "The Political Economy of Utopia. Communism in Soviet Russia 1918–21", *Journal des Economists et des Etudes Humaines* 1, repr. in Boettke 2001, 105–159.

Boettke, Peter J., 1998, "Economic Calculation. The Austrian Contribution to Political Economy", *Advances in Austrian Economics* 5, repr. in Boettke 2001, 29–46

Boettke, Peter J., 2001, *Calculation and Coordination. Essays on Socialism and the Transitional Economy*, Routledge, London.

Bonn, M. J., and M. Palyi (eds.), 1925, *Die Wirtschaftswissenschaft nach dem Kriege. Festgabe für Lujo Brentano zum 80. Geburtstag*, *Zweiter Band: Der Stand der Forschung*, Duncker & Humblot, Munich/Leipzig.

Bortkiewicz, Ladislaus von, 1906–07, "Wertrechnung und Preisrechnung im Marxschen System", *Archiv für Sozialwissenschaft und Sozialpolitik* 23, 1–50; 25, 10–51 and 445–488.

Bottomore, Tom, 1990, *The Socialist Economy. Theory and Practice*, Harvester Wheatsheaf, Hemel Hampstead.

Bottomore, Tom, 1978. "Introduction", In T. Bottomore and P. Goode (eds.), *Austro-Marxism*, Oxford University Press, Oxford, 1–45.

Brentano, Lujo, 1931, *Mein Leben im Kampf um die soziale Entwicklung Deutschlands, Diederichs*, Jena.

Breysig, Kurt, 1900–01, *Kulturgeschichte der Neuzeit*, 3 vols., Bondi, Berlin.

Bruch, Rüdiger vom, Friedrich W. Graf, Gangolf Hübinger (eds.), 1989, *Kultur und Kulturwissenschaften um 1900: Krise der Moderne und Glaube an die Wissenschaft*, Steiner, Stuttgart.

Bruni, Luigino, and Francesco Guala, 2001, "Vilfredo Rareto and the Epistemological Foundations of Choice Theory", *History of Political Economy* 33, 21–49.

Brus, W., 1990, "Market Socialism", in Eatwell, Milgate and Newman 1990, 164–177.

Bücher, Karl, 1893, *Die Entstehung der Volkswirtschaft*, Berlin, 2nd ed. 1898.

Bücher, Karl, 1914, "Volkswirtschaftliche Entwicklungsstufen", in K. Bücher, E. v. Philoppvich, J. Schumpeter 1914, 2nd ed. 1924, 1–18.

Bücher, Karl, Eugen von Philippovich, Joseph Schumpeter, 1914, *Grundriss der Sozialökonomik. I. Abteilung. Historische und theoretische Grundlagen, 1. Teil. Wirtschaft und Wirtschaftswissenschaft*, Mohr, Tübingen, 2nd enlarged ed. 1924.

Bukharin, Nikolai I., 1920, *The Economics of the Transition Period* (Russian), Moscow, transl. in Bukharin, *The Politics and Economics of the Transition Period*, ed. by K. J. Tarbuck, Routledge, Kegan Paul, London, 1979, 53–176.

Bukharin, Nicolai I and E. Preobrazhensky, 1920, *The ABC of Communism* (Russian), Moscow, transl. London, 1922, excerpts repr. in Nove and Nuti 1972, 32–40.

Caldwell, Bruce, 1982, *Beyond Positivism. Economic Methodology in the 20th Century*, Unwin, London, rev. ed. Routledge, London, 1994.

Carnap, Rudolf, Hans Hahn, Otto Neurath, 1929, *Wissenschaftliche Weltauffassung. Der Wiener Kreis*, Wolf, Vienna, transl. "Scientific World Conception. The Vienna Circle", in Neurath 1973, 299–318.

Carnap, Rudolf, 1932, "Die physikalische Sprache als Universalsprache der Wissenschaft", *Erkenntnis* 2, trans. *The Unity of Science*, Kegan, Paul, Trench Teubner & Co., London, 1934.

Carnap, Rudolf, 1936/37, "Testability and Meaning", *Philosophy of Science* 3, 419–471 and 4, 1–40.

Carr, Edward H., 1951, *The Bolshevik Revolution 1917–1923. Volume Two*, Macmillan, London.

Cartright, Nancy, 1994, “Fundamentalism versus the Patchwork of Laws”, *Proceedings of the Aristotelian Society* 103, repr. in Cartwright, *The Dappled World*, Cambridge University Press, Cambridge, 1999, 23–34.

Cartwright, Nancy, and Jordi Cat, 1996, “Part Three: Unity of the Earthly Plane”, In Cartwright, Cat, Fleck and Uebel 1996, 167–252.

Cartwright, Nancy, Jordi Cat, Lola Fleck and Thomas Uebel, 1996, *Otto Neurath: Philosophy Between Science and Politics*, Cambridge University Press, Cambridge.

Cat, Jordi, 2000, “Social Rationality and Objectivity in Neurath’s Scientific Philosophy and Economics. Is there a Tension between Neurath’s Private Language Argument and his Central Planning Model?”, paper given at HOPOS 2000 forthcoming in Nemeth, Stagl and Uebel.

Chaloupek, Günther K., 1990, “The Austrian debate on economic calculation in a socialist economy”, *History of Political Economy* 22, 659–675.

Chang, Ruth (ed.), 1997, *Incommensurability, Incomparability, and Practical Reason*, Harvard University Press, Cambridge, Mass.

Cockshott, Paul, and Allin Cottrell, 1993, *Towards a New Socialism*, Spokesman Books, Nottingham.

Cohen, Robert S., 1967, “Neurath, Otto”, in P. Edwards (ed.) *Encyclopedia of Philosophy*, Macmillan / Free Press, New York, vol. 6, 477–479.

Cohn, Arthur Wolfgang, 1920, *Kann das Geld abgeschafft werden?*, Fischer, Jena.

Cooter, Robert, and Peter Rappoport, 1984, “Were the Ordinalists Wrong about Welfare Economics?”, *Journal of Economic Literature* 22, 507–530.

Cunow, Heinrich, 1918, “[Review] O. Neurath, Antike Wirtschaftsgeschichte, 2. umgearbeitete Auflage, Leipzig 1918”, *Die Neue Zeit* 37, 71–72.

Dahms, Hans-Joachim, 1994, *Positivismusstreit. Die Auseinandersetzungen der Frankfurter Schule mit dem logischen Positivismus, dem amerikanischen Pragmatismus und dem kritischen Rationalismus*, Suhrkamp, Frankfurt a. M.

Dahms, Hans-Joachim, 1997, “Der Positivismustreit. Ein kritischer Rückblick”, in F. Stadler (ed.), *Bausteine wissenschaftlicher Weltauffassung*, Springer, Vienna, 75–89.

Dahms, Hans-Joachim and Michael Neumann, 1994, “Sozialwissenschaftler in der Münchner Räterepublik”, *Jahrbuch für Soziologiegeschichte 1992*, ed. by C. Klingemann et al., Leske + Budrich, Opladen, 115–146

Davis, John B., D. Wade Hands and Uskali Mäki (eds.), 1998, *The Handbook of Economic Methodology*, Elgar, Cheltenham.

Deblonde, Marian K., 2001, *Economics as a Political Muse. Reflections on the Relevance of Economics for Ecological Policy*, Kluwer, Dordrecht.

Desai, Meghnad, 2002, *Marx’s Revenge. The Resurgence of Capitalism and the Death of Statist Socialism*, Verso, London.

Devine, Pat, 1988, *Democracy and Economic Planning. The Political Economy of a Self-Governing Society*, Westview Press, Boulder, Colorado.

Devine, Pat (ed.), 2002, *Building Socialism Theoretically: Alternatives to Capitalism and the Invisible Hand*, Spring Issue, *Science and Society* 66, no. 1.

Dobb, Maurice, 1973, *Theories of Value and Distribution since Adam Smith*, Cambridge University Press, Cambridge.

Dubiel, Helmut, 1978, *Wissenschaftsorganisation und politische Erfahrung: Studien zur frühen Kritischen Theorie*, Suhrkamp, Frankfurt a. M., transl. *Theory and Politics. Studies in the Development of Critical Theory*, MIT Press, Cambridge, Mass., 1985.

Eatwell, John, Murray Millgate and Peter Newman (eds.), 1990, *The New Palgrave: Problems of the Planned Economy*, Norton, London.

Eisner, Freya, 1979, *Kurt Eisner: Die Politik des libertären Sozialismus*, Suhrkamp, Frankfurt a. M.

Elliot, John, 1958, “Efficiency versus Cost in in Public Transport”, *Journal of the Institute of Transport* 27, repr. in Hanson 1963, 444–450.

Ellman, Michael, 1979, *Socialist Planning*, Cambridge University Press, Cambridge.

Elster, Jon, 1986, "The Market and the Forum: Three Varieties of Political Theory", in Elster and Hylland 1996, 103–132.

Elster, Jon, 1993, "Some Unresolved Problems in the Theory of Rational Behavior", *Acta Sociologica* 36, 179–190.

Elster, Jon and Aanund Hylland (eds.), 1986, *Foundations of Social Choice Theory*, Cambridge University Press, Cambridge.

Endres, A. M., 1991, "Menger, Wieser, Böhm-Bawerk and the Analysis of Economizing Behaviour", *History of Political Economy* 23, 279–299.

Eulenburg, Franz, 1916/17, "Zur Theorie der Kriegswirtschaft. Ein Versuch", *Archiv für Sozialwissenschaft und Sozialpolitik* 43, 349–358.

Eulenburg, Franz, 1918, "Die wissenschaftliche Behandlung der Kriegwirtschaft", *Archiv für Sozialwissenschaft und Sozialpolitik* 44, 775–785.

Eulenburg, Franz, 1920, "Arten und Stufen der Sozialisierung", *Schriften des Verein für Sozialpolitik* 159, 207–250.

Fechner, Gustav, 1860, *Elemente der Psychophysik*, 2 vols., Breitkopf & Härtel, Leipzig, 1st vol. transl. *Elements of Psychophysics I*, Holt, Rinehart and Winston, New York, 1966.

Feinstein, C. H. (ed.), 1969, *Socialism, Capitalism and Economic Growth. Essays Presented to Maurice Dobb*, Cambridge University Press, Cambridge.

Finlay, Moses I. (ed.), 1979, *The Bücher-Meyer Controversy*, Arno, New York.

Fleck, Christian, 1990, *Rund um Marienthal. Von den Anfängen der Soziologie in Österreich bis zu ihrer Vertreibung*, Verlag für Gesellschaftskritik, Vienna.

Fleck, Karola, 1979, Otto Neurath. Eine biographisch-systematische Untersuchung, PhD dissertation, Karl-Franzens-Universität Graz, rev. and transl. as "Part 1: A Life between Science and Politics" in Cartwright, Cat, Fleck and Uebel, 1996, 7–88.

Fleck, Lola, 1982, "Otto Neurath's Beitrag zur Theorie der Sozialwissenschaften", in Stadler (ed.) 1982, transl. "Otto Neurath's Contribution to the Theoru of Social Sciences" in Uebel (ed.) 1991, 203–208.

Fledderus, M. L. (ed.), 1931, *World Social Economic Planning. The Necessity for Planned Adjustment of Productive Capacity and Standards of Living*, International Industrial Relations Institute, The Hague.

Frank, Philipp, 1917, "Die Bedeutung der physikalischen Erkenntnistheorie Ernst Machs für das Geistesleben unserer Zeit", *Die Naturwissenschaften* 5, transl. "The Importance for Our Times of Ernst Mach's Philosophy of Science" in Frank 1949b, 61–79.

Frank, Philipp, 1949a, "Historical Introduction", in Frank 1949b, 1–51.

Frank, Philipp, 1949b, *Modern Science and its Philosophy*, Harvard University Press, Cambridge, Mass.

Frank, Philipp, 1951, *Relativity – A Richer Truth*, Knopf, New York-London.

Frenkel, Emil, 1923, "The German Works Councils", *Journal of Political Economy* 31, 708–736.

Frenkel, Emil, 1924, "The Status of 'Socialisation' in Germany", *Journal of Political Economy* 32, 68–85.

Freudenthal, Gideon, 1989, "Otto Neurath: From Authoritarian Liberalism to Empiricism", in M. Drascal and O. Gruengard (eds.), *Knowledge and Politics*, Westview, Boulder, 207–240.

Friedel, Helmut (ed.), 1993, *Süddeutsche Freiheit. Kunst der Revolution in München 1919*, Galerie im Lenbachhaus, Munich.

Gehrig, 1921, "[Review] A. Ammon, *Die Hauptprobleme der Sozialisierung*, Leipzig, 1920; G. Jahn, *Verstaatlichung und Vergesellschaftung*, Berlin 1920; O. Neurath, *Die Sozialisierung Sachsens*, Chemnitz, 1919", *Jahrbuch für Gesetzgebung, Verwaltung und Volkswirtschaft im Deutschen Reich* 45, 279–284.

Gesell, Silvio, 1920, "Verteidigungsrede", in R. Hoffmann, *Die Freiwirtschaft vor Gericht*, Freiland-Freigeld-Verlag, Erfurt, repr. in R. Engert, *Silvio Gesell in München 1919*, Fachverlag für Sozialökonomie, Hannoversch Münden, 1986, 88–111.

Gibbard, Allan, 1986, "Interpersonal comparisons: preference, good, and the intrinsic reward of a life", in Elster and Hylland 1986, 165–193.

Gittermann, M., 1921, “[Review] Otto Neurath, Wesen und Weg der Sozialisierung”, *Archiv für Geschichte des Sozialismus und der Arbeiterbewegung* 9, 153–156.

Gorges, Imela, 1980, *Sozialforschung in Deutschland 1972–1914.Gesellschaftliche Einflüsse auf Themen- und Methodenwahl des Vereins für Sozialpolitik*, Schriften des Wissenschaftszentums, Berlin, repr. Hain, Frankfurt, 1986.

Grassl, Wolfgang, and Barry Smith (eds.), 1986, *Austrian Economics. Historical and Philosophical Background*, Croom Helm, London.

Greiling, W., 1923, *Marxismus und Sozialisierungstheorie*, Vereiningung Internationaler Verlagsanstalten, Berlin.

Grossman, Gregory, 1990, “Command Economy”, in Eatwell, Millgate and Newman 1990, 58–62.

Grunberger, Richard, 1973, *Red Rising in Bavaria*, Barker, London.

Günther, Ernst, 1921, “[Review] Friedrich Muckle, Das Kulturideal des Sozialismus; Robert Wilbrandt, Sozialismus; Otto Neurath, Von der Naturalwirtschaft zur Kriegswirtschaft”, *Zeitschrift für Sozialwissenschaft* 12 (Neue Folge) 101–106.

Hahn, Frank, 1982, “On Some Difficulties of the Utilitarian Economist”, in A. Sen and B. Williams (eds.), *Utilitarianism and Beyond*, Cambridge University Press, Cambridge, 187–198.

Haller, Rudolf, 1993, *Neopositivismus. Eine historische Einführung in die Philosophie des Wiener Kreises*, Wissenschaftliche Buchgesellschaft, Darmstatt.

Haller, Rudolf (ed.), 1982, *Moritz Schlick – Otto Neurath. Ein Symposion*, *Grazer Philosophische Studien* 16/17.

Hands, D. Wade, 2001, *Reflection without Rules*, Cambridge University Press, Cambridge.

Hansen, Reginald, 1968, “Der Methodenstreit in den Sozialwissenschaften zwischen Gustav Schmoller und Karl Menger: seine wissenschaftshistorische und wissenschaftstheoretische Bedeutung”, in A. Diemer, ed., *Beiträge zur Entwicklung der Wissenschaftstheorie im 19. Jahrhundert*, Hain, Meisenheim, 137–173.

Hanson, A. H. (ed.), 1963, *Nationalization. A Book of Readings*, Allen and Unwin, London.

Hausman, Dan, 1992, *The Inexact and Separate Science of Economics*, Cambridge University Press, Cambridge.

Hayek, Friedrich A. von, 1935a, “The Nature and History of the Problem”, in Hayek 1935c, 1–40, repr. in Hayek 1948, 119–147.

Hayek, Friedrich A. von, 1935b, “The Present State of the Debate”, in Hayek 1935c, 201–243, repr. in Hayek 1948, 148–180.

Hayek, Friedrich A. von (ed.), 1935c, *Collectivist Economic Planning. Critical Studies on the Possibilities of Socialism*, Routledge and Sons, London.

Hayek, Friedrich A., 1937, “Economics and Knowledge”, *Economica* 4, repr. in Hayek 1948, 33–56.

Hayek, Friedrich A., 1939, “The Economic Conditions of Interstate Federalism”, *New Commonwealth Quarterly* 5 (September 1939), repr. in Hayek 1948, 255–72.

Hayek, Friedrich August, 1940, “Socialist Calculation: The Competitive Solution”, *Economica* 7, repr. in Hayek 1948, 181–208.

Hayek, Friedrich A., 1942–44, “Scientism and the Study of Society” *Economica* 9–11, repr. in Hayek, *The Counter-Revolution of Science. Studies in the Abuse of Reason*, Free Press, New York, 1952, repr. Liberty Fund, Indianapolis, 1979, 17–182.

Hayek, Friedrich A., 1944, The Road to Serfdom, University of Chicago Press, Chicago.

Hayek, Friedrich A., 1945, “The Use of Knowledge in Society”, *American Economic Review* 35, repr. in hayek 1948, 77–91.

Hayek, Friedrich A., 1946, “Individualism: True and False”, repr. in Hayek 1948, 1–32

Hayek, Friedrich A., 1948, *Individualism and Economic Order*, University of Chicago Press, Chicago.

Hayek, Friedrich A., 1981, “Foreword”, in 1981 edition of Mises 1922, xix–xxiv.

Heap, Shaun Hargreaves, Martin Hollis, Bruce Lyons, Robert Sugden and Albert Weale, 1992, *The Theory of Choice. A Critical Guide*, Blackwell, Oxford.

Heichelheim, Fritz M., 1958–70, *An Ancient Economic History*, transl. by J. Stevens, vol. 1, 1958, vol. 2 1964, vol. 3 1970, Sijthoff, Leyden.

Hennis, Wilhelm, 1987, "A Science of Man: Max Weber and the Political Economy of the German Historical School" in Mommsen and Osterhammel 1987, 25–58.

Hicks, John and R.G. Allen, 1934, "A Reconsideration of the Theory of Value", *Economica* 1, 52–76, 196–219.

Hilferding, Rudolf, 1910, *Das Finanzkapital*, Wiener Volksbuchhandlung, Vienna, transl. *Finance Capital*, Routledge & Kegan Paul, London, 1980.

Hoffmann, Justin, 1979, "Künstler und ihre Revolution", in Friedel 1979, 29–60.

Horkheimer, Max, 1937, "Der neueste Angriff auf die Metaphysik", *Zeitschrift für Sozialforschung* 6, transl. "The Latest Attack on Metaphysics" in Horkheimer, *Critical Theory. Selected Essays*, Continuum, New York, 1972.

Howard, M. C. and J. E. King, 1989, *A History of Marxian Economics. Vol. 1, 1883–1929*, Princeton University Press, Princeton.

Howard, M. C. and J. E. King, 1992, *A History of Marxian Economics. Vol. 2 1929–1990*, Princeton University Press, Princeton.

Hübinger, Gangolf, Rüdiger vom Bruch, Friedrich W. Graf (eds.), 1997, *Kultur und Kulturwissenschaften um 1900. Idealismus und Positivismus*, Steiner, Stuttgart.

Hübinger, Gangolf, 1989, "Kapitalismus und Kulturgeschichte", in Bruch, Garf, Hübinger 1989, 25–44.

Hutchison, Terence W., 1953, *A review of Economic Doctrines 1870–1929*, Clarendon Press, Oxford.

Iggers, Georg G., 1969, *The German Conception of History*, Wesleyan Universitry Press, Middletown, Conn.

Jodl, Friedrich, 1878, *Die Culturgeschichtsschreibung, ihre Entwicklung und ihr Problem*, Halle.

Jolink, Albert, 1998, "Dissolving Borders: Tinbergen and the Unified Sciences", Paper presented at European Conference on the History of Economics (ECHE '98), Antwerp, 23–5 April 1998.

Käsler, Dirk, 1984, *Die frühe deutsche Soziologie 1909 bis 1934 und ihre Entstehungsmillieus*, Westdeutscher Verlag, Opladen.

Kampffmeyer, Paul, 1920, *Die Sozialdemokratie im Lichte der Kulturentwicklung*, 5th rev. ed., Vorwärts, Berlin.

Kaufmann, Felix, 1936, *Methodenlehre der Sozialwissenschaften*, Springer, Vienna.

Kautsky, Benedikt, 1926, "[Review] Otto Neurath, *Wirtschaftsplan und Naturalrechnung*", *Die Gesellschaft* 3, 90–96.

Kautsky, Benedikt, 1932, "Statistik in Bildern?", *Die Gesellschaft* 9, 171–174.

Kautsky, Karl, 1902, *Die soziale Revolution, Bd. II: Am Tage nach der Revolution*, Stuttgart, Dietz, 2nd rev. ed. 1906, 3rd ed. Vorwärts, Berlin, 1911, transl. *The Social Revolution and On the Morrow of the Revolution*, London 1907.

Kautsky, Karl, 1919, *Was ist Sozialisierung? Referat auf dem 2. Reichskongress der Arbeiter-, Soldaten- und Bauernräte 14. April 1919*, Verlagsgenossenschaft Freiheit, Berlin.

Kautsky, Karl, 1922, *Die proletarische Revolution und ihr Programm*, Dietz, Stuttgart-Berlin, trans. H. J. Stenning *The Labour Revolution*, Gerge Allen & Unwin, London, 1925.

Kluge, Ulrich, 1985, *Die deutsche Revolution 1918/19*, Suhrkamp, Frankfurt a. M.

Köhler, Eckart, 1982, "Zu einigen Schriften von Otto Neurath über Logik, Ethik und Physik", in Stadler 1982, 107–111 (ed.), transl. "On Neurath's Writings on Logic, Ethics and Physics", in Uebel 1991, 109–115.

Kolb, Eberhard, 1972, "Rätewirklichkeit und Räte-Ideologie in der deutschen Rveolution von 1918/19", in H. Neubauer (ed.), *Deutschland und die russische Revolution*, Kohlhammer, Stuttgart, 94–110, rev. ed. in Kolb (ed.), *Vom Kaiserreich zur Weimarer Republik*, Keipenheuer und Witsch, Cologne, 1972, 165–184.

Korsch, Karl, 1919, *Was ist Sozialisierung?*, Verlag Freies Deutschland, Hanover, repr. in Korsch, *Rätebewegung und Klassenkampf* (Gesamtausgabe Bd.2), Europäische Verlagsanstalt, Frankfurt a. M., 1980, 97–133.

Kowalik, Tadeusz, 1990a, "Central Planning", in Eatwell, Millgate and Newman 1990, 42–50.

Kowalik, Tadeusz, 1990b, "Oskar Lange", "Lange-Lehrer Mechanism", in Eatwell, Millgate and Newman 1990, 133–150.

Kripke, Saul, 1982, *Wittgenstein on Rules and Private Language*, Harvard University Press, Cambridge, Mass.

Krüger, Dieter, 1983, *Nationalökonomen im wilhelminischen Deutschland*, Vandenhoeck & Ruprecht, Göttingen.

Krüger, Dieter, 1987, "Max Weber and the 'Yonger Generation' in the Verein für Sozialpolitik", in Mommsen/Osterhammel 1987, 71–86.

Kurz, Heiz D., 1995, "Marginalism, Classicism and Socialism in German-Speaking Countries, 1871–1932", in Steedman 1995, 7–86.

Kusch, Martin, 1995, *Psychologism. A Case Study in the Sociology of Philosophical Knowledge*, Routledge, London.

Laibman, David, 1992, *Value, Technical Change and Crisis: Explorations in Marxist Economic Theory*, M.E. Sharpe, Armonk, New York.

Lamprecht, Karl, 1886, *Deutsches Wirtschaftsleben im Mittelalter*, 4 vols., Leipzig.

Landauer, Carl, 1959, *European Socialism: A History of Ideas and Movements from the Industrial Revolution to Hitler's Seizure of Power*, University of California Press, Berkeley.

Lange, Oskar, 1935–36, "On the Economic Theory of Socialism", *Review of Economic Studies* 4, repr. with additions and changes in Lippincott 1938 [1964, 55–143], excerpts repr. in Nove and Nuti 1972, 92–110.

Lavoie, Don, 1985, *Rivalry and Central Planning. The Socialist Calculation Debate Reconsidered*, Cambridge University Press, Cambridge.

Le Grand, Julian, and Saul Estrin (eds.), 1989, *Market Socialism*, Clarendon Press, Oxford.

Le Grand, Julian, Carol Propper, Ray Robinson, 1992, *The Economics of Social Problems*, Macmillan, Basingstoke.

Leichter, Käthe, 1923, "[Review] O. Neurath, Gildensozialismus, Klassenkampf, Vollsozialisierung, 1922", *Der Kampf* 16, 119–120.

Leichter, Otto, 1923, *Die Wirtschaftsrechnung in der sozialistische Gesellschaft*, Wiener Volksbuchhandlung, Vienna.

Lenin, Vladimir I., 1917, *State and Revolution* (Russian), transl. London, 1946, excerpts in Nove and Nuti 1972, 26–29.

Lenin, Vladimir I., 1921, "Integrated Economic Plan" (Russian), *Pravda* 22 February, trans. in *Lenin's Economic Writings*, ed. by M. Desai, Lawrence & Wishart, London, 1989, 292–300.

Leonard, Robert, 1995, "From Parlor Games to Social science: von Neumann, Morgenstern and the Creation of Game Theory 1928–1944", *Journal of Economic Literature* 33, 730–761.

Leonard, Robert, 1997, "Value, Sign and Social Structure: the 'Game' Metaphor and Modern Social Science", *The European Journal of the History of Economic Thought* 4, 299–326.

Leonard, Robert, 1999, "Seeing is Believing: Otto Neurath, Graphic Art and Social Order", *History of Political Economy Supplement*, ed. by C. Goodwin and N. De Marchi, 452–478.

Lepenies, Wolf, 1985, *Die drei Kulturen*, Hanser, Munich, transl. R. J. Hollingdale, *Between Literature and Science: The Rise of Sociology*, Cambridge University Press, Cambridge.

Lessmann, Ortrud, 2004, *Armut multidimensional: der Capabilities-Ansatz von Amartya Sen als Alternative zum Lebenslage-Ansatz*, PhD dissertation, Universität Oldenburg.

Lindenlaub, Dieter, 1967, *Richtungskämpfe im Verein für Sozialpolitik*, Beiheft 52 der *Viertelsjahresschrift für Sozial und Wirtschaftsgeschichte*, Steiner, Wiesbaden.

Lippincott, Benjamin E. (ed.), 1938, *On the Economic Theory of Socialism*, University of Minnesota Press, Minneapolis, repr. McGraw-Hill, New York, 1964

Little, Ian M. D., 1950, *A Critique of Welfare Economics*, Oxford University Press, Oxford, 2nd ed. 1957.

Love, John R., 1991, *Antiquity and Capitalism. Max Weber and the Sociological Foundations of Roman Civilization*, Routledge, London.

Lukes, Steven, 1984, "Marxism and Utopianism", in P. Alexander and R. Gill (eds.), *Utopias*, Duckworth, London.

Mäki, Uskali, 1997, "Universals and the Methodenstreit: a Reexamination of Carl Menger's Conception of Economics as an Exact Science", *Studies in History and Philosophy of Science* 28, 475–495.

Martinez-Alier, Juan, 1987, *Ecological Economics. Energy, Environment and Society*, Blachwell, Oxford.

Martinez-Alier, Juan, 1995, "Political Ecology, Distributional Conflicts and Economic Incommensurability", *New Left Review* 21, 70–88.

Martinez-Alier, Juan, Giuseppe Munda and John O'Neill, 1998, "Weak Comparability of Values as a Foundation for Ecological Economics", *Ecological Economics* 26, 277–286.

Meja, Volker and Nico Stehr (eds.), 1982, *Der Streit um die Wissenssoziologie*, Suhrkamp, Frankfurt a. M.

Menger, Anton, 1886, *Das Recht auf den vollen Arbeitsertrag*, Stuttgart, 2nd. ed. 1891.

Merton, Robert, 1936, "The Unintended Consequences of Purposive Social Action", *American Sociological Review*, 894–904.

Merton, Robert, 1948, "The Self-fulfilling Prophecy", *Antioch Review*, repr. in *Social Theory and Social Structure*, Glencoe, 1949.

Meyer, Eduard, 1895, *Die wirtschaftliche Entwicklung des Altertums*, Fischer, Jena, repr. and rev. in Meyer 1910, 79–168.

Meyer, Eduard, 1902, *Zur Theorie und Methodik der Geschichte*, Niemeyer, Halle, repr. and rev. in Meyer 1910, 1–78.

Meyer, Eduard, 1910, *Kleine Schriften zur Geschichtstheorie und zur wirtschaftlichen und politischen Entwicklung des Altertums*, Niemeyer, Halle.

Migdal, Ulrike, 1981, *Die Frühgeschichte des Frankfurter Instituts für Sozialforschung*, Campus, Frankfurt a. M.

Miller, David, 1989, *Market, State and Community*, Oxford University Press, Oxford.

Mises, Ludwig von, 1920, "Die Wirtschaftsrechnung im sozialistischen Gemeinwesen", *Archiv für Sozialwissenschaft* 47, translated as "Economic Calculation in the Socialist Commonwealth", in Hayek 1935c, 89–130, excerpts repr. Nove and Nuti 1972, 76–91.

Mises, Ludwig von, 1922, *Die Gemeinwirtschaft. Untersuchungen über den Sozialismus*, Fischer, Jena, 2nd ed. 1932, transl. *Socialism: An Economic and Sociological Analysis*, Jonathan Cape, London / Yale University Press, New Haven Conn., enlarged ed. 1951, repr. Liberty Fund, Indianapolis, 1981.

Mises, Ludwig von, 1924, "Neue Beiträge zum Problem der sozialistischen Wirtschaftsrechnung", *Archiv für Sozialwissenschaft und Sozialpolitik* 51, 488–500.

Mises, Ludwig von, 1928, "Neue Schriften zum Problem der sozialistischen Wirtschaftsrechnung", *Archiv für Sozialwissenschaft und Sozialpolitik* 60, 187–190.

Mises, Ludwig von, 1933, *Grundprobleme der Nationalökonomie. Untersuchungen über Verfahren, Aufgaben und Inhalt der Wirtschafts- und Gesellschaftslehre*, transl. *Epistemological Problems of Economics*, Van Nostrand, Princeton, N.J., 1960.

Mitchell, Allan, 1965, *Revoluition in Bavaria 1918–1919. The Eisner Regime and the Soviet Republic*, Princeton University Press, Princeton NJ.

Mohn, Erich, 1978, *Der logische Positivismus. Theorien und politische Praxis seiner Vetreter*, Campus, Frankfurt a. M.

Mommsen, Wolfgang J., and Jürgen Osterhammel (eds.), 1987, *Max Weber and his Contemporaries*, Unwin Hyman, London.

Mühsam, Erich, 1929, *Von Eisner bis Leviné. Die Enstehung der bayerischen Räterepublik*, Fanal, Berlin, repr. Schulenburg, Hamburg, 1978.

Müller, Richard, 1925, *Vom Kaiserreich zur Republik. 2. Band: Die Novemberrevolution*, Malik, Vienna.

Munda, Guiseppe, 1997, "Environmental Economics, Ecological Economics and the Concept of Sustainable Development", *Environmental Values* 6, 213–233.

Neider, Heinrich, 1977, “Gespräch mit Heinrich Neider”, ed. by R. Haller and H. Rutte, *Conceptus* 28–30, 21–42.

Nemeth, Elisabeth, 1981, *Otto Neurath und der Wiener Kreis. Revolutionäre Wissenschaftlichkeit als Anspruch*, Campus, Frankfurt a. M.

Nemeth, Elisabeth, 1982, “Otto Neuraths Utopien – Der Wille zur Hoffnung”, in Stadler 1982, transl. “Otto Neurath’s Utopias – The Will to Hope”, in Uebel 1991, 285–292.

Nemeth, Elisabeth, 1996, “Otto Neurath’s Vision of Science”, in Nemeth and Stadler 1996, 7–14.

Nemeth, Elisabeth, 1999a, “Auf dem Weg zur Wiedergewinnung eines wissenschaftlichen Gegenstands”, in Nemeth and Heinrich 1999, 146–166.

Nemeth, Elisabeth, 1999b, *Denken in Beziehungen. Beiträge zur Ortsbestimmung der Erkenntnisphilosophie*, Habiltation-Dissertation, Universität Wien.

Nemeth, Elisabeth, and Richard Heinrich (eds.), 1999, *Otto Neurath: Rationalität, Planung, Vielfalt, Oldenbourg-Akademieverlag*, Vienna-Berlin.

Nemeth, Elisabeth, and Friedrich Stadler (eds.), 1996, *Encyclopedia and Utopia. The Life and Work of Otto Neurath*, Kluwer, Dordrecht.

Nemeth, Elisabeth, Sigrid Stagl, and Thomas Uebel (eds.), forthcoming, *The Other Austrian Economics: Sustainability and the Ecological Left*, Open Court, Chicago.

Neurath, Otto, 1903, “Sozialwissenschaftliches von den Ferial-Hochschulkursen in Salzburg”, *Der Arbeiterfreund* 41, repr. in Neurath 1988 (I), 1–8.

Neurath, Otto, 1904a, “Geldzins im Altertum”, *Plutus* 1, repr. in Neurath 1998 (I), 8–15, transl. “Interest on Money in Antiquity” in this volume (Chapter 1).

Neurath, Otto, 1904b, “Die Arbeiterfrage im Lichte der Kulturgeschichte”, *Der Arbeiterfreund* 42, repr. in Neurath 1998 (I), 20–24.

Neurath, Otto, 1906–1907, “Zur Anschauung der Antike über Handel, Gewerbe und Landwirtschaft (Cicero, De Officii, I 42)”, *Jahrbücher für Nationalökonomie und Statistik* 3. Folge, 32 and 34, repr. in Neurath 1988 (I), 25–109.

Neurath, Otto, 1908, “Die Entwicklung der antiken Wirtschaftsgeschichte”, *Jahrbücher für die Nationalökonomie und Statistik* 36, repr. in Neurath 1998 (I), 110–118.

Neurath, Otto, 1909a, *Antike Wirtschaftsgeschichte*, Teubner, Leipzig, 2nd rev. ed. 1918, 3rd ed. 1927, 2nd ed. repr. in Neurath 1998 (I), 137–218, excerpts transl. “Economic History of Antiquity” in this volume (Chapter 2).

Neurath, Otto, 1909b, “Uneinlösliches Girogeld im Kriegsfalle”, *Jahrbuch für Gesetzgebung, Verwaltung und Volkswirtschaft im Deutschen Reich* 33, repr. in Neurath 1919c, 134–136.

Neurath, Otto, 1909c, *Lehrbuch der Volkswirtschaftslehre*, Hölder, Vienna.

Neurath, Otto, 1910a, “Die Kriegswirtschaft”, *Jahresbericht der Neuen Wiener Handelskademie* 16, repr. in Neurath 1919c, 6–41, transl. “War Economy” in this volume (Chapter 3).

Neurath, Otto, 1910b, “Zur Theorie der Sozialwissenschaft”, *Jahrbuch für Gesetzgebung, Verwaltung und Volkswirtschaft im Deutschen Reich* 34, repr. in Neurath 1981, 23–46, transl. “On the Theory of Social Science” in this volume (Chapter 7).

Neurath, Otto, 1910c, “[Diskussionsbeitrag] Debatte: Über die Produktivität der Volkswirtschaft”, *Verhandlungen des Vereins für Sozialpolitik in Wien 1909*, *Schriften des Vereins für Sozialpolitik* 132, repr. as “Diskussionsbeitrag über die Produktivität des Geldes” in Neurath 1998 (I), 218–221, transl. “Remarks on the Productivity of Money” in this volume (Chapter 8a).

Neurath, Otto, 1910d, “Staatskartell und Staatstrust as Organisationsformern der Zukunft”, *Deutsche Wirtschaftszeitung*, repr. in Neurath 1919c, 152–155, transl. “State Cartels and Trusts as Organisational Forms of the Future” in this volume (Chapter 5).

Neurath, Otto, 1910e, *Lehrbuch der Volkswirtschaftslehre*, Hölder, Vienna, repr. in Neurath 1988 (I), 239–396.

Neurath, Otto, 1911, “Nationalökonomie und Wertlehre”, *Zeitschrift für Volkswirtschaft, Sozialpolitik und Verwaltung* 20, repr. in Neurath 1998 (I), 470–519.

Neurath, Otto, 1912, “Das Problem des Lustmaximums”, *Jahrbuch der Philosophischen Gesellschaft an der Universität Wien 1912*, repr. in Neurath 1981, 47–56, transl. “The Problem of the Pleasure Maximum” in Neurath 1973, 113–122.

Neurath, Otto, 1913a, “Über Stellung des sittlichen Werturteils in der wissenschaftlichen Nationalökonomie”, in Verein für Sozialpolitik 1913, repr. in Neurath 1981, 69–70, transl. “The Place of Value Judgements in Economics” in this volume (Chapter 8b).

Neurath, Otto, 1913b, *Serbiens Erfolge im Balkankriege*, Manz, Vienna, repr. in Neurath 1998 (I), 250–282, transl. as “Serbia’s Success in the Balkan War [1912]” in this volume (Chapter 4).

Neurath, Otto, 1913c, “Probleme der Kriegswirtschaftslehre”, *Zeitschrift für die gesamte Staatswissenschaft* 69, repr. in Neurath 1998 (I), 201–249.

Neurath, Otto, 1913d, “Die Verirrten des Cartesius und das Auxiliarmotiv:Zur Psychologie des Entschlusses”, *Jahrbuch der Philosophischen Gesellschaft an der Universität Wien 1913*, repr. in Neurath 1981, 57–68, transl. “The Lost Wanderers of Descartes and the Auxiliary Motive (On the Psychology of Decision)” in Neurath 1981, 1–12.

Neurath, Otto, 1913e, “Die Kriegswirtschaftslehre als Sonderdisziplin”, *Weltwirtschaftliches Archiv* 1, repr. in Neurath 1919c, 1–5, transl. “The Theory of War Economics as a Separate Discipline” in Neurath 1973, 125–129.

Neurath, Otto, 1916, “Die Naturalwirtschaftslehre und der Naturalkalkul in ihren Beziehungen zur Kriegswirtschaftslehre”, *Weltwirtschaftliches Archiv* 8, repr. in Neurath 1919c, 174–182, transl. “Economics in Kind, Calculation in Kind and War Economics” in this volume (Chapter 9).

Neurath, Otto, 1917a, “Das Begriffsgebäude der Wirtschaftslehre und seine Grundlagen”, *Zeitschrift für die gesamte Staatswissenschaft* 73, repr. in Neurath 1981, 103–130, transl. as “The Conceptual Structure of Economics and its Foundation” in this volume (Chapter 10).

Neurath, Otto, 1917b, *Die Wirtschaftsordnung der Zukunft und die Wirtschaftswissenschaften*, Verlag für Fachliteratur, Berlin-Vienna, repr. in Neurath 1919c, 159–173, transl. “The Economic Order of the Future and Economic Science” in this volume (Chapter 6).

Neurath, Otto, 1917c, “Kriegswirtschaft, Verwaltungswirtschaft, Naturalwirtschaft”, *Europäische Staats- und Wirtschaftszeitung* 2, repr. in Neurath 1919c, 147–151.

Neurath, Otto, 1917d, “Das umgekehrte Taylorsystem”, Kunstwart und Kulturwart, repr. in Neurath 1919c, 205–208, transl. “The Converse Taylor System” in Neurath 1973, 130–135.

Neurath, Otto, 1917e, “Grundsätzliches über den Kompensationsverkehr im zwischenstaatlichen Warenhandel”, *Weltwirtschaftliches Archiv* 13, repr. in 1919c, 190–198.

Neurath, Otto, 1918, “Aufgabe, Methode und Leistungsfähigkeit der Kriegswirtschaft”, *Archiv für Sozialwissenschaft und Sozialpolitik* 44, repr. in Neurath 1998 (II), 566–576.

Neurath, Otto [pseud. Fonsow], 1919a, “Zur Sozialisierung der Wirtschaft”,*Wirtschaft und Lebensordnung* 1, no.1 (January), 2–4.

Neurath, Otto [pseud. Fonsow], 1919b, “Zur Sozialisierung der Wirtschaft IV”, *Wirtschaft und Lebensordnung* 1, no.5 (March), 34–37.

Neurath, Otto, 1919c, *Durch die Kriegswirtschaft zur Naturalwirtschaft*, Callwey, Munich.

Neurath, Otto, 1919d, “Bayerische Sozialiserungserfahrungen”, *Neue Erde* 1, rev. *Bayerische Sozialiserungserfahrungen*, Verlag Neue Erde, Vienna, 1919, excerpts transl. “Experiences of Socialisation Bavaria” in Neurath 1973, 18–28.

Neurath, Otto, 1919e, *Wesen und Weg der Sozialisierung. Gesellschaftliches Gutachten vor dem Münchner Arbeiterrat*, Callwey, Munich, repr. in Neurath 1919c, 209–220, transl. as “Character and Course of Socialisation” in Neurath 1973, 135–150.

Neurath, Otto, 1919f, “Utopie als gesellschaftstechnische Konstruktion”, in Neurath 1919c, 228–231, transl. “Utopia as a Social Engineer’s Construction” in Neurath 1973, 150–156.

Neurath, Otto, 1919g, *Die Sozialisierung Sachsens. Drei Vorträge*, Verklag des Arbeiter und Soldatenrats in Industriebezirk Chemnitz, Chemnitz.

Neurath, Otto, 1920a, *Vollsozialisierung*, Diederichs, Jena, trans. “Total Socialisation” in this volume (Chapter 12).

Neurath, Otto, 1920b, “Ein System der Sozialisierung”, *Archiv für Sozialwissenschaft und Sozialpolitik* 48, 44–73, transl. “A System of Socialisation” in this volume (Chapter 11).

Neurath, Otto, 1920c, *Betriebsräteorganisation als Wirtschaftsorganisation*, Neue Erde, Vienna.

Neurath, Otto, 1920d, *Vollsozialisierung und Arbeiterorganisation*, Runge & Co., Reichenbach.

Neurath, Otto, 1920e, *Betriebsräte, Fachräte, Kontrollrat und die Vorbereitung der Vollsozialisierung*, Buchverlag Rätebund, Berlin.

Neurath, Otto, 1920f, "Wirtschaftsplan, Planwirtschaft, Landesverfassung und Völkerordnung", Der Kampf 13, 224–227.

Neurath, Otto, 1921a, *Anti-Spengler*, Callwey, Munich, repr. in Neurath 1981, 139–196, excerpts transl. "Anti-Spengler" in Neurath 1973, 158–213.

Neurath, Otto, 1921b, "Menschheit", *Die Wage*, 21 August, 374–376, repr. in Neurath 1981, 197–201.

Neurath, Otto, 1921c, [pseud. Karl Wilhelm] *Jüdische Planwirtschaft in Palästina. Ein gesellschaftstechnisches Gutachten*, Weltverlag, Berlin.

Neurath, Otto, 1922a, *Gildensozialismus, Klassenkampf, Vollsozialisierung*, Kaden & Comp., Dresden.

Neurath, Otto, 1922b, "Weltsozialismus", *Die Glocke* 22 May, 204–210, repr. in Neurath 1981, 203–208.

Neurath, Otto, 1923a, "Geld und Sozialismus", *Der Kampf* 16, 145–157.

Neurath, Otto, 1923b, "Geld, Sozialismus, Marxismus", *Der Kampf* 16, 283–288.

Neurath, Otto, 1925a, *Wirtschaftsplan und Naturalrechnung*, Laub, Berlin, transl. "Economic Plan and Calculation in Kind" in this volume (Chapter 13).

Neurath, Otto, 1925b, "Sozialistische Nützlichkeitsrechnung und kapitalistische Reingewinnrechnung", *Der Kampf* 18, 391–395, transl. "Socialist Utility Calculation and Capitalist Profit Calculation" in this volume (Chapter 14).

Neurath, Otto, 1928a, *Lebensgestaltung und Klassenkampf*, Laub, Berlin, excerpts transl. "Personal Life and Class Struggle" in Neurath 1973, 249–298.

Neurath, Otto, 1928b, "[Review] Rudolf Carnap, Der Logische Aufbau der Welt", *Der Kampf* 21, repr. in Neurath 1981, 295–297.

Neurath, Otto, 1930a, "Bürgerlicher Marxismus", *Der Kampf* 23, repr. in Neurath 1981, 349–356.

Neurath, Otto, 1931a, *Empirische Soziologie*, Springer, Vienna, repr. in Neurath 1981, 423–527, excerpts transl. "Empirical Sociology" in Neurath 1973, 319–421.

Neurath, Otto, 1931b, "Das genewärtige Wachstum der Produktionskapazität der Welt", in M. L. Fledderus (ed.), *World Social Economic Planning*, International Industrial Relations Institute, The Hague, 105–141, transl. "The Current Growth in Global Productive Capacity" in this volume (Chapter 15).

Neurath, Otto, 1932a, "Protokollsatze", *Erkenntnis* 3, repr. in Neurath 1981, 577–586, transl. "Protocol Statements" in Neurath 1983, 91–99.

Neurath, Otto, 1932b, "Soziologie im Physikalismus", Erkenntnis 2, repr. in Neurath 1981, 533–562, transl. "Sociology in the Framework of Physicalism" in Neurath 1983, 58–90.

Neurath, Otto, 1932b, "Sozialbehaviorismus", *Sociologicus* 8, repr. in Neurath 1981, 563–569.

Neurath, Otto, 1933 "[unsigned abstract] Das Freemdpsychische in der Soziologie" *Erkenntnis* 3, 106–107.

Neurath, Otto, 1935, *Was bedeutet rationale Wirtschaftsbetrachtung?*, Gerold, Vienna, transl. "What is meant by Rational Economic Theory?", in B. McGuinness (ed.), Unified Science, Kluwer, Dordrecht, 1987, 67–109.

Neurath, Otto, 1936a, "Mensch und Gesellschaft in der Wissenschaft", *Actes du Congres International de Philosophie Scientifique, Sorbonne, Paris 1935, II. Unite de la Science*, Hermann & Cie, Paris, repr. in Neurath 1981, 711–717.

Neurath, Otto, 1936b, "Soziologische Prognosen", Erkenntnis 6, repr. in Neurath 1981, 771–776, transl. "Sociological Predictions" in this volume (Chapter 16).

Neurath, Otto, 1937a, "Unified Science and its Encyclopedia", *Philosophy of Science* 4, repr. in Neurath 1983, 172–182.

Neurath, Otto, 1937b, "Prognosen und Terminologie in Physik, Biologie, Soziologie", in *Travaux du IXe Congres International de Philosophie, IV. Unite de la Science*, Hermann & Cie, Paris, repr. in Neurath 1981, 787–794.

Neurath, Otto, 1937c, “Inventory of the Standard of Living”, *Zeitschrift für Sozialforschung* 6, 140–151, repr. in this volume (Chapter 17).

Neurath, Otto, 1939a, *Modern Man in the Making*, Knopf, New York.

Neurath, Otto, 1939b, “The Social Sciences and Unified Science”, *Journal of UnifiedScience (Erkenntnis)* 9, repr. in Neurath 1983, 209–212.

Neurath, Otto, 1942, “International Planning for Freedom”, *The New Commonwealth Quarterly* (April and July issues) repr. in Neurath 1973, 422–440.

Neurath, Otto, 1943, “Planning or Mangerial Revolution?”, *The New Commonwealth Quarterly*, April issue, 148–154, repr. in this volume (Chapter 18a).

Neurath, Otto, 1944a, *Foundations of the Social Sciences*, University of Chicago Press, Chicago, repr. in O. Neurath, R. Carnap, and C. Morris (eds.), *Foundations of the Unity of Science. Towards an International Encyclopedia of Unified Science. Vol. 2*, University of Chicago, Chicago, 1970, 1–52.

Neurath, Otto, 1944b, “Ways of Life in a World Community”, *The London Quarterly of World Affairs*, July issue, 29–32, repr. in this volume (Chapter 18b).

Neurath, Otto, 1945, “Alternatives to Market Competition”, The London Quarterly of World Affairs, January issue, 121–122, repr. in this volume (Chapter 18c).

Neurath, Otto, 1946, “After Six Years”, *Synthese* 5, 77–83, repr. in this volume (Chapter 19).

Neurath, Otto, 1973, *Empiricism and Sociology*, ed. by M. Neurath and R. S. Cohen, Reidel, Dordrecht.

Neurath, Otto, 1981, *Gesammelte philosophische und methodologische Schriften*, ed. by R. Haller and H. Rutte, Hölder-Pichler-Tempsky, Vienna.

Neurath, Otto, 1983, *Philosophical Papers 1913–1946*, ed. by R. S. Cohen and M. Neurath, Reidel, Dordrecht.

Neurath, Otto, 1996, “Visual Education: Humanisation vs. Popularisation”, in Nemeth and Stadler 1996, 245–335.

Neurath, Otto, 1998, *Gesammelte ökonomische, soziologische und sozialpolitische Schriften*, 2 vols., ed. by R. Haller and U. Höfer, Hölder-Pichler-Tempsky, Vienna.

Neurath, Otto, and Anna Schapire-Neurath (eds.), 1910, *Lesebuch der Volkswirtschaftslehre*, Klinkhart, Leipzig, 2nd ed. Glöckner, Leipzig, 1913.

Neurath, Otto, and Wolfgang Schumann, 1919, *Können wir heute sozialisieren? Eine Darstellung der sozialistischen Lebensordnung und ihres Werdens*, Klinkhart, Leipzig.

Neurath, Paul, 1982, “Otto Neurath und die Soziologie”, in Haller 1982, 223–240.

Neurath, Paul, 1994, “Otto Neurath (1882–1945). Leben und Werk”, Paul Neurath and Elisabeth Nemeth, *Otto Neurath oder die Einheit von Wissenschaft und Gesellschaft*, Böhlau, Vienna-Cologne.

Neurath, Paul, 1996, “Otto Neurath (1882–1945) – Life and Work”, in Nemeth and Stadler 1996, 15–28.

Neurath, Wilhelm, 1880, “Die Function des Geldes”, in Neurath, *Volkswirtschaftliche und social-philosophische Essays*, Faesy & Frick, Vienna, 313–521.

Neurath, Wilhelm, 1894, *Die Fundamente der Volkswirtschaftslehre*, Glockner, Leipzig.

Neurath, Wilhelm, 1896, *Elemente der Volkswirtschaftslehre*, 3rd ed., Glockner, Leipzig.

Neurath, Wilhelm, 1897, “Die Wirtschaftskrisen und das Kartellwesen”, in W. Neurath 1902, 259–284.

Neurath, Wilhelm, 1899, “Das Hauptproblem der modernen Volkswirtschaft”, in W. Neurath 1902, 285–308.

Neurath, Wilhelm, 1902, *Gemeinverständliche nationalökonomische Vorträg*e, Vieweg & Sohn, Braunschweig.

Niekisch, Ernst, 1958, *Gewagtes Leben. Begegnungen und Begegnisse*, Kiepenhauer & Witsch, Köln-Berlin.

Nielsen, Camilla, and Thomas Uebel, 1997, “Landauer et Neurath: deux utopistes au sein d’une revolution manquee”, in A. Soulez, F. Schmitz, and J. Sebestik (eds.), *Otto Neurath, un* *philosophe entre science et guerre*. (*Cahiers de philosophie du langage* 2), L'Haramattan, Paris, 85–119, transl. "Zwei Utopisten in einer gescheiterten Revolution. Gustav Landauer und Otto Neurath im Vergleich", in Nemeth and Heinrich 1999, 62–96.

Nove, Alec, 1990, "Planned Economy", in Eatwell, Milgate and Newman 1990, 186–197.

Nove, Alec, and D. M. Nuti (eds.), 1972, *Socialist Economics*, Harmondsworth, Penguin.

Nussbaum, Martha C., and Amartya Sen (eds.), 1993, *The Quality of Life*, Oxford University Press, Oxford.

Ollman, Bertel (ed.), 1998, *Market Socialism. The Debate among Socialists*, Routledge, London.

O'Neill, John, 1993, *Ecology, Policy and Politics. Human Well-Being and the Natural World*, Routledge, London.

O'Neill, John, 1996a, "Who won the Socialist Calculation Debate?", *History of Political Thought* 17, 431–442.

O'Neill, John, 1996b, "In Partial Praise of a Positivist. The Work of Otto Neurath", *Radical Philosophy* no. 74 (Nov), 29–38.

O'Neill, John, 1998, *The Market. Ethics, Knowledge and Politics*, Routledge, London.

O'Neill, John, 2003, "Unified Science as Political Philosophy: Positivism, Pluralism and Liberalism", *Studies in History and Philosophy of Science* 34.

O'Neill, John, and Thomas Uebel, 2004, "Horkheimer and Neurath: Restarting a Disrupted Debate", *European Journal of Philosophy* 12, 75–105.

Palyi, Melchior, 1925, "Ungelöste Fragen der Geldtheorie", in Bonn and Palyi 1925, 455–517.

Page, Alfred N. (ed.), 1968, *Utility Theory. A Book of Readings*, Wiley and Sons, New York/London.

Pareto, Vilfredo, 1909, *Manuel d'économique politique*, Droz, Geneva, 2nd ed. 1927, transl. *Manual of Political Economy*, Kelley, London, 1971.

Parsons, Stephen D., 2003, *Money, Time and Rationality in Max Weber. Austrian Connections*, Routledge, London.

Peukert, Helge, 2001, "The Schmoller Renaissance", *History of Political Economy* 33, 71–116.

Philippovich, Eugen von, 1910, "Über die Produktivität der Volkswirtschaft", *Verhandlungen des Vereins für Sozialpolitik in Wien 1909*, *Schriften des Vereins für Sozialpolitik* 132, Duncker & Humblot, Leipzig, 329–370, 607–615.

Pierson, N. G., 1902, "Het waardeproblem in een socialistische Maatschapppig", *De Economist* 41, trans. "The Problem of Value in the Socialist Community" in Hayek 1935c, 41–85.

Pigou, Arthur, 1920, *The Economics of Welfare*, Macmillan, London, 4th ed. 1932.

Pircher, Wolfgang, 1999, "Der Krieg der Vernunft", in Nemeth and Heinrich 1999, 96–122.

Polanyi, Karl, 1944, *The Great Transformation*, Rinehart, New York.

Pollock, Friedrich, 1929, *Die planwirtschaftlichen Versuche in der Sowjetunion 1917–1927*, Hirschfeld, Leipzig, repr. Neue Kritik, Frankfurt a. M., 1971.

Pollock, Friedrich, 1932, "Sozialismus und Landwirtschaft", in [no editor], *Festschrift für Carl Grünberg*, Leipzig, repr. Auvermann, Glashütten im Taunus, 1971, 397–431.

Popper, Karl R., "The Poverty of Historicism", *Economica* 11–12, rev. and repr. *The Poverty of Historicism*, Routledge and Kegan Paul, London, 2nd rev. ed. 1961.

Popper-Lynkeus, Josef, 1878, *Das Recht zu leben und die Pflicht zu sterben*, Vienna, repr. of 4th ed. Johnson Reprint Corp., New York, 1972.

Popper-Lynkeus, Josef, 1912, *Die allgemeine Nährpflicht als Lösung der sozialen Frage*, Reisner, Dresden, 2nd shortended ed. by M. Ornstein, Rikola, Vienna.

Popper-Lynkeus, Josef, 1920, *Gespräche*, ed. by M. Ornstein and H. Löwy, Löwitverlag, Vienna-Leipzig.

Rammstett, Otto (ed.), 1988, *Simmel und die frühen Soziologen. Nähe und Distanz zu Durkheim, Tönnies und Weber*, Suhrkamp, Frankfurt a. M.

Raupach, Hans, 1966, "Zur Entstehung des Begriffes Zentralverwaltungswirtschaft", in *Jahrbuch für Sozialwissenschaft* 17, 86–101.

Reichswirtschaftsministerium, 1919, *Der Aufbau der Gemeinwirtschaft. Denkschrift vom 7. Mai 1919*, Diederichs, Jena.

Riha, Tomas, 1985, *German Political Economy: The History of an Alternative Economics* (= *International Journal of Social Economics* vol. 12 nos. 3–5), MCB University Press, Bradford.

Ringer, Fritz, 1968, *The Decline of the German Mandarins, The German Academic Community 1890–1933*, Cambridge, MA; Harvard University Press.

Robbins, Lionel, 1932, *An Essay on the Nature and Significance of Economic Science*, 2nd ed. 1935, repr. 1949, Macmillan, London.

Roemer, John, 1994, *A Future for Socialism*, Harvard University Press, Cambridge, Mass.

Roemer, John and Paul Bardan (eds.), 1993, *Market Socialism: The Current Debate*, Oxford University Press, Oxford.

Samuelson, Paul, 1938, "A Note on the Pure Theory of Consumer's Behavior", *Economica* 5, 61–71.

Samuelson, Paul A., 1947, *Foundations of Economic Analysis*, Harvard University Press, Cambridge, Mass., 2nd ed. 1953.

Schäffle, Albert, 1975, *Die Quintessenz des Sozialismus*, Perthes, Gotha, transl. of 8th ed. *The Quintessence of Socialism*, Sonneschein, Londo, 1892.

Schippel, Max, 1920, *Die Sozialisierungsbewegung in Sachsen*, Gehe-Stiftung, Dresden.

Schleier, Hans, 1988, "Der Kulturhistoriker Karl Lamprecht, der 'Methodenstreit' und die Folgen", in Karl Lamprecht, *Alternative zu Ranke. Schriften zur Geschichtstheorie*, ed. by Hans Schleier, Reclam, Leipzig, 7–45.

Schleier, Hans, 1993, "Epochen deutscjer Geschichtsschreibung seit der Mitte des 18. Jahrhunderts", in W. Küttler, J. Rüsen, E. Schulin, *Geschichtsdiskurs Bd. 1*, Fischer, Frankfurt a. M., 133–157.

Schlesinger, Rudolf, 1969, "The Historical Setting of Socialist Planning in the U.S.S.R.", in Feinstein 1969, 308–325.

Schneider, Dieter, and Rudolf Kuda, 1968, *Arbeiterräte in der Novemberrevolution. Ideen, Wirkungen, Dokumente*, Suhrkamp, Frankfurt a. M.

Schön, Manfred, 1987, "Gustav Schmoller und Max Weber", in Mommsen and Osterhammel, 1987, 59–70.

Schricker, Rudolf, 1934, *Rotmord über München*, Verlag Zeitgeschichte, Berlin.

Schumpeter, Joseph, 1908, *Das Wesen und der Hauptinhalt der theoretischen Nationalökonomie*, Duncker & Humblot, Leipzig.

Schumpeter, Joseph A., 1914, "Epochen der Dogmen- und Methodengeschichte", in K. Bücher, E. v. Philippovich, J. Schumpeter 1914 [1924, 19–125].

Schumpeter, Joseph A., 1943, *Capitalism, Socialism and Democracy*, Allen & Unwin, London.

Schumpeter, Joseph A., 1954, *History of Economic Analysis*, Allen and Unwin, London, repr. Routledge, London, 1986.

Schweickart, David, 1993, *Against Capitalism*, Cambridge University Press, Cambridge.

Sen, Amartya, 1970, *Collective Choice and Social Welfare*, Holden-Day, San Francisco/Oliver & Boyd, Edinburgh

Sen, Amartya, 1977, "Rational Fools: A Critique of the Behavioural Foundations of Economic Theory", *Philosophy and Public Affairs* 6, 317–44, repr. in Sen 1982, 84–106.

Sen, Amartya, 1982, *Choice, Welfare and Measurement*, Harvard University Press, Cambridge, Mass.

Sen, Amartya, 1985, *Commodities and Capabilities*, North Holland, Amsterdam-New York.

Sen, Amartya, 1986, "Foundations of Social Choice Theory: An Epilogue", in Elster and Hylland 1986, 213–248.

Sen, Amartya, 1987a, *The Standard of Living*, Cambridge University Press, Cambridge.

Sen, Amartya, 1987b, *On Ethics and Economics*, Blackwell, Oxford.

Sen, Amartya, 1988, “Freedom of Choice. Concept and Content”, *European Economic Review* 32, 269–294.

Sen, Amartya, 1999, *Development as Freedom*, Oxford University Press, Oxford.

Shearmur, Jeremy, 1996, *Hayek and After. Hayekian Liberalism as a Research Programme*, Routledge, London.

Simon, Herbert, 1982, *Models of Bounded Rationality*, 2 vols., MIT Press, Cambridge, Mass.

Smith, Barry, 1994, *Austrian Philosophy. The Legacy of Franz Brentano*, Open Court, Chicago.

Sombart, Werner, 1910, “[Diskussionsbemerkung] Über die Produktivität der Volkswirtschaft”, *Verhandlungen des Vereins für Sozialpolitik in Wien 1909*, *Schriften des Vereins für Sozialpolitik* 132, Duncker & Humblot, Leipzig, 563–572.

Soros, Georg, 2000, *Open Society. Reforming Global Capitalism*, Little Brown and Company, London.

Sozialisierungskommission, 1920, *Bericht der Sozialisierungskommission über die Frage der Sozialisierung des Kohlenbergbaus vom 31. Juli 1920*, Engelmann, Berlin.

Spulber, Nicholas (ed.), 1964, *Foundations of the Soviet Strategy for Economic Growth. Selected Soviet Essays 1924–1930*, Indiana University Press, Bloomington.

Stadler, Friedrich, 1984, “ ‘Wiener Methode der Bildstatistik’ und Politische Grafik des Konstruktivismus (Wien-Moskau 1931–1934)”, in *Österreich und die Sowjetunion 1918–1955*, ed. by Historikersektion der Österreichisch-Sowjetischen Gesellschaft, Vienna.

Stadler, Friedrich, 1997, *Studien zum Wiener Kreis*, Suhrkamp, Frankfurt a. M., transl. *Studies on the Vienna Circle*, Springer, Vienna-New York, 2001.

Stadler, Friedrich (ed.), 1982, *Arbeiterbildung in der Zwischenkriegszeit. Otto Neurath, Gerd Arntz*, Löcker, Vienna.

Stark, Gary D., 1981, *Entrepreneurs of Ideology. Neoconservative Publishers in Germany, 1890–1933*, University of North Carolina Press, Chapel Hill.

Steedman, Ian, 1981, “Ricardo, Marx, Sraffa”, in Steedman et al., *The Value Controversy*, Verso, London , 11–19.

Steedman, Ian (ed.), 1995, *Socialism and Marginalism in Economics 1870–1930*, Routledge, London.

Steele, D., 1992, *From Marx to Mises. Post-Capitalist Society and the Challenge of Economic Calculation*, Open Court, La Salle, Ill.

Stigler, George J., 1950, “The Development of Utility Theory”, *Journal of Political Economy* 58, 307–327, 373–396, repr. in Page 1968, 55–122.

Streissler, Erich, 1990, “The influence of German Economics on the Work of Menger and Marshall”, in B. Caldwell (ed.), *Carl Menger and his Legacy in Economics*, Duke University Press, Durham, 31–68.

Streissler, Erich, 2002a, “Wirtschaftliche Entscheidungstheorie als Angelpunkt der österreichischen Schule der Nationalökonomie”, in L. Bauer and K. Hamberger (eds.) *Gesellschaft denken. Eine erkenntnistheoretische Standortbestimmung der Sozialwissenschaften*, Springer, Vienna-New York, 309–318.

Streissler, Erich, 2002b, “Wirtschaftliche Entscheidungstheorie als Angelpunkt der österreichischen Schule der Nationalökonomie”, in K. Acham (ed.), *Geschichte der österreichischen Humanwissenschaften. Bd. 3.2*, Passagen, Wien, 79ff.

Ströbel, Heinrich, 1920, *Die deutsche Revolution. Ihr Unglück und ihre Rettung*, Der Firn, Berlin.

Ströbel, Heinrich, 1921, *Die Sozialisierung, ihre Wege und Voraussetzungen*, Der Firn, Berlin, transl. by H. J. Stenning, *Socialisation in Theory and Practice*, King and Son, London, 1922.

Stölting, Erhard, 1986, *Akademische Soziologie in der Weimarer Republik*, Duncker & Humblodt, Berlin.

Taylor, Fred M., 1929, “The Guidance of Production in a Socialist State”, *American Economic Review* 19, repr. in Lippincott 1938 [1964, 39–54].

Tenbruck, Friedrich, 1987, “Max Weber und Eduard Meyer”, in Mommsen/Osterhammel 1987, 234–267.

Thomas, W. I. and D. S. Thomas, 1928, *The Child in America*, New York, excerpts repr. in E. H. Volkart (ed.), *Social Behavior and Personality. Contributions of W. I. Thomas to Theory and Social Research*, New York, 1951.

Tinbergen, Jan, 1936, “[Review] Otto Neurath, *Was bedeutet rationale Wirtschaftsbetrachtung?*”, *Erkenntnis* 6, 70–71.

Tinbergen, Jan, 1959, “The Theory of the Optimum Regime”, in Tinbergen, Selected Papers (ed. by L. H. Klaasen, L. M. Koyck, and H. J. Witteveen), North-Holland, Amsterdam, 264–304.

Tinbergen, Jan, 1964, “The Significance of Welfare Economics for Socialism”, in [no ed.], *On Political Economy and Econometrics. Essays in Honour of Oskar Lange*, Pwergamon Press, Oxford.

Tinbergen, Jan, 1965, “Over het dynamische velvaartsmaximum”, transl. “The Dynamic Welfare Maximum” in Tinbergen 1985, 145–157.

Tinbergen, Jan, 1967, *Development Planning*, Weidenfeld and Nicolson, London.

Tinbergen, Jan, 1969, “Some Suggestions on the Modern Theory of the Optimum Regime”, in Feinstein 1969, 125–132.

Tinbergen, Jan, 1972, “Some Features of the Optimum Regime”, in J. Tinbergen, A. Begrson, F. Machlup, O. Morgenstern, *Optimum Social Welfare and Productivity*, New York University Press, New York, 21–51.

Tinbergen, Jan, 1981, “Some Neglected Determinants of Welfare Functions”, repr. in Tinbergen 1985, 131–141.

Tinbergen, Jan, 1983, “De meting van het volkswelzijn”, transl. “The Measurement of Social Welfare” in Tinbergen 1985, 113–122.

Tinbergen, Jan, 1985, *Production, Income and Welfare: The Search for an Optimum Social Order*, Harvester-Wheatsheaf, Brighton.

Tinbergen, Jan, Anthony J. Dolman, and Jan van Ettinger (eds.), 1977, *Reshaping the International Order. A Report to the Club of Rome*, Hutchinson, London.

Tintner, Gerhard, 1968, *Methodology of Mathematical Economics and Econometrics*, University of Chicago, Chicago, repr. in O. Neurath, R. Carnap, and C. Morris (eds.), *Foundations of the Unity of Science. Towards an International Encyclopedia of Unified Science. Vol. 2*, University of Chicago, Chicago, 1970, 533–650.

Tribe, Keith, 1995, *Strategies of Economic Order. German Economic Discourse 1750–1950*, Cambridge University Press, Cambridge.

Trotsky, Leon, 1980, *The War Correspondence. The Balkan Wars 1912–13*, ed. by G. Weissmann and D. Williams, Monad, New York/Pathfinder, Sidney.

Tönnies, Ferdinand, 1887, *Gemeinschaft und Gesellschaft*, Leipzig, 8th ed. transl. C. P. Loomis *Fundamental Concepts of Sociology*, American book Company, New York, 1940.

Tönnies, Ferdinand, 1900, “Zur Theorie der Geschichte (Exkurs)”, *Archiv für systematische Philosophie* 8, 1–38.

Turner, Stephen, and Regis Factor, 1984, *Max Weber and the Dispute over Reason and Value*, Routledge, Kegan and Paul, London.

Uebel, Thomas, 1991, “Neurath’s Programme for Naturalistic Epistemology”, *Studies in History and Philosophy of Science* 22, 623–646.

Uebel, Thomas, 1992, *Overcoming Logical Positivism From Within*, Rodopi, Amsterdam-Atlanta, Georgia.

Uebel, Thomas, 1995, “Otto Neurath’s Idealist Inheritance: The Social and Economic Thought of Wilhelm Neurath”, *Synthese* 103, 87–121.

Uebel, Thomas, 1996a, “Part 2: On Neurath’s Boat”, in Cartwright, Cat, Fleck and Uebel 1996, 89–166.

Uebel, Thomas, 1996b, “Normativity and Convention. On the Constructivist Element in Neurath’s Naturalism”, in Nemeth and Stadler 1996, 97–112.

Uebel, Thomas, 2000a, *Vernunftkritik und Wissenschaft. Otto Neurath und der ertse Wiener Kreis*, Springer, Vienna.

Uebel, Thomas, 2000b, "Some Scientism, Some Historicism, Some Critics. Heyek's and Popper's Critiques Revisited", in J. Wolff and M. Stone (eds.), *The Proper Ambition of Science*, Routledge, London, 151–173.

Uebel, Thomas, 2000c, "Logical Empiricism and the Sociology of Knowledge: The Case of Neurath and Frank", *Philosophy of Science* 67, S138–S150.

Uebel, Thomas, forthcoming, "Incommensurability, Ecology and Planning. Neurath in the Socialist Calculation Debate 1919–1928", in *History of Political Economy* forthcoming.

Uebel, Thomas (ed.), 1991, *Rediscovering the Forgotten Vienna Circle. Austrian Studies on Otto Neurath and the Vienna Circle*, Kluwer, Dordrecht.

Varga, Eugen, 1920, *Die wirtschaftspolitische Probleme der proletarischen Diktatur*, Neue Erde, Wien.

Vaughan, Karen, 1994, *Austrian Economics in America, The Migration of a Tradition*, Cambridge University Press, Cambridge.

Veblen, Thorstein, 1909, "The Limitations of Marginal Utility", *Journal of Political Economy* 17, repr. in Veblen, *The Place of Science in Modern Civilization and Other Essays*, Huebsch, New York, 1919, repr. in D. Hausman (ed.), *The Philosophy of Economics*, Cambridge University Press, Cambridge, 1984, 1984, 173–185.

Verein für Sozialpolitik [unsigned ed.], 1913, *Äusserungen zur Werturteilsdiskussion im Ausschuss des Vereins für Sozialpolitik*, private printing.

Viner, Jacob, 1925, "The Utility Concept in Value Theory and its Critics. II. The Utility Concept in Welfare Economics", *Journal of Political Economy* 33, 638–659, repr. in Page 1968, 299–316.

Vohra, Rajiv, 1990, "Planning", in Eatwell, Milgate, Newman 1990, 198–213.

Weal, Albert, 1992, "Market Socialism", in Heap, Hollis, Lyons, Sugden and Weale 1982, 332–335.

Weber, Alfred, 1925, "Der Anteil Deutschlands an der nationalökonomischen Forschung seit dem Weltkrieg", in Bonn and Palyi 1925, 3–29.

Weber, Max, 1891, *Römische Agrargeschichte in ihrer Bedeutung für das Satats- und Privatrecht*, Enke, Stuttgart, repr. Schippers, Amsterdam, 1966.

Weber, Max, 1896, "Die sozialen Gründe des Untergangs der antiken Kultur" *Die Wahrheit* 6, 57–77, repr. in Weber 1924, 289–311, transl. by R. I. Frank as "The Social Causes of the Decline of Ancient Civilization" in Weber 1976, 387–412.

Weber, Max, 1898, "Agrarverhältnisse im Altertum", in *Handwörterbuch der Staatswissenschaften*, 2nd ed., vol. 1, 57–85.

Weber, Max, 1904, "Die 'Objektivität' sozialwissenschaftlicher und sozialpolitischer Erkenntnis", *Archiv für Sozialwissenschaft und Sozialpolitik* 19, repr. in Weber 1922 [1988, 146–214], transl. " 'Objectivity' in Social Science and Social Policy" in Weber 1949, 49–112.

Weber, Max, 1905, "Die protestantische Ethik und der 'Geist' des Kapitalismus", *Archiv für Sozialwissenschaft und* Sozialpolitik 20 and 21, repr. in Weber, *Gesammelte Aufsätze zur Religionssoziologie Bd. 1*, Mohr, Tübingen, transl. *The Protestant Ethic and the Spirit of Capitalism*, Scribners, New York, 1976.

Weber, Max, 1906, "Kritische Studien auf dem Gebiet der kulturwissenschaftlichen Logik", *Archiv für Sozialwissenschaft und Sozialpolitik* 22, repr. in Weber 1922 [1988, 215–290], transl. "Critical studies in the Logic of the Cultural Sciences" in Weber 1949, 113–188.

Weber, Max, 1909, "Agrarverhältnisse im Altertum", in *Handwörterbuch der Staatswissenschaften*, 3rd ed., vol. 1, 53–188, Fischer, Jena, repr. in Weber 1924, 1–288, transl. by R.I. Frank as "The Agrarian Sociology of Ancient Civilizations" in Weber 1976, 35–386.

Weber, Max, 1910, "[Diskussionsbemerkung] Über die Produktivität der Volkswirtschaft", *Verhandlungen des Vereins für Sozialpolitik in Wien 1909*, *Schriften des Vereins für Sozialpolitik* 132, Duncker & Humblot, Leipzig, 580–585, 603–607.

Weber, Max, 1913, “Der Sinn der ‘Wertfreiheit der soziologischen und ökonomischen Wissenschaften”, in Verein für Sozialpolitik 1913, 83–120, rev. in *Logos* 7 (1918), repr. in Weber 1922 [1988, 489–540], transl. “The Meaning of Ethical Neutrality” in Weber 1949, 1–47.

Weber, Max, 1918, *Der Sozialismus*, Vienna, repr. in Weber, *Zur Politik im Weltkrieg. Schriften und Reden* (Gesamtausgabe Bd. 15), ed. by W. J. Mommsen, Mohr. Tübingen, 1988, 398–420, transl. “Socialism” in Weber, *Political Writings* (ed. by P. Lassman and R. Speirs), Cambridge University Press, Cambridge, 1994, 272–303..

Weber, Max, 1921a, *Wirtschaft und Gesellschaft. Grundriss der verstehenden Soziologie*, Mohr (Siebeck), Tübingen, 4th rev. ed. by J. Winckelmann, 1956, transl. as *Economy and Society. An Outline of Interpretive Sociology*, ed. by G. Roth and C. Wittich, University of California Press, Berkeley, 1978.

Weber, Max, 1921b, *Gesammelte politische Schriften*, Drei Masken, Munich.

Weber, Max, 1922, *Gesammelte Aufsätze zur Wissenschaftslehre*, ed. by M. Weber, Mohr (Siebeck), Tübingen, 3rd ed. by J. Winckelmann 1968, repr. 1988.

Weber, Max, 1923, *Wirtschaftsgeschichte. Abriss der universalen Sozial- und Wirtschaftsgeschichte*, ed. by S. Hellmann and M. Palyi, Duncker & Humblot, München/ Leipzig, 2nd ed. 1924, transl. and ed. by F. H. Knight as *General Economic History*, Collier, New York, 1961.

Weber, Max, 1924, *Gesammelte Aufsätze zur Sozial- und Wirtschaftsgeschichte*, ed. by M. Weber, Mohr (Siebeck), Tübingen, repr. 1988.

Weber, Max, 1949, *The Methodology of the Social Sciences*, ed. by E. A. Shils, Free Press, New York.

Weber, Max, 1976, *The Agrarian Sociology of Ancient Civilization*s, Humanities Press, Atlantic Highlands, repr. Verso, London, 1988.

Weber, Max, 1988, *Zur Neuordnung Deutschlands* (Gesammtausgabe Bd. 16), ed. by W. J. Mommsen, Mohr, Tübingen.

Weil, Felix, 1921, *Sozialisierung. Versuch einer begrifflichen Grundlegung nebst einer Kritik derSozialisierungspläne*, Verlag Gesellschaft und Erziehung, Berlin.

Weil, Felix, 1926, “[Review] O. Neurath, Wirtschaftsplan und Naturalrechnung, 1925, and L. Trotzki, Kapitalismus oder Sozialismus?, 1925”, *Archiv für die Geschichte des Sozialismus und der Arbeiterbewegung* 12, 456–462.

Weiss, Friedrich, 1922, “[Review] F. Weil, Sozialisierung, 1921”, *Der Kampf* 14, 214–215.

Weiss, Friedrich, 1926, “[Review] O. Neurath, Wirtschaftsplan und Naturalrechnung, 1925”, *Der Kampf* 18, 444.

Weissel, Erwin, 1976, *Ohnmacht des Sieges. Arbeiterschaft und Sozialisierung nach dem Ersten Weltkrieg in Österreich*, Europaverlag, Vienna.

Weisser, Gerhard, 1959, “Distribution (II) Politik”, in *Handwörterbuch der Sozialwissenschaften*, Band 2, Fischer/Mohr/Vandenhoeck & Ruprecht, Stuttgart/ Tübingen/ Göttingen, repr. in Weisser 1978, 386–418.

Weisser, Gerhard, 1972, “Sozialpolitik”, in W. Bernsdorf (ed.), *Wörterbuch der Soziologie*, Fischer Frankfurt a. M., repr. in Weisser 1978, 275–283.

Weisser, Gerhard, 1978, *Beiträge zur Gesellschaftspolitik*, ed. by S. Katterle, W. Mudra and L. F. Neumann, Otto Schwartz & Co., Göttingen.

Werner, Paul [pseud.], 1920, *Die Bayrische Räte-Republik. Tatsachen und Kritik*, 2nd ed., Frankes Verlag, Leipzig, repr. Paul Frölich, *Die Bayrische Räterepublik*, Verlag Neue Kritik, Frankfurt a. M., 1971.

Whimster, Sam, 1987, “Karl Lamprecht and Max Weber: Historical Sociology within the Confines of a Historians’ Controversy”, in Mommsen/Osterhammel 1987, 268–283.

Wissel, Rudolf, and Wichard von Moellendorff, 1919, *Wirtschaftliche Selbstverwaltung*, Diederich, Jena.

Zapf, Wolfgang, 1973, “Soziale Indikatoren”, in G. Albrecht, H. Dahein, and F. Sack (eds.), *Soziologie. Sprache. René König zum 65. Geburtstag*, Westdeutscher Verlag, Opladen, 261–290.

Zeleny, M., 1982, *Multiple Criteria Decision Making*, McGraw-Hill, New York.

Zolo, Danilo, 1989, *Reflexive Epistemology. The Legacy of Otto Neurath*, Kluwer, Dordrecht.

PART 1

STUDIES IN ANCIENT AND MODERN ECONOMIC HISTORY

OTTO NEURATH

1. INTEREST ON MONEY IN ANTIQUITY*

The economic history of antiquity has been seriously neglected for a long time. Though there have been individual investigations by historians, legal scholars, philologists, moral philosophers, etc., there has been no attempt to give a coherent survey of the economic history of ancient times as was done for more recent times.

Since Aristotle in his *Politics* had called it against nature to demand 'progeny' from money (the Greek word for interest, *tokos*, means progeny), eminent thinkers of all times have dealt with this problem. Almost every Father of the Church has expressed an opinion on this, as have the scholastics, frequently referring to what Aristotle had said. In the seventeenth century the Frenchman Salmasius (Claude de Saumaise) wrote three voluminous works on interest and usury which are still useful today for their source material. On certain questions concerning Roman conditions especially, frequent controversies among jurists, historians and philologists continued into the nineteenth century. Interest on money was the subject of quite diverse reflections which were often mixed up. Sometimes its moral justification was dealt with, at other times its legal form, theoretical deduction, etc. When the political economists – stimulated by the excellent investigations of the philologist Boeckh and others – began to deal with the history of interest on money and with ancient economic history, they were criticised by historians for many errors and for premature generalisations.[1] However, in recent times, a common procedure of political economists interested in the history of ancient economics joined with historians was often carried out with success. Today people try to trace the same economic tendencies in antiquity as in present times, without committing the mistake of projecting modern conditions into antiquity.

The deeper historical research penetrates, the more highly developed are the economic formations it discovers in antiquity. The view is gaining ever more ground that our European economic development since about the seventh century A.D. shows a parallel to the development in antiquity. The latter is itself not a uniform growth, however, but consists of a number of developments which frequently occur side by side. We find a developed money economy in Babylon in very early times, but we notice changes caused by it in Greece only quite late, at about 600 B.C., and in Rome about 400 B.C. The money economy with all its consequences seems to have spread from country to country like a wave. Those forms of money trade which can be found in Babylon, then in the realm of Hellenic power, and in late Rome, correspond approximately to those of the eighteenth and early nineteenth centuries of our European development. Here we shall deal with a selection of questions and investigations which concern the history of interest on money.

Interest on money as a predetermined fixed sum expressed in percentage of capital borrowed, is found uniformly in the entire Euro-Asiatic and African continents. Did it develop in each country in isolation? Or did it first appear in one country from which it spread to others? Then it must be investigated whether money interest originated from some sort of tribute (tithe and such), or whether it owed its origin and spread to trade, or possibly some other economic factor. In the attempt to answer these and related questions scholars had to make use of several sciences. It had to be determined what the relationships of individual peoples had been, when there had been separation, when union, before it could be determined whether money interest might belong to the common heritage of a group of peoples. The sources of comparative studies in the fields of economics, law, language are in no way sufficient today to form a uniform picture of the peoples of the Mediterranean. Very little is known of the circumstances of the Phoenicians and Carthaginians who, as the most important traders, were significant as go-betweens, and much uncertainty remains which is often exploited for all sorts of guesswork.

As mentioned above, it was thought possible that interest on money may have spread from a single centre. The whole comparative history of law and all auxiliary sciences were enlisted to discover as many connections as possible. Eugène Charles Revillout's hypothesis that large parts of Roman law had originated in Babylon and were transferred by Phoenicians and Carthaginians – especially the sections which deal with trade, credit, etc., which concern us here – had first met with much skepticism, but has now found some support from separate investigations of Ihering, Kohler and others, though frequently in a different way from what Revillout had envisaged.[2] I may also mention the most recent publications of D. Müller and others on the relations between the Roman Twelve Table Laws and the Semitic laws, especially the Babylonian codes of law, which have now become very popular through the 'Babel and Bible' dispute.[3]

From some quarters, attempts were made to drag race questions into the discussion. There was an attempt to prove, for example, that interest on money was a specifically Semitic institution and originally alien to the Aryans. Through trade, it was supposed, it spread from the area of the Euphrates to the West, to the Phoenicians, Jews, Graeco-Italic and Germanic peoples. Certainly old connections can be traced everywhere, but mostly exact proofs of actual dependency are lacking. (Let us remember, for instance, the trade routes of amber and the discoveries of Babylonian copper axes.) Tracing money interest back to Semitic origins is even more unreliable. Even if Babylon were the place of origin of money interest, the Babylonians were probably a mixed race of Sumerians and Semites. Thus we get involved with the Sumerian question. This people, who together with the Akkadians are supposed to be the original Babylonian people, have been linked to nearly all peoples of the earth. Sometimes their existence was denied, and the second Babylonian system of writing which is now generally considered to be the script of the Sumerians, was declared to be a secret script. (For information about the unstable views about the matter, see Weisbach's *Sumerische Frage* (Sumerian Question) and *Die Achämenideninschriften der zweiten Art* (The Achameanian Inscriptions of the Second Kind.)[4]

Scholars have nothing but daring speculations to start from if they want to get information about economic and legal conditions of these times. As the sources are in so many different and very difficult languages, the scholar must often rely on second-hand information. Only a few scholars, among them Eduard Meyer, can themselves examine the most important original documents of the whole Mediterranean and surrounding areas.[5] The results of comparative investigations may be vague; still, they prevent premature explanation based on the circumstances of one people; an adequate understanding can be gained only through comparison. Such comparison often covers whole epochs, as mentioned above; we see this in the work of Niebuhr, Nitzsch, Meyer and, in a strangely schematised way, Breysig. The ancient historians are mostly rather useless as witnesses for economic conditions, and they seldom answer the questions one must raise. Their economic insight is generally weak and their legal training mostly non-existent. Max Weber stated the difficulties – and this applies to other countries too – when he said that the possibility to advance the economic interpretation of ancient history is based on keeping the middle way between the "art of not knowing" and the "courage to err".[6]

The earliest development of a system of credit is found in the area of the Euphrates and Tigris, in Babylonia. About 2300 B.C. a well-ordered legal system was in existence there which must have been preceded by a long cultural development. The economy was highly developed and the documents indicate that money trade was well organized. No wonder therefore that in the sixth century B.C. money and credit traffic was on a highly sophisticated level in those areas. Bills of exchange, money orders to banks, were in use. Even abstract documents of debts (corresponding to section 780 of the German civil law) seem to have been used, as Kohler points out. Cheques and bank deposits were common. There was even payment by giro. The turnover and the profits of the great banking houses seem to have been considerable. The most common rate of interest was 20%. The documents of which quite a number are reproduced in the [journal] *Beiträge zur Assyriologie* (Contributions to Assyriology) are mostly concisely worded: "1 mine of silver, claimed by J-J-N from Bel-sunu, son of Nabuzer-iddina. Monthly interest on 1 mine is 1 sekel of silver. [1 mine equals 60 sekels; therefore 20% annually.][7] In Tammuz he is to collect money and interest." As security, all sorts of things could serve: slaves, notes at hand, fields, houses, etc. It is also known that a guarantor gave surety for a debtor, as was the case everywhere in the old legal systems. The high interest rate seems to have resulted from the conditions of trading.

Several scholars have stressed that interest on money may have begun with loans for sea trade. *A* organises a trade voyage, *B* lends him money or some contribution in kind. Since it is impossible to check what profit *A* makes, *B* calculates his approximate share in profit and risk etc., expressed in percentage of the capital paid in. If ship and freight are lost, *A* is rid of all obligations. This contract obviously has more similarity with a jointly owned business that with an ordinary contract for a loan. It is like a joint business in two cases: if the ship is lost, and if the profit is as calculated. If the profit is smaller, *A* is the loser and he must pay the agreed-upon interest as in an ordinary loan contract. The high risk may explain the high interest rate. Supply of capital seems to have been smaller than the demand. Trading in those times linked countries of high civilisation with those of a lower level and in such cases the profits are always high. Think of the Phoenicians' trading expeditions to Spain, of Solomon's ophir trade (with India?), and of the expeditions of the Egyptians to Punt (Arabia or Somaliland).

We know little about the Syrians who were at times independent, at other times under the rule of the Hittites, Egyptians or Babylonians, etc. The Syrians absorbed the Babylonian and Egyptian civilisations which, in spite of many foreign relationships, had developed more or less independently. They became the bearers of a western Asiatic civilisation and its representatives for Europe. The Syrians were intermediary traders and thus made all products more expensive. The Phoenicians brought trade and money business to Palestine where the consequences are clearly visible in the ninth century B.C. The older Jewish codes reject commerce and money trade, especially loans.

The Egyptians adopted a similar attitude; their excellently organised bureaucratic state functioned through provision in kind. There was no chance for interest on money to develop. The Egyptians barred foreign traders for a long time. Transport on the Nile and the large expeditions of their own ships to the south flourished, as can be seen from their wall paintings. Psamtik I finally opened the empire in part to foreigners in the seventh century B.C. From that time onward Egypt played an active role in the Mediterranean. In the older times we find no money in Egypt though metal was used as a measure in accounting. Even in later times – in the centuries shortly before Christ – most of the debt assignments were expressed in quantities of grain, wine, etc., and only the more recent documents concerning loans are in terms of money. These loans, however, carried no interest. We may hope for some information about conditions of commerce and trade of the later times from papyrus documents, but we cannot expect much of this for the previous periods. The older documents do not mention this matter at all. Yet this should not make us believe that there was little industry, etc.; on the contrary: most of the inventions ascribed to the Phoenicians were made by the Egyptians.

Let us now turn to the trading area of the Phoenicians, the northern and western Mediterranean. In his *Allgemeine Geschichte des Welthandels*

(General History of World Trade), Beer once says that the closer a country is to Phoenicia, the older, more general and unrestricted money trade was, and the earlier silver appeared as means of exchange.[8] Before Spanish silver mining depressed prices, especially of silver, this had been the preferred means of international exchange and possessed value because of its scarcity in Egypt and Asia. Other measures for value were lapis lazuli, emeralds, gold, etc. – besides those calculations in terms of cattle, grain, etc., which were in use since the dawn of civilisation but were of use only for domestic trade.

Let us first look at the Greeks with whom the Phoenicians had been in contact perhaps since the fifteenth century B.C. via the chain of islands of the Aegean Sea, at a time when ships sailed along coasts and avoided crossing longer distances of sea. Relations between Greece and Asia Minor were also established when Greeks occupied its western coast about 1100 B.C. They pushed the Phoenicians out of this part of the Mediterranean and the latter turned even more eagerly toward the west. Greeks seem also to have had an influence on Cyprus as early as the era of Mycenae. The first coins were struck, it seems, in Lydia in the seventh century B.C. Before that there had been only bars with certain imprints which did not give any state guarantee or fixed exchange value; such value was maintained for coins only within their own area. There was a whole range of coinages, and their areas of distribution clearly reflect the influence of important trade centers. Generally, there is a close connection between the history of coins, measures, etc., and the history of trade and money matters. Based on the investigations of Brugsch, Lepsius, Kenner, Mommsen, Lehmann and Friedländer, we can show very close relations between the monetary and measurement systems of Babylon and Egypt on the one hand, and the whole Mediterranean on the other. Units of measurement and coins allow us to trace the course which trade and, with it, money and credit economies have taken. The other Asian areas, together with Phoenicia, kept conservatively to the older form of bars of precious metals until the fifth and fourth century B.C. That money was first used in long distance trade is shown by the fact that large pieces were produced first, and smaller pieces and small change only later.

Money establishes a close link between trading nations. The older *orbis terrarum* had long been established as a unit of trade and civilisation until, as Polybius said, "history conglomerates into one body, so to speak, and events in Italy and Libya are interlinked with those in Asia and Greece, and all move toward one aim."[9] Before this union came about in the *imperium Romanum*, some of its future provinces had reached a high level of development. The Hellenes who had adopted money economy in their colonies in Asia Minor introduced it into their home country too. Later all these innovations were carried to Southern Italy and partly transmitted to the Romans. (A number of publications deal with this, such as those by Boeckh, Beloch, Billetter, Hofmeister, etc.) The people who directed the money into the various channels of production were the money changers; they borrowed money against interest and then lent it to others, of course at a higher interest. They were also agents for payments by others. Money changers mostly belonged to the despised classes of freedmen or foreigners, but soon they were highly respected because of the importance they gained in the money economy. Contracts were signed in their presence, promissory notes were deposited with them, etc. Pasion, one of the greatest bankers of his time, had been a slave and became a citizen of Athens after having made some gifts to the state and to some welfare institutions from his large income which had come mostly out of the pockets of the citizens of Athens. (We know of similar affairs today which lead to the award of honours, the freedom of a city and the like.) The bankers formed a link between the big entrepreneurs who partly came from the old aristocracy which turned to colonisation and industry, and partly from the merchants who soon gained the same respect through the power of money. The middle classes and peasants generally became poorer; one of the reasons was the increasing use of slaves, but there were others as well with which I cannot deal here.

To complete the picture the following may be added. Sea trade was often carried out by whole societies, funds were provided by sea loans – as already mentioned for Babylon. As the risk was rather great, the loan was provided by syndicates. In those times the first great banking institutions were the great temples. For example, the temple of Delos regularly lent money to states and individuals against 10% interest, as documented from the fifth to the second century B.C., and like the private banks they demanded surety. At that time there was no limit on interest in Athens; in the fourth century B.C. the interest rate was 16% for business credits and 12% for other safe investment. For sea loans the creditors were especially well protected by law, and the interest rate for a half year's voyage was about 20 to 33.3%. In the following years the interest rate sank from 12% for safe investments to an average of 10% and towns with specially profitable trade with countries of low standard, e.g. Carcyra, had 24%. In the last centuries B.C., the interest rate went on sinking to 7 and 8%. We notice a steady fall of the interest rate up to the first century B.C. everywhere, perfectly corresponding to the development of trade through this time. We cannot deal here with the socio-political measures in detail if we still want to survey developments in Rome.

About the earlier economic conditions of Rome very little is known; even for later times circumstances are still rather obscure. Whether the great tradesmen of antiquity, the Phoenicians, came to Latium has not been ascertained, but we know they had trading places in the vicinity; their impact on Rome was certainly not great. The commerce of the Phoenicians ceased to be as great as its earlier – though often overestimated – extent when the Carthaginians had become dominant in the west, and the Greeks in the east of the Mediterranean. Rome, a trading town with a strong agrarian foundation similar to the later towns of the (North German) Hanse, made early trading contracts with Carthage. The date of these contracts is a matter of debate and cannot be discussed here. Information is scanty too on the development of crafts. Rome had a money economy from the start. In spite of laws of prohibition and attempts at state regulation, there soon were money exchanges on the Forum; interest rates were high, based on the exploitation of the provinces; peasant husbandry went down and great landownership grew up; the better-off part of the population changed into a society of merchants while the rest became dependent on them through debt, and formed a mass of poor people. In the fourth century, maxima were fixed on interest rates in Rome, probably at 8.5% and less, but it seems they were often exceeded. In spite of all laws against usury, interest rates reached an enormous height thereafter. (We cannot go into laws about debts etc.) Rome's original copper currency changed into the more international silver currency before the first Punic war and shortly after that into gold currency.

After the provinces were joined to Rome, the same developments came about as earlier in Greece: consortiums for sea trade – often using straw men for especially dirty deals (remember, e.g., the deals of that man of high morals, Cato) – loan usury, large establishments of all sorts for raw materials and finished products, banks, etc. When a war tax was imposed on a province , money lenders gave advances. Occasionally, the debt rose sixfold in fourteen years. In Greece we can still notice a certain correlation between profit on trade and rate of interest; in later Rome that is impossible. Whereas elsewhere the interest rate was related to the trade profit, in Rome it was only related to the possibilities of exploitation. Interest rates of 48 to 60% were not rare in later Rome, while attempts were made to decree maximum rates of 6%, 10%, etc. by law. The Roman provinces were crowded with bankers and profiteering aristocrats. In this great network of exploitation, the economic development of the Mediterranean was interlinked even more closely than through the extensive and well-organised trade. It was not trade but exploitation that regulated the interest on money (besides risk premiums etc.) – until, in spite of all attempts at reform, the empire collapsed both economically and politically.

NOTES

* First published as "Geldzins im Altertum", *Plutus* 1 (1904) 569–573, reprinted in O. Neurath, *Gesammelte ökonomische, soziologische und sozialpolitische Schriften (I)*, ed. by R. Haller and U. Höfer, Hölder-Pichler-Tempsky, Vienna, 1998, 9–16. Translation by Robert S. Cohen and Thomas E. Uebel, based on a draft by Marie Neurath.

1. [See Wilhelm Boeckh, *Die Staatshaushaltung der Athener*, 1817, trans. *The Political Economy of Athens*, London, 1828. Eds.]
2. [French egyptologist and editor of *Revue Egyptologie*, strongly criticised by Max Weber in his long 1909 encyclopedia article on the economic history of antiquity. Eds.]
3. [Friedrich Delitzsch, *Babel und Bibel*, Berlin, 1903, repr. Leipzig, 1921, Eds.]
4. [F.H. Weisbach, *Die Sumerische Frage*, Leipzig, 1989; F.H. Weisbach (ed.), *Die Archämideninschriften zweiter Art*, Leipzig 1890, repr. Harrowitz, Wiesbaden, 1979. Eds.]
5. [1850–1930, Neurath's teacher at the University of Berlin. Eds.]
6. [Neurath did not give a reference; presumably he was referring to the Introduction of Weber's habilitation of 1891, *Die römische Agrargeschichte in ihrer Bedeutung für das Staats- und Privatrecht*, Stuttgart: Encke, pp. 1–4, where Weber stressed the hypothetical nature of his reconstruction (p.3). The expressions in quotation marks are not Weber's; an earlier incomplete quotation mark in this sentence has been omitted. Eds.]
7. [The last insertion is Neurath's. Eds.]
8. [A. Beer, *Allgemeine Geschichte des Welthandels*, vols. I-III.2, Vienna 1860–84. Eds.]
9. [Neurath did not give a reference. Eds.]

OTTO NEURATH

2. ECONOMIC HISTORY OF ANTIQUITY [EXCERPTS]*

Contents: Preface. Introduction: *The Development of the Economic History of Antiquity*. Chapter 1: *Overview of the Economic Development of the Middle East up to the Formation of the Greek-Oriental Economic System* (up to the end of the fourth century B.C.). Chapter 2: *The Age of Greek Treasure Trade* (up to the middle of the eighth century B.C.). Chapter 3: *The Age of Greek Colonisation* (middle of the eighth to the end of the sixth century B.C.). Chapter 4: *The Greek Economic System* (end of the sixth to the end of the fourth century B.C.). Chapter 5: *The Greek-Oriental Economic System* (end of the fourth up to the middle of the second century B.C.). Chapter 6: *The Development of the Roman World Economy* (beginning of the fourth to the end of the first century B.C.). Chapter 7: *The Roman Empire as an Economic Unit* (beginning of the imperial era). Chapter 8: *Completion and Decline of the Ancient World Economy*. [Excerpted are Preface, Conclusion and Chapters 1 and 8. Eds.]

PREFACE

The present age forces us to consider in succession the most varied institutions and to investigate them in detail. A great number of social scientific endeavours are due to find completion in the near future by the provision of a theory of orders of life, accompanied by a comparative theory of economics. This short survey is designed to serve this purpose by drawing comparisons between antiquity and the present, but especially by showing the variety of forms of life within antiquity.[1]

A number of rather fundamental phenomena are here dealt with from different angles in order to provide a historical introduction to certain basic issues of economics which the author discussed elsewhere more extensively.[2] Accordingly, some institutions are considered in detail, others much less so; moreover, only some typical states are discussed so as not to overload this survey.[3] Special attention is given to war economy. Studies of ancient economy in particular led the author to suggest war economy as a special discipline.[4] Accordingly, economy in kind and administrative economy – so important today – are emphasised.[5] In particular it is shown that economy in kind can be combined with a highly developed civilisation; certain of its institutions, such as credit transfer in kind, need to be placed side by side with the developed forms of money economy.[6]

The characteristic ways in which antiquity dealt with money and debts are discussed and their origins traced back to the development of foreign trade, whereas shared liability (tithe, etc.) is ascribed more to closed national economies based on agriculture. The introduction of coins denoting the full value of their metal content is mainly treated as a technical innovation to facilitate trade, whereas only the introduction of coins debased in value is seen as a social measure of considerable importance.[7] The value placed on different occupations through various periods is explored as characteristic of economic conditions.[8]

In the Introduction it is shown which scientific interests were of special significance for the study of the economic history of antiquity.[9] In Chapters 2–7 especially, many sources are given from authors easily accessible to the general public in order to make it possible for a broad readership to check this survey to a certain degree for correctness and to get an immediate impression of ancient records. Sources of a different kind and discussion of opposing views must be disregarded.[10]

On the relationship of the phenomena treated here with political history, details can be found in Eduard Meyer *Geschichte des Altertums*, Beloch *Griechische Geschichte*, Mommsen, *Römische Geschichte*, and supplementary facts in Schiller *Geschichte der römischen Kaiserzeit*. In the small *Atlas Antiquus* published by Perthes all necessary maps can be found.[11]

War service prevented the author from the elaborating and adding to this youthful work which would have been desirable in several respects. The text has nevertheless been considerably revised and many a formulation was sharpened.[12]

* * *

CHAPTER I: OVERVIEW OF THE ECONOMIC DEVELOPMENT OF THE MIDDLE EAST UP TO THE FORMATION OF THE GREEK-ORIENTAL ECONOMIC SYSTEM (UP TO THE END OF THE FOURTH CENTURY B.C.)

Gloriously the orient came to us across the sea.
(Goethe, *Westöstlicher Diwan*)

Of all the oases of the old world Egypt was the one which had the longest independent development. At an early time a state had developed there which, divided into several administrative regions, only made the full utilisation of the land possible through the building of dams and other measures – rendering evident the advantage of collective work. After a long, partially still obscure prehistory, we can find a centralised bureaucratic state in the Nile valley at the beginning of the third millennium B.C. In this state a large-scale economy in kind played a significant role. The regal power, supported by an army of officials, was enormous. But also the priests and owners of large estates exercised a strong influence. Besides free peasants, free craftsmen and merchants in the towns, there were bondsmen and slaves. To make more intensive use of the soil, much of it was worked in parcels, either by tenants or by semi-free or bonded people. Part of the not very large number of slaves were used for domestic service, part of them joined the masses of semi-free and some free people in the big building projects which were erected either for purposes of irrigation or for the glory of the king; they were also used for the well-developed shipping trade on the Nile.

Many products of the land were collected in the storehouses of the king, the temples and the magnates. Persons dependent on them, such as officials, semi-free peasants and craftsmen, regularly received food, clothing, personal ornaments and other articles from the stores, insofar as they did not provide for their needs themselves by growing grain or producing other goods. According to surviving documents, surveys of the royal bookkeeping looked somewhat like this:

To:	queen	princess	officer of the guard	judge
loaves of bread:	10	10	20	10
jars of beer:	2	1	2	1 etc.

Annuities in kind, payable e.g. by a village, could be transferred to a third person. If, for instance, a person was entitled to receive an annuity consisting of meat, bread, etc., and wished that after his death a group of priests should make sacrifices on his grave each year, then he transferred his annuity to the temple in a way similar to that in which a medieval landlord arranged with a monastery to read requiem mass for him. Many institutions of the large-scale economy in kind, including the granaries which offered protection against bad harvests, became a constituent part of life in Egypt and survived for a long time. Thus the system of storehouses and credit transfer in kind were revived under the money economy of the Hellenic era.

There was also barter, but only for a few things. Scenes represented on paintings in tombs show that people got by with it; if a seller of cakes deemed a necklace insufficient in exchange, the buyer simply added a pair of sandals. The king and the magnates occasionally received rare foreign goods in barter from the merchants who were probably not very numerous. Mostly, however, they obtained the precious things they wanted through expeditions to the south, by water or land; these expeditions returned with frankincense, ivory, ebony, gold, apes, cattle, slaves – female and male, the latter occasionally used as soldiers. In general there was not much lasting contact with foreign countries.

There also existed certain payments, fixed by law and tradition. These included not only taxes, but also payments for atonement, fines and offerings; they were paid partly in fixed amounts of goods, a definite number of animals or of other commodities in general use.

This bureaucratic state changed into a feudal state during the third millennium. Such a development is often found in history. An official, often born in bondage, was originally commissioned by the king to administer certain areas and travelled from place to place to dispense justice, as did the earls of Charlemagne, for example. When the functions of the officials became permanent, when they received land to support themselves, and when they could secure office and land for their children, then a certain independence could develop, especially if any older power relationships favoured such a development of the rule of the officials. Hereditary office, together with large land holdings, often created feudal lords who, if need be, could hold their own against the king. Such great landlords had unfree and semi-free people at their disposal, ruled as small kings on their land, but had to fulfil public duties of smaller or greater importance. The economic conditions and the structure of Egypt favoured the survival of considerable parts of the administrative large-scale economy in kind, especially within the individual feudal regions, in some instances even in the whole empire. Thus it happened that even in the feudal period of Egypt, the bureaucrats still played an important role and looked with some disdain on other occupations which tire the body and do not bring riches. Old Egypt and old Byzantium are especially suitable for studying the character and efficiency of extensive bureaucracies.

This feudal order, which was still an administrative economy, was later followed by a commercial or market economy [*Verkehrswirtschaft*]. The individual, who had as little significance in the thoroughly ordered Egyptian empire as in the feudal state, now began to breathe more freely; in particular more adventurous natures found room for their activity. But this was a very slow development, connected with the money economy which infiltrated gradually. In this period metals became the preferred objects of accumulation; occasionally they were used as a measure of exchange value in barter, even when they were not used as means of exchange. If someone wanted to exchange a cow against a sheep, often, it seems, he first tried to determine for how much metal a cow or a sheep could be sold in order to decide how many sheep had to be given in exchange for a cow. We witnessed similar episodes in the present [first] World War in which barter was much practised and in places was even organised: goods were often exchanged in relation to their price in money. There can be no doubt that in areas of Egypt in which nobody yet thought of a means of exchange, its introduction was prepared by the appearance of this measure for barter.

As so often in other cases, in Egypt too, the feudal order gradually weakened the power of resistance of the country as a whole. The planned regulation of all affairs was replaced not only by the greater variety of life corresponding to the differences of the single areas – which within a common framework would have meant an enrichment of the country – but also by quarrels and frictions between the feudal lords, by insurrection against the central power, even by declarations of independence. Egypt was no match for the invasion of nomadic peoples; after the feudal era, the country was ruled by the Hyksos from Asia, until they were driven out at the beginning of the sixteenth century B.C.

The newly strengthened kingdom which waged these wars had to rely on foreign soldiers to a considerable degree. The growing of crops was not to be endangered; furthermore, a peasant population cannot be taken away for prolonged foreign wars if there is no immediate chance of conquering new farm land. The Egyptian kings therefore enlisted foreign mercenaries, especially in Libya. For various reasons these received their own land, as did the priests, which was partly rented out. Such settlements of mercenaries have the advantage that the crops from the land thus awarded supplied the troops, which therefore do not appear to become a permanent liability. Moreover, such settlements created a certain sense of belonging. With the help of these mercenaries who soon became a hereditary class, the kings of Egypt reached the banks of the Euphrates. These wars, which introduced masses of slaves into Egypt, changed the social structure in a fundamental way. In addition, the expansion of the sphere of power led to the dissolution of the administrative economy. Egypt was only in loose or in no political connection at all with the new regions which sent gifts and tributes, such as Cyprus, Crete, and Assyria. Permanent relationships between individuals, long term obligations, could not develop. If, say, an Egyptian in Damascus wanted to buy something from an Arab, he had to give him things he could take with him to Saba: rare woods, cloth, useful articles, ores, precious stones, metals, etc. International barter created a special merchant class which acted as an intermediary and collected stores of goods suitable for exchange. In this period goods for international commerce had to be easily transportable (Aristotle, *Politics*, I, 9). To establish stores for future business which could even be transferred to future generations, the merchants had to choose such goods as would not suffer from long-term storage and would continue to be in demand. Someone who hoarded lapis lazuli or tin did not have to fear that the output of the annual production would change the market conditions in the way that the annual crop of grain did. Tin taken into use was not thereby used up. Compared to the amounts in use the annual increase was relatively small. In general, finished products had less chance to remain marketable than raw materials which could be turned into the desired object at any time. Unfinished metals always had a use, whereas the demand for rings and buckles might change. Taste varied greatly according to locality and period. Things for everyday use were less suitable as commercial stock than luxury goods. Buyers could soon have enough household goods; it was different with things which could be hoarded, which occasionally included cattle.

In this way the preference of the international merchants for certain goods developed and this increased demand for them even nationally.

Great profits could be made with these goods since they had very different values for different peoples. Something common in Egypt might be a rarity in Arabia, and vice versa. These international means of exchange, for which mainly Babylonian weight measurements were used, thus also became means of payment nationally, e.g. for taxes, fines, etc. Formerly cattle, grain, etc., were used for that purpose; but nowhere did these become the general means of exchange like the precious metals in the Mediterranean area. Compared to cattle, raw metals had the advantage that they could be easily divided and that the resulting parts were uniform. These means of exchange established contacts between people who were unknown to each other or even enemies; on the other hand, they turned compatriots into competitors and contributed to the dissolution of the community spirit.

The treasury now assumed importance equal to the king's granary. After some equivocation between taxes in metals and taxes in goods the former gradually prevailed, although in ancient Egypt the latter never wholly disappeared. The discussion of trade policy and of payments in quantities of metal, played an ever greater part in diplomatic negotiations. To be sure, trade between kings frequently took the form of mutual gifts, but the sender of a gift often rather bluntly indicated what he expected in return – in oils, metals, precious stones, wine, slaves, horses, etc. These foreign relationships increased the economic power of kings and also of the temples which turned more and more to trade and, besides agriculture, were involved in manufacturing and lending businesses.

For some time the attacks of the Hittites, who ruled over a great part of Asia Minor and Syria, and of the Libyans and other peoples were repulsed, then the Asiatic possessions were lost and Egypt was subjected to foreign rulers in the form of its own mercenaries. It split into several kingdoms and fell to the Ethiopians who had already adopted the Egyptian civilisation. It seems that the Ethiopians used their power to repair dams and canals so that Egypt's fertility may not have suffered too much (Herodotus II, 137). In the seventh century B.C. the Ethiopians were pushed out by the Assyrians; their rule was ended by a regional prince, Psamtik, who liberated Egypt with the help of Greek and Carian auxiliary forces sent to him by the king of Lydia. The new Egyptian dynasty tried to advance trade with Asia and Europe.

Egypt gradually began to abandon its reserve towards foreigners. The Greeks were allowed to have storage places, and their gods were honoured by Necho II as they were by other oriental rulers (Herodotus IV, 42). Necho, who also is said to have commissioned the Phoenicians to sail around Africa (ibid.), built fleets of warships for the Red Sea and the Mediterranean on Egyptian docks and began to dig a canal between the Nile and the Red Sea (Herodotus II, 158). At the end of the sixth century B.C. Egypt, together with Cyrene, was subjugated by the Persians who were finally driven out only by the Macedonians.

When the Egyptians advanced into Asia in the sixteenth century B.C. they entered the commercial and industrial area of Mesopotamia. In the third millennium B.C.,[13] a number of city states of this [large] oasis – with a tradition of constructing dams and canals similar to that of the Egyptians – had been united by King Hammurabi into the Babylonian empire which had some similarities with the Egyptian empire. His code of law shows us that at this time commerce, trade, credit and means of exchange – silver and gold – and the bookkeeping going with them, were already established in a fairly developed form. It accords with the older economy in kind that a man could transfer his field to another man to work for a share of its yield (*Code of Hammurabi*, §16). In this way, the drawback of a bad harvest as well as the advantage of a good one were shared by the participants, in the traditional community spirit. For contracts of this kind it is necessary that yields can be checked at any time. Contracts which stipulated payment of fixed sums may in general have emerged in a later period (§54). They put the whole liability on the person who rents a field. A fixed rent fits the conditions of an economy in kind of a community only if the crop yields are always approximately the same; in other cases the prevalence of fixed liability represents mostly the advance of commercial thinking, although the institution of lending cattle and other things may also have contributed to the development of interest and to the obligation to return what was borrowed after a short time, possibly after notice being given. If one person lends silver to another who wants to engage in foreign trade, to enable him to acquire the necessary goods, the lender can hardly agree to a joint venture because the merchant can easily deceive him about the profits upon return. In such a case the agreement of a fixed sum seems very natural.

Yet commerce does not only lead easily to the replacement of shared proceeds by fixed liability; the merchant who received silver for his business returned the borrowed silver plus interest after his business transaction and has no permanent obligation. Yet this arrangement often has a destructive effect on agriculture. A farmer who is able to pay high rent permanently will easily become bankrupt if he has to repay, besides interest, the amount of silver borrowed (§49) which he may have used to improve the land by canalisation. Hammurabi decreed all sorts of relaxations, in cases of fixed rent in kind, and in cases of repayment of borrowed means of exchange plus interest (§§48, 103). Hammurabi made provision for repayment in kind according to a fixed tariff, to prevent a man who owns many goods in kind but little means of exchange from being forced to sell a great deal as he would have to, if he had to repay a debt in means of exchange (§51). Some of the plots of land were given in loan, some were rented out to smallholders, others were worked by free workers or bondsmen. Since rather intensive cultivation was favoured, few slaves were used in the fields, many more in other work, even as officials in high positions, as in the Roman Empire. Often, especially in later times, slaves were a kind of independent entrepreneur in whose profits the owners shared. The trading and commercial enterprises which stretched far to the east and west concerned only a small part of the population, but they had a considerable influence on the whole structure of the state and on the development of the law. There were already institutions like banks which accepted deposits, effected and received payments at another place, and balanced claims of clients against each other. Occasionally also credits for commercial and industrial projects were granted. The extent of the Babylonian empire gave the banks a wider area of action than Greek banks ever had due to their fragmented state.

The Assyrians who belonged to the same civilisation as the Babylonians took power in Babylon. Salmanassar II of Assyria also advanced towards the west and extorted rich tribute; from Jehu, King of Jerusalem, he got silver, golden bowls, jugs, etc., from other rulers horses, dromedaries, buffaloes, elephants, ivory, precious cloth and gowns. The campaigns throughout the eighth and seventh centuries B.C. had the additional effect of unifying the civilisation, as the Assyrians used to lead part of the populations of conquered towns away and replace them by new colonists (2 Kings, 17, 4ff). Once the oppression of war was over, they often developed the economy and the merchants of Nineveh went everywhere: “Thou hast multiplied the merchants above the stars of heaven.” (Nahum 3, 16)

Yet Assyria succumbed under the onslaught of the northern peoples, of Babylon and the newly risen Medea. All towns, including Nineveh, were destroyed and the much hated nation extirpated at one stroke. Probably never was the downfall of one empire as quick and as thorough. Babylon declined slowly; only by the tenth century A.D. was the former metropolis replaced by a small village. Medea received the north of Assyria and pressed on from there against Lydia, whereas Babylon took possession of Syria. Here it collided with Egypt as Necho II tried to regain Syria and Palestine; he was defeated by the Babylonian king Nebuchadnezzar. "And the king of Egypt came not again any more out of his land; for the king of Babylon had taken from the river of Egypt unto the river of Euphrates all that pertained to the king of Egypt." (2 Kings, 24, 7.) Nebuchadnezzar soon had to direct his attention to the Jews who through insurrections forced him to act vigorously against them. He restored the irrigation works in his country and promoted commerce, as the Assyrian kings had done; to protect it he checked the marauding tribes of the desert. Soon after, the neo-Babylonian empire also came to an end.

The Persians, led by Cyrus, had conquered Medea in the middle of the sixth century B.C. An uncorrupted people which up to then had lived as hunters and farmers, they quickly subjected Lydia, even though Sparta, Babylon and Egypt were this country's allies, and advanced to the shores of the Aegean Sea. Soon after, Babylon was conquered; Egypt was conquered by Cyrus's successor Cambyses, who was assisted with ships by the Phoenicians and by Polycrates, the tyrant of Samos. This date marks the beginning of the Persian Empire, which received its unified organisation under Darius. Taxes and tributes were collected, either in terms of goods or means of exchange, in storehouses or treasuries, unless particular provinces were immediately responsible for the upkeep of troops and officials stationed there. As in Egypt, army and officials received part of their pay in kind from the storehouses. The king also had income from mining, leasing of royal land and other businesses. Income from wars may have been quite considerable. Obligations in the form of money had become so general by this time that they were occasionally used even where deliveries in kind were still more usual. Taxes in money were a heavy economic burden in Palestine (Nehemia 5, 18). In order to pay the taxes many had to pawn their vineyards and fields and give themselves and their children in bondage to their moneylenders. Darius did a great deal for commercial connections and so laid the foundations in the south for the Hellenistic and Roman eras. He completed the Nile canal of Nechos II which served purposes similar to those of the present Suez canal by connecting the lower Nile with the Red Sea. After liberation, Egypt allowed it silt up; Ptolemy II restored it again; then it decayed again. After a chequered career it was restored and made navigable during the time of the Arabian empire and served as a passage for the Egyptian fleets to transport grain to Arabia. By the end of the eighth century A.D. the silting was final. Darius's achievements were partly lost under the rule of his successors; also the trade routes to the east and north-east which he had opened were soon forgotten and had to be rediscovered by the Romans. Darius had always favoured relations with India; at this time Persian and even Greek money reached these distant lands where it came into use. What the Persians had created in international connections was in part adopted, renewed or increased by the Macedonian, the Roman, the second Persian and the Arabian empires; only the invasion of north Asiatic peoples in the Middle Ages destroyed a large part of the still surviving ancient cultural community.

The Phoenicians were predominant among the Syrian tribes which helped to join western Asia with Egypt and later, to a certain degree, with the Greek areas, into one civilisation. They already possessed a highly developed though not wholly original urban civilisation in the sixteenth century B.C. Limited to a narrow coastal strip, they made trading voyages to neighbouring peoples and across the sea at an early time. Their merchants brought tin and silver from western countries, copper from Cyprus, gold from Thasos, purple snails from the coast of the Aegean Sea. They were partly intermediary traders, partly they sold their own products on their voyages, such as vessels and dyed cloth; in addition they grew wine and olives and used the timber of Lebanon not only for themselves but also for export. Throughout the Mediterranean they created business outposts, many of which later served the Carthaginians as military footholds. In the west the Phoenician voyagers came across the remains of an age-old civilisation whose centre, according to recent research, lay in north-west Africa. Perhaps Plato's depiction of Atlantis (*Critias* VII) is a reflection of it. The partly allied city states of the Phoenician homeland, whose colonies were more or less independent, were mostly under foreign rule, but this did not impede their economic development.

When the Phoenicians came as merchants to an area to which they did not intend to return they also stole valuable objects and abducted women and children. They hardly had to fear pursuit because their ships were unmatched for a long time (Homer, *Odyssey*, XV, 414). No wonder settled peoples began to consider merchants as pirates and enemies.

To be sure, when these settled peoples later turned to commerce themselves, they too would become pirates (Thucydides I, 5). "War, commerce and piracy, three in one are inseparable."[14] It would be a mistake to think that commerce is a purely peaceful force. By original inclination a merchant is largely an adventurer, without scruples like a robber, even though merchants do not form closed ranks. Viewed as part of the history of commerce, colonial history is full of warlike events, cruelties and oppressions of all kind, of plunder, blackmail, abductions, killings, etc. But without doubt, a largely matured commerce is peaceful if it has secured its areas of exploitation and cannot expect enough advantages through war which would counterbalance its risks and losses. Commerce has a double face.

Where the Phoenicians settled in agricultural areas they introduced the money economy and often became the first usurers. Unsophisticated farmers, together with wife, child and farm, fell into dependence upon the stranger who seemed to have a justified demand for repayment. In earlier times the refusal to return a borrowed object was punished violently; this was understandable because a man who did not return a borrowed thing would commonly be considered a thief. It was a most advantageous extrapolation for the moneylenders that loan of money and loan of things were originally treated according to similar principles. A farmer who would have had no difficulty in delivering even a considerable part of his harvest was incapable of repaying a fixed amount of metal at once, even without interest, when the money had been used for some purpose. The Phoenicians would make debtors into serfs, but they also liked to buy such serfs, because in all countries there were people who sold "the righteous for silver and the poor for a pair of shoes." (Amos 2, 6) In general we notice how the money order spread from country to country like an infection, and, together with it, the bondage for debt which was to burden Greece and Rome for centuries. The money order is essentially a creation of international commerce and, in the form in which we know it, would hardly have developed on a merely national level. When it encountered a developed economic order it could transform it; on economic orders of a simpler form, however, it nearly always had a devastating effect. Not only did the merchants bring people into debt, but the rulers also contributed to the decline of the peasants by introducing money taxes before they had adapted to the market system. Thus they forced the farmer to sell his crop at any price to the few merchants available as soon as trade in food was sufficiently developed. The members of a people who formerly, in the traditional community spirit, liked to give help to each other, now became competitors, and each action was considered in terms of the gain it would bring.

In the twelfth century B.C. the nomadic peoples of the Hebrews had invaded Canaan at a time when neither Egyptians nor Assyrians held it in occupation. At the beginning of the first millennium, they were ruled by powerful kings who occasionally used the people for forced labour (1 Kings 5, 27). The priests, who received tributes in kind from the people, only gradually became the leading power. As an agricultural people that still mainly grew grain, wine, figs, etc. (Nehemia 13, 15), they could offer the Phoenicians at that time mostly only oil and wheat in exchange for timber for shipbuilding and other goods (1 Kings 5, 25). The Phoenicians taught the Hebrews to erect large buildings and they permitted their participation in expeditions that brought gold, precious woods, stones, and oils from the south (1 Kings 10, 11). The development of crafts was greatly impeded by the lack of raw materials, but attempts to take part in commerce grew steadily. After his defeat, the king of Damascus was forced to allow the Hebrews to establish bazaars at Damascus (1 Kings 20, 34). Similarly, the kings of Judea made efforts to gain possession of the caravan route to Gaza and of a port on the Red Sea. In the eighth century B.C. the Assyrians put an abrupt end to all that. But the Jewish society was destroyed only in the sixth century when, after several insurrections, many Jews were deported from their homeland by the king of Babylon. Others emigrated to Egypt; now only the poorest remained and spread out over the agricultural lands of the rich, and foreign tribes poured in. There was hardly anything left of a state organisation. Only under Persian rule were many Jews allowed back to their homeland. It took a long time for Palestine to recover, suffering heavily from money taxes. Appointed governor by the Persian rulers, the Jew Nehemia attempted to help the country by a reduction of debt; though this measure did not tackle the essential problem, it remained an ideal for the economic and social aspirations of Jewry for a long time. From the fifth century B.C. onwards the population began to increase, partly by taking in foreigners. The Hebrews advanced to the coast and took over an ever increasing part in commerce and money business. They hoped that Yahweh would make them creditors and not debtors (Deuteronomy 15, 6). Their business was so successful because everywhere in the Persian provinces they lived among the other peoples (Ester 3, 8). But the main development of the diaspora took place in the era of Hellenism when Palestine was once again an object of dispute between Syria and Egypt. The Jewish community had many privileges in Alexandria in particular; but Jewish merchants migrated to Greece too, and in the first century B.C. many of them were taken as prisoners of war to Italy where large Jewish communities were formed as well. The peak of their importance as merchants, however, was reached probably only after the fall of the Roman Empire when, as neutrals, they were able to play an important part during the wars of the Byzantine Empire.

The peoples of Arabia also had considerable significance for the commerce of the ancient world. The south of Arabia was often united in large empires for centuries at a time, and some of them, such as that of Saba, extended to the African coast for commercial reasons. Several times in history attempts to form large empires were made there. Enormous ruins which today lie deep in the desert are evidence of how far the former area of civilisation extended. The smaller tribes to the north took little part in the creation of such empires and again and again attempted to enter the country of their settled neighbours as plunderers, but sometimes they themselves settled down, not seldom to stimulating effect. The states of the south as well as the small nomadic tribes to the north took readily to commerce. Many of the nomadic tribes were occupied mainly by raising livestock.

Commerce was served by a number of roads which crossed the deserts of Arabia, mostly on its borders. The great Asiatic empires, as well as all later rulers who wanted to extend their power in those areas, attempted to gain control of these roads. The Assyrians and Babylonians fought for them, as did the Persian kings. The Persian kings mostly had to resign themselves to receiving tributes from the Arabs and to getting their assistance in the provision of water on the desert roads to Egypt (Herodotus III, 6–9). Nobody succeeded in subduing these roving tribes. Often they maintained their ability by punishing the growing of grain harshly; in this way they wanted to keep alert and warlike. This view is also expressed in the words of Mohammed: "The livelihood of my community depends on the hooves of their horses and on the points of their lances, as long as they do not tend a field; as soon as they do that they will become like other men." On the one hand, the Arabs took over intermediary commerce between the east and the Mediterranean; on the other hand, they traded their own products – some of which were unique, e.g. frankincense. When they did not set up their own caravans they offered protection for travelling merchants and profited from the payment demanded for this. If such payment was refused the merchants were robbed. Robbery is generally a secondary activity of nomadic peoples on land, as piracy is for the nomads of the sea. The Arabian caravans heading for the Mediterranean mostly went to Gaza, but many Arabian merchants could also be seen in Syria and Egypt (Genesis 37, 25). The connection with Babylon was already established in early times, both by sea and by land. The goods, mainly frankincense and myrrh, were often collected on large market places where the single tribes met briefly and traded with each other (Diodorus XIX, 95). The Arabs retained their importance as intermediary traders for a long time. An exception is the period in which the Ptolemies established direct contact with India by sea, but as producers of frankincense and other precious goods the Arabs were never surpassed. The relations between Egyptians and Arabs were mainly of a commercial nature; balsam was one of the most important commodities which the Egyptians received from the Arabs.

This short survey reaching up to the Hellenistic time and occasionally casting a glance to the more distant future, may suffice to make the later developments intelligible. We have seen that powerful state organisations grew up in the large oases of the Nile and Mesopotamia which were linked together by some smaller formations of varying characters, one of them with the oasis of the Jordan river as its centre. The other states mentioned here, that of Saba and that of north-western Africa stayed in the background. The more western Asia developed a common way of life the weaker it became politically. Strength and ability to conquer decreased with time. This saved the Greeks whose states gradually grew in strength, from being swallowed up by the Near Eastern powers to which, however, they owe much fertile influence and a considerable part of their cultural development. As was pointed out, the money order started in western Asia and spread initially as a foreign element from east to west. Its destructive consequences are still felt today; that is why it is so important to investigate its roots closely. Closer knowledge of the other peoples of the Mediterranean is available only from the time when they had established some contact with the East. Only faint glimmers remain of previous times.

* * *

CHAPTER 8: COMPLETION AND DECLINE OF THE ANCIENT WORLD ECONOMY

And I saw and beheld a white horse: and he that sat on him had a bow; and a crown was given unto him; and went forth conquering and to conquer.

And there went out another horse that was red: and power was given to him that sat thereon to take peace from the earth, and that they should kill one another; and there was given onto him a great sword.

And I beheld, and lo a black horse: and he that sat on him had a pair of balances in his hand. And I heard a voice in the midst of the four beasts say, A measure of wheat for a penny, and three measures of barley for a penny; and see that thou hurt not the oil and wine.

And I looked, and beheld a pale horse: and his name that sat on him was Death, and Hell followed with him. And power was given unto them over the fourth part of the earth, to kill with sword, and with hunger, and with death.

Revelation of John

At the beginning of the imperial epoch, the division of labour between the regions was far advanced, and with it communication and commerce; nearly everywhere products of all areas were available (Pliny, *In Praise of Trajan*, 29). A well-ordered administration endeavoured to protect the provinces and to keep the officials in check (Dio Cassius, LX, 11) who had enjoyed freedom to plunder during the Republic. While the idea of a world citizenship was realised within the powerful empire, the foundations of the structure as a whole were being undermined. Though a feeling for legal processes was widespread, the understanding of social interconnections and the ability to influence them was negligible. The cleavage between the property owners and the propertyless deepened. Eminent rulers tried to counteract this, among them Tiberius who gave a very urgent address to the senate: “What should I first restrict according to old custom? The unlimited size of country estates? The number and nationality of slaves? The masses of silver and gold? The wondrous creations in brass and painting? The feminine dresses worn by men? The jewellery of women for which our money flows to foreigners or even our enemies? I know very well that people complain about this at banquets and other gatherings and demand restraint; but just try to issue a decree and announce penalties, and the very same people will start an outcry about the state being overturned, the most splendid families being threatened with ruin, nobody’s being safe from accusation! Well, not even ailments of the body, if they are old and long sustained, can be stopped except by severe and harsh means; the spirit even more, corrupt and its own corrupter, sick and lustful at the same time, cannot be alleviated by milder medicines than the lusts which inflamed it. So many laws created by our ancestors, so many which the divine Augustus has decreed, are deprived of their effectiveness, the former by oblivion, the latter even more reprehensibly by negligence; this has made luxury even more secure. For if one desires what is not yet forbidden, one may be afraid that it will be forbidden; if however one has disregarded prohibitions without punishment, all fear and shame are gone." (Tacitus, *Annals*, III, 53.) The same resigned, plaintive tone characterises many utterances of these centuries.

The widespread dissolution of the peasantry, of old associations, of the spirit of community finally induced forceful efforts to create all kinds of connections that would give the empire a new lease on life. But laws cannot make an unhappy population do what free citizens are eager to do on their own in the old established ways. These various efforts were spread over a very long time; only a rough sketch of them can be given here.

One of the most important connections is that between the peasant and the land which he cultivates. The colonate as a social form – the legal form, later unified, will not be discussed here – had several roots. That may have been the reason why it could develop relatively quickly and generally. Provincial traditions and rational innovations together formed a stable whole, as they often do. Cheap grain imports and the grain donations ruined the peasantry in many areas; the rich landowners acquired land for pastures, villas and gardens; at the same time an opposite trend developed. People began to leave the countryside; in the long years of peace the number of slaves diminished; for these and other reasons the great landowners in some areas were induced to partition their land into smaller units for intensive cultivation (Pliny, *Letters*, III, 19), partly of wine, fruit and olives. The management was in the hands of the slaves or free employees who had been allowed some freedom so that they should be really devoted to their work. The economic units within one estate enjoyed such independence that they could even trade with each other (Suetonius, *Claudius*, 12). This development renewed the form of economy based on the household – which had always remained important – in two ways. On the one hand, the large estates with their slaves and craftsmen produced many tools and other equipment themselves, and there was little they had to buy; on the other hand, the small units often returned to a primitive household economy. Whereas formerly tenants who were behind in their payments were punished with a fine and often driven away, now more leniency had to be applied in order not to lose the tenant (Pliny, *Letters*, VII, 30). The landowner lent him slaves, tools and other things and took an interest in his prosperity. To help him to make the investments, hereditary contracts of tenancy were made, thereby also ensuring that the land was properly looked after. Many landowners even decided to share the tenant's risks, and they replaced fixed payments by shares in profits in their leases (Pliny, *Letters*, IX, 37). This was not always helpful; often the tenants' shares became so small that he had to leave. More and more land was unused, so that at the end of the second century A.D. a decree was issued that anyone who occupied untended land could make it his own by growing crops, and for ten years no tax was to be paid (Herodian, *History of the Emperors*, II, 4). Similarly attempts were made to force wealthy people to invest in land. Nevertheless the empire's ability to levy tax sank more and more; Marcus Aurelius (Dio Cassius, LXXI, 32) and Hadrian (Dio Cassius, LXIX, 8) had to grant great tax remissions. It was therefore necessary to prevent agriculturalists from leaving the land and also to protect them from being exploited too much by the landowners, whether they were free tenants or slaves who worked small units with some degree of independence. Besides this, the settlement of soldiers spread further and further; some of them were citizens of the empire, some had come from outside. For the economic development it mattered little whether these settlers were free men or obtained land as prisoners of war (Dio Cassius, LXXI, 11). In addition to the groups mentioned, which were more or less in bondage to the soil because they worked it as slaves, freedmen, soldiers or prisoners of war, and those who were restricted in their free movement by special conditions, there were people who for some reason or other considered it advantageous to seek the protection of a master to whom they made themselves duty bound to work the land and to serve in manual and statute labour. Similar relationships can be found in old municipal constitutions (*Lex Coloniae Genetivae Iuliae*, 98), but only later did they acquire more general importance.

In the same way in which economic freedom was actually much restricted to improve agriculture, far-reaching regulations were also introduced concerning the commerce in grain. Previously Italy had sent grain to its legions (Tacitus, *Annals*, XII, 43); now there could be scarcity in winter because the ships had to find refuge from storms in safe harbours (*The Acts*, 28, 11). Though, on the one hand, grain transport could equalise surplus and deficit (Pliny, *In Praise of Trajan*, 32), on the other hand the supply of food to Rome was often in danger because traffic was unsafe (Tacitus, *Histories*, IV, 52); this led to riots, even to aggression against the monarch (Suetonius, *Claudius*, 19). To overcome all these difficulties, transport firms were given all kinds of privileges, and the state compensated losses beyond their control. Initially the associations of grain importers who delivered to Rome and Byzantium made free contracts; but later the contracts were regulated by law. Each transporter had to be a member of the association; this even became hereditary. In this way institutions of free enterprise and ownership became in some sense public offices. By compulsory organisation the corporations were nationalised, so to speak. In addition, the state also increased the number of its own enterprises, in which both slaves and free men worked to produce, among other things, articles for the army. Everywhere we can observe the first beginnings of a generous administrative economy under state influence and based on association; this might have achieved significant results in a vigorous age; but now it was not even sufficient to stop the growing paralysis.

The associations of transporters were part of a system of such associations. There were associations of grain measurers, bakers of bread for free distribution, associations which had to look after meat and bread donations. These associations continued in many ways the work of the old craft unions, which were, however, occasionally thought to be politically suspect, especially when their benefit funds tried to collect money for political purposes. All craft unions which were useful to the army, however, received much support. Where public organisations were lacking, use was made of associations of craftsmen, industrialists, bankers, etc. That recourse could be taken to all these associations clearly shows how varied and developed economic life was during the time of the emperors. Many of these communities may have had their beginning in the old trading posts, where associations had a religious basis. There were also corporations of shipowners, for example, possessing old privileges at many places which were now built into the new framework. The state made efforts to attract members to the various occupations and to keep up their numbers all the more, the less expected profitability offered sufficient stimulation to the enterprises to provide the market with necessary goods. In the fourth century [A.D.] hereditary membership was introduced more and more generally; occasionally it was decreed that a man who married the daughter of a member had to become a member himself. Although this appears similar to what happened in the Middle Ages, no historical connection need be implied.

As mentioned above, the colonate and the protection of agriculturalists by the state can be explained by its need for reliable tax payers. Since it was difficult to get at the individual for payment of tax, and as the associations played such a great role, they and the communes were often entrusted with the collection of taxes. Communes and associations were liable for the taxes which had to be shared by their members. Originally there had been a tendency to construct the Roman Empire as a system of city states; country districts were constituted as communes or assigned to communes; however, communes lost more and more of their importance. The lack of a proper popular representative body for the Roman Empire as a whole contributed greatly to its rapid decline. Financially the communes were more and more heavily burdened, since they were charged with certain tasks which had been the obligation of the state. No more is heard in the Roman Empire of the voluntary honorary offices which were well-known in the Republic. The leading communal offices became hereditary duties, their holders were liable for taxes and other things. At first money tax had considerably increased, as the imperial era brought the money economy to its full development. This is clearly reflected in legal records. But enough residues of an economy in kind still remained, since in the large areas where households were still the basis of the economy a tax in kind often survived. To protect the tax payers, controls were intensified and the worst misuses abolished where the farming out of tax collections, monopolies and customs had not yet been stopped, as for example under Tiberius (Tacitus, *Annals*, IV, 6) and Nero (ibid., XIII, 50f.). Nero is even said to have thought of a removal of all customs; he did not put this into practice because the state budget would have suffered gravely. Towards the end of the imperial period, taxes and other dues in kind became more and more usual, corresponding to the whole transformation of Roman economic conditions. The obligations were fixed in a great variety of commodities: foodstuffs, raw materials and finished products.

The raw materials, for example, were partly used in state industries, such as textile manufactures; they were of great importance and earned much income. The dues in kind were also used in salary payments. Towards the end of the Empire, officials received in payment hundreds of different things: from foodstuffs and beasts of burden, to buckles and concubines. Some areas had to make deliveries of meat to the corporations of butchers, others grain to the corporation of bakers, and certain organisations had to deliver saddles, uniforms, etc., to the administration of the army. Since corporations were liable for taxes, the actual tax payers gradually had less and less to do with the state, but only with the associations. As the individual had no influence on the amount of tax, its pressure was felt bitterly. Earlier we saw that people tried to evade the burden in any possible way, and in spite of all means of compulsion – recourse was even taken to flogging; in some districts there were even mass desertions of tax defaulters.

All these measures were mixed with other attempts of the governments to bring order into economic life and to counteract the lowering of the purchasing power of money. In the west an economy in kind increased and in later times, especially on church land, the home production of basic commodities played an important role, while in the east the money economy was often revived; Byzantium's economy was based mainly on money. Attempts to develop the economy in kind and to put the money economy in order went on side by side in the time of the Roman emperors. The strong and ever increasing flow of metal to the east, together with the reduction in the production of precious metals, had gradually brought about a lack of precious metals in the Mediterranean. The state took recourse to issuing debased coins; this caused prices to rise and brought the state into conflict with the exporters to whom only the metal content of coins and not their nominal value mattered. Diocletian attempted to issue a price tariff, but with little effect. It contained long lists of articles in the manner of mail order catalogues. This fixing of prices was to apply to all markets in the whole of the empire, or at least the part under Diocletian's rule. The main concern of the government, however, seems to have been to fix prices for its own needs and for its soldiers and officials. Wages for various sorts of work were also determined. Like magistrates in charge of public works previously, other rulers had fixed certain prices in the interest of the people only on the occasion of grain and bread donations; Diocletian's price tariffs, however, were to regulate a large part of the prices of all commodities. It is not absolutely clear whether the interests of the government or the consumers prevailed. As many items on Diocletian's lists concerned state manufactured goods, it seems to have affected more than the free market and may also have regulated the transformation of money tax into tax in kind. As no compulsion was applied at the time to selling, the decree inevitable failed whenever people declared they were not willing to produce and sell under such conditions (Lactantius, *De mortibus persecutorem*, 7).

The attitude towards gainful employment did not change among the better-off who in continuation of old traditions occupied themselves with the seven liberal arts. Serious thinkers took it for granted that a monarch was pleased with praise from free and honourable men, but not with that from manual workers and merchants (Dio of Prusa, X, 34). The teachers of liberal arts who contributed more to the spreading than the deepening of education had large incomes (Philostratus, *Biographies of the Sophists*, II, 2), if they taught at one of the esteemed schools which attracted a large attendance. At Smyrna a teacher of rhetoric attracted disciples from Europe and all of Asia Minor (ibid., II, 26). School fees were not inconsiderable (ibid., II, 2). To be sure, part of their income brought advantages to the towns and their population for the teachers of rhetoric, like all people of rank, did much for public welfare and thus replaced state welfare to some degree (ibid., II, 23).

The expenditure by emperors, state and communes for education and science was, as generally in antiquity, less than their expenditure on games, baths, theatres, etc. (*Monument of Ancyra*, 22). Expenditures for games was often laid down in the city's constitution (*Lex Coloniae Genetivae Iuliae*, 70f.). But a part of these was often contributed by private individuals who provided schools and museums for the public at their own expense, just as nowadays, for instance, many rich Americans support educational institutions. As the officials of the Republic had done before, the emperors and the state took charge of donations and gifts of all kinds (*Monument of Ancyra*, 14f.). The pensions of soldiers which had been regulated mainly by Augustus, were for a long time paid out from a special fund which was partly maintained through an inheritance tax. The foundations for children of poor people sank into oblivion when finances deteriorated in the third century, so that Emperor Constantine had to take new measures in the fourth century.

During imperial times only the large cities grew while the total population declined. The great numbers of people who flowed to Rome came from every corner of the world; there were Greeks and Orientals, Gauls and Spaniards, slaves and freedmen, veterans and young recruits (Appian, *Civil Wars*, II, 20). In Rome and in other great cities people hoped to make a life for themselves, but there, as in the other great cities, they also had their first chance of having a good time for a few pennies. A minimum of subsistence was guaranteed by donations of all kinds and amusements too were available to everybody. When Rome was no longer the capital of the whole empire its decline set in and it started to become the medium-size town that it was at the beginning of the Middle Ages. The lower classes in the countryside and in small towns hesitated to marry and have children, so that the settlement of veterans, meant to counteract depopulation, often was of no use (Tacitus, *Annals*, XIV, 27). Emperors like Nero and Trajan and many private individuals (Pliny, *Letters*, VII, 18) tried to relieve poor parents of their worry about the survival of their children by means of rich foundations. Marriage laws decreeing disadvantages for the unmarried or childless (Gaius, II, 286) and advantages to those who had children (Suetonius, *Augustus*, 46), were equally unsuccessful. Wars showed their effect in addition to the decline in the marriage and birth rates, as did the insufficient state regulation of the provision of grain in many areas: when harvests failed, great numbers of people perished. From the second and third centuries onwards, epidemics had terrible effects; even when they were over, no increase in birth rates replaced the losses suffered. The epidemics were especially devastating in cities such as Rome with their unhealthy environments (Dio Cassius, LXXII, 14). In the writings of many later authors we encounter again and again terrifying descriptions of famine, epidemics and wars (Eusebius, *Church History*, IX, 8).

With depopulation and the upheavals connected with it, the organisation of the military also underwent change. The old peasant army had already been destroyed in the campaigns of the Republic; thereafter more and more foreign nationals were taken into military service, at first only lightly armed to protect the flanks, then also as separate formations, until they formed the main bulk of the army, in spite of all efforts of the emperors. In the first half of the second century the provinces established their own troops. Increasingly the army was made up of Barbarians who had settled in the countryside; they were the 'saviours of the fatherland,' the guards of order in the interior. The result was the riotous rule of disorderly troops, occasionally disciplined by men of superior intelligence. Even the reorganisation under Diocletian could not put a stop to all this; in the end the population was at the mercy of the army: Rome for the Barbarians.

The number of slaves diminished considerably during imperial times. The reasons were partly circumstantial, partly structural. Among the circumstantial reasons was above all the cessation of large wars which in the past had produced masses of slaves and a great number of them were also killed in the slave insurrections. In the beginning the lack of slaves was made up for by bandits who capture travellers on the open roads and carried them off (Suetonius, *Augustus*, 32). It also happened that tribes sold their children (Tacitus, *Annals*, IV, 72) or that people gave themselves into slavery voluntarily in order to avoid war service. Many emperors fought such evils (Suetonius, *Tiberius*, 8). Releases for the purpose of entitling slaves to grain donations, while continuing to use them as free labourers, may also be mentioned among the circumstantial reasons. But there were also structural reasons which made slavery appear unprofitable. The many releases cannot be otherwise explained; they became so numerous that laws were passed against them (Gaius, I, 42). The economy of plantations that needed many slaves was not as successful as the economy of small plots for which free workers and free tenants were increasingly used, at first perhaps because the numbers of slaves sank (Pliny, *Letters*, III, 19), then also because they were more efficient. After the peasants had been ruined by slaves in some areas, there were as many free men as slaves on the great estates (Varro, *On Agriculture*, I, 18). The more the commercial economy developed the less use were slaves to the entrepreneur. The commercial economy brought about fluctuations in the business cycle, temporary recessions, even conditions very similar to a crisis. Free workers could easily be dismissed in such times, production was reduced, the loss of the master cut back. Things were different if he had many slaves; he had to keep them even in times of poor business; otherwise he would suffer additional damage through the low prices of slaves. Thus the commercial economy created crises and so contributed to the abolition of slavery. Incidentally, the plantation economy proves successful, irrespectively of the economic system, only where the people are inclined not to increase production except under direct pressure, even are inclined to work less if the wages for piece work rise.

People are of this type in the south. If they earn more quickly, for example at harvest times, they enjoy longer leisure; northern people, on the other hand, are much more inclined to make use of the opportunity of more well paid work to buy more things than before. The legal regulations at the beginning of imperial times do not give a true picture of the actual conditions. Many slaves were married and lived on separate plots which they managed as small independent economic units, of which a greater number belonged to one master. Only gradually did legislation later give recognition to the loosening of bondage and defined a milder form of dependence as legally justified.

In this period people of philosophical erudition sided more and more with the slaves; they counselled to disdain the slave-like soul, but not the slave (Dio of Prusa, XV). Plutarch, for instance, criticised Cato the Elder for selling the exhausted slaves in old age instead of allowing them charitable retirement; he pointed out that not even animals, actually no animated beings, should just be thrown aside because they had become useless (Cato the Elder, 5). The recognition of slaves as human beings was influenced by those currents in ancient philosophy which were inclined to see all living things as one large family. The better educated slaves became officials and employees and partly constituted the intelligentsia and teachers. For instance, Caesar entrusted the direction of the mint and of the customs administration to freedmen and slaves; this indicates the close personal connections between the ruler and these important institutions (Suetonius, *Julius Caesar*, 76). This class of highly refined slaves and freedmen was an influence on the modification of views on slavery (Pliny, *Letters*, VIII, 16). But slaves of a lower level were certainly not always oppressed either; for instance, they were used as police soldiers and received wages, as they had in Athens, and in other cases too, wage payments to slaves were often introduced. In personal relations their situation hardly differed from that of freedmen; the master of the house would respect their will, donations, etc., within the household (ibid.). In the money business and in commerce, slaves were frequently entrepreneurs who worked with credit. Slaves and freedmen could form associations which had originally been intended for free men only; again this shows how much more independent slaves became. They could also become members of burial and insurance funds, and the cash balance of slave societies were often considerable; in short, they took part in organisations for mutual help, of which there were many in late antiquity.

In the Western Mediterranean new structures began to take shape which were mainly created by the Germanic peoples; in the east the old state organism continued formally, but its internal structure was radically transformed. In both halves certain institutions which had played a part in the Roman Empire's glory survived for a long time; individual rulers often attached great importance to preserve the old and links with tradition. But after Diocletian only the emperors in the east were able to uphold the structure with sagacity and energy; in the west the migrating Barbarians forcefully broke up the old connections. The northern peoples advanced slowly but could not be stopped. More and more Nordic people appeared among the inhabitants of the Roman Empire, either as prisoners, or as settlers at their own request – often after being defeated (Suetonius, *Augustus*, 21), or as soldiers or officials who were admitted into the state. Part of these foreign troops were quartered out and received a kind of payment dependent upon success from the leader, another part was settled along the borders in Europe, Asia and Africa. In the beginning, the Germans were content with inferior land which was not usable otherwise, but they soon demanded something better. The German newcomers maintained that they were in fact supporters of the monarchy, even when behaved in a very undisciplined way; this preserved state institutions in a superficial way. In the second and third centuries, as mentioned before, such settlements reached greater dimensions during the Germanic wars. From then on the advance of the northern tribes did not cease, though the Romans won repeated victories. Already in the third century, German tribes invaded Macedonia, Greece and Asia Minor and caused severe devastation. Time and again the emperor was forced to impose new taxes to fight the invaders successfully, and the population was harmed twice over. These attacks became especially dangerous when in the third century the Goths began to try to take ships into the area of the Black Sea to start a war of piracy. Some towns in their path were burnt down, but others survived, e.g. Chersionesus in the Crimea near Sebastopol, which was later taken over by the Byzantine Empire. Chersionesus was never really subjected to Rome and was independent from the third century B.C. onward. It was the last Greek republic. Though the surrounding land which had once exported grain to the west no longer belonged to the city, commerce brought wealth to this Greek city for centuries, up to the Middle Ages. As of old, it exchanged furs and salted fish against luxury and industrial goods in Constantinople. In the west, the capital Rome had declined more and more; the emperor even moved his residence to Northern Italy where he was in the end exposed to the thrust of the northern peoples, sometimes overcome, sometimes successfully defended. As grain imports could be cut off by occupation of the mouth of the Tiber river at any time, Alaric, for instance, had little trouble.

The attempts at reform towards the end of antiquity did not result in an elaborate theory of the connections between social and economic phenomena.[15] The high development of legal reasoning was independent of a deeper understanding of economic phenomena. The great theorists of antiquity who are subsumed under the description 'philosophers' made occasional penetrating remarks on economic matters, but they lacked any systematic approach. When disorder increased, many tried to save that which could be saved: the right to individuality. This spread the dissolution even more. Among the Greeks who tended to occupy themselves with dark and tragic problems, a certain asceticism reappeared which took an inimical attitude to the world.[16] Among the Cynics and Stoics there were characters reminiscent in many ways of monks and hermits. Like the Christians, they addressed themselves to both the lower and the higher strata of society whom they often severed from the state. But whereas Christianity later found a transition to an ideal of a state, the Cynics never achieved this to any great extent. As long as the great majority was without education and lived in depressed conditions, philosophy could advocate the free and spirited leisures of life, but since more and more people lived hedonistically in imperial times (Dio Cassius, LXVI, 13), only the turn away from the world could appear worthy of a true philosopher.[17] Individual thinkers prophesised the downfall of their world in awesome language. For instance, Dio of Prusa, in a powerful speech (XIII, 36), compared the treasures that Athens had amassed from the corners of the world with the funeral pyre which Achilles had erected for Patroclus from wood, dead bodies, gowns and sacrificial lard, summoning the winds to light the fire and whip up the flames.

While the vital forces of antiquity declined, Christianity grew as a new power. Its history explains its wavering response to the most important social and economic questions. It had emerged among those who wanted to save their own souls and who sought their salvation apart from life. Poor craftsmen, workers and slaves formed the bulk of the believers (Origin, *Against Celsus*, III, 55); they were joined by such educated men, philosophers, officials and members of other strata, who loathed the chaotic conditions of their day. What should honour and success mean among contemporaries for whom the millennium was close at hand? To make ends meet as a manual worker seemed an honourable life (*Teachings of the Twelve Apostles*, XII, 3). Wholly in the spirit of Judaism, parents were advised to "teach their sons abilities befitting the fear of God" (*Doctrine of Didascalia*, XXII). And an educated ex-official who had much knowledge of the developed economic life of his time, Ambrosius, Bishop of Milan, still taught in the fourth century A.D. that it would be best simply to tend one's tiny little plot and prove true as a fighter for God otherwise (Ambrosius, *On the Duties*, I, 26). The community life of the Christians provides the explanation for the communist endeavours of some Church fathers which, however, led to nothing. A conciliation with the state took place when the Christians began to dream of a kingdom of God on earth, of a 'community of the Lord,' which they could create themselves. The complete lack of interest in questions of the state and nation led to the view expressed sometimes that it did not matter under whose rule one lives (St. Augustine, *City of God*, V, 17), as long as one was not forced to commit sins. The state became accepted as an organisation of peace. Christianity had to create a doctrine of the state and society; this could not be derived from the original ideas and, understandably therefore, had a great deal of vagueness.

This becomes especially clear in the case of Christianity's attitude toward slavery. In the first period of deep spiritual devotion to salvation, it did not seem to matter at all whether a person was a 'master' or 'slave.' The slave was expected to obey his master and be completely faithful to him (Paul to Titus, II, 9), just as everybody was expected to fulfil the obligations of his occupation as long as nothing immoral was demanded. When the whole society, and no longer the individual, was under discussion, a quotation from the Bible, from nomadic times, could serve to make slavery acceptable. In the same way as the ancients thought that slavery was a natural consequence of the inferiority of character, the Christians saw it as the consequence of moral inferiority. Though the natural state knew only free men, it was sin that created slaves (St. Augustine, *City of God*, XIX, 15). Ham's progeny was cursed by Noah for eternity (Genesis IX, 25): "Cursed be Canaan; a servant of servants shall he be unto his brethren." In general, one did not seek to defend the oppressive forms of slave exploitation in the larger enterprises with such reasoning; it was, however, applied to the more patriarchal forms of oriental domestic slavery. This also explains the demand, reminiscent of sayings of Aristotle, that the master should further and raise his slave (St. Augustine, *City of God*, XIX, 16). But that Christianity at the end of the Middle Ages and at the beginning of modern times made its peace with the most brutal form of slavery that has ever existed, shows that the power of Christianity to resist slavery as such was certainly not strong. And though time and again Christianity counted release from bondage among the good deeds, and though Christian circles lent support to the liberation of slaves, there were, on the other hand, cases at the beginning of the Middle Ages when the Church limited the increasing liberation in the monasteries. Certainly Christianity did not undertake the abolition of slavery at any price and probably often caused no greater liberation of slaves than was customary in antiquity anyway.

The organisation of the financial administration in the early Church can hardly be compared to that of the later. At first, there were mainly voluntary contributions which were distributed to presbyters, deacons and readers according to certain rules (*Syrian Didascalia*, 9). But however advanced the Christian community administration may often have been, the Church reached its full economic significance only when it took over state duties to a larger degree, from the fourth century A.D. onwards. At this time much of Italy was untilled; in the sixth century there were barely 50,000 inhabitants in Rome. Though Justinian tried to put things in order in Italy around the middle of the sixth century, the Pope began to take an ever greater part in administration and jurisdiction in Rome. The Church distributed grain to the people in the same way as the emperors had done earlier, often against the will of the government which did not want to be deprived of its power. And though these donations of grain often formally depended on the generosity of a private individual, the Pope, they nevertheless strengthened Church organisation. The monasteries and churches that had land received rental payments from settlers, tenants, semi-free and unfree small peasants, coloni and slaves, which were mostly wholly or partly paid in shares of the produce, later in fixed amounts of grain or other products. In this way, the Church could fill its stores with grain which came, as of old, from Sicily, where part of it was bought by Church officials, but mainly collected from the church peasants. The people who were bound to the soil but personally free, together with the other classes of unfree and semi-free people (who were often in relations of dependency among themselves), formed the basic stock for the economic order of the Church which was to come into its own in the Middle Ages. When the old empire fell to pieces, new Church organisations developed, in the east in Antioch and Alexandria, in the west in Rome. At the end of the eighth century two great powers faced each other, each of which had grown out of the glory of the old empire: Emperor and Pope.

While Rome decayed, the Byzantine civilisation advanced along the Russian rivers as formerly the Roman had advanced along those of Gaul. Commercial centres developed on the trade routes which led to the Baltic Sea and survive in part until today. As France and Germany had their links with the old Roman Empire, so Russia did in various ways with Byzantium.

From the point of view of economic history, the end of antiquity presents a scene full of variety. The areas of the Eastern Roman Empire still had a well-ordered economic system in which individuals were active. State finances and commerce continued in spite of many disturbances. The countries of the Western Roman Empire, however, began to fall apart, individual areas could no longer rely on regular trade and attempts were made to produce what was needed locally. The requirement of large sections of the population had been lowered and could be satisfied by smaller economic organisations. Alongside communes everywhere, landed estates developed which either became part of new kingdoms or were small kingdoms themselves. In the areas of the decaying order, new organisations of stronger cohesion developed locally while the economic links between the inhabitants of the wider world were considerably weakened.

It did not take long for the northern conquerors to advance further and further into the Western Roman area, and in the end they established close links between Italy and the economic and political centres of Central Europe. The East still kept its independence but was threatened with the same fate. The Central European economic powers tried to found new empires in the Western Roman areas; onslaught followed onslaught; soon Central European princes reigned in the area of the declining Eastern Roman Empire. But the cultural fate of Italy was denied to the Eastern Roman area. It was not incorporated into the higher civilisation of Central Europe but into a great empire of conquest which was no less civilised but did not develop further. At present attempts are being made to connect these areas to the unified Central European economic system; the future will show with what success.[18, 19]

NOTES

* First published as *Antike Wirtschaftsgeschichte*, Teubner, Leipzig, 1909, iv + 156 p.; 2nd revised ed., 1918, vi + 98; 3rd virtually unchanged ed., 1926, vi + 98; 2nd ed. reprinted in O. Neurath, *Gesammelte ökonomische, soziologische und sozialpolitische Schriften (I)*, ed. by R. Haller and U. Höfer, Hölder-Pichler-Tempsky, Vienna, 1998, 137–217. The present translation follows the second edition. Only the different formulations of the Preface from the first edition and the minor amendments of the third edition are given in footnotes, as is the Concluding Overview of the first edition (which was cut in the second and third editions). Translation of Chapters 1 and 8 by Robert S. Cohen and Thomas E. Uebel, based on a draft by Marie Neurath, of the Preface and Conclusion by Thomas E. Uebel.

1. [In the 1st edition the first paragraph reads as follows. "Even though the results of scientific research so far do not yet allow a complete description of the economy of antiquity, it is nevertheless possible already to sketch in outline its most important types of economic organisations. I do not cite the recent literature as this would have required further discussion of differences of opinion, which would have cut still further into the restricted amount of space available. In place of that I rather cite ancient authors whose works are more easily accessible to many readers. By doing so I hope to help draw wider attention to them than they commonly receive (which is not in the least due to our schools). In general I seek to circumvent controversies and thus occasionally employ a somewhat vague formulation or omit certain points. However, I do not shy from expressing certain views without mentioning the opposing ones when they appear justified to me, since I am here primarily concerned to give a consistent picture." Eds.]

2. [Cross-references to other parts of the book have been eliminated here. Eds.]

3. [In the 1st edition this is followed by the sentence: "The total picture of economic affairs – and this is my concern – is hardly affected by this; those interested in political history are advised to consult other sources." Eds.]

4. See Neurath, "Die Kriegswirtschaft", *Jahresbericht der Neuen Wiener Handelsakademie 1910*, repr. in Neurath, *Durch die Kriegswirtschaft zur Naturalwirtschaft* [DKN], Callwey, Munich, 1919, 6–41, trans. "War Economics" in this volume; "Probleme der Kriegswirtschaftslehre", *Zeitschrift für die gesamte Staatswissenschaft* 69 (1913) 438–501, repr. in Neurath, *Gesammelte ökonomische, soziologische und sozialpolitische Schriften (II)* [GÖSS2], ed. by R. Haller and U. Höfer, Vienna: Hölder-Pichler-Tempsky, 1998, 201–249; "Die Kriegswirtschaft als Sonderdiziplin", *Weltwirtschaftliches Archiv* 1 (1913) 342–348, repr. in DKN, 1–6, trans. "War Economics as a Separate Discipline" in Neurath, *Empiricism and Sociology* [ES], ed. by M. Neurath and R.S. Cohen, Reidel, Dordrecht. 1973, 125–130; "Aufgabe, Methode und Leistungsfähigkeit der Kriegswirtschaftslehre", *Archiv für Sozialwissenschaft und Sozialpolitik* 44 (1918) 760–774, repr. in GÖSS2, 566–576. [There is no equivalent of this sentence (originally: paragraph) or the references in the 1st edition. Eds.]

5. [In the 3rd edition this sentence reads: "Accordingly, economy in kind – which is not identical with household economy – and administrative economy – so important today – are emphasised." Eds.]

6. See Neurath, "Die Naturalwirtschaft und der Naturalkalkül in ihren Beziehungen zur Kriegswirtschaftslehre", *Weltwirtschaftliches Archiv* 8 (1916) 245–258, repr. in DKN, 174–182,

trans. "Economics In Kind, Calculation In Kind and their Relations to War Economics" in this volume; *Die Wirtschaftsordnung der Zukunft und die Wirtschaftswissenschaften*, Verlag für Fachliteratur, Vienna/Berlin, 1917, repr. in DKN, 159–173, trans. "The Economic Order of the Future and the Science of Economics" in this volume. [There is no equivalent of this sentence (originally: paragraph) or the references in the 1st edition. Eds.]

7. See Neurath, "Das neue Statut der österreichisch-ungarischen Bank und die Theorie der Zahlung", *Zeitschrift für die gesamte Staatswissenschaft* 69 (1912) 51–68, repr. in GÖSS2, 174–200. [There is no equivalent of these two sentences (originally: paragraph) or the reference in the 1st edition. Eds.]

8. See Neurath, "Zur Anschauung der Antike über Handel, Gewerbe und Landwirtschaft", *Jahrbücher für Nationalökonomie und Statistik*, 3rd ser., 32 (1906) 577–606, 34 (1907) 145–205, repr. in Neurath, *Gesammelte ökonomische, soziologische und sozialpolitische Schriften (I)* [GÖSS1], ed. by R. Haller and U. Höfer, Vienna: Hölder-Pichler-Tempsky, 1998, 25–109; "Beiträge zur Geschichte der opera servila", *Archiv für Sozialwissenschaft und Sozialpolitik* 41 (1915) 438–465, repr. in GÖSS2, 537–565. [There is no equivalent of this sentence (originally: paragraph) or the references in 1st edition. Eds.]

9. See Neurath, "Die Entwicklung der antiken Wirtschaftsgeschichte", *Jahrbücher für Nationalökonomie und Statistik* 36 (1908) 502–508, repr. in GÖSS2, 110–118. [There is no equivalent of this sentence (originally: paragraph) or the reference in 1st edition. Eds.]

10. [In the 1st edition the last two sentences (originally: paragraph) read as follows. "Our topic proper is treated in Chapters 3 through 7, whereas the first two and the last are mainly to complete the account and do not show the same treatment of sources as the others; the Introduction can be omitted without loss for the rest. Certain materials are entirely neglected here. Even though we have the excellent investigations by Beloch concerning the populations of antiquity, whose overall results I generally follow, many details are still so controversial that I do not employ quantitative figures in this overview. Likewise I do not employ money sums since their determination is often still controversial. Moreover, readers gain little by their occasionally rather dubious translation into marks unless they are given at the same time detailed information about the buying power of money, the distribution of wealth etc." Eds.]

11. [The books referred to (but not further identified by Neurath) are Eduard Meyer, *Geschichte des Altertums*, 5 vols., Cotta, Stuttgart, 1884–1902, 2nd ed. 1907ff., 6th ed. 1953–8, Basel; C.J. Beloch, *Griechische Geschichte*, 3 vols., Strassbourg, 1993–1904, 2nd ed., 4 vols., 1912–27; Theodor Mommsen, *Römische Geschichte*, Berlin, 1856–7, 8th ed., 5 vols., Berlin, 1888–94; H. Schiller, *Geschichte der römischen Kaiserzeit*, 2 vols., Gotha, 1883–87. The 1st edition features brief descriptions of the aspects of relevance of the books referred to and the 3rd edition mentions the illustrations in the Spanish translation of the last one mentioned. A useful bibliography to the contemporary literature in the field in English is given by R.I. Frank in section 8 of his "Translator's Introduction" in Max Weber, *The Agrarian Sociology of Ancient Civilizations*, New Left Books, London, 1970, repr. Verso, London, 1988. John R. Love, *Antiquity and Capitalism*, Routledge, London, 1991, discusses Weber's views on the topic in the light of contemporary findings. Eds.]

12. [In the 1st edition the place of this paragraph is taken by thanks to his teacher Eduard Meyer (Berlin) as well as for suggestions by W. Max Müller (Philadelphia), Paul Stengel (Berlin) and Carl Wessely (Wien). In the 3rd edition the corresponding paragraph reads: "War service prevented the author from revising this book substantially when the second edition was published in 1918. On this occasion other circumstances have influenced the publisher to produce a third edition with only minor amendments." The Preface of the 1st edition was dated "1909", that of the 2nd edition "January 1918", that of the 3rd edition "August 1926". Eds.]

13. [Changed in 3rd edition to: "About 2000 B.C." Eds.]

14. [This quotation stems from Goethe, *Faust II*. Eds.]

15. [In the 3rd edition, the beginning of this paragraph reads: "The attempts at reform towards the end of antiquity did not result in an elaborate theory of the connections of social phenomena.

There is no analogy to Smith or Marx." In the next sentence, the 3rd edition drops "high" and substitutes "social" for "economic". Eds.]

16. [This sentence is dropped from the 3rd edition. Eds.]

17. [This sentence was replaced in the 3rd edition by: "Beside them, the Epicureans had great influence; they tried to liberate man from the fear of gods and death and from unsatiable desires. Their teaching centred on the happy life of man on earth and was hardly concerned with society. In the end, however, the warning voices proved more effective." Eds.]

18. [The last two sentences were replaced in the 3rd edition by: "It was not incorporated into the higher civilisation which began to flourish in Central Europe but into the great Turkish Empire of conquest." Eds.]

19. [The last sentence reads as follows in the 1st edition of 1909: "Currently Central Europe is concerned to gain economic and even political domination of these areas in order to link them to its unified economies. This is a trend of which we ourselves are witnesses." Then there followed a very brief chapter cut in subsequent editions, "Concluding Overview". This chapter was prefaced by the motto " 'The decline of antiquity was by no means caused by destructive external forces but by the internal disintegration of a fully formed, essentially modern civilisation.' (Eduard Meyer, *Die wirtschaftliche Entwicklung des Altertums*) [Fischer, Jena, 1895, repr. in Meyer, *Kleine Schriften*, Niemeyer, Halle, 1910]". The text of that chapter reads as follows.

"Let us summarise briefly the result of our discussion. In the Mediterranean there was no system of administrative goods allocation that lasted in operation throughout antiquity, be it on a patriarchal basis or in the form of a well-ordered state. Mostly a primitive form of administrative distribution and organisation was transformed early on into a market form. Only in Egypt did administrative distribution attain a high level of development before it was replaced later by a commercial form of organisation. It was mainly the influence of trade that disturbed the centralised distribution of goods. The introduction of universal means of payment conditioned the disintegration of the smaller economic associations. The consequences of a commercial unregulated economy became evident particularly in agriculture. The contradiction between private and public interest began to develop, but whereas a few powerful individuals flourished at least in the beginning, gradually this changed as well and even the rich began to feel the consequences. Attempts during the imperial [Roman] era to reestablish, in the interest of the public, organisations of administrative economy were directed only to certain issues and unable to bring about change. Since there were in addition still other disintegrative factors, the old economic order largely disappeared. The attempts that did seek a remedy through an administrative structure led to a stronger dependence of the individual on the whole of society or certain corporations, some of which lasted into the Middle Ages. It is possible therefore to distinguish three different periods: the first administrative period, either in the form of small or large organisations with little trade in commodities; then a market period, which allowed for commerce concerning all sorts of objects; finally, a third period which returned to administrative measures and created new organisations. These became part of a new bureaucratic state, whereas in the West they disintegrated mostly into small and independent economic formations."

The absence of the Concluding Overview of the 1st edition in the 2nd and 3rd editions may be considered compensated for in part by the addition of the remarks about the money order in the final paragraph of Chapter 1 and the retention, amidst large cuts, of the remarks about trends toward economy in kind in Chapter 8 – as well as the additions to the Preface. Eds.]

OTTO NEURATH

3. WAR ECONOMY*

> The highest union of individuals under the rule of law which is achieved at present is that of the state and the nation; the highest imaginable is that of the whole of mankind.
>
> Friedrich List, *Nationales System der politischen Ökonomie*, Introduction

In the systematic works of political economy little attention is paid to war; in the usual reference works, articles on war and the military are missing.[1] Some space is occasionally given to war only in the systems of the science of finance,[2] and on other occasions authors have directed their attention to war as part of more comprehensive investigations.[3] Some monographs on problems of war economy appeared at an early date.[4] In recent times, their number is increasing and it is to be hoped that in the not too distant future war economy as a whole will become the subject of proper systematic study.

In contrast to how special problems are treated [in economics], questions concerning the wide-ranging interconnections of the phenomena are usually only hinted at. A theory of war economy will only be satisfactory when it allows us at least schematically to show how the economic situation of specific groups of the population can change during the war. A kind of inventory of real incomes would have to be designed which then could give an approximate survey of the distribution of pleasures and displeasures. Even in less complicated areas of economic life, surveys of this kind have rarely succeeded, but they have seldom been attempted. Since the entire situation at a given moment is the cause of the entire situation at a subsequent moment, it would be necessary to use a symbolic notation for an overall picture of the multiple simultaneous changes, to comprehend such complexes in formulas; synoptic tables would also provide a certain insight. For example, the real incomes of different groups of people could be arranged side by side and their changes observed, together with the movements of commodities, coins, demands, etc. Since such means of representation are not yet sufficiently developed, the traditional method of description has to be used for the time being, which separates parts of the complexes and depicts them in succession. But this easily leads to the assumption that certain magnitudes are invariant, whereas in fact they vary together with the magnitude under consideration; similarly it is necessary to anticipate and utilise relationships which can be discussed in detail only later. In the following essay no attempt is made to represent war economy as a whole; only the relevant problems are sketched so as to indicate the framework within which a systematic representation could take shape.

The fact that political economists have given so little consideration to war within their systems, and that the number of dedicated investigations in no way corresponds to the importance of the subject, is connected with the great influence the English free traders still have. They often denied the possibility that a war could enrich a people; for them, war was nothing but a disturbance of commercial economy. This attitude can partly be explained on the basis of the economic conditions of the time which always were of decisive importance for the conception of war.

Many Greek and Roman authors treated war as a kind of gainful occupation without much ado. Aristotle calls war a kind of hunt.[5] If the animals and such men as were in his view destined for servitude do not submit voluntarily they have to be coerced by force. In this view, war is a natural source of income just like agriculture, robbery, fishing; by contrast, lending money for interest and commerce were considered unnatural.[6] Especially peoples at a lower level of civilisation have never thought of war differently: "With very many tribes we find that the hunt is performed by a number of people cooperatively and that expeditions for robbery of livestock are organised similarly. But at an early time peaceful cooperative work became an equal partner to cooperative expeditions of war and robbery."[7] In history we come across many nomadic tribes which are not very highly civilised; they invade the area of peaceful agriculturalists as conquerors and robbers. Often they subject these permanently, and the peasants become serfs of the victorious warriors. The state organisation thus formed is often on a higher level of civilisation than each of the peoples had reached separately. Some authors even claim that all states were formed this way.[8] For instance, the Arabs who were such a nomadic people did not recognise any distinction between religious, military and civil organisation, and looked upon war as the main occupation of free men.[9] Mohammed is believed to have said: “The maintenance of my community rests on the hooves of their horses and the points of their lances, as long as they do not till the field; if, however, they start doing that they become like other men.”[10] The view of war as a means of income was extended by many thinkers in antiquity for whom the greed for riches was the cause of all wars and revolutions.[11] This theory is often adhered to today, especially under the influence of the materialist view of history.

If a nation of peasants, such as the Romans of the early Republic, goes to war, it is first of all concerned not to lose too much of the time needed for the tilling of the fields, for each soldier was a peasant in those times. He returns to the plough from a short war. Apart from the gain of booty and land, nothing much is changed in the economic life of the victorious peasants; for the defeated, it can sometimes mean the end. The situation becomes more difficult only if the originally narrow boundaries of the state are transgressed and the operations assume a larger scale in the attempt to assimilate foreign tribes to one’s own. The longer the peasant has to stay away from home, the greater will be the damage to the farm, and the sharper the contrast will be between the rich peasant whose servants can go on with the work in the field, and the poor peasant whose holding will hardly be looked after. On his return from longer war expeditions the warrior of moderate circumstances may even be forced to borrow money from his rich neighbour and thus become dependent on him economically.

The distribution of wealth was changed also by the fact that the rich peasants were in a better position than the poor ones to take possession of land that they could cultivate with their slaves. At the time of the Gracchi (cf. Plutarch, Appian), attempts were made to redistribute this land at least partly among the whole population, as it was a political tradition throughout antiquity to assign conquered land to the people. The whole or part of the land of the defeated enemy was taken away and distributed among the soldiers, and occasionally also among the citizens who were not soldiers. In this way the dominion was extended, the conqueror’s people enriched, and mercenary soldiers were prevented from roaming the peaceful land as robbers after the war, or from enlisting with the enemy at once.[12] When it was no longer possible in Rome and Greece to wage wars exclusively with peasants, mercenaries were used more and more, especially in Hellenistic times.[13] The required troops were recruited in special markets for mercenaries. Where mercenary armies absorbed the surplus population they relieved the labour market considerably. Yet it also often happened that whole areas were nearly depopulated through such recruitment, especially where the population had been in decline already in peacetime.[14]

The great advantages which war offered to the victorious make it quite understandable why participation in a war expedition was considered a right more than a duty, as long as the armies were formed of citizens. The Romans and most other peoples followed the general principle that conquered state property was assigned to the victorious state, and private property to the soldiers or citizens.[15] To avoid disorder there were special rules for the army about systematic plunder and the distribution of booty.[16] After victorious wars the income of the soldiers was often more than half of a year's pay. How essential booty was can be seen from the role it played in contracts of alliances.[17] Since, on the average, there was a distribution of booty every two years in the Roman Republic, it constituted for many an almost regular part of their income.[18]

In modern times there is no equivalent of booty, except for the capture of ships and some special cases; the expected advantages are less obvious for the common man. Even if a man goes to war with the intention to fight for a better income for himself and his family, the result of his bravery does not appear before him as clearly as it did to the "warrior used to booty" whose heroic deeds were described by the ancient authors.[19] Still, it would be a mistake to believe that, beside booty, enjoyment of fighting, patriotism, fear of punishment or shame had not also played an important part.

The acquisition of new areas of production was of greatest importance in antiquity, as it is today. Roman agriculture was destroyed partly through the cheaper production of grain in the newly conquered lands, and partly, from the end of the Republic, by the government's distribution of grain in Rome, either at low prices or occasionally for free. The large landowners often turned to pasturage; many people lost their livelihood this way, since on an area which had needed many workers for cultivation, a few shepherds could look after large herds. Moreover, after large wars more and more slaves were used in the area around the Mediterranean. By the end of the Roman Republic, the wars provided masses of slaves who deprived free workers of their jobs, just as machines did in the course of the modern development. (The use of the slaves did not increase production, however.) Legislative attempts in Greece and Rome to counteract the escalation of slavery by allowing the use of the slaves only up to a certain percentage, had no success.[20] The situation changed only under the Roman Emperors when fewer wars of conquest were undertaken and these, moreover, produced fewer slaves. Therein lies part of the reason for the better treatment of slaves and their gradual liberation (which by no means began with Christianity). In general, the wars of antiquity were waged ruthlessly; fields and places of production were destroyed such that the productive capacity of whole countries was impaired for a long time. The enemy was mostly seen only as a competitor who must be deprived and damaged as much as possible; only rarely was he treated as a future subject.

Since even in late antiquity commerce was not as highly developed as today, warfare did not disturb commercial traffic overmuch. Only the obstruction of food imports was frequently very calamitous. And since there also existed nothing like the present-day many-branched credit system, shocks to the economy were felt less widely. The immediate impact, however, was all the more terrifying, comparable to that of the Thirty Years' War.

The transparency of all these conditions allowed everybody to recognise the advantages and disadvantages of war more clearly than we can today. In Rome, for instance, a war against a commercial state could easily become popular. The merchants expected the removal of powerful competition and the opening up of new markets; the big landowners foresaw an addition of land to their holdings; the small and medium peasants expected new farmsteads for their sons; the poor, landless population hoped for distribution of land or at least of food. It was also customary that victorious army leaders distributed donations and arranged for public games. The money lenders, too, found new sources of income in conquered areas, because the new provinces had to borrow money at high interest rates to make the obligatory payments to the state: tax farming was profitable as well.

In the Middle Ages and at the beginning of modern times, the same view of war was held as in antiquity. To the victorious it seemed a blessing, to the defeated it was one of the greatest scourges. Changing fortunes of war could ravage many countries. The centrally ordered economy of smaller or larger political bodies made the citizen aware of the purpose of the various institutions of the state; both military administration and market regulations were of similar importance – everything was more or less regulated by the state. Some approved of acquisition through war, others objected to it; that war can be profitable was hardly ever denied, however. Especially the colonial wars of the seventeenth century brought great advantages; accordingly, war income was extensively discussed by contemporary authors.[21] Again and again we can find views expressed which build on ancient authors; the discussions of booty in particular are essentially of ancient origin.[22]

War was viewed as a means to acquire colonies so as to exploit them to the exclusion of all competitors. A movement for free trade began when the restrictive measures which nations exercised against each other proved more of a handicap than a stimulus in the development of commerce. To the theorists of this movement war was bound to seem superfluous: if the principle of free trade was fully applied, state boundaries had to be without significance for economic traffic. According to their theory, war could only disturb the economy, not further it. Particularly the consequences of the high customs which England and France applied against each other – a commercial contract treaty ended this policy only at the end of the eighteenth century – influenced many thinkers to accept the doctrine of free trade. England could expect many advantages from free trade after having secured the lead through mercantilist policies. Although the advocates of this doctrine did not realise it clearly, it was their experience in the field of trade practice which led them to this result. The wars which had provided markets and productive resources in the first place were forgotten. Thus a man like Dudley North could exclaim already at the end of the seventeenth century: "No people ever yet grew rich by politics; but it is peace, industry and freedom that brings trade and wealth, and nothing else."[23] Among those who helped to launch free trade there were some who did not demand it generally, but granted that developing peoples needed protective measures and privileges; only those fully developed could dispense with them, among them England.[24]

As we have seen, in earlier centuries wars of defense and wars of conquest were treated together when the financial and economic results were to be investigated; they were set apart only with respect to morals. It is noteworthy that Ferguson, a contemporary of Adam Smith with whom he also had personal contact, gave the title: 'Of national defence and conquest' to a chapter of his *Essay on the History of Civil Society*, whereas the corresponding chapter in Adam Smith's fifth book [of *The Wealth of Nations*] has the heading 'Of the expense of defense'.

The exclusion of aggressive war had a theoretical foundation in the treatment of political economy by the free traders, whereas it was also supported by political economists who were not free traders. Moral considerations may have played a part in this. Some authors seem to shy away from contemplating their fatherland waging wars of conquest. Thus in many works there is only mention of 'defence of the country'.[25] But even those authors who mention wars of conquest impose considerable restrictions on themselves and often believe they have to justify it morally, before they start investigating how to wage it and what results it has.[26] The free traders who defended the doctrine that war did not enrich a country, mostly did not offer more than general considerations. Adam Smith, for example, expresses the opinion that the army and navy were not even able to maintain themselves.[27] This view of his seems partly determined by excluding consideration of the possibility that an army could maintain itself in an enemy territory without support from home. On the effects of a war, however, he expresses himself at greater length than his adherents, since he was interested in the state as a whole and not only in a pure market economy.[28]

This attitude of the free traders against war and against any economic policy which could restrain free trade – even though England's rise did not start with free trade but with mercantilism – made Friedrich List suspect malevolence on the part of the English thinkers and politicians, namely, to intend to conceal the way towards economic development from other states. His opinion is that the state of England followed the principle "to wage wars and conclude alliances in the exclusive interest of manufacture, commerce, shipping and colonialism and to use surplus in the productive capacity for colonisation and the subjection of barbaric nations," and finally: "to conceal the true policy of England by cosmopolitan slogans and arguments by Adam Smith, to prevent foreign nations from imitating this policy."[29] List was of the opinion, as was Tucker, that free trade could be the rule among peoples of equal strength. But as long as a people is developing, it should try to ward off competition with all its might and even, if necessary, not avoid war. His opinion is justified to some extent, as indeed a massive import of goods can cause heavy economic damage to a state in our present economic order; the theory of free trade, however, did not clearly distinguish between profitability and productivity and was often inclined to praise any increase of products. Moreover, List knew from experience that, without a policy of protective measures and privileges, the weaker state can easily fall into permanent dependence upon a richer and more powerful one. Agricultural states in particular should try to acquire an industry if they can.

As English economic conditions led the English thinkers to the theory of free trade, so German circumstances led List and some of his contemporaries to the theory of protective customs. According to List, under free trade conditions, the poorer state, especially an agricultural state, could even become the slave of the richer state. Of course, this could also happen with mercantilist policy, but the theory of mercantilism accepted a fight for self-defence, while the theory of free trade did not. In one passage, List describes world development if free competition reigned unhampered:

> The Britons, as an independent nation, complete in itself, would forthwith take their national interest as the sole guideline for their policy. Asia, Africa, Australia would be civilised by England and sprinkled with new states after the English pattern. In time a world of English states would thus be formed under the chairmanship of the motherland, in which the nations of the European continent would be submerged as insignificant, sterile tribes. France, Spain and Portugal would share their destination to send the best wines to this English world and drink the bad ones themselves; at most France would be allowed to continue dress-making. Germany would hardly have anything to give to this English world more than children's toys, wooden clocks, philological treatises, and occasionally some mercenaries who would be allowed to languish in Asian or African deserts in order to spread English industrial and commercial rule, English language and literature. It would not take many centuries in this English world for one to speak of the German and the French as we now speak of the Asian nations.[30]

To save Germany from such a fate, List advocated protective customs and, in connection with them, a German navy.[31]

We saw that war can bring direct gain to individuals by taking from the enemy what he owns in movables and immovables. It also seems intelligible that under certain circumstances commerce can profit from victorious wars. But the question is how to estimate the total effect of war on the economy. It is a remarkable fact which was observed by many authors that in recent times great wars are not as damaging as might have been expected, either to the defeated or to the victorious side, and that, on the contrary, something like an economic boom can be observed during or shortly after the war. Time and again, instances of "unexpectedly, even miraculously quick" healing of war wounds have been stressed.[32] For the victorious side, the economic progress may partly be explained by speculation starting again: anticipating success, this makes the market rate rise sharply and thus contributes to a stimulation of industry.[33] But this does not as well explain the general economic improvement which can also be observed during the war.[34]

Some people want to deduce the beneficial effects of war from its elimination of everything that is useless, so that in commerce and industry nothing remains, but what is sound and fit for competition. But the explanation must probably be sought elsewhere, namely, in a phenomenon which *essentially* characterises our economy in all its parts. As a consequence of our institutions, especially those regulating money, credit and market affairs, we are forced to restrict our productive capacity to a certain degree. Cartels intentionally bring it about that less is produced than could be consumed by the population. Even states themselves artificially try to prevent saturation with all commodities, partly by their destruction, partly by protective tariffs. (On the other hand, however, it is difficult to stop such measures immediately, because the unrestricted production would very often cause the economic breakdown of the producing enterprises.) Since then we *intentionally do not utilise fully* or even waste the available manpower and productive capacities, there are *always sufficient reserves*.

If disturbances of a certain kind occur as, for example, in the case of war, restrictions can be removed and productive forces are liberated. In the course of this, wealth may rise far above the pre-war level. This is connected with the fact that for many circles of the population a time of increasing production is more advantageous than a constant one, even if the latter is of a more highly developed kind. These are partly the reasons why the economic risk of war is relatively small, under the present humane way of waging wars. That a lost war leads to economic ruin is hardly possible, unless the victorious state applies different measures from those used in recent wars. If however, all our powers and means were already in full operation in peace time, war could cause much more devastation. Even then wounds may heal quickly; but only in rare cases, for example, if foreign property is seized, could war bring great economic advantages; an economic recovery, however, would not be possible during the war, and the victorious state would more frequently suffer serious harm as well. Every reform of our economic system which allows all our powers and capabilities to develop more fully, would therefore be in the interest of world peace; quite apart from the terror which war inflicts, the sharp fall of real income would add a powerful and urgent appeal.

It would be possible to calculate the damage and sum up the productive forces which are absorbed by the war only if productivity and not profitability were the ruling principle everywhere in our economy. However, it is inadmissible that in general discussions money profit remains in the centre, but that in discussions of military expenditure suddenly 'constrained' manpower is brought in. It is thus easily overlooked that there always are some unemployed, and that emigration in great numbers was even welcomed as a relief by some thinkers, e.g., Mill. Nowadays, the use of soldiers in industry might lead to difficulties. Similarly, it does not carry conviction to point out how large the money expenditure for war is, because it would have to be shown first that, under the same general system, the money actually would go to schools and hospitals, instead of going to armaments. Such deliberations start from the assumption that a fixed amount of economic forces and a fixed amount of money are available, to be used one way or another, whereas in fact things are much more complicated.

Among those who gave their thought to this problem was Henry George who had a correct understanding of some of the relations between war and economy. He says of America:

> Perhaps nothing shows more clearly the enormous forces of production constantly going to waste than the fact that the most prosperous times in all branches of business that this country has known was during the civil war, when we were maintaining great fleets and armies, and millions of our industrial population were engaged in supplying them with wealth for unproductive consumption or for reckless destruction. It is idle to talk about the fictitious prosperity of these 'flush' times. The masses of the people lived better, dressed better, found it easier to get a living, and had more of luxuries and amusements than in normal times. There was more real, tangible wealth in the North at the close than at the beginning of the war. . .
>
> Our armies and fleet were maintained, the enormous unproductive and destructive use of wealth was kept up, by the labor and capital then and there engaged in production. And it was that the demand caused by the war stimulated productive forces into activity that the enormous drain of the war was not only supplied, but that the North grew richer. The waste of labor in marching and counter-marching, in digging trenches, throwing up earthworks, and fighting battles, the waste of wealth consumed or destroyed by our armies and fleets did not amount to as much as the waste constantly going on from unemployed labor and idle or partly used machinery.
>
> It is evident that this enormous waste of productive power is due, not to defects in the laws of nature, but to social maladjustments which deny to labor access to the natural opportunities. . . . The paralysis which at all times wastes productive power and which in times of industrial depression causes more loss than a great war, springs from the

difficulty which those who would gladly satisfy their wants by their labor find in doing so.[35]

This attempt of Henry George to use the phenomena caused by crises of over-production for the investigation of the effects of war on wealth, has rarely been repeated.[36] Altogether, the available close analyses of the relevant facts can barely pass muster.

The causes of the increasing profitability of production sometimes noticeable during the war and shortly after it, can be found in the following circumstances: all articles necessary for war activities rise in price considerably, among them food. This ensures an increased income to a number of enterprises. The conscription of civilians during a war can sometimes cause a considerable shortage of workers and at the same time a rise in wages if production is increased in certain industries. Moreover, war itself often causes interruption of imports of important raw materials or finished products which now have to be replaced by substitutes or to be produced at home. Speculation in foreign currency and stocks often brings rich profits as well. The enrichment of some circles of the population, entrepreneurs, speculators and workers, indirectly means an enrichment of all those who have goods to sell to these people. The advantages of the war can therefore far exceed its burdens for wide circles of the population. In addition, the increased circulation of paper money is often a stimulus to production and has the effect of a protective duty, if a percentage is charged in the exchange of paper against metal. Industries which up to then had restricted their production artificially, and produced less than they could have, can now enlarge their production without much extra cost and earn great profits. The increased consumption often increases the speed of circulation of money, and this again has a stimulating effect. Even if such a boom is not of long duration, it is proof anyhow that there were latent forces. If a reversal takes place, this does not prove that the available forces were overexerted; it only shows that *in our economic order a permanent advance without crises is not possible*; but this is true for times of peace as it is for times of war. These obstructions are not caused by production and consumption, not by the political order or the distribution of income, but by the market economy and the credit system.

If we investigate problems of war economy we must distinguish between the need for commodities and the need for means of payment. To get hold of the goods necessary for waging war is in general not too difficult. Grain etc. is not in greater demand in war than in peace unless there is a considerable re-immigration for military service. At most, inland production decreases and imports must be increased. If horses are imported, the demand for hay and oats can increase. Other war articles of which large amounts will be needed, such as clothing, shoes, rifles, guns, etc., can be produced relatively quickly. Only the building of fortresses, warships, etc., can take a longer time; the losses of men are also difficult to replace, which was very noticeable in the great Napoleonic Wars. The production of war goods is somewhat handicapped by military action, but not overmuch, as in a longer war nothing is needed but an increased use of machines.

All difficulties which are connected with lack of money belong to a different category. Their solution is a matter of economic organisation. It is conceivable that our present institutions may prove to be inadequate in a great war; some drawbacks already existing in peacetime will partly make themselves doubly felt in wartime. This often leads to alterations in many institutions during the war which prove useful during peacetime too, and so will often survive. Even more significant: the flexibility which leads to such reforms can be the mainspring for victory; we can imagine circumstances under which that state gains victory and advantages for decades ahead which, in the decisive moment of battle, courageously overcomes prejudices and starts on a new course in the distribution of goods. Such changes in the circulation of goods can be brought about the more easily the less they affect the social and political structure of a people. But the changeover of institutions from money economy to economy in kind, the creation of organisations for speedy want satisfaction, can nearly always rely on general approval, if it is performed without a revolution of the social order. In wartime when only the thought of victory or defeat counts, petty considerations which might be decisive in peacetime will be dismissed. The questions of *profitability* have to give way to questions of *productivity*. This is true even in peacetime when the means of waging war are being procured. In the interest of military efficiency railways are always built, cables laid; for commerce alone this was not done because the profitability was not sufficient, in spite of urgent need.[37] A large war could perhaps lead to those reforms in our economic life which would make unhampered production and consumption possible.

The beginning of a war is, almost without exception, connected with serious economic disturbances. Foremost among them is the unsteadiness of credit. Everybody tries to get cash, mainly by cancelling credits or withdrawing deposits. All men going to war want to take a supply of cash with them so as not to be entirely dependent on army provisions in the enemy country. Purchase of clothing and equipment of all kinds cause considerable expense. As confidence is shaken, bills of exchange and cheques are not easily accepted as payment. Runs on commercial banks and savings banks are not uncommon at the beginning of a war, or even before. When England declared war on France in 1792 there were 1800 bankruptcies the next year; in normal times the average was 600.[38]

All enterprises which produce clothing and the material required for it belong to the branches of production that can count on increased sales even if prices rise. There is an increased need of textile articles, of cloth, linen, blankets, etc.[39] The leather and hide business can count on increasing demand. Factories which produce bicycles, wagons, motor cars, airships, will be very busy, as will be coal and iron ore mines and nearly all branches of the metal industry. Wood industry will in general be able to expand its production. Also the requirements for medical treatment and nursing in war must be mentioned. However, some industries will decline, especially those which produce luxury articles, unless their export grows for some reason or another, or the usual imports decrease. Export and import can suffer severe disturbances, quite apart from those caused by the transport of troops. At times there may be forced exports because industrialists want to get rid of their stocks at any price or refuse to stop production. Of course, everybody benefits if the war also stimulates general consumption as in the case described by Henry George.

Prices for industrial products may rise considerably, and for food even more, especially as imports can be cut off (or at least this has to be feared). Though the demand for grain remains more or less the same, the inland supply will probably in general be reduced. But it must never be forgotten that even where the law does not offer the necessary measures, the government will hardly refrain from suppressing any form of bread usury in the interest of the consumers. The government can, for example, fix prices; in Austria the regulations for small trade can be used for this.[40] The government could take the supply of grain in hand as well. China and Japan have done so in peacetime; they gathered rice in stores when the rice was cheap, thus slightly causing the prices to rise in favour of the producers; they sold it to the consumers at a moderate price when prices were high and thus forced the other rice merchants to drop their prices; this is a food policy which corresponds to the modern policy on foreign currency of some banks.[41] The well-known motion by Kanitz in the German Diet demanded something along these lines in the interest of the grain producers, and the relevance of such measures in the case of war was expressly pointed out.[42] The motion put at the same time by Jaurès to monopolise grain and flour imports did not contain anything about the use of stores for purposes of war.[43]

The influence of war on inland industry through changes in the situation of export and import can be very advantageous for many industries, if they get rid of their competitors.[44] Even new industries may grow up for which the war replaces a kind of prohibitive duty. Thus the cutting off of cotton imports from the southern states in the American civil war caused a rise of production and manufacture of linen and wool in the North. The change of trade routes through war can also bring advantages to one of the warring nations.[45] The continental blockade with its damaging economic consequences allowed the rise of a number of new industries and the revival of old ones. After the war such industries are often in need of support through protective duties; otherwise they would be drowned by the influx of piled up goods from abroad, as, for example, by those from England after the lifting of the continental blockade.[46] Measures like the continental blockade can occasionally have beneficial results for the whole economic system; the general assertion that any procedure which is an "extraordinary, compulsory war measure" could for that very reason have no favourable consequences for the economy, can hardly be maintained.[47] One of the benefits of the continued blockade was that it stimulated a number of new inventions. If an agricultural state in the first stages of becoming industrialised would not or could not introduce prohibitive duties in peacetime, it could be forced by war to the full development of its industries and thus to a higher level of civilisation.

> A war which accelerated the transition of a state from purely agricultural to agricultural/industrial conditions is therefore a blessing for a nation, as the war of independence of the North American free states has been a blessing for all successive generations, though it claimed enormous sacrifices. A peace, however, that throws a nation destined for manufacture back to agricultural conditions is a curse and incomparably more damaging than war.[48,49]

However, war can help not only to free one state from dependence upon another, but can also help to submit one to such, often to the advantage of the victorious only, but occasionally also to the advantage of the defeated nation. The occupation of Bosnia, for instance, may be seen as an advantage for that country. Often the aim is to acquire an area for sales or production; this played a considerable role in the American civil war.[50]

Yet what the examples here mentioned show is that it is not war in itself that brings about the development. This can be a stimulus for us to look for ways and means to achieve the same results without all the misery and pain which are necessarily connected with war.

In the same way as a government may fix food prices under certain circumstances, it can also take measures to regulate the prices of coal or industrial articles; it can also do the same with the price of borrowing money. It can interfere by legal decrees, or even without them in emergencies, by force. Often it is sufficient to negotiate with the great cartels, banking houses, etc., appeal to their patriotism, and support this appeal with promises and threats if necessary. The great organisations prove useful in such cases.[51] From the standpoint of immediate profitability a merchant can be very interested in deals with the enemy,[52] similarly, e.g., in price rises. Even if a single merchant understands that certain actions of the merchants and industrialists would be in the interest of the state and consequently in their own interest, such understanding does not help the individual, because his isolated action would only damage himself. Entire organisations, however, can be of great service to politics. If great firms act together against the state interest, it is much easier to deal with them, because it is known to whom one has to turn.

Of utmost importance in wartime is the question of imports, especially food imports. Whenever war threatens, this is the subject of intense interest. With industry growing and agriculture reduced, food imports become vital. If we think of the situation of Austria-Hungary and Germany in the recent complications, here overseas imports are possible only via the harbours of the North, the Baltic and the Adriatic Seas. Even if the two navies should succeed in keeping the harbours free from a blockade, they will hardly be able to succeed in permanently securing the two narrow passages of the Channel and the Straits of Otranto. By contrast, it is much more difficult to cut France off from imports. Concerning imports via neutral states, Austria-Hungary should rely mainly on those via Switzerland whose neutrality is reasonably secure; the passage through Italy, Serbia, Romania, and finally Turkey (once the railway connection is established), are much less certain and depend on the political situation. For Germany, it is Belgium, The Netherlands, Luxembourg and Switzerland that mainly come into consideration. The crucial question, how far neutrality will be maintained, remains open. That England and Germany at least contemplate seriously the possibility of disrespecting the Netherlands' neutrality, is well-known; but also Switzerland is in no way safe from a breach of its neutrality. France has elaborate strategic plans to reach the bend of the Rhine along the Jura, and Germany has built forts along the Swiss border as a counter-measure. The attitude of Switzerland itself is not yet clear; some say that its army can only protect the mountains and not the lowlands which will have to be given up to the invading French; others demand unconditional maintenance of the boundaries.[53]

A blockade of imports is conceivable, however, even without a real violation of neutrality, namely, if only so much of imports is allowed into neutral states as they need themselves and if any surplus held back. Then it will depend on the importing countries whether they will accept such restrictions. When the northern states blockaded the harbours of the south during the American civil war, Europe had to receive its supplies of cotton or substitute materials from other countries.[54] Of course, all this depends on the area affected by war; the Russo-Japanese war hardly had any direct influence on commerce. It is being hotly debated how single, more or less landbound states such as Germany and Austria-Hungary can maintain themselves in case of war if imports should definitely be cut off. Some believe that starvation will be a possibility; others believe that states like these which are not fully industrialised, could with proper measures produce more grain, potatoes, etc.; they could prohibit the use of foodstuffs for other purpose than food; they could also allow more slaughtering of livestock.

Much depends on the treatment of enemy owned private ships. In 1870 France acted according to the agreements of the Paris Congress and did not respect private ownership of the enemy at sea; thus the Germans demanded restitution after the war for the shipowners. The Germans had decreed on 18 July 1870 that they would not capture French merchant ships.[55] In former times, matters were more complicated as capture was organised by giving so-called 'letters of marque' to private ships. It also cannot be foreseen how modern states will behave; but the general tendency is to respect private property.

In war it is the rule that the export of products which are needed for war activities is prohibited.[56] The export of food is also limited or fully stopped. It would be too much to ask of the population to watch butter, poultry, eggs leave the country while they starve.[57] Transit of war material is of course prevented. Instead of full prohibition of export, sometimes high export duties are enough.[58] Other possible measures are the reduction of import duty for certain articles and extensive changes in railway tariffs. The effects of these are similar to those in peacetime and will not be of advantage to all enterprises. Export embargoes for foodstuffs may keep prices on a certain level and may have neither advantages nor disadvantages for the farmers.

There will be considerable changes in the labour market during any war. However, the effects will vary greatly in the different sections. Industries which would have to dismiss workers anyhow because sales are slackening, as they usually do at the start, will mostly be able to survive with a reduced work force. Industries which work for the military administration may even have a shortage of workers; high wages are no exception here; the employers cover these by raising prices. Other industries which will have to expand for reasons given above may also have difficulties, especially in finding skilled workers for certain categories. If the employment of foreign workers is thought inadvisable, machine work may often replace manual work.[59] To attend the machines, women, youngsters, old people and unskilled workers of all kinds can more easily be employed. In some sections of the economy machines left idle in peacetime to avoid overproduction, need only be put to work to satisfy the greater demands. Dismissals and new recruitment of workers may balance each other to some degree; but it must not be forgotten that whereas many women may be dismissed from some establishments with predominantly female labour, strong men are needed for mines, for example. Lack of agricultural workers will often be detrimental, because the demand for agricultural products will remain constant. If imports of agricultural products are impeded, the home country , as we have seen, has to produce even more, and that is only possible with an increased work force on the land.

For the civilian workers therefore the chances are not bad, and in some branches more favourable than during peace, as the number of competitors is reduced. Often workers are promoted during war. For the workers in military service, the war means a momentary interruption of their employment, as for their families some provision is made by the state. Difficulties arise only when the workers return home after the war and there is no corresponding continuing expansion of production.

The pressure on the labour market may be somewhat reduced because some workers have lost their lives in the war; occasionally, this can be claimed as an advantage for the survivors.

The most hurtful damage is suffered by those who had to interrupt their own enterprise or had to give up a highly qualified position for good. This damage can be compared to that which Roman peasants experienced when they were employed in foreign wars at the time of the Republic and could not look after their fields. After the [recent] threat of a war between Austria-Hungary and Serbia had disappeared, an action was started from private quarters to help those who had been called up and thereby lost their employment; this proves how insufficient government measures still are in this respect. It has lately been frequently discussed how to find employment for returning soldiers after a long war during which industry and agriculture have adapted to the changed circumstances. One suggestion was to create settlements for the soldiers as was done in antiquity.[60] This should be done either on conquered land, or on state land at home; for the time being, private property would probably be used only in exceptional cases, though the expropriation of agricultural land would seem less repellent to the spirit of our modern order than the confiscation of mobilia or immobilia like privately owned factories would be.

The goods required by the war administration are either bought or they are acquired in kind. The effects of purchase have already been described. It brings advantages to employers and workers, indirectly perhaps to the whole population; least of all to those who have nothing to sell either to the state or to those who have become richer by increased income. Acquisition in kind mainly concerns human material. It is well-known that most of the great states have introduced conscription, but England relies almost exclusively on voluntary troops. The whole population can be won over to serve in the war without difficulty if the advantages are obvious to all; these can be of an economic nature, with land or spoils to be distributed after victory, or people may be concerned about the honour of the country. It is more difficult to enforce general conscription when the interests of the whole population are not at stake in a war and only certain parts of the population have an interest in it. This is the case, for example, with many colonial wars which do not provide new land for surplus population. It is an exception when a government decides to send parts of a conscripted army on such expeditions; Germany, for example, has carried out her recent overseas ventures with voluntary forces. This also explains partly why England has voluntary forces and that general conscription becomes popular only in case of a European war, and then especially to ward off an invasion.[61]

It is clear that in a country without general conscription the effects of a war are different from those in a country which calls up all able-bodied men. Of course, part of the population will go to war, but the rest will be able to follow their usual occupations. If the unemployed enlist, the war will cause few disturbances, though it may be more serious if people lose their employment and are not absorbed by the army. A population whose activities are less disturbed during war is of course better able to support its government financially than the populations of countries with conscription. Higher taxes can be collected, more public loans can be obtained.

As war service and contributions in kind can mean serious disturbances, many authors have demanded that disabled men who are released from war duty should pay a high tax. Some states, such as Austria-Hungary, have introduced such a tax; other states, e.g. Germany, have refused its introduction arguing that it would be offensive to people's sentiments if a sacrifice for the fatherland were to be given a monetary value.[62]

There are also some other contributions in kind; horses have to be put at the state's disposal in case of war and food and quarters have to be given to passing troops, whether in the homeland or in enemy territory. There are some regulations about compensation for such services, either straight away or after the war. If such compensation is in line with market prices, the matter is a kind of compulsory purchase; in other cases it is a matter of taxation in kind, of larger or smaller severity. As services and goods provided to the army are partly paid for, so are damages caused by war. The relevant regulations usually leave much latitude for interpretation. In general, compensation will depend on the outcome of the war; e.g., after the Franco-Prussian war, France compensated her people only scantily.

Even today, wartime contributions in kind are planned to a considerable degree; in certain cases these can play a still much more important role. Especially if the government fails to find enough money and there are objections to the issue of paper money, it may think of taxes in kind and of using the received goods directly for army provisions and other war purposes, instead of first issuing paper money to buy goods, and then to tax the people to get more paper money and then to buy more goods. The taxes in kind in the southern states during the American civil war show that such measures can be used in modern times.[63]

It is perfectly possible that economy in kind can be revived in time of great convulsions. In beleaguered cities the population is often fed by the state; furthermore, already in peacetime the military administration possesses a large well-constructed organisation based on economy in kind which, as it were, needs only be extended to include the civilian population. Such an organised economy in kind may often be much more efficient than an unordered economy of paper money. Nevertheless, in general the latter is preferred; but this is due to a widely held prejudice that economy in kind is fundamentally more primitive than a money economy, which therefore has to be preserved at all cost. It is forgotten that giant state organisations on a high level of civilisation, as, e.g., ancient Egypt, kept going for a long time on the basis of a well-organised large-scale economy in kind, which has many characteristics superior to our own. Without going into details of the advantages of such an economic order and the system of bank transfers in kind here, at least I wish to recommend serious investigation of this forms of economic organisation, since in circumstances of war an approach to it may well be possible. The whole institution of the money economy is *only one of the possible ways* to bring about the circulation of goods. It might prove not to be the best way, even in times of peace. When times are quiet, however, such a reform is not as urgent as in times of war when an organised economy in kind seems a more obvious step to take.

The changes in wartime mentioned so far do cause certain shifts in real income, but in general not in one definite direction; neither the poorer nor the richer classes experience preferential improvement. Only certain industries in a monopoly position, such as gun and steel plate manufacture, docks, etc., will probably increase the real income of the employers more than that of the workers. Their income will also grow compared to that of other employers. If a war (e.g., the American civil war) stimulates enterprise, if wages rise and more is produced and consumed, all classes of the population can participate in the increased production. The distribution of income is, however, decisively influenced in a definite direction by the way the state procures money, whether it is through loans or through taxes.

In antiquity, wars were originally waged without a treasury and without taxes. As everyone had to equip himself, and in many states the poorer had cheaper weapons than the richer, there was a certain adjustment of the war burden; often horses and ships were provided only by the rich. If money was needed, the Roman Republic imposed compulsory loans; moneys so received were paid back after a victory. Such compulsory loans affected the whole population in the way taxes do, and in our time it might be worth considering the refund of part of our taxes after a victorious war.[64] To wage war with the help of war taxes, or compulsory loans, or with the help of collected treasures – Pericles successfully used the temple treasure of the temple of Athene – does not increase inequality of income. However, the unequal profitability of war gains for rich and poor does contribute to it, as mentioned above. The occupation of wide areas of land by the rich and their exclusive opportunity for usury in the provinces increased this inequality in Rome very much, especially in the time of the Republic. In antiquity and in the Middle Ages as well, a primitive way of waging war was possible partly because the necessary means were acquired ruthlessly in the country of friend and foe alike, whenever the need arose.[65] The modern regulated financial economy led to the financing of wars through loans and taxes; the effects have been investigated frequently, but not yet systematically enough.

Whereas taxes are distributed over all parts of the population, inland loans earn the lender interest which has to be paid mostly from taxes. Often the profit due to a rise in the rate of exchange is considerable, because war loans or bonds mostly have to be issued a good deal under par. The contrast is strongest if the bonds are bought by a few only; but where the state credit is much more democratised, as in France, the middle classes partake in the advantage, though to a smaller degree than the well-off. Whereas the taxes are a progressive liability of the public, the advantages of bonds are distributed to different classes regressively from top to bottom. Many have therefore demanded that people who would buy bonds should be taxed. When Henry George, for example, made such demands, he did so in thinking of American conditions.[66] In the war of independence fought against England, the rich people in the north could buy bonds whereas the poorer south only paid taxes.[67] After the war the poor southern states had to reward the rich northern states, so to speak, for being able to afford to buy war bonds.

A frequent objection to taxes is that they are difficult to collect, in particular that there is the danger that metal money could be hidden away and even be taken abroad. A far-reaching wealth tax is feasible only if already in peacetime most payments are made by bank transfer, and bank accounts could form the basis for a registry of money. This would ease taxation and the raising of a compulsory loan in the case of war, whether drawing cash from accounts is allowed or suspended.

Raising a loan can lead to making goods available which a nation's economy possesses but cannot bring into circulation, because there was not enough money. The state can offer credit and direct money where it is needed. In this way, annual profits can be made that can make refund possible in the future. It is not even necessary that production of goods will increase in the future or the real income of all be raised; it is sufficient if the money income at the disposal of the state increases. If a loan is raised abroad[68] in order to buy goods with it, the repayment of the loans can be arranged by producing goods and selling them abroad, using the money earned for payment of the loan debt and interest. In this case it would be justified to say that the homeland bought goods for the present and paid with goods of the future. The repayment can be made without any change in production. It could be that the country suffers from a lack of means of payment because the circulation is too slow. Assuming the loan increases the means of payment, the prices and, accordingly, the taxes, then the speed of circulation can now increase and higher taxes can be paid. Payment abroad is possible without any increase in production. Things are not always so simple, however; these extreme cases are presented only to show how different changes in the economic mechanism can be brought about by the same measure, such as raising and repaying a loan.

A distinction should be made between borrowing goods and borrowing money, as extreme cases. But usually both types are mixed. Differences are even greater when we consider the movement [of goods or money] within society. It is a question of how the money which comes from loans is distributed again; it can make the distribution of goods even more unequal than it was, first, because the taxes which cover interest on loans oppress the poor more than the rich, second, because, when orders are financed from loan funds, the real incomes of entrepreneurs grow more quickly than that of the workers. It is rare that loans are used to improve the real income of the poor, which, in a sense, would be a certain compensation vis-a-vis the enrichment of bond-holders.

Loans can be taken from hoards or from circulation; the effects will be different in the two cases. The absorption of hoards by loans may have a stimulating effect; previously frozen moneys will become liquid. This can stimulate production if means of circulation were lacking previously. But the absorption of money which might have gone into over-speculation could have favourable effect similar to the absorption of hoards. Should such money go abroad, perhaps little change will occur at home. It matters greatly, however, in which way the funds are used. If the state uses them to buy rails abroad and build railways, it may possibly increase the taxability and the real income of the population. The aim of the loan policy as well as that of the tax policy often is to increase the real income of the population, possibly to change its composition, and simultaneously to increase money income. It is difficult, however, to achieve these different goals at the same time.

Especially in wartime, states prefer to raise loans abroad; thereby the inland market is disturbed least, and the industries are not deprived of money of which they are in severe need. Moreover, a large inland loan may increase the interest rate; this would not be to the advantage of the market which in war, and most of all in its initial stages, will greatly suffer from the difficulties to obtain credit. A loan abroad can buy goods inland and increase circulation, but can also buy goods abroad. Even wealthy states usually do not confine themselves to borrowing within the country, but raise loans abroad, as England did in 1900 in America. The raising of a loan replaces the issue of shares in many cases, so to speak. The moneys which flow abroad correspond to the dividends which are paid to foreign shareholders. Raising loans has sometimes the same effect as increasing the capital of a joint-stock company. States hardly can let others participate in their profits, since it is not their task to obtain maximum profit; moreover, shareholders could not be allowed an influence in the management of business in this case. Even banks which are private joint-stock companies, when they issue notes, have to exclude foreign shareholders. As the state itself cannot issue shares even if it wished, state debts are a substitute, especially those of longstanding or the everlasting annuities.

Though the bondholders cannot influence the debtor state officially, they can do so indirectly. The state to which the creditors belong usually takes a great interest in the affairs of the debtor state and tries to keep it away from accidents, e.g. wars, which might be disastrous. This is partly achieved by the threat that no further loans will be allowed. In the course of negotiations certain conditions may be made and only after agreement are exchange quotations allowed. Such attention to the affairs of the debtor state often helps to preserve the peace, but loans can also do the opposite and further the prospect of war if poor states get money under favourable conditions. To a large extent loans then replace the war subsidies which formerly used to be given (e.g., very frequently by England). Loans are a link between states and act like a kind of mutual war insurance. The non-participants help the others wage the war. The connections which the world market makes possible can often be of a still different and strange nature. An example: during the Russo-Japanese war, money flowed from Japan to America. From there it went to France where payments were due for the taking over of the Panama canal. In France the money arrived just in time for the Russian state loan; thus Russia partly financed its war against Japan with Japanese money.[69]

Inland loans will be preferred when money is needed for payments inland. Thus the occasional practice has become established to raise inland loans for inland payments and foreign loans for foreign payments. If the moneys are spent inland, the money market has changed little, and the state can possibly raise another loan in a short time, i.e., the same money flows back to it. Money is put in circulation, and its speed influences how high the total amount is which the state can raise as loans. This possibility has been known for a long time[70]; nevertheless, there are occasional remarks from which it can be concluded that the authors arrive at the total sum of money needed by simply adding up the amounts of loans.[71]

Experience has shown that use of loans often stimulates enterprise and speeds the movement of goods. The state can distribute orders in grand style, workers are employed, more taxes can be paid. These beneficial effects have been noticed particularly in England where it led to the overestimation of loans by many authors. But even disregarding these favourable effects, loans can mean a much smaller burden on a nation than a tax yielding the same amount. Though interest and amortisation are a heavy liability, they can be distributed over years and are then easier to bear than are taxes in times of war.

The state has to rely on inland loans in general if the foreign countries have no confidence in its war success. It is particularly difficult to raise loans when a dissolution of the state or a revolution has to be expected, since one does not know how the new state will behave in matters of old debts.[72] The success of inland loans mainly depends on the general mood of the people. The northern states had no difficulties in raising inland loans during the American civil war.[73] The willingness of the population to put money at the state's disposal sprang from a number of reasons: love of the idea of a unified state, hatred of the haughty southerners; humanitarian motives also may have played a part, a satisfaction to fight against slavery which was prevalent in the south. Yet material profit was to be expected too. If the north was victorious, it could establish a policy of protective duty; cotton, tobacco, sugar, rice, would be produced within the boundaries of the customs union and the north would find a convenient market for its industrial articles in the south. Moreover, the population had a confidence in final success which was lacking abroad. The democratisation of credit already was far advanced at that time: money owners were less inclined to deposit their money in savings banks than to buy shares or bonds. The high interest rate of government stocks were as attractive as the expected rise in market rates.

The democratisation of credit is achieved mainly by increasing the number of pay offices. The northern states even went so far as to pay arrears in wages to the soldiers during the civil war with state bonds – which amounted to an obligatory loan. In this way, bonds entered into circles which would otherwise have remained closed to them. In peacetime today the tendency can often be noticed to democratise state credit again. It was an innovation in 1793 when Pitt made use of intermediary trade in issuing a war loan. At the time it was hoped to make the exchange rate rise by the competition between bankers buying the bonds, but this was partly prevented since the banks formed a coalition. If a state decides to create a banking institution of its own for its purposes – as Austria has just done with the postal savings bank – it is natural to use such an institution for such loans.

When governments issue loans they often try to improve sales of bonds by various differentiations.[74] The technique of attracting buyers by privileges is very highly developed today. To prevent the public from selling older stocks with a lower interest rate because higher interest rates are expected in the new issues, the issuing state can choose to issue the stocks of higher interest rate as short-term bonds, i.e. as treasury bills.[75] Whoever then sells the stocks with the lower interest rate whose exchange rate has fallen due to war, can have no hope that a rise in exchange rate after the war will make good the loss. The bonds can be declared valid for payments to the state.[76] They can also enjoy the privilege of being accepted as surety at a certain minimum exchange rate. This is a stimulus to merchants to buy bonds worth a smaller sum of money and keep them in reserve. Often the state also gives special privileges to buyers of annuities, should they want to take part in a loan at a later time.

The government which is interested in its credit, especially if it intends to issue new annuities, has several possibilities for keeping the market rate of its bonds intact: apart from stopping the trade in its bonds for many months, it can also buy back its own annuities with banking houses as intermediaries. This procedure, also known to be practised by joint-stock companies to preserve the value of their shares, can serve to hold the exchange rate of the government's money abroad as well. In just this way the Russian government influenced the exchange rate of its bonds and of the rouble.[77] It could occasionally be observed that the loans of neutral countries were less steady than Russia's – a clear pointer to Russian state support. This stabilisation was achieved partly by the Russian readiness to buy roubles at any time; moreover the Russian state bank offered foreign bills to the market, especially long-dated ones, since the commercial world wanted to play it safe in case the rouble fell.[78] Another cause favouring the rouble which must be mentioned, were the large grain exports at high price. By measures of this kind the Russian government was able to prevent a sudden fall of the exchange rate of the rouble and bonds, but in the long run the market rate of bonds can only be kept steady if the whole market situation is favourable.

The only thing that can definitely be prevented is the type of collapse which comes about when minor disturbances lead to sales. The fall causes more bonds to be offered for sale the next day, and though nothing has changed in the meantime, this leads to the depression of the exchange rate – and to more panic sales. Declines of this sort can be avoided at little cost by suitable measures which keep up the exchange rate during critical periods. The mere fact that the rate is not at all, or hardly, altered by unfavourable concurrent events has a calming effect on bond-holders. And even if a fall cannot be entirely prevented, much is gained if it can be slowed down; often the fall does not then reach the same lows as quick falls would. The practice and theory of recent years tend to support such government measures and counteract the formerly prevalent opinion that supply and demand are best left uninfluenced in the money market. Political economy thereby returns to the view which ruled in the eighteenth century under the influence of mercantilism. Measures to influence exchange rates of money and bonds was at that time equally familiar in practice and in theory. Turning away from extreme economic liberalism means that old traditions are taken up again, now also in monetary theory.[79]

As mentioned above, the decline of the value of a loan can be caused also by the government issuing loans in quick succession, thus depriving the market of money to invest. To forestall such a decline concurrent with a rising bank rate the government has several possibilities. For example, it can spend the funds from the first loan to buy war goods in the same market, thus keeping liquidity more or less unchanged at the raising of the second loan.[80] It also can happen that the state in which the loan is issued makes it a condition that part of the money raised is spent within the country for war goods; France made such a condition to Serbia in favour of the Schneider-Creuzot works. But the government also can make moneys of earlier loans available to the market, if it does not need them immediately, namely, by depositing them at a bank which uses them for loans.[81]

In this discussion of loans it should also be mentioned that, if need be, the state can apply measures of economy in kind. It is perfectly possible that a state has rich coal deposits, cotton plantations, etc., but its monetary system is in great disorder, so that it will not be able to raise any more loans. In such cases the surety of goods could serve to obtain loans. The state can even go so far as to declare it will pay in kind, if payment in money is not possible. The southern states of America received a loan on such terms during the civil war. They undertook to pay either in money or in cotton six months after the end of the war; they obtained the cotton from the planters, either as taxes in kind or by purchase. It would even be possible for a state to receive a loan in kind and promise repayment in other goods in the future. Such a procedure recommends itself if the monetary systems of both states are in disorder and it is safer to deal in goods than in money. It would be a mistake if theoretical studies did not pay attention to these possibilities in due time, especially since such measures have already been attempted in practice.[82]

The procurement of money by taxes has been mentioned several times already. A major argument in favour of taxes is the better distribution among the various classes of the people. The socio-political aspect of the financial administration can be better taken into account in this case than in the case of a loan. Taxes concern the homeland exclusively, loans can also be raised abroad. There are, however, so many variations of inland loans and taxes that hardly noticeable transitions can be made from one type to the other. There are taxes which can have a similar effect on the population as normal loans; there are cases possible in which the effect of the loans hardly differs from that of normal taxes. (Since war expenditures can be defined as extraordinary, they can probably be covered by loans.)

The possible extent of taxation depends upon the general wealth of a country. England, for example, has habitually covered a large part of the cost of wars by increase of the income tax. In the Russo-Japanese war, Russia decided to increase existing taxes without adding new one, Japan increased its taxes to a much higher degree.[83] The socio-political effect of individual taxes on real income distribution is the same as in peace times. The increase of inheritance and gift taxes conforms to the demands which a number of modern statesmen have expressed. More problematic is the taxation of the salaries of civil servants, which adds to the hardship of rising food prices.

An important question is whether a wealth or property tax should be recommended (which Russia avoided). Sometimes it is pointed out that this would weaken the productive capacity of the people, but that is hardly the case. Even if somebody were forced to sell a piece of land to pay the tax, this would only mean a movement in property ownership; the total land of the country does not thereby dwindle, nor the amount of coal or iron. Only if the necessary money is acquired by the export of goods would part of the goods leave the country. This, however, does not necessarily represent a weakening of the productive capacity: on the contrary, it can stimulate production and benefit the homeland. Damage would result in any of these often mentioned cases only if there were full utilisation of the whole productive capacity in normal times. Then indeed each withdrawal of goods would mean a deprivation for domestic consumption.

Heavy taxation of the population often has the effect that the speed of money circulation is diminished. All people save where they can; thereby industry suffers great damage and with it, indirectly, the money market which cannot respond to the issue of new loans. The situation becomes even more difficult if money leaves the country; this will be further discussed below.

In states where money actively circulates, war taxes are a heavier burden than in those where most money is hoarded. War tax reduces hoarding; circulation suffers damage only indirectly by individuals trying to restore their hoards. But the disturbances are much smaller than in a state where practically all money is in circulation already. It should not be forgotten here that there exists anyway the tendency to withdraw money and call in credits. In countries with extensive hoarding, taxation can be a stimulus to circulation of money and industrial activity.[84]

It has been a matter of dispute since the eighteenth century how far a state treasury facilitates the waging of war.[85] Such a treasury can be state property and mainly be considered a war chest, as in the German Empire. It is, however, already sufficient if a state has additional funds of precious metals in its coffers which are always at its disposal. Also to be mentioned in this connection are the large amounts of ready cash in the main central banks, which do not serve to cover the notes in circulation and other existing claims on the bank. When the great advantages of loans became evident in the eighteenth century, especially in England, it was often believed that at any time any amount could be borrowed under suitable conditions. The idea of a state treasury was rejected; the opinion was that it should better be put into circulation or used as security for notes. But experience has shown in several instances that a treasury of precious metals can be of great advantage in case of war, even of decisive importance. Nowadays, of course, wars can certainly not be waged solely with the help of a treasury, but in the first days or even weeks it can make it possible, or at least help, to meet war requirements without problems.[86] Often it is quite impossible, at the initial stages of war, to launch a loan of an adequate amount, or only under very unfavourable terms; but after a short time market conditions usually settle down. If a treasury reserve is at hand, action can start straight away. Even if the launching of a loan itself is possible without trouble, it still needs a few days to be granted and organised.[87] A head-start of a few days can be decisive in military matters, however.[88] In the eighteenth century already authors stressed that in Prussia the keeping of a state treasury was an established tradition, in contrast to other states which relied on loans and taxes.[89] The Prussian war treasury, which came in handy several times, was put at the disposal of the north German federation in 1870 and greatly supported the military operations; France on the other hand needed some time to make funds available, although it had been building up its armaments for months.[90]

A frequent objection to a war treasury is the loss of interest; but this is counterbalanced by the great advantages that the treasury offers.

It may even prove profitable, because it avoids the losses often incurred by a loan at the beginning of the war. The withdrawal of gold from domestic circulation causes no misgivings among those who openly advocate a gold-free domestic circulation, and suggest reserving money in gold for use in the world market alone. The example of Austria-Hungary in the last ten years shows that one can manage with little gold in inland circulation, if the policy concerning foreign bills and discounts is properly managed. A war treasury can be collected gradually, or in one go, for example from booty, as the German empire's war treasury was. Struensee developed the following scheme:

> If, for example, a country earns 500.000 thalers from abroad annually and the ruler could take 300.000 thalers out of circulation without any drawbacks for industry, then it could be imagined that he finds it necessary to keep the whole sum in the treasury, foreseeing a war. He can do so without damaging the welfare of his country if he issues 200.000 thalers in paper money to the public annually.[91]

What Struensee suggests here is fully covered paper money. If war breaks out, cash payments could be suspended, and the whole or part of the metal money serving as security could be used for war purposes. As mentioned above the note-issuing central banks follow a similar procedure sometimes today. They collect more gold than is necessary for the security of paper money, not only to be able to issue more notes, but also to have cash ready for the state. After all, the banks do not only serve to increase the amount of means of circulation, but also to keep world money together. From this standpoint it becomes intelligible why central banks collect more cash and foreign bills than necessary for monetary security, that they have even more precious metals in their vaults than notes are in circulation.[92] To protect this treasure in precious metals in war time, payments in cash can be suspended. As the security of notes is at first not affected, if the state withdraws gold, the suspension of payment in gold will have little consequence and may leave the exchange rate of the notes unchanged, as happened in France in 1870.[93]

Whereas the bullion fund of the state treasury is at the state's immediate disposal in the case of war, a bank's agreement has first to be secured for use of its treasure, unless the bank is a state bank; many see in this a kind of insurance against hasty action by the state government.[94] The willingness of the private banks can certainly not always be won at once; the government will try to get the necessary amount of money by way of negotiation; however, in an emergency a government may not refrain from seizing the precious metal reserve by force – e.g. Gambetta contemplated this possibility in 1871. Time is lost, of course, and the bank's conditions cannot always be met. For instance, in 1871 the bank from which money had been appropriated several times conceded to the French state to have more money only under the condition that state land was pledged. By contrast, a state treasury is a safeguard of a government's independence, but just this is problematic for many observers. Struensee, for one, states bluntly that one of the reasons why the English had no state treasury was their fear that the monarch could misuse it. Loans and taxes have mostly to be granted by parliament; but a state treasury, on the other hand, is immediately available and can even stimulate a war, as many believe. In the nineteenth century, such deliberations played a role as well, and many parliaments made efforts to withhold all funds from governments which might use such funds without specific approval.[95]

In questions of foreign policy the right of budgetary approval plays an especially large role. Parliaments have in general little direct say in foreign policy, and a declaration of war often can be made by the monarch without agreement of parliament; only by refusing financial support can the parliament try to restrain foreign policy. The importance of this procedure for monarchies should not, however, be overestimated since in the government generally rejects intervention in foreign policy much more energetically than in any other field. In the interests of the dynasty and of territorial possessions governments are most easily induced to infringe upon the constitution, as Prussia experienced in the 1860's. A special difficulty is seen frequently in the fact that the government cannot disclose its intentions sufficiently without impairing their execution. When Bismarck encountered difficulties in the Prussian Diet in 1865 while attempting to acquire the harbour of Kiel for Prussia, he stressed expressly:

> If we could discuss all plans for the future together clearly, I believe you would approve more of them than you have dared to do so far . . . If you were more familiar with the techniques of diplomacy, you would not even put pressure on us by utterances by which you embarrass the Ministry; if we keep silent, it will seem we admit that you are right; if we contradict you, opinions would be expressed which for political reasons would better remain unsaid.[96]

In spite of parliamentarism, foreign policy is more or less secret. Foreign policy has not followed the democratisation of domestic policy.

Even in countries like England where parliament is formally informed on foreign policy, the government's statements are in no way adequate to give a satisfactory picture of actual circumstances. An often used expedient is to give detailed information to parliamentary committees in confidence. Doing so, however, incurs the risk that, especially in times of political strife, the full house will receive more or less exact information about these communications, and the questions which were to be kept secret will enter into public discussion.[97] At present, these affairs are not sufficiently regulated by law. It is doubtful in any case whether that is at all possible in the foreseeable future, i.e. as allowing certain committees legal access to documents concerning foreign policy. At the present time there is a definite mistrust concerning diplomacy and documents used by it.

The policy concerning means of payment at the beginning of a war can be of various kinds. The state can, for instance, try to prevent all disturbances in matters of payment by satisfying the demands for money in gold and silver. A state war treasury or a surplus in precious metals at the central bank can serve effectively in such cases. It can partly be drawn upon directly; it can also serve as security for the issue of notes. The Minister of Finance may declare in such situations that savings banks and commercial deposit banks which are exposed to runs can count on the supply of gold. At times it can be useful to allow some gold and silver to be released which will either be hoarded or go abroad. But should the promise of continual release of gold not have the result that it becomes superfluous, it would be hazardous to keep this promise.[98] Payments abroad would, however, be made in gold or silver as long as possible to keep credit abroad unshaken; similarly, in so-called state bankruptcies, creditors abroad are often paid in gold as before, and inland creditors in paper money. If a central bank notices that it will not be able to maintain payments in gold or silver, it would be wisest to discontinue payments at once. The Austrian National Bank is often reproached for allowing all silver to be withdrawn in 1848. Austria was then forced to buy back the silver at high price for war purposes.[99] If the market's confidence is not restored by release of a moderate amount of gold currency coins,[100] the state can often successfully introduce unchangeable paper or giro money for the domestic market, as has occasionally been done with success.[101] In this way a complete separation of domestic and world money will result, a possibility which has been discussed by theorists and practitioners for a long time.[102]

Representatives of this view usually also stand for the deliberate regulation of exchange rates.

Before deciding on these extreme measures, first an attempt can be made to limit the release of gold in cases where it is not absolutely necessary. For instance, before the Russo-Japanese war the Russian Imperial Bank was ordered to give out gold as much as possible, and paper only on request, since the population was to become used to gold. But when the war broke out, the bank was directed to pay in paper mainly, and in gold only on request. Contrary to earlier usage, notes of smaller value were issued which were to replace gold.[103]

Between such limitations on the use of gold, which occasionally help save large amounts, and actual stoppages of payments in coin, there are many transitional steps. The German Imperial Bank, for example, can legally discourage cash payments in coins by not exchanging notes at its branches, for it is only legally bound to do so if the balance and requirements at the branches allow it. Since this can mean the local stoppage of cash payments, some quarters demanded that payments also be made at the branches, at least within a certain time limit. But it must not be forgotten that during war the bank is anyhow interested in keeping cash payments going; thus the Prussian bank exchanged all notes presented, without objection, at all branches during the panic in 1866.[104] Payments can also be impeded by shortening the bank's daily opening hours, reducing the number of counter clerks, ordering cash to be paid in as much small change as possible, or ordering a complicated inspection of the validity of notes presented.

These measures – which, of course, must not be contrary to legal regulations – do not yet represent a partial discontinuation of payment, whereas this would be the case if, for example, only a certain amount of notes were cashed; the deduction of a tax from cash payments similarly would amount to their partial discontinuation.[105] The bank could also introduce a selection by giving coins only to certain firms after having been informed about the purpose. This procedure is used by the Austrian-Hungarian Bank for the release of foreign currency also in peacetime, and with great success. It impedes export of foreign currency of the purpose of arbitrage, and on the other hand facilitates the payment of debts.[106] It is therefore worth considering whether this principle should not also be used in time of war. In this way it could also be made more difficult to export gold when the domestic interest rate is low. During the war between northern and southern states, the Secretary of the Treasury of the Union, Chase, followed this course and presented a theoretical argument. He considered the differentiation of bank rates the most appropriate means. The banks dealing in the interior commerce should be allowed to charge a lower rate of interest than the banks which deal with foreign trade.[107] Export of coins for arbitrage and for payment were treated equally.

Since cash payments are not regulated by law in Austria-Hungary, all methods of partial payment can be employed without legal restrictions, so to speak by way of administration. The suspension of cash payments can, by the way, be put into practice without much disturbance, if handled skilfully and if confidence is sufficient (as proved, for example, by England's introduction of bank restrictions in 1797). As we stressed in our discussion of war treasury, the suspension of cash payments does not mean that the security of notes must deteriorate simultaneously. In the same way as the state can discontinue cash payments for notes, it can discontinue it for giro money, while at the same time giving the latter the status of currency; it may be decreed, for example, that cheques can be used for transfer only, not for withdrawal of cash. For persons to whom payments are due and who have no giro account, one could be opened. The state could leave the cash balances of deposit and giro banks untouched – they would be readily available any time – but the dispersal of gold and silver over the country would have been prevented; the commercial banks, savings banks, etc., also need not cancel credits, which would be a hazardous procedure, especially for mortgages. Besides the damage to the credit-holders, the possibly unavoidable mass sale of immobilia would depress their prices excessively.[108] Government stocks would be sold and their exchange would rate sink as well, and that cannot be in the state's interest in general.[109] In certain cases it may be useful to forbid the withdrawal of cash from giro accounts absolutely. Mostly, however, it would be advisable to follow the policy mentioned above for paper money, and to grant foreign currency and gold to all firms which have to make payments abroad. If, instead of stopping all payments from giro accounts, payments would be allowed, though exclusively in notes which cannot be exchanged into coins, the outflow of gold would indeed avoided, but not the cancellation of credits by the banks. If payments from giro accounts are allowed, withdrawals from them are often made, even if only unexchangeable bank notes are paid, and cheques are used even less than usual. The various possibilities – whether all deposits or only those at certain banks should be turned into unexchangeable giro accounts – cannot be discussed here.

The reduction of bullion security of giro money in favour of the state is related to that of bank notes. One difference between the two is that the security of giro money has so far not been sufficiently regulated by law. The reduction of the bullion reserve is possible for giro money, whether it can be cashable or not, as it is for cashable paper money. If it need be, the state can declare its willingness to make cash payments from current income, as it could do for paper money, whether there is insufficient bullion security or none at all. Such an infringement of giro money happened, for example, in Venice; it was also said of the Dutch state that it had reduced the bullion reserve of the giro money of the Bank of Amsterdam, which was fully covered and not to be cashed.[110] Struensee advocated such a use of the bullion reserve of giro money in the case of war and demanded that this should not be done in secret but in full publicity.[111] Secrecy has only a paralysing effect, he said, but the state's credibility would suffice to prevent ominous confusion. Those who object to publicity for the great central banks during the war in order to avoid giving information to the enemy and protect the public from anxiety,[112] would probably also object to the full public notice advocated by Struensee.

The withdrawal of gold by the state can be compulsory or in the form of a credit, voluntarily granted by the banks. Of course, the state can also get credit from the banks if they open an account for it without a deposit. This has a similar effect to an increase of paper money, though the amount of the domestic money has in fact not increased, and what has occurred is only that gold is withdrawn for foreign payments. As long as such credits to the state are moderate, no radical changes in monetary circulation are to be expected.[113]

The moment a war breaks out, numerous credits are cancelled, and trade and industry try to get money by discounting bills. Banks can follow various policies. Either they can make the conditions for giving credit more stringent to protect their bullion reserve – at the beginning of the Russo-Japanese war the limits of loans on security were lowered in Russia – or they can ease conditions in the interest of the country – as the Russian Imperial Bank did when the panic was over, especially in dealing with private banks.[114] A reduction in the issue of notes is not necessary. Bank rates will mostly be raised. The high bank rate brings about a rise in interest for deposits, which will lure back the depositors who had withdrawn in panic. The business of the great central banks increases in war, since the smaller banks are afraid to give credit and their business declines.[115] It also has to be expected that many smaller banks take bills to the central bank for re-discounting. It is doubtful whether the banks can be induced to act in a way which is in the interest of the general public. If rates suddenly fall, the state administration of all financial institutions during a war should not absolutely be rejected, for the mere demand that small banks should not follow the lead of the moment, suggests the question: what to do if they do. It is a matter of debate how far giro accounts of the central banks will be reduced.[116] Deposits of foreigners will certainly be cancelled in great number; on the other hand more credits will be granted and many deposits will grow.

Grants of credit in wartime are often made possible by the establishment of special war loan banks which give credit on security. For that purpose they can issue either state notes or their own notes which are covered by collateral securities instead of gold or short-term demands. This procedure has been discussed by eighteenth century authors more thoroughly than today. Whoever is in possession of commodities can in this way obtain money.[117] There is no lack of goods, only of means of exchange; in many fields there is even overproduction of goods which cannot be sold at once. There are many reasons why such loan banks, as they were established in 1848 and 1866 by Prussia and in 1870 by the North German Federation, should not be directly connected to the central banks. There could, however, be a link similar to that between the Austro-Hungarian bank and the mortgage bond institution.

It is common to decree a moratorium on bills in case of major disturbances, especially after defeats. This diminishes the security of the central banks which, of course, mostly stopped their cash payments by then.

All these measures together can bring about an increase in the means of payment, as needed. Since this is done by way of granting credits and not by payments of the state, some dangers of state paper money are avoided. Many enterprises may be saved from ruin in this way. Since even in peacetime it is impossible to make all payments in cash – or most of them – at a given moment, how much less is this possible during a war. Certain types of institutions, e.g., savings banks, even have only a limited degree of liquidity in principle.[118]

To take greater care of liquidity, as demanded in some quarters, could result in increasing the barriers to our already reduced production and consumption. One solution might be to transform credit on real property into annuity bonds or at last partly to convert fixed debentures into shares.[119] To be sure, not liquidity but consumption is what matters in our economy. Riesser rightly stresses on occasion that full "preparedness for war" of the credit banks would in part exclude their "preparedness for business".[120] A complete preparedness for war can never be achieved; this would mean, for example, that central banks could pay out notes only to the amount of their bullion reserve, but a precise forecast as to how many notes will be presented for cash is impossible.

The reserves of gold, demand for gold and easily realisable values abroad and at home, will always be of relatively small importance. It is difficult to discuss whether the advice to beware of immobilising large amounts in investments can be adhered to today, as statistics give little information on this point. In general, it must be said that all credit institutions and other enterprises can only anticipate normal disturbances of our economy, because only in this way can our economy function. The more serious disturbances are anticipated, the more damage is done to the normal working of the economy. It is characteristic of our economy that this dilemma cannot be avoided. War has at times the effect that the usual rules of liquidity are renounced, especially if currency in precious metals has been abandoned and, as we have seen, this can cause a favourable turn. However, reverses follow, as is characteristic of our system. These questions become ever more urgent, because the degree of liquidity of the bank balances continues to decline.[121] Moreover, many short-term claims, quite secure in normal times, cannot be collected , and this worsens the situation.

If we examine the difficulties in the field of credit and means of payment in war time, we notice that all of them were present already in peacetime; it would be an error to seek their cause in war. After the experience of the last century, it almost seems that the war crises proper were rather mild compared to the economic crises of peace. Partly this may be so, because war often releases capacities which in peacetime are restricted, and partly, because the state interferes more deeply than in times of economic crises. In general it is, in peacetime, left to the stock exchange and the banks to find help somehow, but in wartime, when the state has to fight for its survival, it also interferes more energetically with economic freedom. It can be noticed again and again that in wartime there is no hesitation to use any measure that might help to keep the mechanism going.

It is difficult to tell under which circumstances measures in the field of note-issue will be sufficient to regulate matters of payment and credit in war, when the bullion reserves of giro accounts will have to be seized as well, and when the issue of state paper money will be necessary to pay domestic bills and in the end also abroad. The possible use of other means of payment – for example, bonds, postage stamps, small denomination notes[122] – should those issued not be sufficient for small scale exchange, may be mentioned. For state paper money there will generally be the security of taxes; but if this is lacking, the state can collect gold and then issue paper – if it succeeds.[123] If the issue of the various kinds of paper money is regulated carefully, it can have a stimulating effect, as noted above, if the economy is for some time at least relieved of the obligation to make all payments at home at any moment in gold or silver coinage. Though increase of money on its own cannot be said to cause increase of production, it can certainly advance a production which is at the point of increasing. If the quantity of money is increased, the consequence will be a rise of prices of all goods and services, as well as lowering of the interest rate; or, should the interest rate be rising, the rate of increase would certainly be slower.

The further effects of issuing paper money, or of the increase of other means of payment, mainly depend on the mood of the population, which may either be encouraged or discouraged by war events. Where confidence in the future is strong, it is easy for the economy to go on in a lively and prosperous way; but if business is sluggish and speed of circulation reduced, an increase of money would push the state into repeated new issues. Then there will be no increase of production, no corresponding increase of tax capacity, no increase of capability to buy bonds – nothing results but a general inflation. The purchasing power of paper money can fall to any level, especially if the state gives up coverage by taxation. People who have the most paper money in hand suffer the most damage. This possibility can seriously threaten confidence in the paper money. Even worse, paper money is more easily forged than other money in times of crisis.[124] The forgers hope to have a better chance to put it in circulation in the confused times. As the issue of forged paper money usually depresses the exchange rate of the paper money enormously, it is said that enemy states have smuggled in forged paper money for this very purpose.

Though the circulation of paper money may be accompanied by these serious disturbances, it should not be forgotten that it can also cause the real income of a state to rise considerably. The factories founded, the productive forces liberated, will continue to be effective, and when the chaos will finally have been overcome, the economy will often be at a higher level than before. A development then takes place similar to that which Law inaugurated in France. In worrying about financial collapses and the entanglement of money affairs, people often are unaware of the development which took place in production and was not reversed.

During economic progress the real incomes of the employers and workers usually rise in comparison to that of the money lenders and recipients of annuities, and all those who have fixed income. The great advantage which entrepreneurs enjoy during such times, induces many money owners to become entrepreneurs by buying shares instead of lending money for interest. These domestic changes need not necessarily have an influence on relations with foreign countries, if foreign payments are made in gold or gold bills as before. The effects on exports and imports depend mainly on the balance of payments and the possible discount of notes with respect to gold which may develop. If such a discount rate hampers imports of industrial articles, while the domestic industry is increasing without needing imported raw materials, it works like a protective tariff, should paper money also be used for payments abroad. It is then in the interest of employers and workers to keep paper currency in use.

How far the efforts of the central banks to preserve rates of exchange during wartime can succeed depends on the degree of confusion caused by the war and on the whole situation in matters of payment. Most promising is an even handling of foreign bill policy, as is usual in many banks already in peacetime. Experience shows that abrupt attempts to remove a discount difference by release of gold or foreign bills can make speculation even more acute.[125] How to discourage speculation in foreign bills and currencies is difficult to discuss along general lines. As is well-known, the Austro-Hungarian Bank achieved this by buying or selling in an overpowering way, however seemed fit, on every occasion, and so cracked down on speculation, restoring free competition. In times of war, proper legal regulation in this field can sometimes not be avoided; Secretary Chase put some such into operation during the civil war, though without much effect at the time.[126]

Though in case of war, reserves of foreign currencies are of greatest importance for the regulation of exchange rates of bills and the acquisition of military goods, its is often preferable, in case of mobilisation, to strengthen the reserves of gold, and not of foreign currencies. This is because there is indeed always the danger that through interference of neutral powers, but especially of an enemy power, the honouring of bills towards members of a warring nation may become difficult or even impossible. Formally, such procedures may be quite legal; we must recall the temporal difficulties with the sale of English bills in Berlin in 1870 due to a certain mistrust of England.[127] Contrary regulations of international law based on agreement of the great powers provide some measure of security, but this is not always sufficient. This may have influenced the Austro-Hungarian Bank to increase its gold reserve at the cost of its foreign currency reserve, at the time of the conflict with Serbia. Another influence may have been that a large gold reserve is more prestigious than a large reserve of foreign currencies.[128] As the Austro-Hungarian Bank may have held mostly English currencies, an increase of foreign currencies must have looked the more questionable in view of the political situation at the time.

In conclusion, mention must be made of the effect of large payments which the defeated nation has to make to the victorious one. The huge amounts of money often effect the likes of a crisis: many new enterprises are started, prices rise and the economy expands rapidly; the collapse follows as profitability cannot be increased together with productivity and liquidity. The rising production leads to falling profits and consequently to economic ruin. Germany after the French war, as well as Japan after the Chinese war,[129] have experienced these consequences. Though much survives of what was created during the boom, the injuries are serious enough; most hard to bear is the reduction of general consumption even though all conditions for increased production are available.

The change in the real income difference of two peoples due to large cash payments [from one to another] will hardly be more than moderate. But we must not forget that the loss of means of circulation is replaceable in a number of ways. In the case of France in 1871, the state acquired most of the necessary money by loans, some of it in cash, the rest in foreign currencies or other money substitutes;[130] [in such a case] the state only needs to acquire money for the next years to pay the annuities which is not too difficult if production works adequately. But the state which receives a great amount of money and can throw it into circulation does not thereby at once have available a greater quantity of commodities, since increased production takes more time. The immediate effect is a rise in prices and what follows next depends on the level of development: for instance, if the nation is on the point of becoming industrialised, much of the money will flow abroad to buy equipment, etc. Assuming that Germany buys machines in France in this fashion, part of the money goes to France; this however does not mean that Germany secures for itself a larger part of French real production, since the money flowing to France cannot at once cause an increase in production.

From all this it follows that even a large money payment does not cause too much harm, but that an over-large influx of money cannot bring too great an advantage, since our institutions limit quick changes in production and consumption. Advantages and drawbacks of this kind keep within a moderate range within the money economy. This would be very different in an economy in kind. Suppose two states reached full utilisation of their productive capacities, and one state, having iron ore and coal mines, were to be deprived of its coal mines for full exploitation by the other: then a very real damage would be done to the one state. In the past England has pursued just such policies with full success; initially it did not rule the money market as much as the commodity market. By skilful operations in the money market the rule of the commodity market is supported. A[nother] state cannot become totally dependent thereby, however, for the one reason that there remains the possibility of bankruptcy. Bankruptcy does not mean economic ruin for a state, but only release from debts; of course, its credit worthiness is impaired at the same time, but it mostly is restored soon enough. Should the creditor state be willing to prevent bankruptcy by force of arms, however, it may achieve immediate dependence, and to oppose this the [debtor] state has only one choice: war.

The main result of our investigation may be expressed as follows: war forces a nation to pay more attention to the amount of goods which are at its disposal, less to the available amounts of money than it usually does. In war it becomes far more obvious than in peace that superiority in armaments, food, transport, is what matters; it should, however, not be denied that financial superiority can occasionally compensate for military defeat. Money reveals itself more clearly as only one of the many means to provide goods. The state usually fashions this tool with more energy in times of emergency than otherwise, and utilises it for its needs. If it proves useless, the state does not hesitate to make changes in the economic order. If productive capacity is intact but not money affairs, one last possibility remains – *economy in kind*.

We saw that war brought advantages to the victorious from time immemorial, while the damage of defeat varied at different times. It seems far more noteworthy, however, that war does less damage than expected, considering the great destruction of productive energies and their diversion for purposes of war. An attempt was made to show how this comes about; in our peacetime economy there is no full utilisation of all energies, whereas war provides at times just this possibility; the reason may be either that in war, productivity ranges higher than profitability, or that the arrangement of the circulation is freed from restrictions which are usual otherwise; it is also stimulating that the relative surplus population created by our economic order is fully absorbed. The complaint about the great harm inflicted by war does not reflect the facts as much as the complaint that *we live in an economic order in which the devastations of war are not exceedingly damaging and can even be a kind of salvation*. The fact that war itself is not the main cause of this upturn raises the question: could not the same or even a better result be achieved in a peaceful way? If a reform was possible which allowed for unrestricted production and consumption, then war would become a greater curse than it is today – and then perhaps it would be avoided more often. *The best success therefore may possibly be achieved by struggling not directly against war, but instead against certain deficiencies of our economic order which have the effect of reducing the horror of war and increasing its advantages*.

NOTES

* First published as “Die Kriegswirtschaft”, *Jahresbericht der Neuen Wiener Handelsakademie* 16 (1910) 5–54, repr. in *Durch die Kriegswirtschaft zur Naturalwirtschaft*, Callwey, Munich, 1919, 6–41. Translated by Robert S. Cohen and Thomas E. Uebel, based on a draft by Marie Neurath.

1. See, e.g., the *Handwörterbuch der Staatswissenschaften* and the *Wörterbuch der Volkswirtschaft*; cf. F. Naumann, *Neudeutsche Wirtschaftspolitik*, Berlin, 1906, 363.

2. Cf., e.g., A. Wagner who from time to time has written in detail about problems of the science of war, not only in his systematic work on the science of finance but also elsewhere.

3. Cf., e.g., G. v. Gülich, *Geschichtliche Darstellung des Handels, der Gewerbe und des Ackerbaus der bedeutendsten handelstreibenden Staaten unserer Zeit*, 5 vols., Jena, 1830ff. This author has a tendency to divide commercial history into periods of war and peace. Another example of a work that also deals with war in connection with other questions can be mentioned: T. Tooke and W. Newmarch, *History of Prices and the of the State of the Circulation during the Years 1793–1856*, 1858, trans by C.W. Asher, Dresden, 2 vols., 1858–62.

4. There is, e.g., Struensee’s excellent treatise of the 18th century: *Ueber die Mittel, deren ein Staat sich bedienen kann, um das zu seinen ausserordentlichen Bedürfnissen, besonders in Kriegszeiten, nötige Geld zu erhalten*. In 1776 the author, a former minister of Frederick the Great, translated essays by Pinto, who was famous for his theory of credit, and added a few of his own

treatises which partly continued Pinto's train of thought. The essay by Struensee has also been published in his *Abhandlungen über wichtige Gegenstände der Staatswirtschaft*, vol. 1, Berlin 1800, 165ff.

5. In *Politics*, I. 8.
6. If robbery, theft, smuggling are usually not mentioned by political economists, whereas handicraft, agriculture, speculation at the stock exchange, are, it is because the legally permitted movements of goods tacitly enjoy preference of treatment. From the standpoint of a political economist, however, it is irrelevant whether an action is legal or not. See Wagner *Grundlagen der Volkswirtschaft*, 3rd ed., vol. 1, Leipzig, 1892, 295. F. List also neglects to mention robbery in his *Nationales System der politischen Ökonomie*, 1841, 7th ed. ed., Stuttgart, 1883, 11. On robbing tribes in antiquity, see Diodorus III, 49 and V, 34. On state organised piracy, see T. Mommsen, *Römische Geschichte*, 1856–57, 8th ed., 5 vols., Berlin, 1888–94, vol. 3, 40.
7. G. Schmoller, "Die geschichtliche Entwicklung der Unternehmungen", *Jahrbuch für Gesetzgebung, Verwaltung und Volkswirtschaft im Deutschen Reich* 14 (1890) 745, 748.
8. F. Oppenheimer, *Der Staat*, Frankfurt a. M., 1907, 30f.
9. J. Wellhausen, *Das arabische Reich und sein Sturz*, Berlin, 1902, 6f.
10. Ibid., p. 19.
11. G.A. Gerhard, *Phoinix von Kolophon*, Leipzig, 1909, 15; cf. O. Neurath, *Antike Wirtschaftsgeschichte*, Teubner, Leipzig, 1909, 56, 98.
12. E.g., Diodorus XVII, 111.
13. Polybius V, 63.
14. Ibid., XXXVII, 4.
15. Cf., e.g., Plutarch, *Marcellus*, 19; cf. Neurath, *op. cit.*, 98.
16. Polybius, X, 2.
17. Dionysius of Halicarnassus VI, 95; cf. J. Beloch, *Der italische Bund unter Roms Hegemonie*, Leipzig, 1880, 216f.
18. A large number of relevant passages can be found in A. Langen, "Die Heeresverpflegung im letzten Jahrhundert der Republik", *Programm des königlichen Gymnasiums zu Brieg 1881–1882*, Brieg, 1881. The third section deals with booty and *donativa*; Livy has been used in detail. – A summary table of cases of booty would be desirable; the triumphs might be a good starting point. Useful data might result if sizes of the armies, and remarks of the authors as to whether booty was large or small, are taken into account.
19. Livy, X,17.
20. Appian, *The Civil Wars*, I, 8.
21. E.g., C. Klocki, *Tractatus juridico-, politico-, polemico-historicus de acrario*, Nürnberg, 1651, L. II, c. 87, *et passim*.
22. See particularly the literature on the law of the nations, or natural law, as in H. Grotius, *De iure belli ac pacis* (ed. by. C. Wolfius), 1734, esp. L. III, c. b.
23. F. Raffel, *Englische Freihändler vor Adam Smith*, Tübingen, 1905, 47; cf. Tucker in ibid., 133.
24. Ibid, p. 127.
25. Cf., e.g., Roscher-Gerlach, *System der Finanzwisenschaft*, vol. II, 5th ed., Stuttgart 1901, 188.
26. Cf., e.g., A. Wagner, *Finanzwissenschaft*, 3rd ed., vol. I, Leipzig/Heidelberg, 1883, 418.
27. A. Smith, *The Wealth of Nations*, London, 1868, bk. II, ch. 3: ". . . great fleets and armies who in time of peace produced nothing and in time of war acquire nothing which can compensate the expense of maintaining them, even while the war lasts."
28. Ibid., bk. IV, ch.1.
29. Cf. ibid., bk. IV, ch. 33, pp. 297f.
30. List, *op. cit.*, ch. 11.
31. Ibid., 349
32. R. Steinmetz, *Die Philosophie des Krieges*, Leipzig, 1907, 90
33. Cf., e.g., A. Wagner, "Das Reichsfinanzwesen", *Jahrbuch für Gesetzgebung, Verwaltung und Volkswirtschaft im Deutschen Reich* 3 (1874) 64.

34. C.v. Hock, *Die Finanzen und die Finanzgeschichte der Vereinigten Staaten von Amerika*, Stuttgart, 1876, 470; Tooke and Newmarch, op. cit., 55f.
35. H. George, *Social Problems*, Chicago/New York, 1883, repr. *Complete Works Vol.2*, Doubleday, New York, 1911, 75–77, tr. as *Soziale Probleme*, Berlin, 1885.
36. There are similar views in Wilhelm Neurath's unpublished manuscripts, under the title "Removal of restrictions in production; war makes rich", December 1894.
37. See K. Helffrich, *Das Geld im Russisch-Japanischen Kriege*, Berlin, 1906, 5, on the Crimean war and the building of railways. Consider also the new German-African cable.
38. Vocke, *Geschichte der Steuern des britischen Reiches*, Leipzig, 1866, 72.
39. Völcker, *Die deutsche Volkswirtschaft im Kriegsfall*, Leipzig, 1909, 55f.
40. *Gewerbeordnung für den Kleinverkehr*, § 51, par. 1: "For the retail sale of articles belonging to the most necessary requirements of daily subsistence, . . . maximum prices can be fixed."
41. See P. Mayet, *Landwirtschaftliche Versicherung in organischer Verbindung mit Sparanstalten, Bodenkredit und Schuldenablösung. Vorschläge zur Besserung der Lage des japanischen Landmanns, im Auftrage des kaiserlich japanischen Ministerium des Inneren abgefaßt*, Tokyo, 1888, 287ff., on the history of measures to deal with harvest failures.
42. Whereas the motion during the session of 1893/94 did not yet contain anything about war, in the renewed motion during the session of 1894/95 the use of grain surplus for building up stores for extraordinary needs (war, etc.) was suggested.
43. *Annales de la Chambre des Députés*, Séance du 25 Janvier 1894.
44. Smith, *op. cit.*, bk. I, ch. 8
45. Völcker, *op. cit.*, 57f.
46. List, *op. cit.*, 159, esp. 262f.
47. W. Lexis, "Kontinentalsperre", in *Wörterbuch der Volkswirtschaft* (ed. by L. Elster), 2nd ed., Jena, 1906, vol. II, p. 305.
48. List, *op. cit.*, 160
49. England refused to allow American industry to develop and forbade the creation of iron industries (steel furnaces and slit-mills). (See Smith, *op. cit.*, bk. IV, ch. 7, 239.) It has to be pointed out that such principles were mercantilist, and Adam Smith, the free-trader, strongly objected to such measures. Though he may have underestimated their damaging effect he says: "To prohibit a great people, however, from making all that they can of every part of their own produce, or from employing their stock and industry in the way that they judge most advantageous themselves, is a manifest violation of the most sacred rights of mankind."
50. The question of the secure market is often mentioned in politics. Austria is sometimes accused by the Hungarians of not having joined the German customs union and thus making the development of the German empire possible, because it feared competition and wanted to secure Hungary as a permanent market. (See Lang, *Hundert Jahre Zollpolitik*, tr. A. Rosen, Wien/Leipzig, 1906, 133 (Lang was Trade Secretary in the government of Szell).)
51. Völcker, *op. cit.* 91.
52. See the sarcastic description by List, *op. cit.*, 219. It is a difficult question as to how far it is expedient to prevent industry from supplying the enemy shortly before a war. If we do not sell coats, bottles, etc., to the enemy, though we have enough, and he buys them somewhere else, the result would be that the enemy is as well equipped as without the prohibition and our industry is the poorer due to income lost. More objectionable is an export of things which are needed if war breaks out, e.g. horses.
53. On this see *Der Bund*, 4/5 April 1906, p. 2.
54. Hock, *op. cit.*, 513.
55. L.W. Lewis, "Die Entschädigung der deutschen Reederei nach dem deutsch-französischen Kriege", *Jahrbuch für Gesetzgebung, Verwaltung und Rechtspflege des Deutschen Reiches* 3 (1874) 414; cf. Völcker, *op. cit.,* 62f.

56. E.g., coal in Germany 1870/71; cf. Völcker 1909, *op. cit.*, 88; J. Riesser, *Finanzielle Kriegsbereitschaft und Kriegsführung*, Jena, 1909, 72.
57. See “Unruhen in Rouen” (Unrest in Rouen), *Der österreichische Oekonomist*, 1870, p. 526.
58. Riesser, *op. cit.*, 73.
59. Often completely new machines are introduced, as was the case during the war of 1870/71. See Völcker, *op. cit.*, 52.
60. See, e.g., Colquhoun, *Ueber den Wohlstand, die Macht und Hilfsquellen des britischen Reiches*, German tr. by J. C. Fick, Nürnberg, 1815, bk. II, ch.14, 177. On the resources of the nation, to recompense and gainfully employ officers of the navy and army, soldiers and seamen who are deprived of employment after return of peace.
61. As today, the thought of invasion made H. Home plead for a general conscription in England, in his *Versuch über die Geschichte des Menschen*, German tr. Wien, vol. I, 1787, vol. I, 595.
62. Cf. Cohn, *Volkswirtschaftliche Aufsätze*, Stuttgart, 1882, 175ff.
63. Cf. Hock, *op. cit.*, 508.
64. Remissions of taxes after the war do occur.
65. See Xenophon, *History of Hellas*, I,1, about requisitions by the Athenians.
66. George, op. cit, [1885] 152f.
67. Hock, *op. cit.*, 404.
68. Excluding loans raised abroad only formally, but actually in the homeland.
69. Helffrich, *op. cit.*, 170, 218.
70. E.g., Struensee, *op. cit.*, 190.
71. This seems to be done, e.g., by J. v. Renauld in *Die finanzielle Mobilmachung der deutschen Wehrkraft*, Leipzig, 1901, when he declares it financially impossible to cover the requirement of 22.000 millions for 10 million soldiers in Germany. Riesser, *op. cit.*, 9, is quite right when he stresses the real difficulties in feeding, etc., but he seems also to accept the financial argument. This could be convincing only if it could be shown that it would be impossible to raise the single loans, one after the other.
72. Hock, *op. cit.*, 466, 498, 518.
73. Note that whereas the French loan, issued 23 and 24 August 1970, was taken up by small fundholders, the federal loan of 20 July had very little response. See S. Sydow, *Theorie und Praxis in der Entwicklung der französicshen Staatsschuld seit dem Jahre 1870*, Jena, 1903, 52.
74. Cf. Hock, *op. cit.*, 443.
75. Helffrich, *op. cit.*, 90
76. Ibid., 93; cf. Hock, *op. cit.*, 441, on the use for customs payments, 413.
77. Helffrich, *op. cit.*, 29, 88, 226
78. Cf. G.F. Knapp, *Staatliche Theorie des Geldes*, Leipzig, 1905, 252; Hellfrich, *op. cit.*, 181.
79. Cf., e.g., Steuart, *An Inquiry into the Principles of Political Economy*, Basel, 1796, bk. V, 359.
80. Hellfrich, *op. cit.*, 92
81. Ibid., 218f.
82. On the loan of the southern states see Hock, *op. cit.*, 511ff.
83. Hellfrich, *op. cit.*, 106, 144.
84. Struensee, *op. cit.*, 199.
85. On the significance of a state treasure for war, see Wagner, *Finanzwissenschaft*, *op. cit.*, 172ff. and bibliography.
86. On the great difficulty of conducting war like that in the 18th century, see Struensee, *op. cit.*, 254.
87. Wagner, “Reichsfinanzwesen”, *op. cit.*, 64; Sydow, *op. cit.*, 51.
88. Cf. Struensee, *op. cit.*, 246.
89. Wagner, “Reichsfinanzwesen”, op. cit., 64.
90. Sydow, *op. cit.*, 50.
91. Struensee, *op. cit.*, 242f.

92. For comparison of gold stocks in Russian and Japanese banks, see Hellfrich, *op. cit.*, 68, 120, 179.
93. Cf. *Der österreichische Ökonomist*, 1870, p. 400.
94. Renauld, *op. cit.*, 84, thinks it is an argument in favour of private note-issuing banks–beside many other economic and political reasons–that through war regulations in international law "the bank assets are protected from confiscation by the enemy." An answer to this should probably be that even states which otherwise fully respect private property often do not hesitate at all to get hold of the cash resources of the central banks. If international law would be used in practice as formalistically as Renauld believes, it would be simplest to bar any enemy action against state property by entrusting it to private companies which are as dependent on the state as the central banks. A distinction must certainly be made between ordinary property and another kind which has great public tasks to fulfil.
95. Renauld, *op. cit.*, 56
96. Bismarck, *Reden*, vol. II (ed. by P. Stein), Reclam, Stuttgart, 1895, 224 (June 1, 1865).
97. Ibid., pp. 176ff. (Diet, January 21, 1864)
98. O. Neurath, "Uneinlösliches Geld im Kriegsfalle", *Jahrbuch für Gesetzgebung, Verwaltung und Rechtspflege des Deutschen Reiches* 33 (1909).
99. K. Kramar, *Das Papiergeld in Österreich seit 1848*, Leipzig, 1886, 7.
100. Normal currency can also put the people at rest (in Austria the silver guilder) or even smaller coins (in Austria the popular five-crown-coins).
101. Should the bank note not yet be in current use, it usually will become accepted in war.
102. Steuart, *op. cit.*, bk. IV, p. 78. "Coin we have called the money of the world, as notes may be called the money of the society. The first then must be procured when we pay a balance to foreigners; the last is fully as good when we pay ourselves." Much about the reform of money can be found in the works by Law.
103. Helffrich, *op. cit.*, 127
104. A. Wagner, *System der Zettelbankpolitik*, Freiburg i. Br., 1873, 59.
105. Cf. Hock, *op. cit.*, 515f.
106. W. Federn, "Das Problem gesetzlicher Aufnahme der Barzahlungen in Österreich-Ungarn", *Jahrbuch für Gesetzgebung, Verwaltung und Rechtspflege des Deutschen Reiches* 34 (1909) 160.
107. Hock, *op. cit.*, 457f.
108. It is very doubtful whether the best remedy would be to restrict the granting of mortgages by savings banks (Riesser, *op. cit.*, 35) and the resulting damage to all those seeking mortgages, especially in the countryside; liquidity is not the highest purpose, after all.
109. O. Neurath, "Uneinlösliches Geld", *op. cit.*
110. See on the giro money of the bank of Amsterdam: Steuart, *op. cit.*, bk. IV, p. 251 (ch. 37.2, "Of the Bank of Amsterdam"); cf. Smith, *op. cit.*, bk. IV ch. 3, "Digression concerning banks of Deposit, particularly concerning that of Amsterdam."
111. Struensee, *op. cit.*, 412ff.
112. Cf. Ströll, "Ueber das deutsche Geldwesen im Kriegsfall", *Jahrbuch für Gesetzgebung, Verwaltung und Volkswirtschaft im Deutschen Reich* 23 (1899) 445.
113. Struensee, *op. cit.*, 418.
114. Hellfrich, *op. cit.*, 189.
115. Wagner, *Zettelbankpolitik*, *op. cit.*, 366.
116. Ströll, *op. cit.*, 191.
117. Ibid., 184
118. In Germany, 61% of deposits are invested in mortgages and about 28% in stock shares; see Riesser, *op. cit.*, 35.
119. W. Neurath, *Elemente der Volkswirtschaftslehre*, 4th ed., Wien, 1903, 139; cf. Rodbertus, *Zur Erklärung und Abhilfe der heutigen Kreditnot der Grundbesitzer*, Jena, 1869, II, 80.
120. Riesser, *op. cit.*, 28.

121. Ibid., 31
122. Cf. Hock, *op. cit.*,. 448, 461
123. Ibid., 403.
124. Ibid., 514.
125. Ibid.
126. Ibid., p. 479.
127. Riesser, *op. cit.*, 26.
128. Federn, *op. cit.*, 159.
129. Cf. Inouy, "Geschichte der finanziellen Entwicklung Japans", in *Unser Vaterland Japan*, Leipzig, 1904, 295.
130. Cf. Renauld, *op. cit.*, 73.

OTTO NEURATH

4. SERBIA'S SUCCESSES IN THE BALKAN WAR [1912]

AN ECONOMIC AND SOCIAL STUDY*

Contents: *Agriculture*. Agrarian constitution; Zadruga; collective farming; cooperatives; agriculture during the war; animal husbandry during the war. – *Trade and Industry*. Introduction. Austria-Hungary and Serbia; the conflict in commercial policy; its significance for Serbia; trade and industry during the war. – *State Finances*. – *Means for Waging War*. Introduction; food; self-denial and adaptation to area of operation; war materials; foreign currency. – *National and Church Organisations*. – *The newly conquered areas*. Introduction; economic situation; economic future; national-religious situation; national-religious future; the Balkan federation; economy; policy; Church. – *Conclusion*.

PREFACE

As part of a larger investigation of the social and economic consequences of war I have also concerned myself with the Balkan war. In the following I present an outline of some of the preliminary results which I reached when I tried to answer the question of what are, besides Turkish weakness, the internal factors that make Serbian success seem plausible; I would not, however, want to claim that I have dealt with this subject exhaustively. I hope to have another opportunity at a later date to go more deeply into certain aspects only touched upon here. In this survey I restrict myself to changes observed in Serbia, because this was the only Balkan state on which I could obtain sufficient material. What applies to Serbia can to some extent also be claimed for Bulgaria. Since the point of departure of my study is far removed from current politics I hope that its results and observations possess the degree of objectivity rightly demanded of scientific investigations.

During my four visits to Belgrade – at the time of mobilisation, at the start of the war, after the battle of Kumanova, and during the second war period – I had several opportunities to discuss a number of questions with leading Serb politicians; I also had the chance to collect information from many civil servants, bank managers and merchants in Serbia and Austria-Hungary and to receive valuable communications from statesmen of the Monarchy. Of course, I have made use of Serbian and non-Serbian publications as far as possible, especially of the excellent Austro-Hungarian and German consular reports. It is my pleasant duty to express my thanks to all who have supported me, in the interests of objective research.

The present outline is an enlarged version of a lecture given to the Society of Graduates of the Prague Commercial Academy and the Society of Merchants in Prague.

Vienna, April 1913

* * *

The successes which the Balkan states achieved against Turkey were a matter of surprise partly because it is usually insufficiently realised how much *the power of the state is based on the total structure of the society*. Turkey was thus generally overrated, and the dormant energies of the Balkan states were not sufficiently taken into account. Occasional events in the capitals, which however throw little light on the people as a whole, gave rise to the view that the Balkan states were corrupt and disorganised. Due to political prejudice other voices were largely ignored which, on the basis of objective studies, for some years now gave a favourable prognosis for these states, including Serbia. The entirety of the social life of a state is of the utmost importance, especially for its military efficiency. The successes of Prussia a hundred years ago show this clearly and also show that even military deficiencies can be rendered harmless by determined organisation growing out of the people themselves. The factors responsible for the successes of the Balkan states have their roots partly in the distant past, partly they are a result of the last few decades. Serbia's advance in the military sphere, for instance, dates only from the most recent times.

Serbia, as well as Bulgaria, has a very *homogeneous economic and social structure*. It is a typical peasant state in which more than 80% of the population work on the land. Large landownership plays no part, since more than 90% of landowners cultivate less than 20 hectares [about 50 acres] each. Most of the indigenous Serb aristocracy was destroyed by the Turks in the Middle Ages after the battle of Kossova (on the Amselfeld, 1389); only a few of them converted to Islam, so that when Serbia freed itself from Turkish rule in the nineteenth century there were only free peasants. Serbia was therefore spared the difficulties of neighbouring Bosnia: there an indigenous aristocracy of Slav origin which adopted Islam is hampering the growth of a free peasantry.

The density of population in Serbia is moderate, perhaps fifty inhabitants per square kilometer, which is about half of the figure for Galicia where, moreover, large estates reduce peasant land and create local overpopulation. Because much of Serbia's land is still untilled, there is still room for an expansion of the population and no immediate population problem. There also are no tensions between the large landowners and the rest of the population which frequently makes itself felt in Galicia and in neighbouring Romania. Though they are acute and easily lead to violence, political contrasts in Serbia are thus not as deeply rooted as in these other countries, for their basis is in part merely personal. This is one of the reasons why the Serbs can relatively easily restrain internal political discord in critical times, in order to act as a unified whole. The even distribution of land means that nearly every peasant who joins the army leaves behind members of his family who are familiar with the work. Agriculture suffers less than in states where estates of large landowners with purely commercial management predominate and where the families of the workers have no close relation to the land. Quite apart from the fact that they often live at some distance, they are not interested to make an extra effort, and it is difficult to find competent workers from abroad in war time.

A tendency towards the formation of communities arises from this primitive agrarian democracy. This shows itself in the *Zadugra* (extended family), in the collective working of the land and in the institution of cooperatives. All these institutions are characterised by the traditional cooperation of persons of equal standing. The *Zadugra*, which also still plays a role of some significance in the south of the Austro-Hungarian monarchy, is closely linked to the Serb people's character, though it is uncertain whether it is of Slav origin or a product of the Byzantine administration. Many see in the *Zadugra* a stabilising, consolidating influence on agrarian conditions, preventing the division of inheritances or the accumulation of many small holdings by a single individual. The greater number of workers allows a more purposeful division of labour and makes soil enrichment easier. On the other hand, against the *Zadugra* it is claimed that an individual works more intensely if he can enjoy the whole product of his labour himself and that the dissolution of the *Zadugra* would release forces for commerce and industry. But even if we assume that the *Zadugra* has had its day, it has at all events helped the Serb peasantry better to withstand many destructive influences of the modern commercial economic order. It also paved the way for the formation of modern cooperatives.

The collective farming, supported by custom and law like the *Zadugra*, rests on the traditional collaboration of the villagers and is of great significance, especially in times of emergency. The individual peasant can rely on the assistance of each neighbour in turns. Collective work saved a considerable part of the harvest, which had still to be brought in at the beginning of mobilisation in Serbia and Bulgaria, and even allowed some sowing in the autumn. According to the estimates available to me, the harvest of 1912 [despite the war] was not much worse than that of 1911:

Kind of grain	1911	1912
	in millions of metric hundredweights	
Wheat	4.2	4.5
Rye	0.4	0.4
Barley	1.5	1.0
Oats	0.7	0.8
Maize	6.5	5.0

For a country like Serbia, where the purely formal decrees of the government and contractual obligations do not have the effect that they do in Western Europe, all traditional forms of community life are of the greatest importance. Many countries suffer from the loss of precisely such community formations based on custom and tradition at a time when the rational procedures of modern society are not yet sufficiently established.

Whereas the *Zadugra* and collective farming are exclusively rooted in the traditional community spirit, Serb cooperatives contain in addition elements of a more recent social development. On the one hand, the agricultural cooperatives are adapted to the peasants' traditional way of thinking and living, and on the other they establish a link between the peasant and money economies; without the protection of the cooperatives, the individual peasant would be exposed to all sorts of dangers, such as the termination of commercial credit, and the accumulation and rapid change of contracts. Serbia has at present more than a thousand agricultural cooperatives of which about two thirds are credit cooperatives with unlimited liability. Besides these there are a number of cooperatives with limited liability, such as machine cooperatives and milk cooperatives. Though the institution of the cooperative in Serbia is not more than twenty years old and had to surmount great initial difficulties, it has been very successful.

The cooperatives, which are spread like a network over the whole of Serbia, spread education and attract the more educated elements of the population; this explains the fact that the percentage of illiterates among their members is smaller than in the population as a whole. They introduce the peasants to discipline and economic accounting; the peasants also see the significance of larger institutions demonstrated in the association of cooperatives. This is of special importance, since they are accustomed to a great degree of communal autonomy and have difficulty in understanding measures which go beyond the framework of their community; often they even look at the power of the state with suspicion. In this respect, the meetings of the association with their free discussions certainly have an enlightening effect.

The cooperatives, their association, and other societies, educate the peasants economically by providing machines, breeding stock, seeds, arranging lectures on matters of dairy farming, plum growing, livestock care, etc. and establishing model farms. Great efforts are needed to convince the conservative peasant of his own advantage [in any novel development]. Much has been achieved; an example is that the import of ploughs, harrows and minor agricultural equipment has grown three times its value in the last five years.

Import from	1906	1909	1910	1911
	in thousands of dinar			
Austria-Hungary	80	144	184	266
Germany	60	113	231	214

The iron plough which had been used north of the [river] Save for a long time due to German colonisation, is now increasingly adopted in Serbia. Also in matters of credit the cooperatives have a beneficial influence and do not allow usury to grow on the scale on which it is known in Galicia, for example. There the debts owed by peasants to village usurers and the small usurer's associations in the agricultural towns are so large and common that the farmers cooperative savings banks are in a difficult position: they can only prevent the further growth of such debts, but cannot remove them. The agricultural cooperative also makes the gradual dissolution of the *Zadugra* more bearable, continuing its activities and its name (*Zadugra* literally means 'cooperative' in Serbian). Through the spread of order, reasoning and community spirit, the cooperatives directly favour the military capacity of the army most of whose members belong to the cooperatives; besides this, cooperatives develop economic stability and thus increase the fighting strength of the country.

As we saw, the damaging effects of war on agriculture are much reduced by the agrarian constitution and the community organisations. Of course, in spite of that winter sowing could only be partially carried out. To compensate for the loss of wheat, which is nearly all winter sowing, and of barley and rye, which are so for two-thirds, the winter sowing will be replaced either by growing maize, or by newly introduced spring sown varieties of wheat and rye. The government is said to have distributed the necessary seeds already during the war; also part of the third call-up was suspended at the beginning of the second war period, and it was decreed that the most productive fields should be tilled first. The rise in the prices of agricultural produce as a consequence of the war cannot be considered a gain for Serbia, since only a minimum of the increased income came from exports. It does not benefit Serbia if part of the population or the government has to pay higher prices to the peasants; this can lead only to a shift in wealth within the state, as under the given circumstances the increase in money could hardly have led to increased production. Foreign money (gold or currency) entered only in small amounts, as exports were reduced to a minimum. Therefore the power of the whole population to buy from abroad has not grown. If no special measures are taken after the war, it is to be expected that foreign exchange rates will rise in Belgrade and thus absorb most of the increased income. In September, when grain export was prohibited, prices fell and for some time the army administration could make cheap purchases. It is difficult to find out how far the loss in profit was compensated by the later rise in prices; for some time the government had to pay considerably more than the export price for grain.

The livestock economy was little affected by the call-up, for reasons discussed earlier and because little manpower is needed for it in Serbia. It is extremely primitive and is rarely managed systematically. The stage of stallfeeding and utilisation of dung has mostly not been reached, though there is already a strong tendency to increase the area of cultivated fields at the expense of meadow and pasture land and to produce more fodder. As Serbia has surplus livestock, it can sustain substantial reductions which are usual in war. This is partly due to increased slaughtering in war – soldiers eat more meat on the battlefield than at home. Part of the cattle used for transport died through over-exertion and disease. But it is not just the meat consumption of the Serbian army alone which matters for Serbia, since the Bulgarians also ordered large quantities of meat and bacon in Belgrade (for which they had to pay high prices); and incidentally, meat was occasionally exported from Serbia to Austro-Hungary during the Balkan war.

Commerce, trade and industry are of much less immediate significance for warfare than agriculture. Agricultural products are absolutely essential – the more there are the better; most branches of industry, however, can be given up in an emergency. In Serbia especially, industries which work for the army play a minor role. However, the development of commerce and industry is very important for the financial situation of the state, for its social structure and for the morale of its people. Part of the enthusiasm at the beginning of the Balkan war is explained by the fact that the Serbian peasant was linked to world communication and appreciated the importance of importing and exporting. Serbia's hatred of Austria-Hungary, and its inclination to expand towards the Adriatic, are closely linked with problems of commercial policy. For Serbia and for Bulgaria, it was highly significant that the beginning of the Balkan war fell into a period of prosperity, partly based on good harvests, partly on reforms which owe their origin mainly to conflicts in commercial policy with the Austro-Hungarian monarchy in 1906.

The conflicts between Austria-Hungary and Serbia are many decades old. They are partly of a political, partly of an economic nature. The political conflicts might have been less sharp if the economic ones had not existed; and the latter would not have led to such serious consequences if tension had not been increased by political factors. In the Austro-Hungarian monarchy, it had several times been intended to establish closer economic links with Serbia. This was prevented by the attitude of Hungary and of some agrarian circles in Austria on the one hand, and by Serbia's resistance on the other. Before the Berlin congress (1878), Hungary objected to a customs union with Serbia. At that time Austria was suffering for its earlier policies of securing a market for its industry in Hungary and of obtaining cheap food there. When it comes to matters of external economic policy, an industrialised Hungary would on the whole be much more desirable for Austria than a mainly agrarian one; but even if Austria and Hungary had approximately the same economic structure, the antagonism between agriculturalists and industrialists would still exist. But also in Serbia itself, people increasingly stood up for full political independence and economic self-sufficiency. At the time of the Berlin congress there were already leading politicians who objected in principle to granting more concessions to the Austro-Hungarian monarchy, pointing out that Austria-Hungary could never be satisfied but would wish to make Serbia servile at any price. By granting concessions, Serbia would lose its freedom of action and the support of other powers which it would urgently need when, sooner or later, it would be forced to take defensive action. These politicians tried to prevent any closer ties with the Monarchy and to reverse steps in that direction; but only the 'radical party' succeeded in carrying this policy out systematically. Internal conflicts within the Monarchy also hindered closer relations with Serbia.

Those Austro-Hungarian commercial and financial circles which are close nationally to the Serbs, have the best chance of gaining a foothold there. The Czechs in particular, the only one of the serbophile nations with sufficient powers of economic expansion, were kindly received; there are many Czechs who even express the view that the Austro-Hungarian monarchy should use them as pioneers for the commercial and financial penetration of Serbia instead of paralysing their activities by mistrust. They say that the Czechs are specially suited to this mission because they have been or are establishing good relations with other Slav nations of Austro-Hungary, through which good commercial connections between Serbia and a great part of the Monarchy could easily be established. Under these circumstances a stable settlement between Germans and Czechs, for example, could also become very important for external economic policy.

It cannot yet be determined with full objectivity how that severe conflict in commercial policy between Serbia and Austria-Hungary came about which greatly strengthened Serbia's economic development; but this is not absolutely necessary for the economic assessment of events. The trade agreement of 1892 had already caused some loss for Austria-Hungary, but this was so partly because it was bound by arrangements with Germany which, like France, England and Belgium, had at the time already begun to risk industrial investments in Serbia greatly advancing the imports of German machines and other articles. Of special significance was the progress of the French who have won a very strong financial and political position in Serbia. Whereas Serbia's sales in the Austro-Hungarian monarchy continued undiminished in spite of occasional obstructions, especially by interventions of a veterinary kind, the Monarchy's role in Serbia was gradually challenged by other states, especially by Germany. Nevertheless, the economic relations between Serbia and the Monarchy were still exceptionally close until 1906, as trade statistics clearly show.

In 1906 a severe conflict developed between them since, independent of all commercial politics, much material for it had accumulated in both countries. There was a sharp exchange with regard to the negotiations between Serbia and Bulgaria on an agreement which they describes as a customs union. The customs boundaries between Serbia and Bulgaria should be abolished, but each state should be allowed to conclude independent commercial contracts until 1917. Austria-Hungary protested and pointed out that under the pretext of a customs union, Bulgarian goods would enjoy an advantage over goods from Austria-Hungary, contrary to Austria-Hungary's established right to the position of greatest advantage.

On this point Serbia submitted to the wishes of the Monarchy, whereas it remained obstinate on another matter. Austria-Hungary wanted to force the Serbs, using strong diplomatic pressure, to buy guns from an Austrian firm. Some claim that the French were preferred not for purely technical reasons, but because Serbia wanted to secure loans on the Paris market by buying guns from a French firm; it is said that already at the start of the conflict with Austria-Hungary secret agreements had been reached with the French which could no longer be reversed. Moreover, there were many people in Serbia who wished for a disagreement between the two states in the interests of their fatherland; apart from this many hoped to gain political influence through it; other reasons are occasionally mentioned too.

In response to the Serb's refusal, Austria-Hungary closed its borders to the Serbian imports of cattle and animal products. It was apparently believed that this conflict, like many earlier ones with Serbia, would lead to no further complications. When matters became more critical and a serious fight seemed unavoidable, however, leading statesmen and scholars of the Monarchy as well maintained that resistance on the part of the Serbs was quite pointless. Two things were probably overlooked here. First, that the Serbs possess considerable commercial acumen, as is clearly shown in Bosnia in comparison with Croatians and Muslims, so that they would soon find a way out. Second, that even if a way out was not found at once, a people which is only just growing out of an economy in kind can bear a considerable restriction of exports and imports for a long time. Only the sum of money needed for defrayal of annuities was absolutely necessary.

Why should it be unbearable for the Serbs to eat their own animals themselves? Why should it be a national disaster if those parts of the population which had barely begun to equip themselves with European shoes and textiles should be forced to return to their home-made shoes and cloth? The Serb farmer can easily do without imported agricultural machinery which was needed mainly to increase the export of grain. To be sure, the Serbs would have had to do without 8 million dinars worth of silk goods and 1 million dinars worth of coffee and much else. But all these restrictions were unnecessary: new outlets were found for commerce and Serbia's autonomous customs tariff, which came into use at that time, helped a number of industries to develop. Every effort was made to grow stronger economically. The sugar industry developed which had a favourable effect on rational cultivation of the land; manufacture of glass was developed; textile manufacturing too was able to flourish especially since the demand for cloth soon increased through extensive military preparations.

It may suffice within the restricted scope of our sketch to mention in a general way that the leading personalities among the Serbs have a lively economic sense and understand very well how to demand the sacrifices which are unavoidable at the beginning of a great industrial, commercial and agricultural development, especially in times of conflict in which the citizens are prepared for extraordinary efforts. They found eager support from their fellow-citizens; many systematic efforts were made to find sources for imports which would provide the same goods as Austria-Hungary had done at the same or at lower prices. The Serbs were stirred out of their inertia. During the customs conflict a Serb textile importer, who formerly had stocked his warehouse from Vienna, had to travel through half of Germany and conquer initial mistrust. He was soon helped in this by German pamphlets and newspaper articles whose authors used the opportunity to reduce Austria-Hungary's commercial supremacy in Serbia as much as possible: political alliances do not prevent economic competition.

Whereas formerly the Monarchy supplied the manufacturers in the provinces as well as the wholesalers and retailers of Belgrade, the wholesalers especially began to turn away from Austria-Hungary. They succeeded in establishing lasting trade relations with Britons, Swiss and Italians and in obtaining cheap goods from them; also German, Dutch, Belgian and French firms increased their sales in Serbia. The Germans eased their home market by getting rid of large stockpiles of goods. The reason for the defeat of the Austrian firms was partly that the enterprises of other countries are more specialised than in the Monarchy where each manufacturer produces a great variety of wares. Once the Serbs had opened up these new sources and secured standing credit, the effective monopoly of the Monarchy was broken in many areas. While its share of Serb imports had been two thirds, it sank to one third in 1907. Meanwhile, the shares of Germany, Italy, France and Belgium grew considerably:

Exports to (in %)

	Austria-Hungary	Italy	Germany	France	Belgium
1903	86	0.4	5.1	0.22	0.6
1904	89	0.2	4.2	0.03	0.4
1905	90	0.1	2.9	0.07	0.5
1906	42	0.7	26.6	4.69	8.8
1907	16	6.0	40.4	3.32	16.0
1908	28	4.5	18.0	3.91	20.8

Imports from (in %)

	Austria-Hungary	Italy	Germany	France	Belgium
1903	62	2	12.3	4.7	0.4
1904	60	2	13.2	1.6	0.9
1905	60	1	11.6	1.5	0.6
1906	50	2	22.0	2.6	0.9
1907	36	3	28.8	3.5	1.1
1908	43	3	28.2	2.1	2.1

After the settlement of the conflict, Austria-Hungary had to compete on an equal basis with other states, which now had also established closer contact with Serbia; there were now a number of new relationships which had not existed before at all. A great part of the positions then lost have been regained since; if political conflicts do not interfere and create obstacles for goods of Austro-Hungarian origin, Austria-Hungary can always achieve great advantages in Serbia because of its favourable geographical position; but the situation as it existed in the past will hardly ever be re-established again.

During the conflict with Austria-Hungary the Serbs were able to prove their special organisational aptitude. These people who, with some justification, were said to be inclined towards fanciful plans, could perfectly well cope with the demands of the day.

The foremost problem was to find a way of exporting live animals. For a generation Serbia had clamoured for Salonika; such aspirations were not unknown among Austrians and Hungarians either, but this has not played a role in the politics of the Monarchy for more than a decade (in spite of widely held opinions to the contrary). By organising the transport of animals via Salonika one thus conformed to old Serbian traditions. The route to Salonika had until then been little used by the Serbs, since Turkey did not even look after its security adequately, and the conditions of transport left much to be desired. (These circumstances also meant that the plan to direct the Indian mail via Salonika-Belgrade could not be realised and that fast transport of passengers and freight did not develop in the way that could have been expected given the natural conditions.) Now however, special agreements were made with Turkey to organise the transport and loading of animals as appropriately as possible. These efforts were successful. Whereas in 1906 only about 2.000 head of cattle were exported from Serbia via Salonika, in 1909 the number was already 30.000. Indirectly, this export via Salonika had a beneficial effect on the breeding of livestock, because, for well-fattened oxen, the transport costs, calculated per head, turned to better account. But even if the Serbian cattle withstood the long journey rather well, export via the Adriatic port to Italy and other Western countries would be more advantageous to the Serbs in every respect. Favourable tariffs were also negotiated with Bulgaria, however, and thus a second outlet was created. As is well known, pigs do not tolerate long sea voyages and their export by these routes was impossible; therefore the production of sausage, bacon and ham was developed, products which now play a large role as Serbia's export articles.

Serbia owes its great economic progress to the increased effort and favourable circumstances, especially the good harvests. In 1907 it could export goods to the value of 81 million dinars compared to only about 70 million in previous years. Also imports grew: from about 50 millions in previous years to 71 millions in 1907. It is clear that the commercial and political conflicts with the Monarchy have contributed to the rise of national and state consciousness among the Serbs. Each impediment to, and each reduction of, Serbian exports of animals and animal products to Austria-Hungary exerted considerable pressure on the farming population. The uncomplicated economic circumstances allowed every farmer to see the connection, since he felt the effect of all the actions of the Monarchy directly himself. Everybody understood what it meant to be free from Austria-Hungary. The Serbian farmers turned unanimously against the commercial and political demands of the Monarchy, as they sensed traps everywhere and were convinced that each proposal was meant to damage their interests.

Austria-Hungary herself often helped to reinforce this view; for example, an apparently semi-official Austrian publication tried to make the draft of the trade contract of 1908 palatable to the farmers of the Monarchy by expressly stressing that the prohibition of imports of living animals meant damage to the Serbs in several respects. Meat wagons, especially with refrigeration equipment, were in scarce supply, and whereas insects, dirt, etc., did little damage to living animals during transport, raw meat was easily spoilt–this would give the sanitary police reason to destroy it if necessary. So veterinary measures often served not only economic, but also even political purposes; it was not without reason that a Serb merchant once said to me: 'If anything here does not please you, it is said straight away that a pig has died in Leskovac." But one should remember that misuse of veterinary rules is quite common, and that in this respect one half of the monarchy is guilty towards the other half, not to mention how much Austria-Hungary had to suffer from her ally Germany in this field.

Mistrust of the Monarchy seems to have been one of the reasons why the Serbs did not take very seriously the proposed Vardiste-Usice railway connection between Serbia and the Adriatic. Serbs pointed out occasionally that, even disregarding the considerable cost, it could be put out of action at any time if, for instance, somebody in Hungary protested against it. One also has to take into account that the Monarchy can in fact only with difficulty make binding promises concerning animal transport through Bosnia: it is bound by contracts with Germany and must fear that because of a single case of disease during a journey through Bosnia northern boundaries of the Monarchy might be closed – a possibility which could only be removed by special arrangement with Germany. All these circumstances made the idea of the Danube-Adriatic railway, supported by Russia and Italy, appear especially attractive to the Serbs, in spite of the Salonika possibility; through this idea they were put in closer contact with international politics. The Danube-Adriatic railway was discussed in detail several times in the Italian parliament; negotiations about it took place between Austria-Hungary and Russia. By the acknowledgement in principle of Serbia's right to be connected with the Adriatic by railway, the Monarchy abandoned the railway monopoly in the west of the Balkan peninsula – which many had longed for in secret. Serb statesmen, fully aware of economic problems, had advocated this railway to the Adriatic for a long time; however, their ideas could get general recognition only when the advantages of an animal and grain export, independent of Austria-Hungary, became obvious. Thus at the beginning of the Balkan war the demand for a link with the Adriatic was loud and unanimous, the more so as the wish for material gain was connected with the idea, based upon memories of national glory, of gaining the Bay of Drin and the harbour of Durazzo as gateways to the sea.

It need not be supposed that the economic rise of Serbia will be much hampered by the disturbances of the Balkan war. Domestic and foreign trade were admittedly reduced to a minimum; however, it can be safely assumed that both will flourish with renewed vitality after the end of the war. Some insolvencies are to be expected, but probably most of these firms will be those that had been shaky before. Only if the harvest fails would the merchants be in serious trouble, as all Serbian trade depends essentially on the yields of the harvests. Imports are at present very small, but they will quickly rise to their former level; an increase can even be expected, because the newly conquered regions are to be supplied, probably mainly by Belgrade. One should also mention that Belgrade firms have enlarged their sale rooms. For the time being, only the amount of profit which was lost because there could be no business in the spring may be considerable. The grain export will of course be much reduced in 1913, and the reduction of herds might also make itself felt.

There was no disturbance in credit arrangements in Serbia, such as was strongly noticeable everywhere in Galicia, because early on a moratorium was decreed, which seems to have been sufficiently justified by the large call-up alone. But even before the moratorium was decreed, withdrawals from savings and other banks were not of threatening proportions. The events on the international currency market and the fact that there was a premium on gold had little significance, since there was not much business at all. The premium on gold seems chiefly to owe its origin to machinations of money mongers; they bought notes from the people, especially in the newly conquered areas, for precious metal, with a considerable discount.

It is difficult to make an assessment of what the situation of the money market will be after conclusion of the peace agreement. As far as one can see, payment transfers will resume gradually. The sudden demand after the end of the war for means of payment abroad, for cheques and foreign currency, may have undesirable results. To some extent, remedies can be provided in such cases, if the government devises a comprehensive money and foreign currency policy; for that, however, a sufficient cash balance is required or the possibility of raising a loan soon after the end of the war. To prevent a rise in the rate of exchange of foreign currency the government itself could then, with the National Bank as an intermediary, release cheques and foreign currency and would become personal creditor to the purchasers, who would pay their debt in instalments. A recovery program of this kind, which is perfectly possible in Serbia, would be more advantageous than an increase of notes in circulation, for a large part of the notes would ultimately be used to buy foreign currency, and rises in the exchange rate and the prices would result. The measure suggested is feasible in Serbia without causing special difficulty, since the sums due abroad will hardly amount to more than 40 million dinars.

The disturbances in the industrial sector are certainly great, but as Serbian industry is on the whole still little developed, it does not matter much within the total national economy. The sugar industry had to suffer from the lack of sugar beets, since part of the harvest was lost due to the inadequate supply of workers and means of transport; but the refineries expect that beet and cane sugar imports will be eased. In many industries, convicts and foreigners were employed. On the whole, the prospects for Serbian industry in the immediate future are perhaps not unfavourable.

State finances developed in parallel with commerce. State income, for example, rose from 87.5 million in 1905 to 95 million in 1907. The administration of [state] monopolies also showed consistently good results. It was able to cope with interest payments during the crisis of annexation and during the Balkan war and, moreover, to transfer moneys to the state administration. Though the receipts of the monopoly administration decreased slightly at the beginning of 1913, there is no anxiety concerning the final outcome. How little damage was caused in Serbia by the customs war with the Monarchy can be seen from the receipts of the state exchequer from surpluses of the monopoly administration:

In short, any objective observer must state that Serbia has been in a prosperous period – in fact a boom – for a decade and has put its finances on a sound basis. In this sphere Serbia already seems to have overcome its most difficult times. Since the settlement with its creditors which became necessary in 1895 it has always been able to fulfil its obligations. The improvement of the financial situation made it possible for the Serbian state to raise several further loans under more favourable conditions, for example in France and Germany.

in millions of dinar

1904	1905	1906	1907	1908	1909	1910	1911
11.7	12.6	14.4	14.6	12.1	11.5	10.3	15.5

The means at the disposal of a state for waging war are composed of two parts, provisions in kind and foreign currency. Internal currency, on the one hand – i.e. in Serbia, silver coins and bank notes – is not really relevant, for the state can, if need be, get hold immediately of available supplies within its borders. It is merely a technical question whether one acquires them by requisition without further arrangements or by payment in vouchers, notes, debased silver coins or other conventional money. Vouchers and notes can be produced in any quantities, possibly even disregarding the law on bank notes, which can, however, in any case be altered quite legally at any time. The right of the Serbian state to demand notes in the amount of deposited treasury bills up to a certain limit can in no way be equated with the bullion reserves of a state treasury, as has occasionally been done. It causes nothing but confusion to mix up internal and foreign money this way.

Serbia, like Bulgaria, began the war with full stores; two good harvests had followed each other, and the export of grain and fodder had early on been made impossible, partly by decrees, partly by lack of vehicles. Because of its agrarian basis, Serbia's food supply is independent of foreign countries during a war for an extended period, since its agriculture produces surpluses and large quantities of grain are stored. At the beginning of the war part of the grain was stored in the communal granaries which are a primitive form of insurance against emergencies. They do good service for the military administration in times of war, if supplies for the first months can be collected in the storehouses in the area of the military concentration and branch storehouses can be established where there is no railway connection.

By comparison with the Serbs, the Montenegrins were much worse off; their agriculture is on such a low level that sufficient reserves cannot be produced. They experienced severe disturbances which were intensified because a larger proportion of the population was called up than in Serbia, so that even women had to join to help with the transport of provisions and ammunitions. In the second period of the war, some areas of Montenegro seem to have suffered starvation; it was said that some Montenegrins came begging to the Bosnian frontier; even Russian attempts to help seem only to have given some temporary relief.

In Serbia, by the way, supplies were not quite adequate, and though great quantities of victuals and fodder were taken as booty from Turkish magazines, the government had to turn to importing oats, wheat and hay from abroad in the second war period. The customs duty on flour was also abolished in order that not all home stores of grain and flour be used up by the military administration and prices rise too much because of scarce supplies. Numbers of livestock were sufficient in Serbia for army supply – not only cattle, but above all pigs and sheep. Great numbers of livestock, especially sheep, were seen in Old Serbia.

In addition it was of great importance for the Serbs that their life style was already adapted to their operational terrain. Provisioning, partly organised in modern ways failed in certain regions, so that great demands were made on the forbearance of the troops. In the beginning the demand for meat could be well satisfied. Several great slaughter houses were working in the area of operations; moreover, the military administration bought meat straight from the slaughter houses in Belgrade, had it transported in refrigerated railway wagons (which otherwise would have been used for the export trade to the Monarchy) to the army beyond Üsküb (Skopje), a distance equal to that from Vienna to Trieste. But though the weather was not unfavourable for meat transport, when the transport distances became too long, great quantities of meat deteriorated and had to be destroyed. The further transport from the stations was also not always fast enough in the newly conquered areas with poor communications. It was rather the same with bread. Bread baking was centralised. From Nish especially, large amounts of bread were sent to the army, but it also came quite regularly even from Belgrade. However, since the transport of bread also was difficult and rather slow, it often arrived hard or soaked by rain; often the soldiers had to go without bread, which, strangely enough, they demanded more eagerly than meat. Some parts of the Serbian army operated without supply columns, and though enough livestock was available in Kosovopolye and in some other lowlands, there often were lengthy periods when the soldiers had to manage with hard sheep's cheese, maize or perhaps rusks. An army with less self-denial would have required a much better organised transport of provisions, but this would have greatly impeded the mobility of the troops.

Wherever carriages could make any progress, the Serbs used the kind of vehicles customary in the district, drawn by oxen and horses, for the transport of army provisions; these, however, were slow and could not leave the roads. Lorries and trucks would not be able to move at all in Old Serbia and Macedonia and would completely destroy what was left of the roads. Pack-animals which move more quickly and can follow the troops seem to have been used by the Serbs only for the transport of machine-guns and ammunitions. Carrying supplies for the pack animals on the mule tracks, where the marching columns are already stretched to a considerable length, would have added further to their length; therefore an army which for a time can do without such provisions is at a great advantage in Old Serbia and Macedonia. Still, the Serbian supply columns would have been much less efficient if the draught and riding animals had not also been fitted to the terrain of operations. Serbian cattle are used to living in the open without supervision and are resistant to inclement weather; they also do not seem to be very liable to suffer infections. Despite this the losses of cattle and horses in Old Serbia, Macedonia and Albania were great; the animals were not protected against great differences in temperature, fog and snow, since stables were completely lacking. Their fodder changed all the time and was mostly insufficient. The lack of hay is grave in those areas even in normal times, as pasture land predominates and part of the hay must be delivered as taxes; add to this the wet weather that year and the intentional destruction of fodder stocks by the Turks. Little hay can be transported, considering the bad road conditions; and the more the bad roads prolong the time of transport, the more the hay is eaten up by the draught animals on the way. The stock of horses in particular was much reduced, and in the second period of the war new requisitions of horses became necessary in Serbia. Those horses freshly imported from abroad – from France, Russia and Hungary – at the beginning and during the war must have been predominant among those which perished.

War materials had been stored up by the Serbs for years, but at the beginning of the Balkan war a number of deliveries were still outstanding: for example, tents, coats, underwear and especially a portion of the quick-firing guns which were on order with a French firm, as well as other guns and several types of ammunition. This delivery arrived at Salonika only during the second period of the war, after the Turks had already confiscated part of the supplies just before the outbreak of the war. However, Serbia can produce some of its ammunitions itself, as it has a powder factory at Obelicevo and an arsenal at Kraguyewac which even was to have made shrapnel shells though the castings have to be imported. The efficiency of the arsenal is certainly not very great; nevertheless, the Serbs were able to send ammunitions to the Bulgarians who have no arsenal. Though the raw material is of partly foreign origin, the arsenal makes the Serbs independent of foreign countries to a certain degree. Moreover, the Serbs in Old Serbia and Macedonia have taken as booty some hundreds of cannons, hundreds of thousands of rifles and about 40 million cartridges. Their uniforms were made to a large part of foreign material, the officers' uniforms almost exclusively so; coats were also bought from Russia, but large quantities of military cloth for the rank and file were produced in Belgrade and Leskovac. Equipment of all kinds, such as underwear, was bought from Austria-Hungary. The third call-up only received arms from the government. The soldiers of all three call-ups brought along their own habitual footwear, the *opanki*; yet the government had to import great amounts of these during the war. To wear their own shoes was a great advantage; the men were already used to their footwear, and this may account for the small number of cases of foot-soreness in Serbia. Moreover, the *opanki* are much better suited than shoes to the chalk soil.

At the beginning of the war Serbia had at its disposal quite large amounts of foreign currency. The government had gold in its coffers and gold credits abroad, especially in Paris where reserves had been built up from several loans. It also had gold deposits at the National Bank. To this have to be added the balances of gold in autonomous public institutions such as the *Uprava fondava*, a central mortgage institute to which the administration of a number of funds is entrusted – the school fund, the sanitary fund, etc. – as well as gold balances in semi-public and private money institutions. For some years the *Uprava fondava* seems to have collected secret reserves. Because the most extreme eventuality has to be provided for, the whole balance of gold and gold credit is considered as a war treasure. The legal status of these sums of gold should not be thought too important; the state will certainly respect the property of the bank as long as possible, if only to maintain its own prestige; but it will not refrain from interference if the continuation of a war were impossible without it. Legality could in any case be preserved by a special law of expropriation. But it should be firmly stated that, during war, the National Bank published faultless accounts, from which one could see clearly how much the government was at pains to behave as correctly as possible.

The severe terms of the law with regard to issuing banknotes allow an increase in the circulation of silver notes – which is determined absolutely, without regard to the level of the reserves of metal – only if the government either deposits gold and gets silver notes in return, or raises a loan of silver notes against a deposit of treasury bills up to 30% of the bank capital. Whereas the government started at the end of August (old style) to deposit treasury bills without making full use of the 10 million dinars available, by the end of October a decrease in the amount of treasury bills could already be noticed since the government preferred to acquire silver notes through the deposit of gold. Of the 9.2 million dinars which the bank had given to the government against treasury bills, the government left 5 million as giro deposit and , in the interest of the public, thereby enlarged the bank's right of issuance. It continued to keep this account even when it paid back the 4.2 million dinars it had used itself, immediately after the battle of Kumova; only towards the end of the second period of the war did the government make use of the whole of the 10 million dinars.

There were striking increases recorded in the gold and the gold credit entry of the weekly statements of the National Bank in September (old style), and the coverage of the notes was excellent. This strengthening of gold reserves should, however, not be overestimated; government reserves which had formerly been kept secret were made public by a simple bank operation. But this perhaps allows the conclusion to be drawn that the government had a certain financial self-confidence; it would probably have avoided reinforcing the gold balance of the bank if it had had reason to assume that it would shortly have to reduce it again. It is sometimes maintained that the balances of the Serbian National Bank should be viewed with a certain mistrust, but I believe this is quite unjustified. There is a considerable amount of tension between government and bank management, and this alone makes it seem improbable that the bank management would publish incorrect weekly statements just to please the government, except in special circumstances. In general though, such concealments in the interests of the whole people would very likely be approved by many politicians. They would take it to be a simple trick of war, if, for instance, a central bank declared larger gold reserves than it actually had in order to deceive the enemy about its financial position. Of course, in such a case the central bank takes the risk of serious damage to its prestige. Cessation of publicity as practised in Bulgaria is, for the sake of prestige, mostly avoided, even though some eminent German bankers, for example, recommend this measure in war time.

To complete the picture of the Serbian preparedness for war, it is necessary to add to the amounts of gold, and gold credits possessed by the state, the National Bank, the *Uprava fondava*, etc., those amounts of gold which could, if needed, be collected by an internal loan. According to my information, not much would have been achieved in this way. One must take into account further that certain stocks belonging to the state, the *Uprava fondava* or the National Bank, can be sold on the international market or serve as securities for loans. The expected income, especially that of the administration of state monopolies, also has to be considered. At the beginning of the war the Serbian state had at its disposal, for all emergencies, at least 150 million dinars in foreign currency, disregarding still the possibility of foreign loans.

During the Balkan war the Serbian government raised a loan of 18 million in Paris; this was formally managed by granting the Serbian state the right to use certain moneys, which had been set apart for special funds of the *Uprava fondova*, for war purposes. However, since the *Uprava fondava* had already assigned these moneys, it gave vouchers to the state which were discounted in Paris and which have to be redeemed soon after the end of the war. It is widely assumed, by the way, that

Serbia will have to raise a loan of 200 to 300 million dinars after the war. But all such assumptions are very vague as long as the new boundaries and the question of Turkish compensation have not been settled. Apparently the Serbian state was financially better prepared for the war than the Bulgarian state to which Serbia is said to have offered financial and other help. At any event, Serbia has proved fully adequate to the demands on a state concerning the financial preparedness for war.

As we have seen, the strength of Serbia is based to a significant degree on its economic and social homogeneity which, however, could not have been so effective if there had not also existed a certain national and religious unity. All existing foreign nationals were forced to accommodate themselves. The Rumanians in the Negotin district and its neighbourhood had to be content with Serbian schools. In general they seem happy enough, since they are better off than their co-nationals in Rumania. No special note was taken either of those inhabitants of the Pirot district who are thought by some to be Bulgarian and who some decades ago joined together in a Bulgarian organisation. As a consequence of the conquest it is possible that a ‘national question’ may develop within Serbia proper. Should the Rumanian schools in the newly conquered areas be acknowledged, then it would be difficult to refuse Rumanians their own schools in the former kingdom; altogether the Balkan war will create state formations in which besides the victorious nation there will be very significant minorities of different nationalities. It was precisely the power of the national idea which raised the fighting capacity of the Balkan states; yet the same idea also demands that these states will have to acknowledge the equally justified rights of the several nations within their boundaries. The Orthodox church of Serbia forms an autonomous entity, equal to the churches of Rumania, Bulgaria, Greece and Montenegro, which have their own heads, as well as to the exarchate and the patriarchate. The patriarchate possesses only insignificant honorary privileges.

Having discussed the sources of Serbian power, let us try to find out what helped the Serb’s advance into the newly conquered areas. In the same way as the Bulgarians and the Greeks, the Serbs bring to a great part of their co-nationals liberation from a kind of feudal rule and so bring national splinter groups, which alone could achieve no real cultural and economic evolution, into a victorious and rapidly developing state.

The economic conditions of the newly conquered areas are mainly a product of Turkish principles of administration and of the agrarian constitution in force. In general, the Muslims are the masters of the soil, and the Orthodox, especially the Macedonian Slavs, live in more or less oppressed dependence. The particular forms of dependence play a minor role in an estimate of their social and economic significance. In any case, in conjunction with the erratic nature of the law, inadequate transport, and many other deficiencies, this dependence has always had a paralysing effect on the economic development of Old Serbia and Macedonia. Flooding in the autumn rains and during the melting of the snow often destroy the already neglected roads which then are turned into impassable bogs of mud. Mountain tracks are covered with rubble and boulders by the overflowing waters, and fertile soil is washed away or buried under layers of mud and gravel. Due to the lack of transport facilities the forests of oak, ash, spruce and fir trees were not properly exploited. At places where it was easy to cart away the wood, such as in the neighbourhood of the towns, the forests were cut down; elsewhere the wood was left to rot. Agriculture and animal husbanding are on a very low level everywhere, even in the fertile regions. The iron plough has hardly begun to be used.

Even if the Serbs will not obtain such favoured areas as the Bulgarians, they will still be in possession of some areas of the lowlands which would yield very rich crops if farmed rationally. Even now grain, tobacco, opium, vegetables, livestock and animal products such as hides, wool, and cheese are exported from some parts of this land. Strangely enough, the potato is not a popular food there, perhaps because conditions for its cultivation are not suitable. In the region of Novipazar and Mitroviza animal husbanding is strongly developed, in the Kossovopolje there is also horse-breeding, whereas the areas of Psitina, Skopje, Kumanova are rich in grain. Maize and wheat serve as food in the more southerly parts, rye in the north-west for the Lumeses; leguminous crops are grown everywhere. The surroundings of Priszrend are known for their fruit. There is much water power which, however, is so far mostly exploited only by mills and tanneries. There are coal fields near Plevlje, Veles and Skoplje, and elsewhere. The ore resources of the country have so far been insufficiently exploited. There is hardly any industry; only the domestic manufacture of goods of metal, leather and wood, and of textiles, plays a certain role.

The economic reforms of Serbia will probably be concerned in the very first place with improvement of agrarian conditions. The agrarian constitution of the kingdom of Serbia will be a guide for the leading statesmen. They are likely to solve the agrarian question concerning the serfs and short-lease tenants quickly, and create free peasants. To begin with, probably all those Serbs will be repatriated who lived as emigrants in the kingdom of Serbia and who mostly still possess their old documents of ownership. The recent land-owners will probably be asked to prove that they own their land by right. As this proof can often not be given, the Serbian state has the possibility of expropriation. Some of the remaining landowners may receive compensation; the Muslim population that chooses to stay in the country will probably receive easy treatment from the Serbs for political reasons. On the one hand, the Serbs of Old Serbia will be settled as free peasants, on the other hand, immigration will also be facilitated. Apart from the Serbs from the kingdom of Serbia who may always have had this possibility of settlement in mind, there are also the reservists who have returned from America, to whom this may apply. Government circles also foresee that Serb and Macedonian Slav families, who had emigrated from the kingdom of Old Serbia to America, would return if they were offered land under favourable conditions. Immigrants from Central Europe would not stay away either. Perhaps also the mountain people who for decades have left for seasonal work can be kept at home to help in the more intensive cultivation; at present about 10000 such workers pass through the region of Kriva-Palanka and Bulgaria to Rumania every year.

Yet the change in land ownership alone will not be enough to raise the economy to the level of the present Serbia. Above all, cultivation has to be improved by an appropriate cooperative movement; sales of farm and forest products will be facilitated by the creation of an adequate network of transport and thereby production itself will be stimulated. Development of poultry farms is also expected, with better prospects in the conquered areas than in Serbia proper. The devastations and destructions caused by the war will be remedied in a relatively short time, a forecast supported by much experience. Serbia will also make every effort to obtain foreign support for exploiting the mineral resources; mining was already quite well developed in these areas in the Middle Ages. The traditional cottage industries may have some capacity for growth and some factories may also be started. Serbian and foreign financial institutions have begun to set up branches, some of which have already opened. The Serbian banks of Bosnia also show a tendency of expanding their sphere of activities to the Sandshak and Old Serbia. In spite of all these efforts, however, it will still be decades before the new Serbia has a homogenous economic structure.

Not only the economic conditions, but also national and religious conditions in the newly conquered areas have to be considered. There are Macedonian Slav people who are considered to be Serbs by some, Bulgarians by others, or a special group by still others; besides them there are Turks, Kutzowalachs, Greeks, Albanians, Jews, Armenians, and splinter groups like gypsies, etc. Religions and languages are related to these groups in various ways. There are, for example, Muslim, Catholic and Orthodox Albanians; besides Orthodox there are also Muslim Macedonian Slavs, the so-called Pomaki; there are Albanians who mainly speak Serbian and Serbs who use the Albanian language and costume. Besides Islam, the two Orthodox church communities, the patriarchate and the exarchate, play a decisive role. The exarchate represents the Bulgarian nationality, whereas Greek, Serbian and Rumanian national propaganda go with the patriarchate. The Rumanian nationality, however, is only acknowledged by the Turkish government, since the patriarchate excommunicated the Rumanians and appointed no metropolitan for them. The patriarchate restricts its activities solely to Turkey, while, for their part, the autonomous churches of Serbia, Greece, etc., which are equal to the patriarchate, have no religious rights in Turkey. Only in Bulgaria are there still some patriarchist communities which depend on Constantinople.

Originally all Orthodox Christians who lived in Turkey were under the patriarch of Constantinople. The patriarchate, which knew how to get on with the Turks in many respects, always took care to strengthen Greek influence, i.e., that of those groups who were either of Greek origin or subscribed to Greek propaganda. Slav culture received no support; the patriarchate founded schools with Greek as the sole teaching language. The Bulgarians were the first to establish their independence – gradually and with the support of Russia which was interested in the weakening of the patriarchate. Already in the 1830's and the 1840's they succeeded in establishing the use of Bulgarian as the language in church and school in Skopje, Veles and other places, until they were accorded their own head of church in the early 1870's, an exarch in Constantinople who was independent of the patriarch. He was at first the head of all Bulgarian churches, but in the end only those within Turkey, since Bulgaria itself received an independent church organisation.

Violent conflicts soon broke out between exarchate and patriarchate. In the beginning the exarchate made great advances since the Slav inhabitants of Macedonia saw in it a representation of the Slav tradition. When it was realised in Serbia that in this way Serbian traditions might become replaced by Bulgarian ones, propaganda coming from the kingdom of Serbia led some of the country back to the patriarchate which had granted their own metropolitans to the Serbs, in Skoplje, Priszrend and Veles, for instance, and permitted the use of the Serbian language in church and school, hoping in this way to create a counterbalance against the Bulgarians. The driving power of the Serbs was for a long time paralysed by these church developments; not before they attained their concessions from the patriarchate could they compete with the Bulgarians – something the Turks did not mind as they liked to pit one nation against the other.

The church and school propaganda had a chance of success only in the area which is mainly populated by Macedonian Slavs and whose boundary is approximately given by the townships Serres, Kocana, Kumanova, Skopje, Kalkandelen, Dibra, Ochrid, Florina, Salonika. During this conflict gangs were formed, partly from the inhabitants of Old Serbia and Macedonia, partly from Serbs and Bulgarians who infiltrated from the Serbian and Bulgarian kingdoms. They were often led by former officers and were mostly well armed, often very much better than the Turkish troops which were sent to suppress them.

The Serbian gangs tried to win as many localities as possible for patriarchal propaganda by violence and threats of all sorts, while Bulgarian gangs were active in the same way for the exarchate. The opposed gangs often collided. There were violent fights for some localities. Often a place changed sides several times between exarchate and patriarchate. There were areas in which people became so fed up with the activities of the gangs that the help of the Turks and of the reformed gendarmerie which was finally established by the [foreign] powers, was gladly welcomed. In the south of the area indicated above, Greek bands fought against Bulgarian bands; the Greeks received soldiers, officers, ammunitions and arms from Greece and even Crete; they also tried to suppress Rumanian propaganda which mainly worked with cultural means. These gangs rarely attacked Muslim or Turkish troops, and Muslims rarely organised themselves in gangs to commit violence. However, the pressure exerted by the Muslims was always felt and billeting of soldiers feared; and arbitrary actions of officials and tax farmers, the inconsiderate attitude of landlords were recurring phenomena. In the gang fights, the Christian hatred of Muslims was less in evidence than hatred between Christians of different denominations and nationalities. Cruelties grew more than ever after article III of the Mürzsteg program was interpreted by the inhabitants of Macedonia as indicating the forthcoming sanctioning by Turkey of the changed national boundaries which had been achieved by [external] pressure. The international organisation of gendarmerie was not successful either in overcoming the gangs, and it was dissolved when the constitution was introduced.

In the Balkan war the gangs were active, supported, as probably before, by the governments of the Balkan states, by the provision of arms, ammunitions and officers. Official circles in Serbia, Bulgaria and Greece blamed them for all the cruelties which were suffered by non-combatants. Reliable people claim that regular troops also occasionally took part in the killing of non-combatants. As far as the killing of the Macedonian Slavs is concerned, the Serbs deny this absolutely, whereas the killing of non-combatant Albanians is sometimes admitted; but it is pointed out that the population deceitfully attacked the incoming Serbian troops several times, and reprisals followed; there were also acts of revenge against former oppressors – Albanian and Turk. Naturally nothing can be stated with certainty; but it is likely that a great number of atrocities were committed, if one considers the bitterness accumulated over the years, and if one remembers the actions of gangs against each other and against the population of Old Serbia and Macedonia. Furthermore, the ethnic groups involved are at a low level of development and inclined to violence, as criminal statistics show. After finishing the military tasks, the Serbian administration turned against their own gangs and expelled them from Bitolj, for example, after various trespasses. Apparently more than in any other European wars of the nineteenth century, every kind of unruly instinct was let loose during the Balkan war. Many people used the opportunity to unleash their brutality and greed. It was of the greatest advantage to the Balkan states that they invaded areas in which they were expected by co-religionists and co-nationals. The revolutionary tendencies which had existed in Macedonia and Old Serbia for a long time supported the military success, on the one hand by the welcome of the approaching troops met, on the other hand by direct desertion of Christian soldiers from the Turkish army during the fighting.

What national-religious reforms the Serbs will introduce in the newly conquered areas can at present not be clearly discerned. The procedure of military bodies alone does not allow final conclusions. The Serbs will hardly be able to remove the Bulgarian, Greek and Rumanian schools, but they will certainly demand that the Serbian language and history will become part of the curriculum. But it is not impossible that they will want to make Serbian the only language of instruction even in areas where the percentage of Bulgarians or Albanians within the population is large. The inclination to respect areas of other languages and nationalities does not seem to be great, but regard for other religious communities may not run counter to Serbian principles of government. It cannot yet be foreseen how the Balkan states will protect their co-nationals in the territories of their allies – that they will simply let them down is improbable. It is to be expected, for instance, that the Greek state will take an interest in the Greeks living in Serbian and Bulgarian areas, be they either of Greek origin or Macedonian Slavs who have accepted the propaganda of the patriarchate. We must expect that the peace treaty will contain regulations concerning the rights of Muslims, whereas the powers seem to be determined to secure the national status of Albanians and Kutzowalachi; against this Serbia and the other Balkan states will raise strong protests. However these questions will be solved, the gang fights will probably be finally suppressed in Serbia and the other Balkan states, though as a reminder of the widespread inclination to form gangs, figures for crime will remain high for some time; in a similar way, the high crime rate of Serbia proper derives from the traditions of the Haiduks.

In spite of all the abominations of the Balkan war, anyone who attempts to survey longer historical periods has to recognise the Serbs as cultural pioneers, along with the Bulgarians and Greeks. Rather than enter a quiet peaceful country, all three peoples conquered an area upset in many parts by continuous gang fights and other events, and ruled by a Turkish minority who for centuries had failed in creating an efficient administration or in joining the subjected tribes together in an organic communal life. The violent acts of the Turks, and of other Albanians who were favoured by them, contributed to the Macedonian Slavs' bitterness. Even the attempts at reform of recent years seem to have been limited to a very small area, and left the lowlands untouched. With the Serbian conquest, the Muslims will lose their power to rule; they will no longer be able intentionally to impede cultural development in the interest of their own power, to exploit the subjected people at will and to detest them. The working citizen will no longer be dependent on the whims of a master when he needs working animals and equipment, he will no longer need to fear unjustly imposed taxes.

It is especially the Slav part of the population, now taking control of government, which has been described by many as diligent and capable of development. The school propaganda seems from the start to have been successful in Old Serbia and Macedonia, and in some towns the number of illiterates among the Slav adolescents is by now only small. The Serb educational system will certainly show fruits. That the Serbs are serious about large scale enlightenment of the people is demonstrated by the plan to make Skoplje a center of education by means of a university, thus making it also a political centre. With the partition of [European] Turkey, a source of unrest will be pacified, and though wars among these states for national possession will certainly not be impossible, but the continuous unrest will come to an end. The final result of this barbaric war will show, after a few decades, as little trace of the horrors committed as the civilisation of the eighteenth century showed of the horrors of the thirty years' war. Whether this war could not have been avoided, however, if the powers had devoted their energies to the reorganisation of Macedonia, is yet another question.

The present situation does not allow reliable forecasts to be made of the future of the Balkan states. Should all or part of them remain united in the sphere of international politics, then this would with great probability lead to an economic alliance, at least in the form of a customs union; that, however, would work only if a certain adjustment were also carried out in their bank and tax policies, and in their economic policies generally. For the time being it is reasonably certain only that there will be a customs union between Serbia and Montenegro, whereas a customs union between Serbia and Bulgaria has by now become rather improbable, the stimulus for its conclusion not being very large. Already in 1884 the Bulgarians had tried to establish closer economic contact with the Serbs, and the suggestion of a customs union even arose; only in 1897, however, was the first commercial contract between Serbia and Bulgaria concluded which contained far-reaching provisions for favoured treatment and against which no protest was raised by third parties. However the commercial traffic between the two states was not very significant as shown by the years 1898 and 1904, at the beginning and at the end of the period of this commercial contract. This follows from the economic similarity between these two countries. According to the official Serbian commercial statistics the commerce between the two countries developed like this:

Serbia's imports from Bulgaria

Years	Thousand dinars	% of total imports
1898	1526	3.7
average 1899/1903	303	0.6
average 1904/1908	1107	2.5
1909	351	0.5
1910	483	0.6

Serbia's exports to Bulgaria

Years	Thousand dinars	% of total exports
1898	956	1.7
average 1899/1903	757	1.2
average 1904/1908	1957	2.7
1909	3633	3.9
1910	4132	4.2

The figures show that overall the sums concerned are small; still they have to be treated with caution: the transits via Bulgaria seem to have been included among the exports to Bulgaria. In 1905 negotiations on the customs union began and a uniform tariff for all foreign countries was envisaged for 1917. As mentioned above, the customs union was prevented by the intervention of Austria-Hungary. Incidentally, some progressives and liberals have denied that Serbia might have great advantage from a customs union with Bulgaria. The export of livestock would not be eased by it, and the grain export only if Bulgaria granted special tariffs which were not provided for by the contract. Even today few significant arguments are heard in Serbia in favour of a customs union with Bulgaria; some wholesalers, however, even seem to fear Bulgaria's competition in Old Serbia. The enlargement of the market brought about by the customs union does not seem to play a great role either. More important, however, may be the argument that a customs union would create better prospects for the conclusion of commercial contracts. The amounts of exports and imports under discussion are only a small proportion of the total for a larger state, whereas they are of much greater importance for the small state. The Balkan customs union would be an advantage for Serbia particularly in the negotiation of commercial contracts with the Monarchy, not so much in dealings with Bulgaria.

The idea of comprehensive associations of states is not foreign to the Balkan Slavs. The Serbs owe a great deal of their success to their ability not only to join together in small associations and as a nation in times of general enthusiasm, but also to their ability to make use of transnational cooperation to the fullest extent. Panslavism has reformed many minds along these lines, and though it has not been decisive so far, it may still have effectively prepared the way within the Slavic sphere for the purely political thought that a close union of the Balkan peoples would be very desirable for a solution of the Balkan problem in accordance with the people's own interest. In the Balkans specifically a great political success is possible only if the aim and the ways that lead to it can become truly popular. Without doubt, Panslavism has greatly enhanced the southern Slav's understanding of international questions; the average citizen of those states can more often be heard talking about countries abroad and their political forces than the average citizen of some large states. It is very doubtful whether the Balkan alliance will become permanent, as many believe, since there are a great many divisions between Balkan states which can hardly be bridged. The desire for purely national states in particular contains the nucleus of friction.

Above all it is very unlikely that an alliance between Greece and Bulgaria could be of long duration as both strive after hegemony in the Balkans. By comparison, the hope of the Serbs to renew the kingdom of Dushan is much less intensive; many among them think much more seriously about an advance to the north which would bring them into conflict with neither the Bulgarians or the Greeks. How much the wish to rule the Balkans is alive with the Bulgarians and the Greeks reveals itself in the Bulgarians' speaking of a Simeon II, while the Athenians welcomed their new king as Constantine XII in direct allusion to Constantine XI, the last Byzantine emperor of his name. With the Bulgarians' advance to the Aegean Sea, much of the Greek coastal area comes under Slav rule; the Greeks will hardly want to renounce it forever. It is certainly not unlikely that the Greeks, rooted in the tradition of antiquity, will want to make the Aegean Sea, already economically and nationally Greek, also Greek politically. And in their dreams of the future the Bulgarians probably stray beyond the Dardanelles to Asia Minor, quoting the experience of history that the state which possesses one shore of the Dardanelles has a good chance of getting possession of the other. The acquisition of the European shore of the Dardanelles may seem to the Bulgarians to be a not too distant step in their endeavours. But though these possibilities may partly lie in the distant future, the vision of them already has its effect today. Their realisation depends on various factors, especially on the attitude of the Serbs whose conflict with the Bulgarians has at present become such an embittered one that even their alliance with Greece against Bulgaria cannot be excluded.

What role the Orthodox Church will play in future developments is still uncertain. It cannot be foreseen whether the movement for church unity will gain supremacy or whether on the contrary the church will serve as a basis for national separatism. The Orthodox Churches are the product of politico-national and not of dogmatic differences. The splitting up into several autonomous national churches of equal standing, each with their own head, must not be compared with the schism that separates the Catholic Church from the Orthodox Churches. According to Catholic doctrine, there can only be one all-embracing Christian church which allows no differences and acknowledges only one head; present Orthodox doctrine, however, derives the idea of a national church from the very time of the apostles when the individual churches were to have far-reaching independence and differentiation; the explanation for this can be found in the fact that the apostles had to preach the gospel without interfering in social and national peculiarities. Though dogmatic accord between the Orthodox Churches is presumed, a complete separation of the hierarchy and the independent national organisations is acknowledged from the start, naturally weakening any tendency towards unification.

The new situation brings several problems. It is a matter of course that the Serbian dioceses of the patriarchate will be incorporated into the autonomous Serbian church; what, however, will happen to the Greek and exarchist churches? Unless the Serbs simply introduce Serbian as church language and thus make these churches also Serbian, they could, within the framework of Orthodox views, create Bulgarian or Greek metropolitans within the autonomous Serbian church. It is almost out of the question that the autonomous Greek or Bulgarian churches would exert a kind of protectorate over the Greek and Bulgarian churches within Serbia, but it is also improbable that the patriarchate and exarchate will maintain their rule in these areas. Perhaps the Rumanian churches alone will depend on Bucharest according to special agreements. The Serbian church organisations will certainly undergo changes. In addition, other changes must be expected; ideas concerning these, often of a very fanciful nature, have come from various parties. Though the importance of the religions in national and international life is not as great as it was in previous centuries, the Orthodox Church will retain great influence on state and cultural renewal for some time, because it has always been the leading element in the national struggles for freedom. It is possible that in south-eastern Europe one or another reform movement will pick up certain religious ideas, even the ideas of earlier sects, but the emergence of a strong religious movement is not very probable. Neither in the country nor in the towns is there an appropriate response forthcoming; Serbs and Bulgarians can occasionally be heard to stress that their state organisations are not dependent on church influence.

Nevertheless, how Orthodoxy will come to terms with the religious groups of Central Europe will be very important. It should never be forgotten that the Orthodoxy of the Balkan peoples possesses a significantly democratic streak, as a consequence of their history and experiences; this has to be seen in conjunction with other Western European tendencies which can be encountered among the Balkan peoples. Among these are their sympathy for the constitutional and administrational patterns of Belgium and France. In this respect a strict distinction has to be made between Southern European and the Russian Orthodoxy which is closely linked with absolutism. It is quite conceivable that with a strengthening of these Western European tendencies a kind of Western European Orthodoxy could develop among the Balkan peoples; this might promote the link between the Balkan states and the west. It is misleading to speak of Orthodoxy, Roman Catholicism and Protestantism as three stages on the way from the Orient to the Occident, and even to see a fight between Orient and Occident in the fight between unified Orthodoxy and Roman Catholicism. Above all, as we have seen several times already, no closed rank should be attributed to the Balkan Orthodoxy, and even less to Orthodoxy as a whole; Orthodoxy could not prevent the violent fights between Bulgarians and Serbs, between Greeks and Bulgarians, or the conflicts between Greeks and Rumanians. Except for cases of momentary common interest, there is no relationship of solidarity between the autonomous churches, not even one of tolerant leniency. In certain respects Orthodoxy has something in common with Protestantism, especially with Calvinism. (Incidentally, Russian Orthodoxy seems also to have something in common with Protestantism, perhaps in a different way; otherwise the attempts to join up with the Anglican Church could hardly make sense.)

In making an estimate of the social significance of religious groupings, above all their way of life has to be investigated and not only the dogmatic peculiarities. Orthodoxy and Protestantism are directly opposed in many points of dogma, but not in the behaviour within a social association. Though a union between Balkan Orthodoxy and German Protestantism seems out of the question, there are still enough points of contact which may become politically significant. It is quite conceivable that one day Protestantism and Orthodoxy will join in common opposition to Roman Catholicism. It is widely held that Catholicism paralyses the will, self-confidence and energy of the individual, whereas Balkan Orthodoxy as well as Protestantism stimulate them. Orthodoxy is very adaptable; on the one hand it can, similar to Catholicism, adapt itself to the religious sentiment of broad, uneducated masses, on the other hand it can, as a point of national focus, remain of importance even for people who are indifferent to religion.

We have reached the end of our observations. We have seen the factors that have favoured the development of Serbia and the circumstances that may further this development in the future. The Serbs seem to have fought the Balkan war at the right moment. The political situation was extremely favourable. In addition, their stage of development allowed them to enjoy the advantages of a agrarian state based mainly on an economy in kind while they were already drawing some benefit from a money economy since they were able to raise international loans. The simplicity of its economic conditions strengthened the impact of this peasant democracy. National and religious factors supported political and military actions in every respect, and helped to create a general enthusiasm. The economic, national and religious slogans which inflamed the masses were easily grasped and adapted to the circumstances. There is no doubt that Serbia's success in the Balkan war was largely the result of Turkish weakness, especially when we consider that Turkey concentrated its main forces against Bulgaria and considered the operational areas of the Serbian, Montenegrin and Greek aggressors as subordinate. It will, however, certainly contribute to clarity if we seek to establish what the Serbs owe to themselves and what forces may be at work in the future.

NOTES

* First published as *Serbiens Erfolge im Balkankriege. Eine wirtschaftliche und soziale Studie*, Manz, Vienna, 1913, iv + 41, repr. in O. Neurath, *Gesammelte ökonomische, soziologische und sozialpolitische Schriften (II)*, ed. by R. Haller and U. Höfer, Hölder-Pichler-Tempsky, Vienna, 1998, 250–283. Translated by Robert S. Cohen and Thomas E. Uebel, based on a draft by Marie Neurath.

OTTO NEURATH

5. STATE CARTELS AND STATE TRUSTS AS ORGANISATIONAL FORMS OF THE FUTURE*

The growing number of interventions by the states of Germany and Austria in the fields of production and commerce allow us to discern ever more clearly certain types which perhaps have a great importance for the future. Whether one be a friend or a foe of these developments, one must consider the existing tendencies in some detail.

Two recent occasions in particular made plain even to those who have little interest in general questions of economic organisation that significant changes lie ahead. The first is the German law on the sale of potash, the second is the strategy of the Austrian government concerning production of crude oil. On both occasions the authority of the state assumed a significant role amongst the economic actors and sought to consolidate those organisations concerned with production and sale. Certain reforms can be effected more easily in this way than by the state's restricting itself to fight the large organisations by laws and administrative rules.

It is a measure not unknown in the history of states that institutions, which have grown due to a pressing need without the help or perhaps even in opposition to the state, are no longer fought against but taken over by the state. In Germany and Austria the power of cartels is steadily increasing which has certain objectionable side effects. For many practical people and theoreticians it has been apparent for a long time that fighting cartels from without runs into insurmountable difficulties. Thus the view was expressed that only the nationalisation of various branches of production can bring lasting relief, especially of the mining industry. Nationalisation of other industries is strongly resisted, however, and it is held that this would involve a tremendous change that is better avoided even if many of those involved have no objections against these reforms. Under such circumstances the idea has gained currency for those who wish to retain the individual entrepreneur as far as possible that the state should assume a controlling role within the organisation, perhaps as partner and shareholder. The state would thereby assume the role of leaders of trust or syndicates. As regards as the lack of independence of the individual entrepreneur is concerned, it must be noted that nowadays this appears to be inevitable. Everywhere we see how previously independent firms become dependent on suppliers or customers, how increasingly they lose part of their earlier independence within cartels and especially how they become tied ever closely to the large banks. Everywhere we see the individual entrepreneur make way for the joint-stock company. In short, given the existing forms of economic organisation, the freedom to make decisions in the field of production and trade unavoidably becomes ever more restricted. Collective action is replacing the individual ways of action dominant since the victory of economic liberalism. For those who do become dependent it does not make much difference whether the direction of the organisation is effected solely by extremely powerful private entrepreneurs or under participation of the state. It is only the standing of the few ruling producers or directors of central associations that is impaired by such an expansion of state functions. Perhaps in a little while it will no longer be asked whether free competition or organisation is preferred, but only which form of organisation.

It is a specific constellation that made it possible for the state in Germany and Austria to intervene so easily. To many of the producers, consumers and merchants involved, the state appeared as a saviour in time of need, since, on the one hand, the associations were not prepared on their own to tighten their interrelation all the while, on the other hand, American trusts were expanding their influence even in Europe. In both cases the state was able to intervene largely in the interest of the entrepreneurs. It became possible for the state to support the formation and preserve the existence of large organisations; this succeeded better with the potash producers than with the producers of crude oil or petroleum. The impression often feared, namely, that the state supports individual interests against the domestic consumers, did not arise here, since in both cases questions of export had to be solved. Especially the law concerning potash production shows clearly that domestic consumption can increase strongly as a result of state intervention. But this example also suggests that no special legislation is required for such purposes in all cases, since in earlier times states well-disposed towards agriculture were able to extend preferential treatment to purchases by agricultural associations.

The form of state-influenced associations can differ. The state may be represented as producer or as consumer, as in our two examples. In Austria, the state prominently involved itself through its emergency action in support of the producers of crude oil by creating reserves (declared superfluous by some) and introducing crude oil heating systems in some instances. The state can also assume the right, via legislation, to exercise a veto or to set prices on its own, even to determine production. The state can fix a certain relation between prices, wages, domestic and export sales, so that automatically those measures are advanced which are of advantage to all involved: producers, consumers, workers. How this is possible is shown vividly by the law on potash production. If in this way organisations are created in which the state plays a permanent role and in whose success it takes an interest, either as co-entrepreneur or for its shareholder profit (largely leaving the independence of the individual entrepreneur in place), we readily can speak of a new form of organisation, of the ‘state cartel’. If centralisation progesses further along these lines such that the state becomes dominant, for instance, if it becomes the majority shareholder and thereby influences also the technical organisation of the enterprises, then we can speak of a ‘state trust’. Such an organisation can differ significantly from state monopolies, but forms of state trusts are also conceivable that approach a total monopoly.

Whereas the effectiveness of the state is ensured either by its role within private enterprise or by explicit legislative means, it also is possible to restrict the power of the state more easily in another field, where it takes a more threatening form. The action of the state in Austria against the Standard Oil Company gave rise to great concern for many. Suddenly it could be seen clearly what was obscured before, namely, what immense power is available to the state even without explicit legislation. The state was able in a short span of time to effect a great damage to the interests of the Americans and their allies and it was rightly asked: what prevents Austrian industrialists to be treated in the same ‘legal’ manner. For instance, the state can lift reductions of tariffs and alter them in such a way that only certain firms will be disadvantaged. In this case the state withdrew [use of] the tracks required for the transport of the raw materials and went so far as to requisition the telephones and the storage tanks for crude oil within 24 hours; formally, all these interventions did not go beyond the legal cancellation of existing contracts. But the state can bring its administrative power to bear also in another way, by suddenly caring in unusual ways for hygiene and security. Even though many defend such procedures as self-defense, they could not help feeling uneasy. This remarkable example shows us that, on the one hand, sometimes the need for the expansion of state power in the economy is very great, but that, on the other hand, even the majority of those who approve of such measures in principle abhor the absolutism involved. Such absolutist measures which can damage the economic security considerably can be avoided if the state even in normal times posses enough influence, for instance in order to fight against a foreign trust. If Austria were to receive legislation for the production of crude oil and petroleum comparable to the law for potash production, then there would no longer be a need for such objectionable and potentially wholly arbitrary interventions.

The mood amongst the German and Austrian industrialists and the experiences made so far suggest that an increase in state cartels will find more approval than that of state trusts or state monopolies. It cannot even be ruled out that state cartels become the means by which the growth of private trusts may be checked that are feared by so many. Then it becomes a matter for society as a whole to reduce the overwhelming bureaucracy whose power is always feared where the influence of the state increases. Already large sections of the population are against it and especially the representatives of trade and industry are its sworn opponents. It is an exceedingly difficult problem just how in the course of our [economic] development it is possible to preserve individual freedom and responsible initiative as much as possible, all the while the freedom of competition is coming to an end. However, this question is not related to the fact of the emergence of state organisations, but of the emergence of large organisations as such. The role of the individual within a trust, even within a large enterprise is often less free than within a bureaucracy; one's rights may be much smaller, the dependence all the greater. Not a few would agree with the statement of a German professor at the most recent conference of Social Policy Association that, for the time being, he preferred being employed by the state rather than a trust.

The emergence of state cartels does not mark the end of the development in this direction. The state will not be able to avoid assimilating other associations in a similar fashion, for instance the workers' organisations and the gradually increasing number of consumer associations. Associations of buyers already exist among the state cartels which may soon become reality in Austria. It is only when the most important groups of interested parties are united in such associations that it becomes possible, finally, to remove the restrictions of the production, which unfortunately characterise our current economy, and to do so sucessfully, without provoking crises.

If the type of associations which is represented so well by the potash syndicate were to become more frequent, then even the problems of the local or municipal organisation of the distribution of meat and bread may find a solution under those administrations that pursue an active policy in favour of the middle classes. Nowadays such local organisations would in most cases mean the demise of the independent butchers and bakers. If one did not wish to turn these into dependent workers, then one might find in the form of a local cartel a suitable means which may but need not lead further to a communal enterprise.

The realisation of the organisational forms sketched here is made easier in so far as they bring with them a reduction of the friction between the various interested parties. *Organisations formed for confrontation and conflict would give way to organisations for cooperation*. Even if, given their fullest development, each association would wish to attain the greatest profit, they could be happy still to support another's advantage as long as they themselves gained from this. For that to occur, however, transparency is needed, as well as the ability to effect the desired course of action. Today both requirements remain unfulfilled in most cases. While individual entrepreneurs can perhaps see that, for instance, reducing the buying power of their employees will indirectly damage the sales of all producers, they are still unable to do anything about it.

It should not remain unmentioned that organisations of the sort discussed make possible the unification and cooperation of different branches of production, as shown by the example of trusts. Within [large] economic organisations money calculation can be reduced to a minimum and the possibility cannot be excluded that here too state cartels and state trusts prepare the ground for new developments.

NOTES

* First published as “Staatskartell und Staatstrust als Organisationsformen der Zukunft”, *Deutsche Wirtschaftszeitung* 1910, reprinted in Otto Neurath, *Durch die Kriegswirtschaft zur Naturalwirtschaft*, Callwey, Munich, 1919, 152–155. Translated by Thomas E. Uebel.

OTTO NEURATH

6. THE ECONOMIC ORDER OF THE FUTURE AND THE ECONOMIC SCIENCES*

The economic system characteristic of the World War and the lasting changes caused by it were discernible in broad outline already beforehand, given the trend of general development and the specific circumstances of the war. It had to be assumed that a war lasting for many years would favour the development of institutions of an *administrative* economy and *in-kind* planning, as well as the creation of an *economic plan*, on the basis of which the present capacities were to be deployed in the interest of the state and exploited as efficiently as possible. Definite predictions about times of war are easier to make than predictions about times of peace, since wars determine the actions of the citizens more clearly than peace does. During great wars, the centralised authority of the state generally gains the upper hand over individualism, whereas in peacetime it is possible to encounter economic orders of highly-developed individualistic character as well as orders in which the government seeks to determine the individual's place in the whole through systematic interventions. Not surprisingly, competing forces prepare for the future peacetime state already today. Some try to develop the current means of organisation in order to retain them for peace, since they protect the individual from the random elements of the economic cycles and allow the exploitation of the resources in a goal-directed manner (besides also allowing an immediate influence on incomes). Others consider the system of war economy fundamentally flawed and unbearable and long for the free competition which eradicates everything inept and encourages industriousness. Although the free market leads to unpleasant forms of employment and a fair amount of misery, that income in a planned economy can be gained by cronyism is as little desirable for them as the apathy caused by the security of existence.

Even if one were able to determine the effect of one or another of these economic orders precisely and indisputably in some intricate chain of reasoning, this would not be enough to influence the will in any unique way – for what appears as advantage to some may look like a disadvantage to others. We are still a long way from even an approximate agreement on the causal relations involved. If deeper reasons for the resistance against the organised economy are discussed at all, the argument that the free market had failed in times of war is usually countered by the claim that it was only the market that coincidentally was in place at the beginning of the war that had failed and that the truly free market would have secured the supply – indeed, that it was the imperfection of the market, the existence of cartels and monopolies that was to be blamed for everything. Others again admit that in times of great turmoil some regulative interventions make sense, but that in times of calm and continuous development it is the free market that stimulates economic life and secures the most efficient satisfaction of needs. As significant as knowledge and experience are, we must not overrate their historical importance. We thus should try to discern what exactly the circumstances are which have come to prevail as a result of several decades of development.

Although it is difficult to describe the future peacetime economic order directly, a closer look at the economic system in transition will yield some hints about future developments. (It seems to be out of the question that the pre-war economic order could be revived such that the current system remained an intermezzo.) The structure of the transitional economic order is reasonably clear. First attempts have already been made to put it into practice and advocates of different programmes agree that it will take the shape of a planned economy at least in the short and medium run.

Some wish to have an economic plan for the transitional period so as to help avoid confusion during the reconstruction of the economic order. They do not believe, for instance, that the mechanism of the free market, by itself, will ensure sufficient imports of raw materials or will allocate the workers efficiently. Others in addition dread the possibility of crises which could damage the economy, in particular those crises deriving from the great revolutions evolving from the mechanism of the market itself. Even though during the war there were shortages of food due to the isolation of the country, these did not count as crises, since these restrictions were not caused by the internal mechanism of the system. Even if bad mistakes were made concerning the supply of food, the general aim of the leaders was to stimulate production as well as consumption, whereas the free market acknowledges profit as the only goal and thus in principle allows for the direct or indirect limitation of the satisfaction of needs, if it increases the profits of the entrepreneur. In the war economy, however, the most efficient satisfaction of requirements was aimed at, either by granting high profits as incentives, or by directly forcing the production of some goods, or by punitive sanctions of deliberate restrictions of production or inefficient uses of resources.

The transitional economic system of the near future will determine, for instance, the allocation of cargo space to the different groups and the allocation of resources for the production of luxury goods and necessities. In contrast to the free market, such a system may be called an *'administrative economy'*. This is not to make any claims as to whether the executive power should be in the hand of the state or in the hand of an organisation of associations, nor as to which power factors should be decisive, or which form the mechanism of the distribution should take. By contrast, in using the expression 'state socialism' claims appear to be made with respect to all of these issues.

Experience shows that the concern about a crisis right after the war or after a short recovery is quite justified. Lowe aptly illustrates "the evils of transition" in his observations on the Napoleonic Wars, namely, the evils of the transitional period. Some even contend that after a peace-treatise the food supply of large parts of the population will be worse than during the war, even though it is obvious that at least the technical constraints for the satisfaction of needs will be unchanged. The transitional economy may protect us from unemployment and inefficient use of the means of production. If it did, nothing more and nothing less than the solution of the problem of crises would have been achieved.

Everything seems to work in this direction, since the inclination of people to acquiesce to restrictions of output is on the wane, as is the fatalistic acceptance of crises which were once widely viewed as inevitable side effects of the market mechanism or of changes in the production processes. By now it has been realised that everything is amenable to intervention and that significant changes can be made overnight. The construction of economic possibilities – as occasionally attempted by Fourier, Cabet, Popper-Lynkeus, Atlanticus, Wilhelm Neurath, Hertzka, Franz Oppenheimer, etc. – is now the order of the day: utopian ideas have become socially accepted. It will not be long before economic theory will start to systematically examine possible economic orders on their economic efficiency. Of course, the extent to which a more efficient system may be put into practice would still need to be settled. The belief that comprehensive changes can only be made over decades by incremental advance has been shattered. Perhaps some will even accept the opposite point of view and thus underestimate the historically founded sentiments and customs among many other motives.

What is most urgently required as a basis of economic investigations is a survey of the means of production at disposition (machines, streams, rivers and reservoirs, labour force, inventions, etc.), of the raw materials, etc., as well as of the demand for each. Once the technical production possibilities have thus been ascertained, one can go on to examine to what extent which institutions serve the satisfaction of needs. The quantitative analysis of the production possibilities, whose practical realisation is at issue, can be contrasted as *calculation in kind* (in real terms) with *monetary calculation*. The latter mainly deals with prices and profits and often assumes that a higher monetary income represents a more favourable life.

It was a monetary analysis that Colquhoun gave when he described the economic order of England during the Napoleonic wars by giving details of the production of milk, meat, the import of cotton etc. in Pounds Sterling, rather than in real quantities. It was a monetary analysis that was employed when, a short while ago, a loss of profit was shown on part of the local authorities in summer time due to the decrease in sales of gas to the public, even though the authority also incurred lower costs for the lighting of its own offices. It signalled the advance of the in-kind calculus when many objected that what summer time [daylight saving time] ultimately saved was coal and labour. If summer time were an issue for the free market, the producers of gas would presumably oppose its introduction and maybe put about the idea that summer time was not fashionable any more.

Calculation in kind is of essential importance for the leading circles today. It is also likely to become the basis of theoretical economics. In itself, it does not represent any one socio-political or economic standpoint, it is merely a way of looking at things. Economic institutions and whole systems of economic organisations can be investigated by the in-kind calculus and it may be found, for instance, that under some circumstances the free market is more efficient than the planned economy. It is conceivable that the free market, in the form prevailing at the beginning of the war, may experience restrictions in output and the like, but that by concentrated effort the overall outcome would still be more favourable than the one of the planned economy, which improves the organisation of the production process, but has psychologically paralysing effects. What is essential is how we formulate the problem to be solved. The focus does not lie on the change of prices, of the interest rate, of wages, for their own sake but on their influence on the satisfaction of needs. Even economic orders that make no use of these concepts may be examined on their efficiency.

The in-kind calculus is likely to bring about a reorganisation of statistics as well. Production, consumption, export, import, stock-keeping must be recorded quantitatively in their mutual relations. Consumption statistics, until now often an appendage of social policy, are likely to become the focus of attention. While the in-kind calculus is applicable to all economic phenomena as the basis of a theoretical analysis, the free market hardly requires it in practice, since the free market only seeks the maximisation of money profits. The administrative economy in the form represented by the transitional economic system, however, requires the in-kind calculus so that certain [ameliorative] measures can actually be taken.

The administrative economy of the transitional period can restrict itself to the *state regulation of the market conditions* and the centralisation of specific industries of import and production. This can lead to the nationalisation of important productive industries and to the nationalisation of the credit system and the chains of distribution. Yet the economic system could also take the shape of a *system of associations*, as in Wilhelm Neurath's proposal for the pan-cartel system.[1] A system of associations would exert roughly the same influence on production and distribution as a state administration, yet its regulations would be based on a free agreement secured between parties that are independent in some sense. The distribution of income can be the same with all these different possibilities. A system of associations works differently from individual cartels in several ways. It is not in its own interest to increase profits by laying off workers or wasting natural resources, since it will directly be subject to the negative consequences. A system of associations can regulate production in such a way that the individual associations derive advantages from the full use of the resources, even when the difference in the income levels remain arbitrarily high. The question is now what further effects such a transitional economic system may have, be it state-regulated or based on an organisation of associations.

This general approach necessarily leads to a certain stability of the economy; there will be no more sudden changes with disastrous consequences when associations fix prices, output, wages etc. in free agreement or under state influence. Real demand will have an immediate impact on production. Every change of production will have to be agreed to in the whole system; it would no longer be possible that individuals will shatter the entire economic system and maybe even damage themselves by obstinate behaviour. We encounter this desire for stabilisation also in decrees about rent payments or minimal wages. Another example is the growing tendency to guarantee a certain piece of land to the peasants by withholding it from the creditors, as this has been practised in many countries for a long time. All kinds of proposals about new settlement policies are in the air. As different as their origins and aims may be, they have one thing in common: the elimination of the free market and the development of a collective basis for the allocation and exploitation of agricultural land. What used to be perceived as beneficial, the integration of the peasant into the free market, into the monetary order, is now seen as problematic by more and more people, since thereby the peasantry looses its stability. The stimulating or paralysing effects of such a general stabilisation of life cannot be examined here from a psychological or sociological perspective. It is widely believed that the elimination of the economic cycles, which destroy and recreate, would remove an essential incentive for the development of the individual. Others contend that an economically secure life and the elimination of misery would allow the employment of the energies thus freed in other areas (the absorption of higher human abilities in economic processes accordingly paralyses the cultural development). Some prefer the risk of the free market to the mercy of some association or local authority, which might allocate the food supplies from existing contracts mainly to loyal party supporters. And with alarm they see protectionism taking the place of the economic cycles, with which it is increasingly becoming closely related.

The tendency towards stabilisation also extends to the labour market. It is of little importance which method is chosen to eliminate unemployment and insufficient income levels. The level of individual incomes will depend more and more on the balance of power. The allocation of the workforce will also be influenced centrally. For a while one may try to make do with the existing regulations about work conscription even after the war, later on one is likely to search for different means, since immediate compulsion is felt as oppressive. Some restrictions for firms of certain categories may occur, e.g. by cutting off their supply of workers. In this system, individual workers would not be compelled to do a certain job, only their choice of occupation somewhat circumscribed. The resistance against such measures most likely can be countered by the advantages gained from the stabilisation of incomes and a far-reaching reduction of unemployment. Occasionally it was thought that after the war the working conditions would be worse (where one used to work from 8 a.m. till 7 p.m. one would have to work from 7 a.m. till 8 p.m. instead) and that at the same time mass unemployment would occur since many of the jobs formerly occupied by men returning from the war will have been taken by people formerly under- or unemployed, but now fully integrated. Yet if the workforce could not be absorbed – surely impossible in a planned economy, as there are more than enough projects in the common interest – unemployment would only occur as a consequence of the free market. An organised administrative economy would instead turn to a general reduction of working hours. Already before the war it happened that cartels that reduced their production offered the workers the choice between partial redundancies and more unpaid leisure time. In the common interest the workers generally chose to have more leisure. If in the transitional period the productivity of the machines suddenly rose significantly by new inventions, the result would hardly be large redundancies, but instead a general reduction in working hours. A hundred years ago, of course, when the free market prevailed, the invention of machines lead to the employment of children and to an increase in working hours due to the rise in redundancies, until the reduction in working hours was introduced, often after agonising struggles that challenged the constitution of the state. The reduction of working hours seems to be a tendency of the present age and can occur without damage to relative competitiveness provided it is introduced in all nations at once.

Such a development is the more probable as the in-kind calculus renders clear the idea that production only occurs for the sake of consumption and that an increase in production can only be generally profitable if the time available for consumption is equally increased. Many commodities, such as books, housing etc. are put to insufficient use because their owners have to spend their time producing ever more new commodities. The traditional economic order tried to create artificial waste with the help of fashions and the like, in order to at least partly compensate for the lack of time available for consumption. It seems undeniable that the traditional proportion of time dedicated to consumption and production respectively is far from optimal for all classes of the population. A large part of the people keep each other busy without this yielding any net gain in pleasure. In some respects such behaviour is conditioned by the character of a people. While in some areas entrepreneurs frequently ask themselves to what extent they would reduce their time for consumption by expanding their business, in other areas they do so less often. The reduction of working hours is also likely to be favoured by the increased use of technology after the war, which in turn has many different causes itself. Partly the change will be caused by the development of new techniques and instruments during the war, in particular of means of transport that afterwards will be put at the disposition of wider circles too (automobiles, cable railways, etc.), as well as industrial sites for their production. It will also be partly caused by the wider dispersal of technical knowledge and the rise of demand for technical products (many peasants only recently recognised the advantages of technology). Concerning the excess supply of workers, supposedly brought about by the lack of raw materials right after the peace treatise, it can be pointed out that many works could be undertaken that require little foreign resources, such as canal construction, general reconstruction works etc.

The development of the associations is likely to lead to a further elimination of wholesale business, since they largely absorb the latter's original function of finding producers and consumers and putting them into contact. During the war so-called chain trade was often objected to as a superfluous intermediate step between producers and consumers, just as many people currently oppose the support of useless businessmen by the community. The old catch-phrase that competition drives down prices has given way to the new one that the more businessmen are involved in the sale of some good, the more expensive it is going to be. People note that the outlets of the same industry sell their goods in close proximity and that consumers have to pay for the rent and the upkeep befitting the social standing of each individual businessman, even though a fraction of the people thus occupied would suffice for the distribution of the goods. The transitional economy is able to organise the transfer of such useless middlemen into economically more profitable occupations more smoothly than the free market, which often did this only by destroying many livelihoods. It is characteristic that many teachers at commercial colleges stand up for 'social trade', a trade that is really more a mechanism for distribution. But there are many signs that trade will be reformed substantively in this direction.

The administrative economy, in the form partly established by the war and developed further by the transitional period, allows for even further-reaching interventions. It can exert a significant influence on the real income of all without excessive upheaval. Let us call 'income in kind' all the products consumed by the individual, whether they were purchased or not. So far there existed no proper name for this category in the terminology of economic theory dominated by the monetary order: 'real income' was rather known as the quintessence of goods that one could purchase with one's monetary income, and 'income in kind' instead as the goods which one consumed without having bought them for money. In the free market, the distribution of the incomes in kind can only be modified by fundamental changes in the whole of the structure of a society. An administrative economy can achieve this with the general use of *price differentiation* with respect to the income, by decreeing that a buyer with less income pays a lower price for the same good than the buyer with a higher income. This price differentiation has been widely used in many towns during the war; in co-operatives a grading of the rents according to the number of children and income has also been tried out. Price differentiation has the advantage of great flexibility; far-reaching changes in the income in kind can be achieved without having to modify the money profits of the sellers. In times of peace, price differentiation was sometimes used by some entrepreneurs to raise profits, now it is of primary interest for income policy. It is quite likely that the principle will spread further, in particular in purchasing goods that are priced variably according to the cost of production. Such a method could eliminate income gained by those who produce under more favourable local conditions than others. Whether it is advisable to generally do so is a different question. In any case, the tendency is towards a recognition of the cost of production; economic theory must investigate systems of production which follow these principles. Price differentiation is most easily enforceable where a reselling of the goods is easily prevented; during the war this was not difficult even for food as this was rationed. Clearly, a further development of price differentiation – the details do not matter here – will necessarily turn the retailer into an executive organ of the producers or a centrally directed wholesale trade. Otherwise retailers would tend to accept buyers of the wealthy classes only. If there is one universal price, the increasing demand of the wealthy classes drives up prices for the poor as well, whereas under price differentiation their prices may then decrease.

We witness the imposition of increasing restrictions on the free market based on a monetary order. The existence of a system of [producer and consumer] associations will reduce the power of money in other ways too. If associations – first there will be those for raw materials, semi-finished goods, food – enter into negotiations with each other simultaneously, the respective prices will have to be co-ordinated. Whereas the prices usually adjust themselves successively by the market mechanism, the obvious solution now is to agree to a price system right from the beginning, or to fix it by state authority. The level of prices can be set by the power of the associations or the state in such a way as to determine certain kinds of income in kind. It is possible that for products the output of which will be unknown, such as crop and harvests, a corresponding share of the actual natural yield will be set as income. If prices were stable for a longer period, demand would no longer influence prices; instead, insofar as it would be used, nominal money would merely represent vouchers that entitle to the transfer of goods among the quantities at disposition. Of course, once the system of associations has developed that far, even these parts of the monetary order could change. It may turn out that it is not efficient to let money buy all sorts of goods. There would be the danger of certain commodities being bought in quantities different from those fixed in the agreements or in the economic plan set by administrative decree. One could thus restrict the capacity for unlimited transfer of goods that money represents, by only admitting free choice of some categories of goods. The war economy used similar institutions. Occasionally it was possible to receive some amounts of bread, flour, potatoes or beans for the same ticket, but it was impossible to use the ticket meant for coffee to receive potatoes.

In addition to all these restrictions relating to the peculiarity of money as a voucher for an unrestricted range of goods, we will have to take into consideration a decrease in the power of money. In an administrative economic system of associations, there is no possibility of inflation or its equivalent. Given the yearly negotiations between associations about an agreement on the exchange of goods the possibility of increasing the market power of individual participants by the creation of money or credit will vanish more and more. This could be achieved instead by granting the state immediate power of disposal. In such an association-based economy much would become clearer and more transparent. Power will be perceived as power and will not be concealed in the money form. It seems quite likely that this can be taken as the direction of future development.

The development of *cashless transactions* will have effects of a similar sort. In as much as this impinges on the organisational structure, the in-kind economy will indirectly be favoured, as only the in-kind economy, but not the monetary economy, is amenable to an organisation based on economic planning. Such a method of cashless transactions will thus not just foster the dethronement of gold, but will also initiate the dethronement of money. Money, probably a creation of foreign trade originally, invaded the in-kind economies thousands of years ago, which were then organised in varying degrees. Money acted partly in a liberating, partly in a destructive capacity. It used to provide a link between foreigners, but then alienated neighbours, and members of the same community became each other's competitors and enemies. The creditor became the enemy of all, his hand turned against everyone, and everyone's hand against him. Only the emergence of inferior forms made money essentially dependent on being legitimised by state and society and thereby contributed to its acceptance. The climax will be reached with the introduction of cashless transactions; they encourage the centralisation of credit which is advancing independently.

The power of the banks over production and distribution will probably come under collective control in the near future, just as that of the big associations, either by integration of the banks into the system of associations of producers, creditors, and consumers or by direct intervention of the state. The development of cashless transactions will initially increase the power of the banks, but also allow for state interventions of all sorts and facilitate the control of incomes and the control of payments. In particular, it provides a tool to monitor closely the trade with foreign countries, especially if irredeemable giro-money (i.e. the exclusive use of account-payee crossed cheques for larger payments) will be introduced as asset-backed money. Models of 18th-century practices still may prove stimulating.

With the centralisation of payments and the clarity of the market mechanisms thus achieved, the system of associations along the lines of the transitional economy will then lead to the further liberation from money alluded to above: goods will be exchanged for goods by the mediation of central organisations. The in-kind income of the individual will become the focus of attention of the whole of the economic system. The banks would aim to dispose of incomes in kind which they would then credit to the associations, i.e. machines, land and the in-kind income of the workers, just like they credit money today. The distribution of income, which would be a consequence of the balance of political power more than it is today, may not change too much initially. The structure of total output, however, will be different; in particular, certain gains from purely monetary transactions, profits for middlemen and similar elements of total income will disappear entirely. It is a further question whether the immediate influence of all the power factors on the natural real income will have different effects than the exertion of power via the monetary order.

The transition to a moneyless economy is made very difficult, however, by the debts outstanding, in particular the national debts, as an analogue in an in-kind economy is hard to find. For monetary debts it is essential that they exhibit constant nominal value. That means, for instance, an advantage for the debtor when the purchasing power falls. The existence of money debts can significantly change the distribution once the quantity of consumption goods is altered. The question is whether such peculiarities should be preserved in the in-kind economy. Maybe the principles to be employed with respect to future liabilities will finally be worked out in considering these questions. One could settle on agreements which would not allow a change of the distribution. That could be achieved by, say, admitting pensions to secure a claim to the type of income in kind of the corresponding income group. The proposal to set the pension in such a way as to keep in-kind income constant, which is voiced occasionally, could lead to a preferential treatment of the pensioners in times of decreasing productivity, but surely that is not intended. An agreement could rather be made which prevented in principle the falling of the income in kind below a certain minimal level. The point here is not to examine the different possibilities, however, but to determine the thrust of objections against money debts and to state in broad terms in which way their change into in-kind rents would have to be treated.

These transformations are all the more important since a series of phenomena of an entirely different origin suggest the immediate adoption of institutions of an in-kind economy. During the war, the industrial firms realised very clearly that the procurement of food for the workers is just as much part of industrial policy as the procurement of raw material. Often they organised this themselves, by supplying food to the workers at the initial prices instead of raising their wages, or by producing foodstuff themselves, or by leasing agricultural land. It is possible that a kind of 'extended mixed factory' develops, and that food production is actually carried out by the industrial associations themselves, or at least continuously controlled by them, in the way this is already done in some towns. Ultimately, this will lead to *in-kind wages* paid to the workers. Such has already been initiated with staggered wages, that take account of the changes in food prices etc.

In the manner just sketched, an interest group of agriculture and industry may be formed, in particular when the banks, which finance industrial enterprises, at the same time give loans to the agricultural areas that are required for the support of the workers. In such a way a safe market can also be created for the products of industry. It is hard to see what the further consequences of such an integration would be. At any rate it could eliminate many conflicts of interest; this is but one general consequence of the system of associations. It can also reduce the conflict between import and production, by letting the producers deal with the import themselves or at least by transferring to them the net profits made with imports. As the import of butter can ruin dairies, often solely the consumers were charged with an import tax, while the producers themselves could import butter with profit, as long as the gain made from the import compensated for the loss made in production.

But it is not just the wages that take an in-kind character. The proposal has already been made to pay part of the salary of civil servants in kind, or, what amounts to the same thing, to supply them with goods at a fixed price by state decree. In the context of an association-based administrative economy this represents a combination of the different ways of price formation. While usually the wages are fixed on one market and the prices for food on another, now an inseparable relation between the two will be set up. This will develop into a complete price system, set by common agreement and of a fundamentally in-kind character. Money will be no longer a decisive factor then.

In this context it is significant indeed that barter has been thriving during the war. It is up to the central authorities to what extent this development is to be exploited. In some areas one has already begun to organise the direct exchange of goods. Barter could be integrated in the system sketched above. The entire development seems to have progressed so far that it can no longer be stopped. It is of minor importance that the spread of confiscation and requisition among peasants, who were not used to such, yielded larger quantities of money and in this sense favoured the monetary order.

The in-kind economy, as we have seen, is currently closely associated with the administrative economy. The monetary economy in its developed form, however, is essentially a free market economy. The war has thrown the individual nations back on their own resources and has thus shattered the monetary order that is of international character in the first place. Even if the forced or voluntary autonomy of the national economies may not last for too long after the war, the development of in-kind economies and administrative institutions will make itself felt nonetheless. This World War, like other wars lasting a long time, has contributed to the substantial reduction of the differences between the different national provinces. As during the Napoleonic wars, forced isolation became the origin of many significant inventions and reformations. Every nation made an effort to develop all branches of agriculture and industry. The current tendency of economic development makes it look unlikely that the newly created industries will be fully exposed to foreign competition after the war. In addition, the elimination of foreign firms and enterprises substantially facilitates state intervention and renders more difficult any interference from foreign nations.

International trade will certainly be busy after the war, but it will be oriented by collectivist principles, since the nations will try to import those goods that are most urgently required and to export those they do not need themselves. It is quite probable that the exchange based on compensations in kind, started on a large scale during the war, will be continued even after the war, even though at the time exchanges were also still settled in money terms. For certain kinds of goods measured in natural quantities, one might again allow for a certain quota of others. Trade agreements would deal less with tariffs, but instead with quantities of goods admitted by the different countries. A form of in-kind economy will be encountered in international trade as well. This is all the more likely as there will certainly be mutual trade restrictions administered by the states. In-kind calculations will be decisive again and again. The mere fact that exports yield money will not be sufficient to make them desirable from the perspective of the state. The export of important metal products and the like will only take place when important goods are received in return and not precious underwear or jewellery. It will be pointed out ever more emphatically that all the large industries are ultimately maintained by the taxpayer's money and monopoly gains. Whereas in the free market economy a price was determined automatically and not evaluated from a social perspective, a price set by associations under the control of the state is a direct result of power relations and will be perceived as an achievement of the society as a whole. Collectivist criticism will set in at every individual position and exports and imports will be evaluated by means of the in-kind calculus in respect of their efficiency in satisfying economic needs.

The spirit of the economy in kind may well find expression in the peace negotiations. It is possible that war compensations will be paid in kind and not in the form of money. It is a well-known fact that even the most substantial monetary compensations cannot shift the balance of power, if the payment is not spread out over years like tributes were. The sudden inflow of money into the victorious country will have the unfavourable consequence of inflation, while the defeated country can compensate the outflow of money through money creation etc. Matters are different if quantities of metals, of coal etc. are required as compensation or if a certain share of the output will go to the victor. It would be in the spirit of this development if in the near future taxes would occasionally be raised in-kind.

There are many indications that in most of the countries the structure of the economic order of the future will take the form of collectively organised associations, for instance, in the way we encountered them in times of peace in the German cartel for potash. Such state cartels or state trusts (to use that name) were described already in peacetime as the economic systems of the future. The civil service did not develop in the war to the extent that it could immediately take over the administration of the economy and the transformation of entrepreneurs into civil servants, which was occasionally assumed, does not seem likely either. Although individual entrepreneurs and associations will have less power over the production (this is unlikely to change), the influence of industry on the whole of the economy has increased in some respects due to its close contact with the government. For the tendency of development sketched here, it is quite irrelevant whether the administrative economy will be run by the state itself or by state-controlled associations. The distribution of income would be different, of course.

Yet whether one form is chosen or the other, the group of people that will exert most influence will remain by and large the same; whether someone has the position of a president of a bank or of a director of a section [of an association], does not make much difference, even less, whether the man who marries his daughter will join a bank or a state office.

With the organisation of the war economy, industry has taken a somewhat collectivist form of organisation in spite of all self-interested activities, a form that probably will not be undone entirely. The system of associations brought about in most countries by the war is ultimately based on organisations that originally were intended to serve the personal interest. The direction of development goes towards the use by the state of institutions originally meant for the privileged members of society: cartels, associations and similar groups. The fact that the system of associations was fostered in times of peace on both individual and collective grounds shows particularly well that it represents an underlying tendency the development of which conforms to the spirit of our age, however individualistically minded the consciousness of some individuals may be today. Even the less socially minded entrepreneur is required by the structure of organisation, as member of the leadership of a war unit, to pursue the interests of the community as well as his own for at least some time. He may also unintentionally think in a more social spirit than if he only had power over a relatively small sphere. He sees more clearly that the progress of the whole is to his benefit too, in particular, he might find himself in the position to actually realise advantages for the whole which also benefit him; this is a position he was never in before. The civil service has come to appreciate the power of entrepreneurial organisations to protect themselves from certain interventions and feels able to co-operate with them more smoothly than before. It can be assumed that besides the state-controlled associations also the monopolies in the proper sense will play a role, partly to ensure demand satisfaction and partly for fiscal reasons. In this context nationalisations would not initially affect the income of the ruling classes in any substantial way, but merely reduce their sphere of influence.

Where nationalisation proper is not introduced, the integration of the entrepreneurs in the administration of the economy may perhaps even strengthen the absolutist spirit already characteristic for the administrative economy in the area of production. Most entrepreneurs – even very socially-minded ones like Abbe[2] – fought against a constitutionalism of production which would grant the workers some influence. Even if the entrepreneurs now had to act in the interest of the state in their new positions in the context of socially controlled associations, they will still try to administer their areas of competence in an absolutist manner like many civil servants. A change does not seem likely in the near future. One can expect that the public monitoring of the end results takes place in an increasingly democratic spirit. Within production, however, a kind of enlightened economic absolutism may well prevail. It shall not be examined here whether the development will give way to co-operatives in the distant future, nor in what way the strongly centralised economy of the future – independently of whether it gives more or less freedom to the individual – will later be overcome in turn.

Having gained influence on state power, the workers probably will influence directly the policies on housing, income and food supply, as well as work force allocations and emigration issues. Their influence on industrial and trade policy, however, will be restricted in the transitional period mainly to appeals via representative bodies. From these bodies a distinctly socialist approach can be expected.

The tendencies which pave the way for the future economic order are mutually interrelated. By and large, there is a turning away from the money-based free market towards an administrative economy based on in-kind calculations, which generally seeks to base all measures on an economic plan in real terms. Just as the free market has never gained universal acceptance, the administrative economy will not gain universal acceptance either. It is to be expected that right from the start individual restrictions will be resisted by impromptu movements which will attempt to abolish any subordination of the individual under the whole. Yet it is pretty unlikely that the monetary order will be re-erected once eliminated, since it was infected with inexpedient peculiarities which, once eliminated, do not demand re-instantiation. Rather, one might expect these smaller groups to receive separate economic rights and support from the state or the associations so that they can realise their desired form of life without interference, with a certain autonomy and independence within the context of larger communities. The elaboration of these distant possibilities must be left for a later time.

All these changes probably mean the end of economic crises and depressions. At the same time, the involuntary reserve of productive forces will disappear, which existed previously due to underemployment and facilitated the present war. It is not impossible that the economy will promote peace between the nations once it is given the ability to fully exploit its resources, especially since the impetus inherent in the earlier economic order of expanding to foreign countries, even before the own nation was served sufficiently, will have been weakened substantially. Perhaps one will seek to enlighten one's own country before making efforts to equip far away peoples with the gifts of culture they spurned initially.

We have seen how the restriction of the power of money and the advancement of the economy in kind is visible everywhere. If nonetheless little attention is paid to these tendencies, this is due to the almost complete neglect of economics in kind on the part of economic theory, which influences the general opinion. Theoretical economics showed little interest in administrative economies and exchange in kind, since there the many stimulating questions concerning free market exchange are missing. Even if occasionally investigations not involving money were undertaken, they were almost exclusively focused on an application within a monetary order or within market economics and almost solely guided by the desire to introduce units of calculation. In addition the view held sway that economic orders without money belonged to more primitive times only. The proof that barter economies are necessarily inferior to monetary ones was never attempted, however. This attitude explains also the almost total neglect of those highly developed institutions based on the in-kind calculus of the distant past. The examination of the Egyptian cereal trade by Preisigke, for instance, was almost never acknowledged in the economic literature.[3] As soon as one starts to study these sciences based on the calculus in kind (this is to be expected in the very near future), rich sources will open to the researcher which until now have been constantly overlooked. Scattered observations will assemble to form a coherent picture and a history of economy in kind will emerge that does justice to tendencies towards and institutions for it that have never disappeared. Facts which until now appear to be an exception will be given an important place. The economy in kind will appear as an organisational form from the past, but also as the goal of comprehensive contemporary efforts to organise the economy. The monetary order, on the other hand, will show itself to have been a transitional stage, since it is fundamentally unsuited to such a thoroughgoing organisation as the administrative economy.

Economy in kind has been much strengthened by the expansion of the military economy during the war. The idea of a macro-economy in-kind is reflected in it. Even if the future development is unlikely to follow the tracks of the military economy, it provided an important model. In the end the modification of the monetary economy and the partial transformation into an administrative planned economy more or less explicitly based on calculation in kind demands less of a psychological change than, for instance, the abolishment of serfdom or similar reforms. The institution of money is indeed interspersed with conservative traits and is in part only comprehensible from tradition, yet it is also of a strongly rationalist form. A reconstruction of the economic order which satisfies rationalist thought will therefore remain within the limits of psychological habit.

It will take some more time, of course, until it is generally recognised that an economic order can be imagined in which production and distribution will be settled without some unique fundamental measure, neither the existing money, nor some substitution money, nor any other such thing. Instead, the different branches of production will supply equivalent quantities of bread, clothing, housing etc., while the income of the individuals will in turn consist of housing, clothing, food, etc. The incomes in kind may be classified in groups, which are characterised by certain quantities and qualities of food, housing, clothes, etc. This possibility must be emphasised, since even radical reformers wish to retain the traditional individualist and atomist perspective, which seeks to reduce all phenomena to quantitatively measurable elements, and to derive the whole by their summation, just like money was supposed to do.

The economic order and economic thought will change in fundamental ways. People are unlikely to be more noble-minded than they were before, but many unpleasant events made possible or even necessary by the organisational peculiarities of the free market may disappear. Even if an economic order cannot automatically enhance culture, at least it can help to avoid to lower it below the level set by the character traits of the individuals. Many have voiced the opinion that the peacetime free-market order of the past fostered the spread of inferior products since people were persuaded or even forced to purchase unwanted goods. Free competition is said to have encouraged a system of mutual oppression and also often required unpleasant measures. People who would have wished to work for the improvement of the whole, if this adversarial system had not existed, were always pushed aside. In the economy of the future too, it is likely that individuals will meet in opposition, but it is also possible that the economic order will not right from the start disadvantage those who wish to influence the culture directly. Opponents will face each other on the same basis, as it were. Of course, the objections against the administrative economy are not insignificant either.

In all quarters the opinion is voiced that the economic sciences are in crisis. Some tried to explain this from external reasons, others suspected deeper grounds. The above illustrations suggest that a fundamental change of thought will take place also in the economic sciences. The pleasure of consumption and the woes of work will become the focus of attention. The efficiency of the different economic orders will be examined systematically. Prices, wages, interest rates, etc. will be considered as possible components of certain orders, but only if they are required by the satisfaction of needs. Besides that, one will also be able to appreciate economic orders that know none of these things.

This transformation will have as a consequence the total reorganisation of the economic sciences. The significant achievements of theoretical economics, of the theory of the free market and of the theory of finance will not be lost. They will receive a new place in the context of a more comprehensive economic theory, however, which would be a theory in a different sense. The in-kind character of commodities and services will receive more attention than before. The theory of finance in particular will require a fundamental reconstruction, since it was too much orientated towards the monetary order. But even its transformation into the science of government will not really be possible, because, as pointed out above, ‘market’ and ‘administrative economics’ will no longer be mutually exclusive terms. The differentiation of prices and of taxes may be treated in the same context. Premiums for production, which some state office may pay out, will be grouped with certain profits according to their consequences.

The stagnation of the economic sciences will give way to a massive upturn, interests historical and theoretical as well as practical will be done justice to. By genuinely absorbing and researching the new arrangements, the economic sciences will preserve them for the future. The present changes of the World War might have become widely accepted even in other economic orders, but it is characteristic of our age that something of this will remain after the war. Just as the desire to have an economic plan manifested tendencies towards calculation in kind in consequence of war practices, the acceptance of the calculus in kind as the basis for all economic considerations will represent one of the most important consequences of the war in the area of theoretical economics. Calculation in kind will be applied in the domain of the monetary order as well as in the domain of barter economics. The question is just how quickly science will implement these changes. Everything suggests that they are unavoidable.

NOTES

* First published as *Die Wirtschaftsordnung der Zukunft und die Wirtschaftswissenschaften*, Verlag für Fachliteratur, Berlin-Wien, 1917, reprinted in Otto Neurath *Durch die Kriegswirtschaft zur Naturalwirtschaft*, Callwey, Munich, 1919, 159–173. Translated by Christoph Schmidt-Petri and Thomas E. Uebel.

1. [See Wilhelm Neurath, *Gemeinverständliche national-ökonomische Vorträge*, Vieweg & Sohn, Braunschweig, 1902, 259–308. Eds.]
2. [Ernst Abbe, physicist and philanthropic industrialist in Jena, founder of the Carl-Zeiss-Foundation in 1896. Eds.]
3. [See F. Preisigke, *Das Girowesen im griechischen Ägypten*, Strassbourg, 1910. Eds.]

PART 2

EARLY CONTRIBUTIONS TO THE THEORY OF ECONOMICS AND SOCIAL SCIENCE

OTTO NEURATH

7. ON THE THEORY OF SOCIAL SCIENCE*

Contents: 1. The System of the Sciences. – 2. Social Sciences. – 3. Abstract Economic Theory and Concrete Economics. – 4. *Homo Economicus*. – 5. Symbolic and Mathematical Representation. – 6. Value *Facts* or a *Science* of Values – 7. 'Is' and 'Ought'. – 8. Poverty and Wealth. – 9. Psychology of Contrasts. – 10. Separation of Labour or Division of Labour.

"The true means of checking the deleterious influence that seems to threaten the future of the intellect in consequence of too strong a specialisation of individual research . . . consists in the perfection of the division of labour itself. It actually suffices to turn the study of the scientific generalities into one further specialisation." With these words Auguste Comte introduced his favourite thought on the organisation of scientific work, a thought closely related to his philosophy.[1] Yet Comte expected the individual scientists to be accommodating towards those men who reduce the principles idiosyncratic to each science to a few common to all:

> At the same time the other scholars shall in the future be enabled by an education bearing on the entirety of positive knowledge, to, firstly, profit immediately, before dedicating themselves to their respective specialities, from the illumination spread by those scholars devoted to the study of the generalities, and, secondly, to mutually correct their results – a state of affairs to which actual scientists visibly approach day by day. Once these two important conditions are satisfied, and it is obvious that they can be, the division of labour in the sciences will be pushed, without any danger, as far as the development of the different areas of knowledge will require.

Comte thus predicted with prophetic vision a state which we begin to see realised today. Without being uniformly organised, men appear in all areas of knowledge today who explore the principles of their sciences: logicians, mathematicians, physicists, social scientists, biologists etc. It is not by coincidence that a series of such writings under the title

Wissenschaft und Hypothese – after Poincaré's work of the same title – is just about to appear in print. And the number of those who want to explore the foundations of the sciences in general is rising as well.

One of these men is Wilhelm Wundt, who has shown a particular inclination for investigations into matters of principle ever since the first years of his scientific activity. Adjacent fields of individual sciences tempted him and he investigated the connecting links between the individual disciplines. In addition, his varied interests lead him to diverse and very successful specialised research. Due to this versatility his search for the quintessence of the sciences was not frustrated by insurmountable difficulties, in particular since he was well acquainted with two areas that require a special aptitude: mathematics and linguistics. That Wundt turned to the most general problems only after having worked as a specialist seems to have been more appropriate than if he had chosen only to work on the foundations of the sciences in general, as Comte suggested.

The history of science shows how the idea of a universal science appears again and again, sometimes blurred and phantastic in Raimundus Lullus, sometimes more clearly and specific in Leibniz. Whenever the roughly assembled unity of human knowledge disintegrated into separate sciences, one sought to unify them anew into a well-ordered system. Such a universal science would not be the sum of separate sciences, because it would contain statements about connections that cannot be covered in any of the individual sciences and because it would unify the principles that are common to all.

The attempt to construct a fundamental taxonomy of the sciences by putting those sciences at the top that deal with the least determined objects, then moving on to the ones whose objects are more and more determined, encounters great difficulties. For instance, logicians and mathematicians disagree among themselves about the objects of their respective research; the taxonomy of the individual mathematical disciplines is also very poor. Since people became preoccupied with all these questions in any detail only in the very recent past, there is as yet no agreement on fundamental matters such as the relation of theoretical physics to empirical knowledge, on the one hand, and to mathematics, on the other. There is still discussion about the significance of making assertions about possible geometries or possible mechanics, a question for which there are analogous ones in the social sciences. Since the creation of an all-encompassing taxonomy can hardly be accomplished by a single individual, another course is usually followed.

The scientist can adopt the traditional classification and having effected a few corrections attempt to bring some order into the chaos, as, for instance, Wundt has done in his *Logic*. The title "Logic", so ambiguous today, is explained by the author in a subtitle as: "Investigations into the Principles of Knowledge and the Methods of Scientific Research". However, it is not just the sciences that are investigated, but often and in considerable detail their objects themselves, without these two investigations always being clearly separated. Even though Wundt sticks to the received classifications and considers every field in turn, one cannot properly speak of an "encyclopaedia", as has been done with respect to this and other particularities of Wundt's account.[2] Several guiding ideas are exploited throughout the work, maybe not entirely satisfactorily and systematically, but consistently all the same. Often Wundt keeps to the traditional divisions more closely than perhaps is necessary (this is striking in the section "Social Sciences"). Some endeavours have progressed far enough today to be appreciated in a more thorough way. Although many recent works are cited, often Wundt's perspective has remained unchanged, so that the discussion only connects with the state of science as it has been a few decades ago. H. Burckhardt has emphasised this fact in a review of the mathematical sections of the second edition, but it is difficult to avoid this entirely in such works.[3] The division taken over by Wundt, namely that between the natural sciences and the humanities [*Geisteswissenschaften*] has been attacked repeatedly and, indeed, does not seem expedient. It would be well worth to consider disregarding these large divisions entirely for the time being, for instance, the group 'social sciences', and to content oneself with a more precise separation among the individual areas. It seems very doubtful whether more appropriate principles of division are already available today.[4] Some uncertainty is clearly in evidence in Wundt.[5] For the progress of science, taxonomy would be completely irrelevant, were it not for the fact that often an area is neglected precisely because it does not fit into the structure, or a discipline is practised in some particular way just because this method has been assigned as appropriate for the group in which the discipline has been placed.

The so-called social sciences are particularly difficult to classify. They have not been demarcated by systematic considerations. For some they concern all those sciences that deal with phenomena that become apparent with the interaction of many people. It is very doubtful whether it will prove possible to delineate a meaningful concept of ‘society’ that could be suitable for further subdivisions for a system of sciences.[6] The possibility cannot be discounted that the individual disciplines undergo a reclassification such that the social sciences are no longer recognised as such, maybe not even sociology itself.

Wundt notes in his introduction: “Compared to history and the areas most closely related to it by their historical approach, the sciences of society form a closely connected class within the humanities, yet essentially different due to their systematic way of investigation.” These remarks show that a strict classification of the sciences which combines history and the social sciences is hardly feasible, since entirely different principles have shaped the formation of these two areas. Difficulties appear wherever one looks within the group of ‘social sciences’. Since statistics has a wide scope, that is, a scope wider than physics, demography etc., it has been called a “method”, as has been proposed several times already.[7] Only a change in the classification is required to turn it into a science, however. The confusion in this area is partly explained by the fact that everything is grouped together that is an ancillary science for a discipline, as well as everything for which a discipline is an ancillary science. Similarly, for instance, even in the 18th century the science of laying siege was designated a part of mathematics in some writings. In Wundt we meet again with the popular combination of economics and jurisprudence, but it is very doubtful whether objects that roughly correspond to the usual meanings of the words can be demarcated in this way. Equally opaque is the relation between ethnology, demography and the science of government.[8] We will show what specific difficulties result from these considerations in the section on economics, where much has already been achieved, although admittedly there remains a lot to be done. Wundt tries to demarcate sociology from history by allocating to history the study of development and to sociology the systematic investigations. He believes that one can separate a class of statements that abstract from “the less important stages of the historical development”. He does this in order to be able to give descriptions of individual states, even though such an abstraction is not required in mechanics, where one can examine the velocity of a body at a certain point even though it may change from point to point.

Unfortunately Wundt uses only few examples, following the custom of most authors who have written on the foundations of economics and the social sciences. They often differ unfavourably from the physicists in this respect.[9] In Duhem or Poincaré, general considerations are not only exemplified, but the origins of the concepts and of the problems are traced right from the initial observation of facts if at all possible.[10] Many economists, by contrast, operate with expressions of higher order right from the beginning, despite the unsorted terminology, and without meticulously investigating their origin. In the discussions arising therefrom too little emphasis is put on the scientific achievements. Typically other scientists' assertions about their 'methods' are criticised, without sufficiently considering whether the assertions about one's own methods are correct. Not infrequently there is only very general talk of 'capital', 'price', 'value', etc. For Wundt, for instance, the very point of abstract economic theory lies in the definition of economic concepts.[11] It is not very probable that the currently prominent tendency to analyse the concepts designated ambiguously by words such as: 'productivity', 'value', etc. will lead to any significant results. Progress can only be expected by tackling the problems themselves; if language should lose a few termini – and maybe gain something else in some other respect –, so what? Unfortunately, the fight against the supremacy of mere words often does not proceed in conjunction with empirical research, but instead involves philosophical reflections that originate from an altogether different soil.[12] Where it is impossible to reach general ideas by reflection on individual facts, yet where provisional surveys are nonetheless required for orientation, one must demarcate the individual spheres all the same, but should do so with full consciousness.

With respect to the subject matter of economics, Wundt emphasises that the definitions of the political economists are generally unsatisfactory. But the formulation he adopts is also unlikely to be met with general approval: "The concept 'economy' designates those social phenomena that have their source in the satisfaction of the needs of life that can be achieved through precautionary labour." It suffices to note that a series of problems that undoubtedly belong to political economy can also arise in an economy without labour. So what is the question one is trying to answer by seeking the object of economics? Obviously not an account of the use of the word; that would be the job of the dictionary of the Brothers Grimm. The question is rather whether a series of common problems can be determined that are amenable to a systematic treatment. Possibly one could group problems that do not have any common characteristics, but are still genetically related, maybe in such a way that a continuous chain from one problem to the other is possible.[13]

It is particularly striking that a great number of problems in the newer and older literature concern money and barter, making it understandable that the economics of barter has been separated as a well-demarcated subject. Whether one calls this “political economy” or “catallactics” is a purely terminological question, but it is no longer merely a question of terminology when it is asserted that everything amenable to clear and precise representation in political economy is reducible to the economics of barter alone.[14]

On the other side we see men like Roscher, for instance, who incorporated the problems treated by thinkers like Cournot and Walras into their area of research, but also discussed numerous other problems as well: “As every life, the life of a society is a whole, the diverse external appearances of which are connected internally and intimately. Whoever wants to scientifically understand one aspect of it must thus know all its aspects.”[15] This remark concerns neither a terminological, nor a demarcation dispute, but at least in part the actual connection between the phenomena investigated by the different researchers. It is these connections that dispute is really about. We can observe related discussions in other sciences as well, for instance, the question of how the logically correct connections between hypothetical sentences are linked to assertions about matters of fact. Suppose a political economist makes the following claim. If it is assumed that between any two persons A and B, who own goods, there will be a transfer of goods under certain circumstances, then in a system of persons with simultaneous or successive transfers of goods, some state II of the system can be derived from the initial state I. If the inferences are valid, this assertion can never be refuted empirically, since the premises seem to be shielded by the preceding ‘if’. But at the same time, these statements do not assert anything about economic reality directly. For this a second group of statements is required which assert that the described relations are confirmed by experience. And this is the point at issue. Some claim that for the construction of a realistic system only knowledge of a few elementary phenomena is required in principle and that detailed knowledge of reality is only necessary at a later stage to prove the correspondence. By contrast, others hold that only a precise knowledge of reality allows one to establish a system of sentences, which find their application to reality, for instance, by deriving predictions from them. In order to be able to make assertions about the movements of prices – these researchers hold – one has to know the history of the prices, one has to know what variations are at all possible, whether these are derivable from the preceding price movements alone, or from other elements, whether the latter maybe could be neglected, how large the error is, etc.

Like many other political economists Wundt recommends a division into theoretical and practical political economy (p. 565), but he only vaguely elaborates this thought (p. 567). Of practical economics, which should only cover the applications of the results gained in the theoretical investigations to the needs of practical life, Wundt asserts that it is half scientific, and half technical in character. I think [the category of] the practical sciences should be dropped altogether: there are only theoretical sciences. A system of statements cannot be unscientific just because it happens to be useful in practical life: what is practical about such a system is only the selection [of phenomena]. Rather than examining all possible systems of transfers of goods, usually only those are examined that relate to circumstances that actually occur and whose derivations apply to reality. These types of statements, however, are [formally] indistinguishable from those that concern [merely] possible combinations. A statement by itself does not determine whether it is practical or theoretical. Statements should only be classified according to their object, that is, according to their intrinsic characteristics. For Wundt, theoretical political economy contains, besides abstract economic theory, concrete economics as well; he discusses this classification in detail in connection with the controversy between the Austrian and the historical schools. Wundt thus presupposes received perspectives and hardly considers more recent approaches.

The author tries to derive the opposition between abstract economic theory and concrete economics from the history of economic thought, but his remarks remain very general. The development was really more complicated, in particular, more important moments were involved than Wundt assumes. Already early on in the history of economic thought we meet the method of inventing a simple example to demonstrate a principle and of supporting the knowledge thus gained with individual examples. One often encounters such in the writings of mercantilists. For instance J. J. Becher discusses in a very clear way the essence of monopoly and perfect competition.[16] He describes with remarkable lucidity the detrimental effects of free competition and how certain agreements influence prices favourably.[17] It would be wrong to say that only problems of a more general nature were treated at that time, such as the relation between sales and wealth, between the number of workers and the possibility of employing them, since monetary economics had already been developed much earlier, in parts already in antiquity. Especially the different types of trade were treated in detail. The question was not one of taxonomy, the attempt was made to explain the phenomena and to find new possibilities. While the mercantilists did enjoy drawing up *regulae* and *axiomata*, it remains the case that they had reasons for them. The assertion of a recipe book: "Take five grams of butter, a handful of raisins . . . " is not really meant as advice, but actually contains the assertion: If one uses this, the result will be a cake, exerting a certain well-calculated effect on average taste-buds. Which expressions one chooses is, as it were, more or less a question of fashion. The Egyptians even taught mathematics in imperatives: "Do as has been written, take any number . . . then . . . the result will be the number to the power of five." A modern mathematician would say: "For any number, . . ." Too much fuss has long been made of these formal issues, thus overstressing the distance between the classical school and the mercantilists.

Political economists have always been interested in the processes that make people wealthy or poor. As long as this happened by cultivation of land or operating a plant it was treated as basically a technical question, but soon it was realised that it was the systems of contracts and of taxes and duties that were of decisive importance; in consequence the systems of organisations themselves became objects of inquiry. The classical school of economics has examined one unique form of such systems of organisation, free competition, and it has praised it just like the mercantilists praised theirs. In the course of examining the free market system as a cause of the growth of the population, one had to look into its structure in detail and so came across issues that did not have anything to do with wealth directly, e.g. one observed falling or rising prices entirely independently of whether this was conjoined with an increase or a decrease in wealth. Since it involved measurable quantities, like crop yields that were easy to establish unambiguously, price theory soon became a discipline that was practised particularly eagerly. The question whether the system of organisation at issue would foster wealth or not receded in importance or was neglected altogether. Partly this was related to the idea that monetary calculation adequately reflected the distribution of wealth. Many such investigations show an empiricist slant, statistical ones in particular, e.g. Tooke's history of prices. At any rate, the founders of the classical theory were still on close terms with experience. The [increasing] neglect of the question of how free competition impinges on the distribution of wealth then led to a reaction. Men like F. List stressed that the economic system was not something given that we confronted in alienation, but rather a machinery that we could also handle differently. Wundt wrongly puts too much emphasis on the kind of scientific research addressed to actual economic life, yet the oppositions just portrayed were surely more significant. The historical school was close to F. List and always emphasised them, to be sure. The development of exact political economy, however, probably was only possible due to the fact that certain quantitative relations became apparent in the process of investigation all by themselves (remember King's rule).[18] Without having to abstract, one reached comparatively clear and simple relations of quantities. Often one contented oneself with saying things like: When the quantity of money increases, its purchasing power decreases. It was only after a longer occupation with such questions that people were led to ask themselves what would happen if the world was entirely made up of merchants, who bought cheap to sell dear, under conditions of free competition. Since this state was thought to possess desirable consequences, it was examined particularly meticulously. When it was pointed out by the opposing side that it was really impossible to view everything from the perspective of the merchant, these theorists sought to help themselves by stating that they did not quite mean it like that, that it concerned an idea. Neither a present nor a future reality were being discussed, but creations of scholarly abstraction. Since their conclusions were held to be confirmed with sufficient empirical approximation, occupation with such questions was considered reasonable. This turn towards the so-called *homo economicus* as auxiliary construction of theory is placed by Wundt in the very centre of abstract economic theory, even though it strongly inhibited its development.

Wundt derives abstract theory solely from the study of the isolated motive of self-interest and thus emphasises one of its most questionable aspects. He illustrates quite correctly the way in which most theorists construct the *homo economicus* and the assumptions they are prepared to make: free competition, etc. He ignores the question whether abstract theory is also possible without a *homo economicus*. Political economy initially concerned wealth, mainly goods and their transfers, whereas now the individual has become prominent. Mechanical analogies in particular propelled the science of *homo economicus*. It was thought that in order to be able to deduce anything one had to apply forces to an object. It goes without saying that this object had to be very simple and completely isolated – that one could put such things to good use was known from mechanics. Thus *homo economicus* was created, as Pareto remarked, an abstraction just like *homo religiosus*, or *homo ethicus*.[19] It is never mentioned that the latter types were never put to any use and that they are useless for psychological analysis. This *homo economicus* then was assigned as the object of his activity something which the old political economy of the mercantilists had not yet known, something that has not been defined adequately even today: the economic good. In order for him to love and desire this object, the *homo economicus* was endowed also with an economic motive that until then had been alien to psychology and will probably remain so in the future. Of course, this *homo economicus* and his motive exacted a tribute from historians, probably for the sake of happy peace. Yet soon enough, problems escalated. It became necessary to create a simplified science of motivations; partly under this influence, marginal utility theory was developed, a purely psychological discipline. The way in which this type of economics treats human action as an object of inquiry may differ, but something usually remains the same: [it is assumed that] any state can be derived from the preceding one, i.e. a certain determinate way of acting is presupposed. In this lies, as we shall see, paralysis.

Wundt emphasises that political economy developed because measurable quantities were available. This indeed is the position of most political economists: only where there are measurable quantities can there exist a theory. Thus price theory has to come to the fore as the only thing amenable to a truly exact treatment. The question of the rejection or acceptance of this view will dominate the development of political economy in the next decades. I will try to show that this view is erroneous, that only by overcoming it will it become possible to achieve an inner unification of the different strands of political economy. It cannot be achieved through the occasional friendly words, that supporters of opposing theories habitually devote to each other after the bitter fighting is over.

Almost all exact political economists have used abstraction in the way portrayed above and thus assumed that all those transfers of goods that occurred outside of free competition are not amenable to theoretical treatment; in the end some admitted the possibility, others denied it. The upshot was that one did not approximate reality closely enough – Wundt is right to consider this phenomenon, although he does not clarify its causes enough. Since today free competition is facing strong restrictions, one is further away from reality than ever before.[20] The theory has fixed the premises. Exact theory, for instance, poses the problem: what is the maximum return for a monopolist A and five buyers B_1, B_2, B_3, B_4, B_5?

Suppose A is in the possession of 5 pieces of goods of the type a [5a] and the buyers are in the possession of 5b, 4b, 3b, 2b, 1b, respectively; suppose further that A wants to receive as many b as possible, that he values any b higher than any a and that every B wants to receive as many a as possible. In this situation the buyers make the following evaluation:

$B_1 : a > 5b$,
$B_2 : a > 4b$,
$B_3 : a > 3b$,
$B_4 : a > 2b$,
$B_5 : a > 1b$.

Now one unique price should be found that is best for the seller. It is assumed that at a price of 5b for an a only B_1 makes a purchase, at a price of 4b only B_1 and B_2, at a price of 3b it is B_1, B_2 and B_3 who make a purchase, at a price of 2b B_1, B_2, B_3, B_4, and at price 1b all five make a purchase. The respective returns for the seller at these prices are, in units of b, 5, 8, 9, 8, 5. The maximal return is 9b [for the three buyers B_1, B_2, and B_3 at the price of 3b]. But the fact that two buyers could not buy anything [at this price], and that some goods remain unsold [the market does not clear] is not considered at all. One could, however, ask the question differently. Not: How will the people strike the deal when there is free competition, and they form one universal price etc.? But rather: What conditions need to be met for maximal satisfaction? This goal is not achievable given the constraint to arrive at one universal price, but only if there is price differentiation, i.e. if the price is 5b for B_1, 4b for B_2 etc., since then A, instead of gaining 9 goods of type b gains 15, and every buyer gains one a.[21] We have reached a new type of asking the question in an entirely natural way: If individuals and goods are given, what kind of transfer of goods yields a maximum of return for one, for two, possibly for all. It is not at all reasonable that economic investigations should be restricted to free competition or even uniform pricing. Differentiated prices are amenable to the same general and principled treatment as undifferentiated ones. By itself, however, this would only amount to an extension of exact theory within the domain of measurable quantities, but we can also deal with problems involving non-measurable but comparable quantities in a perfectly exact way.

In the following we shall express the fact that an individual A possesses some good a with '(Aa)', that A values x more highly than y with 'A: $x > y$' (as above). Suppose state I consists of:

(Aa), (Bb), (Cc),

and that:

A: $c > a > b$,
B: $a > b > c$,
C: $b > c > a$.

For the sake of simplicity we assume that neither does a possess any value for A, nor b for B, nor c for C. Now we can ask: Does there exist a state in which the overall wealth of the three is higher than now? Certainly, in state II, where [all individuals own the good they prefer most among the available alternatives]:

(Ac), (Ba), (Cb)[22]

A further question could be: What transfer conditions need to be satisfied for state II to be derivable from state I? The condition that goods represented by a small letter can be transferred to another owner if thus an increase of wealth occurred for all concerned would not by itself allow for the transition from the first to the second state [given the assumptions of *homo economicus*], even though it apparently is easily possible as an exchange of three elements against three elements.[23]

Consider now how we put the question. There is no more talk of motivation or of human action. We have only investigated transfers of goods and determined the conditions under which one state can be derived from the other. Which human actions condition these changes is a separate question. Economic theory can extend its domain only in this way, but not if it already prejudges what conditions will prevail. We also see that in this example there were no measurable quantities at all, it sufficed to assume that one object is valued more highly than another by the individual. Yet it can also be seen that we reach questions that no longer have anything to do with relations of quantities. The question of how one could change the combination (Aa) (Bb) (Cc) into the combination (Ac) (Ba) (Cb), given certain conditions, belongs to a currently expanding area of mathematics. We must not forget that exact relations are also possible between non-measurable magnitudes, there are relations of order etc. The [formal] calculus of logic represents an example of how far such systems of relations can be developed. It is noteworthy that even a man like Jevons, who after all was equally significant as an exact logician as he was as an exact political economist, only considered relations of [measurable] quantities and thus deprived his speculations in political economy of the opportunity to enter the fruitful field of a goods transfer in which quantities do not matter. Some political economists saw causes of yet other kinds of changes in the types of lending contract or price formation etc., but until now those theories have not been presented in symbolic form, although this could be done. Even Wundt, who after all does also consider exact logic and the parts of mathematics that do not deal with measurable quantities, does not indicate that the method of *symbolic-exact* representation and that of *quantitative-exact* representation do not have to coincide at all.

It would be taking things too far if I wanted to show in detail how the concentration on research into relations of prices and related matters has thwarted progress; just one more phenomenon may be emphasised as typical. Exact economics has neglected almost entirely the theory of the crises of overproduction, which is amenable to symbolic representation since it contains relations which concern the circulation, the transfer of goods, etc., and not just the level of prices.[24] It is possible to examine systematically all possible types of changes in holdings and answer questions like: What are the necessary and what are the sufficient conditions for a crisis to occur? Can it be avoided under free competition? Under what conditions etc.? Yet as a matter of fact, exact economists do not consider crises of excess supply at all, or only in an unsatisfactory manner, indeed in a way that contrasts with their other investigations.[25] To a certain extent this defect is felt by the theorists themselves; again and again they point to a certain ‘dynamic’, which is supposed to provide all the missing links, but they do not yet seem to have found the right approach. Pareto says, more carefully than usual: “It is more appropriate not to jump ahead. For the time being, only [the method of comparative] statics has taken a scientific form and produced usable results.”[26] It is significant that Pareto talks of statics generally, yet only the statics of an extremely limited domain has in fact been researched. The wealth of problems of a statics with consideration of price differentiation has not been considered at all, still besides the problems of combination and changes in holdings I pointed out above.

Economic theory also followed too closely the example of monetary economics. Thus the thought was lost sight of that money itself is but a means of the technique of organisation that might be radically changed or even removed. *True science consists in systematically examining all possible cases*. Exact political economy has not achieved this until now, it does not even encompass all actual cases. This is one of the reasons why exact theory finds itself in opposition to the historical school and why it does not have an awful lot to say to those economists who occupy themselves with issues of practical interest, theories of crises, cartels and trusts. Once exact theory has broken free from its chains and taken into account also the forms of organisations of the past and forms that have never existed, then even historians will be happy to use it. Why should there not be an exact theory of mercantilism, insofar as the latter is consistent? The motivationless theory of goods [transfers] can bridge the gulf between history and exact research by securing the important continuity of research, being linked to both.

It is not only exact political economy that will be furthered by the development of a calculus of relations independent of measurable magnitudes, but all of political economy. With the transfer of goods in the focus of attention, this part of economic theory becomes, as shown above, entirely independent of the science of motivations that Wundt deems so significant. Now the question can be raised: What conditions allow a certain way of transfer of goods at a certain time, by what laws or what customs can one succeed in establishing certain ways of transfer of goods? All these questions are of decisive scientific significance. They become amenable to successful treatment once the theory of price formation stops its continuous interference. Conceiving of the transfer of goods as a result of human action was one of the proposals of the Historical School. We can see now how both views appear to coincide in certain cases, more intimately related than Wundt supposes possible. It can also be pointed out that even pure price theory can do away with motivations, but has rarely done so far. The specifically economic motive, distinct from others, will gradually vanish, since it was invented for theoretical purposes and only imported into descriptions of concrete matters of fact by these alone.

Once people will have become used to the fact that the exact treatment is not restricted to measurable quantities and that comparable magnitudes may suffice, that combinatorial problems arise also in the theory of organisation, it will no longer be insisted that relations of value can only obtain between measurable magnitudes.[27] The case for that is full of gaps; even the most recent theorist who touches on this question, Schumpeter, contents himself with a few general phrases in the crucial passages and hints at psychological measurements, probability theory and modern psychology, although all three are silent about the matter. There can be no talk of measuring sensations even today, all we can do is unambiguously correlate a series of mutually comparable sensations and a series of measurable stimuli. Again and again Gossen's mistake has been made, namely, to proclaim the unit of measurement selectable at random, whereas the real question is whether units can be employed for measurement at all.[28] Wundt does not discuss this interesting question in any detail, even though it is often decisive for understanding political economy, namely, in so far as it relates to theories of value. Many political economists have stuck with the calculus of value so persistently because they hoped that it would help with the calculus of prices. Whether one treats the calculus of value as psychological fact or auxiliary hypothesis is irrelevant for this, it is dispensable in any case. It can be shown that generally all the problems of political economy can be considered independently of the calculus of value, the only thing that must be known is that there are valuable objects. The tendency to create a calculus of value must be blamed for many misconceptions. Often people have been guided by the idea that the phenomenon, not uncommon in the market, of a larger amount of goods yielding a smaller monetary return than a smaller amount of goods, should somehow be derivable from the calculus of value.[29] Careful reflection shows that this phenomenon would also occur if every element of a good were of higher value than the preceding ones, or if every new element were of equal value. Price theory too can be represented entirely independently of marginal utility theory and of any other theory of value. The significance of these theories lies in the domain of psychology and they are of great importance for historical research, but not for the science of goods transfers.

Since the theory of value strove to render measurable as many magnitudes of interest as possible, Daniel Bernoulli's profound thoughts were taken up by many scientists.[30] When Marshall holds that the increase in pleasure with an increase in income is always dependent on the relation between the increase in income to the income already gained, and vice versa, he did not discuss these questions in detail and only talked of approximations and the like.[31] Only in passing Marshall mentions Cramer's view that the change in pleasure could also occur in a different ratio. For instance, it is imaginable that such changes are only describable by a very complicated function. It would be best to exclude numbers from the theory of value altogether for now; even if only the relation of larger than/smaller than is used, numbers can lead to mistakes by suggesting additivity. It would be important, however, to investigate whether a calculus of prices is possible according to which there would correspond a larger amount of goods, i.e. a larger amount of pleasure to the larger amount of money. All efforts to create a calculus of value are at least in part due to the fact that the aim of scientific rigour was considered realised only in a calculus that reckons in [measurable] quantities.

The calculus of value in addition imposes narrow limits and only allows inferences to be drawn under the most extensive restrictions. If a pleases me and b does so as well, both together or one after the other need not please to me at all. It seems that all goods are complementary to each other, such that only the whole picture of the system of goods may serve as a basis for comparisons. This way of looking at things leads to a conception of political economy and the social sciences that possesses similarities with the theory of organisms; as has been pointed out, the system of benefits and evils has to be conceived of as a whole. One cannot compare two states by comparing them bit by bit, say first the constitution, then the climate etc.; each of them has to be comprehended as a whole. After all, neither can we compare pictures in this way, nor can we do this with respect to machines. The very idea of a calculus, however, consists of deriving a complex from the individual elements.

Further difficulties (against which all possible means have been tried) are due to the fact that it is impossible to set equal to another good every other good, even the least significant, by multiplication with arbitrarily large numbers, i.e. the Archimedian principle is by no means generally valid for this system of magnitudes. Until now the introduction of negative magnitudes into the theory of value has not succeeded either. The development of the theory of ills has been entirely unsatisfactory until now, one tries to leave it aside if at all possible. The reason for this is probably that money is used to buy ‘goods’, not ‘bads’. Similarly the theory of marginal disutility corresponding to the theory of marginal utility has received little consideration. Should one want to characterise the state of an individual person, however, one has to mention goods as well as ills, since there can be no question of adding the two magnitudes as long as one has not set up a calculus for that. Even if one does not realise from the consideration of the things themselves that the theory of value is unnecessary for the science of transfers of goods, one should try to liberate oneself from it already because one should not link up the fate of an entire science with it.

Wundt hardly considers these questions at all. Instead, plenty of attention is given to the different concepts of value, even though one should actually oppose these terminological questions. Wundt believes that abstract theory does not approximate reality closely enough, but he does not ascribe this to the current state of theory, but instead believes that this is part of its essence. The examples he offers prove little though, since the theory is well able to perform his desired combinations. He says (p. 547): “Thus abstraction divides the professions into certain classes without observing the very important distinctions within these; to this classification the assumption is commonly added that every individual belongs to just *one* economic profession, e.g. landowner, capitalist or worker, but never to several at once, an assumption that apparently is contradicted by experience at least in very many cases.” Here Wundt does not sufficiently appreciate the truly outstanding achievements of the mathematical economists, who provided a strong impetus for the continuation of theoretical investigations and delivered exemplary work in some parts of price theory. Many of Wundt’s judgements about exact economics are conditioned by its current state alone, as when he points out that the “postulates of the supremacy of self-interest and the economic perfection of the individuals could not be amended without eradicating the foundations of economic theory itself.” (p. 598)

In discussing the motivation of economic actions by self-interest Wundt turns to the idea that “altruism” would furnish a similar postulate. He stresses that a “system of altruism could only be instantiated through abolition of all valid economic concepts” (p. 550). Yet for the science of goods transfers altruism does not represent any difficulty whatsoever. The Benthamite ideal can be derived from the state given above – (Aa) (Bb) (Cc) – through altruism as well as through egoism, similarly so the state (Ab) (Ba) from (Aa) (Bb), if A: $a < b$ and B: $b < a$, by the one offering the other what he needs.

Wundt further objects against abstract theory that it confuses 'is' with 'ought' by claiming that according to it whatever does not correspond with it should be changed so as to make it correspond. Wundt does not formulate his view very clearly, but he seems to be misled by the external form of some considerations. If a theorist, who believes that free competition should be introduced, relies on a deduction, the conclusion of which is the sentence: "This form of price formation delivers greatest utility for all," then his claim would be scientifically flawless. With respect to the present state such a theorist would simply remark that it does not deliver the maximum. It must be pointed out that the opposition between 'is' and 'ought', so very popular today, is commonly used without a clear sense. Since political economists are often reproached for talking about what 'ought' to be, I shall briefly consider this question.

Say was probably among the first to have stated emphatically that since Adam Smith science has improved considerably in that it no longer utters imperatives, but makes assertions about the relations of things.[32] "He who knows how things are related and says: 'do it like this; do not do it like that' speaks according to his own will; he who restricts himself to saying: 'If you do it like this, that will be the result of your action' only declares the will of the nature of things, and he has all authority to do that." With these phrases mercantilists and physiocrats were disqualified, until some clever heads looked up in Smith and Say and found passages in them as well where they give advice with enthusiasm. Their advice was generally justified and it was explained what would result and why. So what about the imperative, the 'ought'? The imperative is not an assertion at all, but *a means of suggestion*.

If a father tells his child to do something, he wants to influence it. This can happen also through other means, e.g. by shouting at it, by beating it or by making it submissive in some other way, but the following mere assertion may also suffice: "you will now do this or that." As is well known, verbal suggestion without imperatives, without any special aids, is capable of evoking or checking actions, also of evoking feelings: "You are now holding a flower in your hand", the doctor insinuates, and the patient believes it. The content of an assertive sentence and its capacity to have an influential effect have nothing to do with each other at all. It is therefore entirely pointless to explain the 'ought' as part of the science. One can discuss the fact that someone influences someone else, for instance with the help of imperatives; one can analyse the mental state of the influenced person and go on to, say, detect that the very same state also occurs without there being a prior act of influence. In this case one would probably say that this man feels himself driven to do this or that, call this a mood similar to the one associated with the sense of duty. The assertions of a scholar can have suggestive effects as well, for instance evoke actions. Yet whether the expression of a scientific statement does exercise an influence is not part of this statement itself. It therefore does not make sense for the "ought" to have entered science, co-ordinated to the 'is', as it were.

Nonetheless there is good reason for discussing the 'ought'. Consider the sentences we have derived from the imperatives above. "If that happens, it is pleasant to someone." Stop, some thinkers exclaim, this is a value judgement and science has nothing to do with that. This view is difficult to understand. If science has to describe matters of fact, then it also has to describe the effects that we call pleasant or unpleasant feelings. If someone says: "I like this", it is an assertion of the same type as "this is red", or "this is sweet", or "this is painful". Very frequently the objection is voiced that only 'objective' facts can be ascertained, i.e. those valid for all. But then assertions like "this is red" would need to be equally eliminated for consistency, since a colour-blind person has a different opinion. Yet there exists a theory of colour. Only those people can communicate with each other who share the same premises; but this applies to 'pleasant' as it does to 'red' or 'painful'. "This is pleasant" is a judgement of experience like any other, and judgements of value must not be set in opposition to judgements of experience, since every value judgement is [somebody's] empirical judgement. This view has been denied again and again in some quarters.[33] A modern proponent of theoretical economics says explicitly: "It is not difficult to see that the concepts of the desirable, the normative, however they may be defined, gravitate towards metaphysics".[34] When I say: "I feel pleasure when as few people as possible are unhappy, and I am glad about a restriction of competition, because this reduces misery", I have asserted a value judgement about a value judgement, but there is nothing metaphysical in that. Whether I have a feeling of pain because of the social order or a toothache comes to the same thing. At first one may think that one has misunderstood the writers who oppose this view, but then they offer as a particularly banal example that some scholars consider the division of labour conducive for technological progress but not for personal development. This complex of assertions, however, satisfies all requirements of scientific rigour, one should think. One can describe these relations as functions, letting x stand for the degree of division of labour, y for technological progress, z for the personal development:

$$f(x) = y \text{ and } F(x) = z$$

It remains to introduce some scale, as many theorists of value do in their domain, and then diagrams can describe the state of affairs (in this many see the crowning achievement of the sciences):

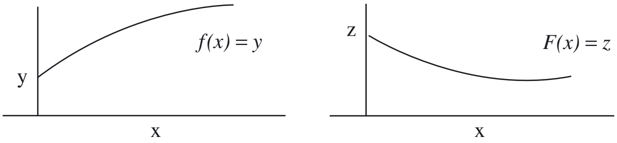


Figure 1

Besides the 'ought' and 'judgements of value', 'teleological judgements' play a major role. These have been co-ordinated to the causal judgements and both assigned a distinctive form of analysis, even though judgements of utility obviously contain two parts:

1. A is the cause of B

2. B is the desired result.

If this is the way things stand, one says that A is a rational means for achieving B. It is incomprehensible why these two judgements should stand in opposition to the assertions of science. Neither is there talk of a two-fold way of looking at the same complex. A separate role is only played by assertions of the form: Given A, B and C, it follows by pure logic that D.

The founding fathers of political economy examined again and again how poverty and wealth are related to the mechanism of goods transfers, whether perhaps the reason why there is so much pain is to be found in the rules that we follow in exchanging goods, and not in their actual scarcity. They came to recognise as the goal of their discipline the investigation of systems of relations as to their capacity of causing pleasure or pain. For them it was a proper question to ask: *How is poverty, i.e. pain, and wealth, i.e. pleasure, related to the system of goods transfers?*[35]

Wundt perceives the main flaw of liberal economics to consist only in its method of deriving a satisfactory state of economic equilibrium from a number of equally abstract conditions and neglecting others. Above I tried to show that the reasons why the exact theory of free competition is unable to describe economic history or break new ground are not of an external nature, but are principled ones. Instead of comparing several systems with each other, only different states of a single system are being compared.

Wundt does not succeed in demonstrating the internal and necessary relations between the historical accounts of economic conditions and economic theory. He does not adequately emphasise that historical experiences have made possible abstract theory and that it was only at a later date that theory developed seemingly independently of experience. The history of economic systems relates to abstract political economy in a similar way as meteorology does to theoretical physics. There are many facts that theoretical physics can predict using only little experience; on the other hand, theories are established only after observing the facts. Theoretical economics can help to reveal the causal connections in a historical account by pointing out that from certain laws in the transfer of goods certain distributions of wealth can be derived, provided there are no other restrictions. Historical research, supported by psychology, ethnology etc. provides the information about laws, customs etc. that condition the system of transfer of goods. As long as theoretical economics remains as limited as it has been till now, it will continue to receive abundant stimuli from economic history. Theory is gradually beginning to assemble new complexes by combining the elements of experience, as e.g. Knapp has done with some success for possible kinds of money. Yet our constructions are still so primitive and timid that economic history will hold surprises for a long time to come.

The question whether there are generally valid laws of economic development is only distantly related to these problems. Wundt decides this question in advance by calling it the main task of historical economics to find these laws. I am far from denying that many analogies or even far-reaching parallels can hold between different periods. But historical economics does not stand or fall with these laws of economic development. It would be enough if every individual complex were derivable from a limited number of laws that describe the linkages of the elements. This does not require there to be a law that regulates the succession of the complexes. This touches on a highly controversial question of modern philosophy of history, which we cannot pursue here.

One of the most significant problems of economics still today is what role abstract theory is to play in it. Historical research, by contrast, contains much fewer problematic elements; perhaps it will also experience less original changes. We saw that it is possible to leave measurable quantities behind and yet do exact science. Since in political economy we are able to symbolically represent systems of organisations it might also be possible that other branches of the so-called social sciences are amenable to exact treatment. This would be a large step towards the creation of a universal science. It is a major task to render the whole order of life as transparent as possible and to reduce as many relations as possible to simpler ones. As undoubtedly one will not be able to proceed step by step, often one will have to try to apply an entire system of relations at once; similarly in physics, theories are not accepted one after the other, gradually enlarging past achievements, but often the entire system is cast into doubt. The biggest difficulty consists in isolating the separate investigations as far as possible without losing perspective on the other contexts. One has to be aware at all times whether it is appropriate to retain the entire system of the theory and account for some fact by auxiliary hypotheses or whether it is more appropriate to rearrange the entire system. This is not always strictly adhered to. All too often the separate sciences forget the larger contexts and go beyond their field of competence by drawing conclusions about the whole state and the entire social order from a small number of premises that had been established for just a few problems. On the other hand, it is not rare that in discussing a certain concrete context absolutely vital circumstances are not examined and that instead general ideas are invoked in some vague way (the rhythm of social life etc.). This phenomenon is not only observable in political economy but also, for instance, in probability theory, occasionally in biology and in other places too. It lies "in the nature of things" that we require more general "philosophical ideas" when we investigate reality through research in the social sciences. Whenever general ideas are used unnecessarily in the examination of an individual relation, either by way of analogy, or otherwise, the reason will probably be found "in the youth and lack of development of our science."[36]

The future of research in all the sciences, not just the social sciences, will increasingly lead to an ever better clarification of the interrelations of scientific thought. The division into separate sciences will no longer bring about an isolation of the researchers, but a more general comprehensive discipline will establish the common principles and thus promote the appreciation that science is a unity. The individual will then easily be able to get an overview of the entire system of the sciences, whereas until now he faces chaos. What is common to all the sciences will become amenable to a precise articulation and so enable the organisation of scientific work as well.

Today we have reached the point that there can be an enormous amount of specialised work on an area, but no-one having an overall view of it. Although this is called division of labour, one should really call it separation of labour, since one speaks of division of labour only if a whole is being created by the combined efforts of many. Yet only very few people perceive the whole of contemporary science, indeed of a single discipline. (There are some who even want to recognise the glory of scientific research in this.) All specialist research has significance by being one part of overall research and then being linked to others. In order to set up these links there has to be cooperation – just as Comte suggested, but maybe in a different way than he thought. In particular it would be desirable to have the cooperation of several scholars under integrated leadership. It is not a collection of specialist work that yields a whole, but collective work of many. A series of outstanding compendia such as Helmot's *Weltgeschichte* or *Kultur der Gegenwart*, edited by Hinneberg, for instance, are intended to present an overview of history and culture for the layman. Would this be possible if none of the collaborators were able to achieve an overall picture? All too often no-one surveys the whole; it is only noticed how different writers often treat the same phenomenon, how what someone else started is not being continued, how link elements are missing. Besides their specialist works, major scientists ought to publish overviews in larger numbers than at present (something currently discouraged rather than encouraged). Much could be achieved if commentaries were written about comprehensive works, as was common practice in the 16th, 17th and 18th centuries (there are some such commentaries even on Adam Smith). If one cultivated this custom systematically, it would at least become possible for the specialist to supplement and correct the generalist; in such a cooperation we can see a division of labour. Much can also be expected of individual researchers seeking connections beyond the boundaries of their special subjects, with others coming to meet them. This common endeavour is also furthered by those men who – like Jevons, Pearson, Enriques – examine the foundations of the sciences in general.[37] The whole of this movement will save us from the dangers of the separation of labour and lead to a genuine and thriving division of labour, one that lets everyone share the greatest achievements of the human mind once again: the world would again present itself to us as a whole. When the history of this remarkable movement will be written, also his name will be mentioned and honoured: Wilhelm Wundt.

NOTES

* Review of W. Wundt, *Logik*, 3rd ed., I. *Allgemeine Logik und Erkenntnistheorie*, 1906; II. *Logik der exakten Wissenschaften*, 1907; III. *Logik der Geisteswissenschaften*, 1908, F. Encke, Stuttgart. First published as "Zur Theorie der Sozialwissenschaften" in [Schmollers] *Jahrbuch für Gesetzgebung, Verwaltung und Volkswirtschaft im Deutschen Reich* 34 (1910) 37–67, repr. in O. Neurath, *Gesammelte philosophische und methodologische Schriften*, ed. by R. Haller and H. Rutte, Vienna: Hölder-Pichler-Tempsky, 1981, 23–46. Translated by Christoph Schmidt-Petri and Thomas E. Uebel.

1. A. Comte, *Cours de Philosophie Positive*, Paris, 3rd ed., 1869, Bk. I., 27 f. [Neurath quoted the French original.].
2. H. Höffding, *Moderne Philosophen*, German transl. by F. Bendixen, Leipzig, 1905, 10.
3. H. Burckhardt [Review of 2nd ed. of Wundt, *Logik*], *Vierteljahresschrift für wissenschaftliche Philosophie* 19 (1895) 409.
4. Compare K. Pearson, *The Grammar of Science*, London, 2nd. ed., 1900, e.g., following the account of the classifications by Bacon and Comte, but p. 510 in particular (Spencer etc.). It is not unproblematic to use e.g. hypothetical objects for principles of classification (see p. 523: the physics of the ether, of atoms etc)..
5. Compare the table in Wundt, *op. cit.*, vol. II, 99 and its accompanying explanations.
6. For recent attempts on this matter, compare Spann, *Wirtschaft und Gesellschaft*, Dresden, 1907. Besides detailed analyses it also contains a new demarcation of the concept of society.
7. Compare Wundt, *op. cit.*, vol. III, 494.
8. Ibid., 485.
9. Compare on this matter the apt remarks in J.A. Schumpeter, *Das Wesen und der Hauptinhalt der theoretischen. Nationalökonomie*, Leipzig: Duncker & Humblot, 1908, xiii ff.
10. Compare, e.g., P. Duhem, *La Theorie Physique: Son Object, Sa Structure*, Paris, 1906, German trans. F. Adler, *Ziel und Struktur der physikalischen.Theorien*, Leipzig 1908, 180, 190, 296ff., etc. [Engl. trans. *The Aim and Structure of Physical Theory*, Princeton: Princeton University Press, 1954] and H. Poincaré, *Science et Hypothese*, Paris, 1902, German trans. F. and L. Lindemann *Wissenschaft und Hypothese*, Leipzig 1906, 110, 166, 184 etc. [Engl. trans. *Science and Hypothesis*, London, 1905].
11. Wundt, op. cit., vol. III, 554. Overall he talks of concepts rather than facts, compare 536.
12. Compare L. v. Bortkiewicz, "Wertrechnung und Preisrechnung im Marxschen System II", *Archiv für Sozialwissenschaft. und Sozialpolitik* 25 (1907) 11n and 33.

13. About this way of formation of classes compare C. Darwin, *On the Origin of Species by Natural Selection*, London, 1859, Ch. XIV (section on classification).
14. [‘Catallactics’ was Whately’s proposed term for a “science of exchange”. Eds.]
15. W. Roscher *Die Grundlagen der Nationalökonomie*, Cotta, Stuttgart, 1854, 16th ed., 34.
16. J.J. Becher, *Politischer Discurs von den eigentlichen Ursachen des Auf- und Abnehmens der Städte, Länder und Republiken*, Frankfurt a.M., 1688, 112 [Neurath employs his terms “Monopolium” and “Polypolium”. Eds.].
17. Ibid., 209
18. Compare L. Brentano, *Die Entwicklung der Wertlehre*, Munich, 1908, 28f., with the formulation by Jevons-Lindemann.
19. V. Pareto, *Manuel d’économie politique*, Paris, 1909, 18 [Engl. trans. *Manual of Political Economy*, Kelley, New York, 1971]. In Pareto, “Anwendungen der Mathematik auf Nationalökonomie”, in *Enzyklopädie der mathematischen Wissenschaften*, I.2, Teubner, Leipzig, 1100, one can find even a *homo eroticus;* Bortkiewicz makes some remarks about his suitability to serve as a basis for deductions in this *Jahrbuch* 22 (1898) 1182.
20. This fact is often admitted by theorists, e.g. by Schumpeter, *op. cit.*: “The only thing we can say in reply to this is that we believe nonetheless that [the theory’s] results have a sufficiently *large* significance, that they cover a considerable, even a *very* considerable part of the domain to be described and that they continuously prove their worth within these limits, of which one should never lose sight.” In Walras we also note a complete failure once free competition reaches its limits (see *Élements d’économique politique pure, ou théorie mathematiqu. de la richesse sociale,* Lausanne, 1877, 2nd ed. 1889, 428).
21. The question of price differentiation has been treated repeatedly, as by E. Sax, *Grundlagen der theoretischen Staatswissenschaft*, Hölder, Vienna, 1887, 463 (with references). On matters of principle, see W. Neurath, *Elemente der Volkswirtschaftslehre*, 4th ed., Manz, Vienna, 1903, 117. It may be noted in addition that some political economists place particular emphasis on the fact that even in the economics of the household every expenditure for a purpose yields the largest return in production according to the basic principles of exchange. This is not true. Suppose a gardener has 5 trees and that he could, without harming the trees, take 5 fruit from the first, 4 from the second, 3 fruit from the third, 2 fruit from the fourth and one fruit from the fifth tree. The trees reward his efforts very differently. Is it really conceivable that he will devote a comprehensive discussion to the question how to reach a maximum of apples if he takes the same number of apples from each tree? He would only receive 9 instead of 15 fruit like that. *Price differentiation* has many analogies in finance too; in general, transfers of goods are examined in detail by finance theorists that are neglected almost entirely by the exact political economists. Especially finance (but also the theory of tariffs etc.) contains many fruitful ideas, which will have to be investigated systematically so that all their consequences can be recognised. Wundt does not seem to have occupied himself with these extremely interesting questions, since he only mentions finance twice and in passing.
22. It should be noted at this point that this way of putting the problem of the [pleasure] maximum also represents an example that the Benthamite ideal is possible in some cases: the greatest happiness of the greatest number. Even though this ideal does not always admit an unambiguous interpretation, in practice there are a large number of cases where the conditions assumed above obtain. I have put particular emphasis on this here for Bentham’s ideas will still bear abundant fruit for political economics; unfortunately, in many circles only the above quoted expression is known and moreover all too little attention is paid to it. For instance, G. Cassel, in “Grundriss einer elementaren Preislehre”, *Zeitschrift für die gesamten Staatswissenschaften* 55 (1899) 430, believes he refuted Bentham by declaring it meaningless to “distribute 1000 Marks in a society in such a way that as many people as possible receive as much as possible”. Evidently even someone as clever as Cassel can misunderstand a thought quite badly by unconsciously introducing a monetary calculation. About Bentham’s views much can be found in O. Kraus, *Zur Theorie des Wertes. Eine Benthamstudie*, Halle, 1901.

23. This three party exchange is possible e.g., with a contract or by an in-kind clearing bank acting as middleman. Of such banks there have been the beginnings for instance in Egypt. (See O. Neurath, *Antike Wirtschaftsgeschichte*, Teubner, Leipzig, 1909, 9). A medium of exchange is not at all required, as it has sometimes been supposed.

24. In order to show in what sense more exact formulations are required, Bellamy's account shall be used as a basis since this makes the mistakes immediately apparent. The capitalists pay 1 Pfennig for every bucket of water that is delivered to them by the workers, but the workers have to pay 2 Pfennigs to the capitalists for every bucket of water they get from a basin. The capitalists do not consume the entire daily surplus since they are fewer in number, thus the basin is filling up. When it is completely filled, the carrying of water is stopped, the workers cannot purchase any more water since they do not receive any Pfennigs, they have to wait until the capitalists have used up the water, i.e. until the crisis is over. At the beginning of the first day after the first purchase each party owns half a bucket of water:

$$(C\ m/2) \quad (W\ m/2)$$

The workers consume this half bucket, while for the capitalists there is a remnant [after consuming quantity p]; at the end of the first day:

$$(C\ m/2 - p) \quad (W\ 0)$$

the same happens the next day, after n days the situation is:

$$(C\ nm/2 - np) \quad (W\ 0)$$

If the basin is completely filled with that amount of water, the workers have to wait, according to Bellamy. In his view, this situation can only be remedied with the introduction of collective ownership. Yet it is entirely evident that it is possible to have the same satisfaction of the capitalist class simultaneously with an improved satisfaction of the workers – and without the crisis – namely, if the capitalists get p per day and the workers $m/2 + p$. Once again, this is a problem that has nothing to do with equilibrium and the other basic concepts of price theory, since no moving forces are assumed, but only possibilities of transfers are considered. We must never forget that in reality the understanding of the possibilities of transfer is the driving force. For instance, if people realise that price differentiation is advantageous *for all*, then they will introduce it. It does not make any sense to adopt premises from which price differentiation cannot follow.

25. It is all too typical that in W.S. Jevons, *The Theory of Political Economy*, London, 1871, 2nd ed., 1879, Ch. V., 219, the section on "Over-production" is just one and a half pages long and lacks any mathematical formulation, whereas in previous paragraphs on "Joint production" and in the section after "Over-production", the mathematical treatments abound. The paragraph itself does not stand in any relation to the whole of the work and lacks any principled consideration. Other exact authors are not much better. In Pareto's latest book, this thoughtful author fails completely in dealing with the theory of crises. Although clear thinking and mathematical formulation usually play a major role, this suddenly stops with the theory of the crises and one commonplace follows another, e.g.: "A crisis is nothing but a special case of the big law of rhythm that dominates all social phenomena" (*Manuel*, *op. cit.*, 529) etc.

26. Compare Pareto, "Anwendungen", *op. cit*.

27. Since some economists try to eliminate organisational theory from political economy, it may be pointed out that barter is only a special case and yet represents a type of organisational form. It is just that the above account required no examination of the motives. If we ignore moral pleasure or pain, then the transition from: (Aa) (Bb) for A: $a < b$, B: $b < a$ represents an improvement for both parties, irrespective of whether these transfers occur as a result of exchange, mutual theft, mutual gifts or of an intervention of some third party, for instance the state. This again shows that this way of looking at things is suitable to examine all cases of possible transfers of goods with respect to the resulting changes of distribution of wealth.

28. Compare H.H. Gossen, *Entwicklung der Gesetze des menschlichen Verkehrs und der daraus fliessenden Regeln für das menschliche Handeln*, Braunschweig, 2nd ed. 1889, 9 [3rd. ed. 1927, Berlin].
29. This seems to be contributing to the somewhat strange remark by W.S. Jevons, *Money and the mechanism of exchange*, London, 2nd ed., 1876, 9: "water, indeed, may be the reverse of useful, as in the case of flood, or a damp house, or a wet mine." The falling curve of value in F.v. Wieser, it seems, is due to a slip, as he abbreviates the sum $a_1+a_2+a_3+a_4+a_5+ \ldots a_n$ by the product "an"; that he sticks to this mistake (*Der natürliche Werth*, Hölder, Vienna, 1889, 25 ff.) can be explained by the price curve: "when experience shows . . . that an abundant harvest may be of less value than a poor one, our law provides an explanation for this". Against that: W. Neurath, *Die wahren Ursachen der Ueberproduktionskrisen*, 1892, repr. in his *Gemeinverständliche nationalökonomische Vorträge*, Braunschweig, 1902, 226, and Kraus, *op. cit.*, 108.
30. See the German translation of D. Bernoulli, *Specimen Theoria Novae de Mensura Sortis*: *Die Grundlage der modernen Wertlehre. Daniel Bernoullis Versuch einer neuen Theorie der Wertbestimmung von Glücksfällen*, with annotations by A. Pringsheim, Duncker & Humblot, Leipzig, 1896 [Engl. trans. "Exposition of a New Theory of the Measurement of Risk", *Econometrica* 22 (1954) 23–36].
31. A. Marshall, *Principles of Economics*, London and New York, 2nd ed., 1891, 187 and notes.
32. J.B. Say, *Cours complet d'économie politique*, Paris, 2nd ed., 1840, 556.
33. Compare M. Weber, "Die 'Objektivität' sozialwissenschaftlicher und sozialpolitischer Erkenntnis", *Archiv für Sozialwissenschaft und Sozialpolitik* 19 (1904) 22, where there is much insight besides some mistakes. [Engl. trans. " 'Objectivity' in Social Science and Social Policy" in Weber, *The Methodology of the Social Sciences*, ed. by E.A. Shils, Free Press, New York, 1949.]
34. Compare Schumpeter, *op. cit.*, 155.
35. Smith already restricted his area of research in this direction by the choice of the title of his work, yet he kept coming back to talking about how institutions increase wealth – he did not confine himself at all to the exchange of goods in the sense common today. Malthus asked how poverty developed. In Sismondi we see clearly how phenomena of capitalist life can be related to mass poverty, he asked how to account for mass poverty in the face of increasing wealth. In Rodbertus we meet the same question, but in a much more specific form; he examines how the mechanism of credit could be used to explain the crisis in agriculture. In a similar way we see repeatedly until today that scientists examine certain systems of relations as causes of pleasure and pain and of wealth and poverty.
36. G. Schmoller, *Zur Literaturgeschichte der Staats- und Sozialwissenschaften*, Leipzig, 1888, ix.
37. Compare W.S. Jevons, *The Principles of Science*, London, 3rd ed., 1879; F. Enriques, *Problemi della scienca*, Bologna, 1906 [Engl. trans. *Problems of Science*, Chicago, 1914]; and Pearson, *op. cit.*, ix., Preface: "There are periods in the growth of science when it is well to turn our attention from its imposing superstructure and to carefully examine its foundations."

OTTO NEURATH

8. INTERVENTIONS IN DISCUSSIONS OF THE SOCIAL POLICY ASSOCIATION

(I) REMARKS ON THE PRODUCTIVITY OF MONEY*

I should like to make a few comments on the issue of productivity. If this leads me to touch on the topic of monetary value with a few sentences, it is because I want to raise the question of the productivity of money.

The concept of productivity has a noteworthy history. It initially derived from the old liberal school and was delimited in various ways. The discussion has shown that we are still owed a satisfactory reconstruction and a sufficiently precise formulation of the concept. It could even be doubted whether this concept should continue to be used in science at all.

The most important modification was initiated by the older movement for protective tariffs, especially by the doctrine of the productive forces. This doctrine, the significance of which was not fully grasped at the time of its appearance, puts the satisfaction of needs of every kind into the focus of attention, in particular the secure satisfaction of needs. Security needs were to be taken into account just as much as the current money earnings and the need satisfaction thus made possible. Income was of central concern. The majority of the preceding speakers have also expressed themselves along these lines. This is surely an indication that the idea forwarded by the older German movement for protective tariffs has a full claim today to consideration and even further development. We must ask whether the narrow delimitation of the concept of income, which still characterises even its more wider versions, allows for a successful treatment of the complex of questions thus touched.

A number of the preceding contributions to the discussion concerned the question of how *the total situation of a group of people* is conceived of. When talking of the total situation of a person, we must consider that many factors are significant for choosing a profession, a place of residence, even such factors as the opportunity for artistic or religious satisfaction (remember the emigrations for the latter reason). If we were to restrict ourselves to the original conception of pure monetary income, we would certainly let the choice of a profession depend on the magnitude of monetary income. Some political economists thus tried quite early to abandon this conception, without, however, having precisely formulated the wider conception. The question is, e.g., to what extent concepts like professional reputation should be reckoned as part of the income. Once it was counted as a part of the income even by strict adherents of the school of economic liberalism, but later this extension was again abandoned. It should be emphasised that particularly professional reputation does play a decisive role in the choice of occupation, often more so than the monetary income. Since the old concept of income has been challenged anyway, which was connected with the traditional view of monetary income, it should be possible to refashion the concept of income still further. But will it then be possible to have a *calculus*?

Suppose a civil servant has the choice between two places of residence, A and B. In A, he receives a larger quantity of food and accommodation, in B on the other hand a larger quantity of honour. Is it possible to have a calculus such that it summarises for us food and accommodation as one magnitude, and honour as another? Impossible! We are not able to compute such a complex, containing both pleasure and pain, by first separately establishing the magnitude of pleasure, then the magnitude of pain and finally doing the sum. On the contrary, we can only look at such a complex as a whole. Therefore the conversion into money is of no help in this case; it does not matter how we perform it, whether we base it on averaging or proceed in some other way. In the end we have to consider a complex of pleasure and pain as a whole, if we want to characterise the entire situation of a person. The situation is the same if we want to describe the order of life [*Lebensordnung*] of a people, or of a temporal period, in order to infer from that its favourable or unfavourable conditions. Again we have to look at the entire situation. Here and at many other points as well, the calculus of value reaches its limits, because the value of a sum of goods is not derivable from the sum of the values of the individual goods. Indeed the question may be raised whether it is possible at all to ascertain the value of individual objects in social life without looking at the social life in its entirety at the same time, that is, whether all goods might not be complementary. If this were the case, it would be impossible to capture the individual phenomenon by a separate calculation, independently of whether one uses monetary calculation or any other kind of calculus.

It would lead too far if I were to discuss the problem of value any further here, but a few other issues remain to be dealt with. One question is whether the conversion of [real] income into monetary terms, and conversely the derivation of real income from the monetary income, might be advantageous in at least some indirect sense. Only if index numbers are not being used: they give rise to many problems (this has hardly been mentioned here). Until now these difficulties have been examined mainly in actuarial sciences, less so in the domain of political economy.

If we want to compare the orders of life of two nations with each other, we cannot describe them as the sum of some elementary constituents and compare these individually. We cannot reach a sum by saying: more meat is eaten in the one country, fewer clothes are worn in the other. Neither do we compare the artistic achievements of architecture so as to say: this hall is more functional than that one, but less beautiful; let us add up advantages and disadvantages. In comparing two works of art we look at the one as a whole and look at the other as a whole. Nowadays the total [life] situation is receiving more and more attention in addition to the monetary income; thus the disutility of work, for instance, is perceived as cost in the original sense. Also the concept of aggregate income is being extended and the concept of *life in its entirety* is put at the centre of discussion. This is a major point on the agenda of the historical school. One of its founders stated pointedly at the time that the life of a nation is a whole, the manifestations of which are intimately connected. Several speakers have drawn too sharp a contrast between some new conceptions and the older view. As long as the state of science can be surveyed, it is not too difficult to connect these new views to the old ones and so maintain the important continuity of scientific development.

Although it is not sufficient for an understanding of a totality to look at the complex bit by bit, one need not dismiss investigations of the causal connection between the individual elements. This is not a question of either-or. The history of science shows that the development was different. The investigation of the individual parts was undertaken with a view to the whole. The exploration of the entire complex was only possible by building on the relatively independent specialist research. This mutual supplementation of the investigation of the whole of life and its parts is not at all contradictory.

In the discussion of the productivity of different institutions I felt one to be missing, which was considered in a different context: money. The productivity of the monetary system was not addressed; it was only noted that money serves as means of measurement of productivity. But it has not been pointed out that the monetary system itself is part of the production process. In any case, I would like to point out that it is a strange measuring instrument that has the characteristic of influencing the production process itself. The investigation of the productivity of money could claim at least as much attention as the investigation of the productivity of industry, of agriculture or the measurement of productivity by money.

In what way can it be established, then, whether a certain monetary organisation is more productive, more useful than another? For comparison we can adduce cases provided by history. We can also consider theoretically possible cases, though it has to be realised that theoretical economics has not yet come close to exhausting the cases given by history. In just the same way as an engineer is allowed to investigate possible machines, not just those of the past and the present, one could examine systems of monetary organisation, independently of whether they have ever existed or not. The limiting cases have hardly begun to be explored theoretically. If in summary we speak of a monetary system in the most general sense where qualitatively undetermined expectations of goods, measured in units are transferred, then the most extreme case of monetary organisation we can pick out is money not having a face value corresponding to its constituent metals. But this is still not the most extreme type of goods transfer possible. We can also imagine, on the basis of our economic order, an exchange in kind, facilitated by an in-kind clearing bank. There have been some banks of this broad type in ancient Egypt, about the bureaucracy of which we heard some unflattering remarks today.

(Interjection by Professor Weber: “Oh, come on, that was as good as ours!” Merriment.)

Scientific inquiry appears to return to old ways by considering the entire order of life as a whole. The question of the productivity of monetary organisation or of the clearing system in general are thus granted full legitimacy besides other questions. Most of the discussions of this conference concerned *productivity within a given institution, but not productivity as an institution itself.*

("Bravo"! Applause.)

NOTES

* First published as an untitled contribution by "Dr. Otto Neurath (Neue Wiener Handelsakademie)" to the general discussion under the title "Über die Produktivität der Volkswirtschaft" (On Economic Productivity), in *Verhandlungen des Vereins für Sozialpolitik* (Proceedings of the Congress of the Social Policy Association), *Wien, 27.-29. September 1909*, *Schriften des Vereins für Sozialpolitik* 132, Leizig: Duncker & Humblot, 1910, 599–602, repr. with the title "Diskussionsbeitrag über die Produktivität des Geldes" in O. Neurath, *Gesammelte ökonomische, soziologische und sozialpolitische Schriften*, hg.v.R. Haller, u. U. Höfer, Hölder-Pichler-Tempsky, Vienna, 1998, vol. 1, 218–221. Translated by Christoph Schmidt-Petri and Thomas E. Uebel.

(II) ON THE ROLE OF MORAL VALUE JUDGEMENTS IN ECONOMIC SCIENCE*

1. In the following it shall be assumed of every moral evaluation that it is based on the experience of some form of pleasure or pain that we feel about human actions or institutions.

2. By "political economy" we shall understand a science that investigates wealth in its dependence on human actions or institutions.

3. By "wealth" we shall understand an amount of pleasure and pain in an individual or a group of individuals.

4. This demarcation of wealth approximately coincides with the concept of real income, or of happiness in its widest sense.

5. In political economy, it is possible to disregard all concrete manifestations of pleasure or pain and consider pleasure and pain as such; for instance, in trying to establish how the pleasure and pain of a group of individuals depends on the different ways of price formation.

6. In concrete economic investigations, all kinds of pleasure and pain may be taken into account, or just some specific ones, such as the pleasure and pain caused by food, clothing and accommodation and the lack thereof.

7. Moral judgements can come into contact with the discipline of political economy at *two* points:
   (a) In the investigation of concrete relations of pleasure or pain. The pleasure or pain resulting from some individual's moral evaluation is co-ordinated to the pleasure or pain which is caused by clothing, food, accommodation, works of art etc.
   (b) In the evaluation of a concrete or general system of institutions, which causes pleasure or pain. I can state, for instance, that some order of things conditioned by a certain institution and causing a particular distribution of wealth is of lower moral value for me than some other order of things. *In this case what is evaluated morally is the order of things, whereas in the first case the moral evaluation itself was part of this order.*

8. Moral evaluation can be considered as a manifestation of pleasure and pain in every concrete investigation, for instance by also taking account of the moral indignation caused by servitude in some region, besides taking account of the lack of food that comes with servitude in that region.

9. The moral evaluation of systems of wealth distribution, say the free market or some other system, is amenable to a scientific formulation once one has agreed on the principle serving as basis for the moral evaluation. One can raise the question: which of the systems A, B, C, . . . N, accords best with the principle X? Whether it is always possible to find an answer, or always a unique answer, cannot be examined here.

10. Moral judgements about systems of wealth distribution, i.e. systems of pleasure and pain conditioned by certain institutions, need not be reducible to utilitarian principles. It is conceivable, for instance, that someone would not judge as most moral that system which produces a maximum of total happiness, but that system which in one particular individual produces the very maximum of happiness that could be produced by any of the systems at issue.

11. The scientific character of the discipline of political economy is not impaired at all, whether one takes account of the moral evaluations as pleasure and pain or whether one makes a moral evaluation of the institutions that cause pleasure and pain. Political economy is being ‘ethicised’ by this just as little as chemistry is being ‘hygienised’ by attempts to make an hygienic assessment of certain chemical compounds.

NOTES

* First published as “Über die Stellung des sittlichen Werturteils in der wissenschaftlichen Nationalökonomie” in *Äusserungen zur Werturteilsdiskussion im Ausschuss des Vereins für Sozialpolitik*, no editor, publisher or place indicated [the title page reads: “Als Manuskript gedruckt 1913” (printed as manuscript)], 31–32, repr. in O. Neurath, *Gesammelte philosophische und methodologische Schriften*, ed. by R. Haller and H. Rutte, Hölder-Pichler-Tempsky, Vienna, 1981, 69–70. Translated by Christoph Schmidt-Petri and Thomas E. Uebel.

OTTO NEURATH

9. ECONOMICS IN KIND, CALCULATION IN KIND AND THEIR RELATION TO WAR ECONOMICS*[1]

The changes which the whole of our order [of life] has undergone have lead to a more general interest in the science of war economics. As valuable as the larger part of this literature may be, dealing with economic, political and sociological issues, little has been done until now for the theoretical comprehension of war economics. Its origin has been described in detail and its significance for the whole population has been discussed in more than one respect. But only a firm grasp of the theoretical underpinnings can secure a sufficient future use of the knowledge already acquired. The most remarkable details will be lost and the most significant changes forgotten, unless some general empirical principles of a theoretical nature can be firmly established.

History shows only too well the significant effects which theories can have due to their influence on general opinion through the concise formulations of their main claims. It is most certainly remarkable that still during the war of 1870/71 "in Western Switzerland the wisdom of the bureaucracy was praised which, except for fixing the value of the Sovereign [gold coin], allowed for spontaneous recovery from the crisis, and thus saved the country from immeasurable misfortune."[2] Yet the economic conditions of that time were not all that different from the conditions before the World War and so do not explain the difference of view between then and now. At the time, of course, classical liberalism ruled uncontested, and even today it still influences many more people than is generally supposed. The extent of this liberal influence is due not so much to its descriptions of states of affairs, or to its summary thoughts on the essence of the economic order, but rather to its abstract theory, the results of which were recognised widely.

It would be of considerable practical interest for the science of war economics to receive a theoretical elaboration. Of course, theoretical war economics could not differ from economic theory generally, if the latter were already entirely developed in all its parts; but it is not. Many questions which concern war economics were neglected, since economic theory – often without being aware of it – only examined a very narrow group of types of peace economies, rather than all types of possible economic orders, among which the present war economy would also be found in its general outline. War economics in fact relates to theoretical economics just as agricultural chemistry relates to chemistry. “Agricultural” is just as little a chemical concept as “war” is an economic one.

The question is, now, why the theoretical development of war economics has been so long delayed. Several reasons are involved. One commonly reproaches theory for being untrue to reality. Economic theory generally faces the opposite reproach, that it sticks too closely to a specific type of reality, and thus lost the ability to adapt to more substantial changes. If economic theory had liberated itself further from reality, a system of possible forms of economic orders would have been developed, as I already emphasised, in which the actual cases are contained as special ones. The theoretical basis could have been so general that every new reality would already have been contained in it or would have been subsumable under general considerations. Conventional economic theory mostly stands in *too rigid a connection to monetary economics and has until now almost entirely neglected the in-kind economy*. However, our present war economy already is an in-kind economy to a considerable extent, or at least a monetary economy based on the in-kind calculus in more than one respect, with the monetary order divested of its domination. This subject matter is often meant to be captured by a theory that does not correspond to it.

No matter what political position one takes towards the new order of things, abstract schematic analyses, of the sort that have been made of monetary economies in so diverse ways, are required in any case. We must return to common ideas in economic terminology if we wish to adequately capture both monetary economies and in-kind economies and diverse combinations. We find the oldest origins of political economy in the science of household economics on the one hand and in the science of government on the other. The economics of free exchange has only become the object of examination at a relatively late stage.

The object of theory and practice was wealth, where wealth was understood as real income in the widest sense.[3] The question of how a people, how humanity can become happy and rich has stood in the centre of attention of the economic literature for a long time. For Adam Smith real income still plays a decisive role.[4] Occasionally he tried to establish the connection between certain economic orders and wealth. His followers have gradually chosen as main object of inquiry the order of monetary and credit relations, which he dealt with in detail, and let fade into the background entirely the question of how the different possible economic orders impinge on wealth. Even though the purchasing power of money, and thus indirectly real income, is discussed again and again, a consistent analysis of changes in wealth has not generally been undertaken. It must be remembered that the subjective character of the question: how can one make a nation as rich as possible? vanishes entirely when we ask: how does the respective economic order influence the real income of people? How far the perspective of later authors has been removed from the initial way of putting the question may be illustrated with a passage from Büsch: "No man is called rich because he has beautiful clothes and a valuable household goods. For their use does not contribute to his further income. Rather the man who owns real estate, which yields monetary income or yields produce which he can sell for money and get his income out of that, this man . . . is called rich . . . When in the following we speak of the wealth of a nation, we shall understand by this all property of all individuals and members, the use of which is given in monetary terms or represents a money value."[5] For instance, if the estimate of the quantity of money shows a larger sum in a later year, one would say that the wealth of the nation has risen, even if e.g. the aggregate of real income has fallen. Of course, this consequence wasn't usually thought of, and in general the impression seems to have prevailed that to a higher national wealth in monetary terms there corresponded a higher real income.

This victory of the pure monetary calculus is the reason why in the so elaborately crafted work of Colquhoun, which contains a lot of valuable material on the war economies of the epoch of Napoleon, almost all data is expressed in Pounds Sterling.[6] Especially in periods of war, in which prices change frequently, extraordinarily little is thereby stated about the things that interest us most today, for instance. Colquhoun gives the import of cotton in terms of Pound Sterling, he gives food production in terms of Pound Sterling – not a trace of an *in-kind calculus*.

But how important would it be to learn which quantities of, e.g., cotton, of food were imported into England, and which quantities of food were produced at that time. One perceives the difference in perspective when comparing Colquhoun's work with Ballod's purely dietetic work or the comprehensive work of Popper [-Lynkeus], who both pursue a pure in-kind calculus.[7] But these works, which appeared prior to the World War, had purely practical purposes and did not really have any theoretical backing. Monetary economics does not always figure as such in economic theory; often for instance transfers of goods are dealt with without mentioning money, but the choice of the mechanisms of transfer and the scope of the inquiry do not span all possible types of transfer mechanisms, but give preferential treatment to certain types of exchange which reach their full significance only in monetary economics. It was due to concern with the latter that these abstractions were developed in the first place. A theory that considers the transfer of goods and its influence on wealth in a genuinely general way would also have to be able to discuss those transfers which, for instance, the state carries out by authoritarian decree. Only such a theory could show that these mechanisms achieve less wealth for a group of individuals or for all individuals than does free competition, say, or exchange between monopolists.

But even as the victorious theory of the market economy spread everywhere, political economists endeavoured to capture the wealth, the real income of individual groups of people. But these attempts were usually of a non-theoretical nature and also suffered from the preeminence of the monetary perspective. Attention to real income in the way relevant to the conditions of life was paid only in housekeeping budgets and family histories, which followed older examples and thus took the form of an in-kind calculus only in the last few decades. A comprehensive account of all social classes has not yet been achieved, of course, nor has there been any development, to give a simple example, of the schema of a society with just two goods, the distribution of which would be influenced by different moments such as price formation, tariffs, etc. It is obvious that these phenomena are amenable to abstract and schematic analysis. In my view the in-kind economics that is used today in many ways for the purposes of war has prepared the way for the abstract in-kind calculus.

To date several such calculi have been developed, but usually just to advertise specific projects of reform, for instance, by Theodor Hertzka, Josef Popper-Lynkeus, Franz Oppenheimer and others. While many of these authors designed concrete in-kind calculi to show how much land, labour and raw material would be required to feed a particular number of people, others, such as Sismondi, Henry George, Wilhelm Neurath, Rudolf Goldscheid only pursued wholly general considerations to show the difference between the satisfaction that is technically feasible and that which is possible in a market order. The in-kind calculus that has occasionally been sketched remains to be developed and given an autonomous position in theoretical economics.

Any account would roughly go as follows. Let us assume the available raw material and labour etc. as given. What are the production possibilities? How can the output be distributed, given the existing constraints? At first this question can be looked at from an exclusively technical perspective, later the structure of the economy could be considered variable as well. In some forms of organisation the total output will vary, in others, its distribution. For this it is entirely irrelevant whether the final outcomes are judged to be good or bad; the in-kind calculus is an entirely objective matter. It shows how types of monetary economy, as one of the possible economic orders, influence production and consumption. For instance, the monetary calculus could yield an increase in nominal income for a decrease in real income. The monetary calculus is separate from the in-kind calculus, it represents just one form of organisation. This way of looking at things quite understandably provides the basis for a very liberal view, which nevertheless we find adopted infrequently in all its ramifications. Even in the arguments of many socialists, who tend to emphasise the discrepancy between nominal calculus and real income, the assumptions of a monetary economy play a rather important role. This becomes apparent when their accounts are scrutinised in detail. Marx, for instance, often stresses this distinction in general terms, but lacks a proper theoretical in-kind calculus.

The practical importance of an independent in-kind calculus based on comprehensive consumption and production statistics is almost universally acknowledged today. But still more has happened: not only has the in-kind calculus received attention, but the in-kind economy also has been favoured at the expense of the monetary economy. This happened gradually and automatically. Today we live in an economy of a strongly in-kind character, without there having been real revolutions, just as often in politics conventional forms are maintained while the content has already changed significantly. In itself, the in-kind calculus is not any more closely related to the in-kind economy than to the monetary economy. We could subject the monetary economy to the in-kind calculus, as much as we do the in-kind economy. For instance, it is possible that by investigating some type of monetary economy we realise that from the same endowments of labour, raw material etc. it produces a higher real income than some type of in-kind economy in any given period of time. *The in-kind calculus represents a type of calculation, the in-kind economy an institutional order of a society.*

As a result of the war the in-kind calculus was applied more often and more systematically than before. This seems to have demonstrated to many people that the monetary economy which existed before the war was not able to meet the new requirements, which were those of the people interested in victory. It was all too apparent that the war was fought with ammunition and the supply of food, not with money. Whereas before the war, questions of money and finance were treated at length in the literature on war economics and reorganisations of banking and credit were considered, now the structures of production and distribution receive primary attention. This happens at the expense of many questions of money and finance, important and significant as they still may be – the centralisation of industry is partly taking place through the mediation of banks. The primary issue is how to mobilise all forces to win the war. It would be quite interesting to investigate why similar questions are not as often asked in times of peace, indeed, why many do not ask them at all, but instead accept limitations on production, mass unemployment, emigration as some kind of fate or at least as something not due to the organisation of market and credit. One cannot even claim that this happens because the ruling circles and the wealthier parts of the population are less severely affected by these crises, for they also suffer deprivation. There are many other reasons and one is the difficulty of understanding how the monetary economy works. Consideration of the theories of crises developed during the last hundred years renders this quite clear. But whatever the reasons for this insufficient comprehension may have been in the end, the war did not care about them, and shortages did occur. The existing structures, together with the prevailing spirit, nonetheless sufficed to gather, by political intervention of all kinds, the required forces and raw materials, partly or entirely bypassing the monetary calculus. To a certain extent, a state-managed in-kind economy was set up on a large scale, particularly thoroughly so in Germany. Whereas in the past factories were shut down to raise the monetary income of the members of the cartel, today factories are shut down in order to produce more important rather than unimportant commodities. *The leading authorities base their decisions on the in-kind calculus.*

Ample consideration is nevertheless shown for the traditional order. The owners of the factories that are used for such production receive adequate compensation. Enough remains of the monetary economy so that normal profits can to a certain extent still be made, too much so in the view of many. But it is not essential that monetary incomes still play an important role; what is essential is that they are no longer as important for the processes of production and distribution as they used to be. The monetary order has been divested of its power in more than one way. First by the organisation of production and distribution of commodities on behalf of the state or state-administered associations, secondly by restricting the distribution of raw material etc. to certain people and by making all possible sorts of restrictions within the given allowances. These restrictions can be effected by authoritarian decree or by appeal to certain groups of the population. For instance, in some areas it may be required that the wealthier population should abstain from the consumption of pork in order to help the poorer population, i.e. that they should not consume the only foodstuffs available to the poorer population, but keep to luxury consumption in the strict sense. The beginnings of price differentiation also belong here, in which the same good is sold at a higher price to the rich than to the poor. It needs emphasising that price differentiation also occurs in the free market economy, but there it is brought about in the interest of pure profits.

When we now turn to building a theory that corresponds to the present development of the in-kind economy, we seek to gain the ability to capture all theoretically significant changes and to study the real influence of the individual institutions. This aim is independent of whether one perceives the present changes to be permanent, as Jaffé, who welcomes them, or as transitory, as Fuchs, who rejects them as permanent structural features.

The contemporary order is probably as distant from the free market of money and credit as it is from a state-run macro-economy in-kind. Nevertheless, one still tries to apply monetary theories, or, should this be really impossible, at least to regard the entire present order simply as a temporary aberration, as it were, often without even attempting to construct a theory for it. If we want to be serious about the development of economic theory, we have to consider a whole range of possibilities: monetary economies of various kinds and in-kind economies of various kinds. We could design rather extreme sorts of in-kind economic orders for these purposes. For instance, we could assume that an economic dictatorship assigns responsibility for all production to the associations governing the different branches of industry and agriculture (which we assume have not changed); we could also assume an entirely state-run production, of course, or some other order. In such models the natural resources, machines etc. are differentially assigned on the basis of some comprehensive in-kind calculus to the production of luxury goods and to the production of necessities. The relations between the production associations themselves, which we could think of as a pan-cartel encompassing the entire economy, could be like the traditional ones in as much as services are returned, but on an in-kind basis.[8] The salaries and wages of workers and employees and the income of the entrepreneur could be thought of as taking the form of tickets, for bread, milk, and housing etc. These are not to be used as means of purchase, but function as vouchers for the immediate receipt of the designated goods. Even if transfers of such vouchers were possible, the sum of the vouchers would still correspond to the sum of the existing goods. Banks, for instance, which finance a factory, would credit the wages in kind, the raw material in kind etc., and receive in turn a part of the final output [in kind]. The salary and wage equivalents would be put at the disposition of the banks by the various associations, possessing agricultural produce, housing etc., just as if they were deposits. We can imagine in-kind loans and taxes etc. as well.

In the theoretical model just sketched I have tried to unify all important higher-order institutions of an in-kind economy historically known, but have nonetheless kept enough of the present order, so that from this model we may learn something about the present and past economy. The in-kind macro-economy can of course be conceived of as purely state-administered or as purely privately administered, as communist or in accord with other forms of distribution or governance. In principle, all this is of secondary importance for the in-kind economy.

In an in-kind economy as the one alluded to, the recipients of wages only come in contact with the entrepreneurs, not additionally with the retailers, as they do today. Retail will have become a mere dispensing outlet, similar as it is today, when goods must be sold at the highest price with a restricted profit. And, by the way, already today we widely witness the tendency to transform money wages into in-kind wages to a fairly significant extent, for instance by entrepreneurs obtaining food at low prices for their workers or taking care of the supply of goods in some other sense. Only a small step is left to genuine in-kind wages. It is likely to be taken widely should the war last longer, since only in-kind wages can eliminate the element of chance from the payment of wages and salaries. We can think of the envisaged vouchers as fix or variable, stating the weekly allowance, say, that is determined case by case by decree, as occasionally by magistrates today. The variable prices of the commodities would be replaced by variable quantities, with the only difference that the fixing would occur on the basis of general economic considerations or centralised agreements. It would be possible to have a general and comprehensive share-holder system in an in-kind pan-cartel system, given an in-kind market like the present one.

The association for pig-iron could receive a share of the output of the association to which it delivers its final product or, alternatively, a share of the goods themselves that are received by this association in exchange for their products. This association again, say it produced machines, could have a share in the output of the factories that gets the machines. At no stage need an agreement to fix the quantities be made, which would however be required in a pan-cartel system in a monetary economy, since somewhere sums of money rather than share-claims for these sums would have to appear. In an in-kind economy, however, the share-holding could occur at any stage, since the goods produced can be shared at any time. Our theoretical considerations are as unconcerned about the question whether this is desirable or politically feasible, as the purely monetary considerations are unconcerned about the question whether their abstractions and constructions occur in reality. These are all models to guide our perception and comprehension.

Foreign trade as well would have to be treated in the science of in-kind economics. In a state-controlled in-kind macro-economy we could think of the state as administrator of a quantity of goods which it decided to export. The export of well-defined quantities would be made under the condition that some other state would promise to import other goods. In some sense similar arrangements have already occurred, for instance in the agreements between Romania and the Central Powers. The state can execute significant global in-kind interventions, for instance by reserving the right to use the entire cargo space of a country. In this case too a comprehensive in-kind calculus would be significant for the distribution. The money which individual exporters and importers would pay the shipping company would not be decisive for the distribution of cargo space. Here again, the formation of associations is progressing, indeed there already exist some agreements covering longer periods of time. We should try to build models of the global economy of an in-kind structure and to investigate the consequences of such institutions. After having considered pure in-kind models of global trade we will be prepared for the mixed forms that we are likely to encounter after the war. No doubt the state will try to influence the global economy after the war more than it used to do, in particular since political considerations will be allowed to play a decisive role.

These investigations will enable us to significantly enlarge our theoretical horizon and thus be prepared to face the problems of the present. Seeds of future developments could be recognised as such sooner than before and the significance of many events would be better appreciated. Then it would depend on the political standpoints of the individual whether he wished to cultivate and to care for the seeds or to destroy them. To create such desires, however, is not the business of science. Historical research too could significantly profit from the development of the science of in-kind economics as outlined. Experience shows that we tend to investigate those events the closest that are interesting for us in their theoretical analysis as well. It is hardly an accident that many historical materials relevant for the science of war economics are found only today even though the documents have always been easily accessible. It is similar with in-kind economics. Whereas minutely detailed analysis of the development of the monetary economy and investigations of isolated peculiarities have long existed, in the literature of political economy the institutions of the in-kind economies have only been considered superficially and the historically given higher institutions of the in-kind economies have hardly been appreciated at all. Even when they were mentioned, their interrelations were not dealt with, and instead they were considered only in isolation.

It is commonly thought that an in-kind economy is not compatible with a rich cultural life or with international relations and that there are three developmental levels of economic organisation: the barter economy, the monetary economy, and the credit economy (no matter how their order was modified later). The idea that the in-kind or barter economy can exhibit various degrees of development, just as the monetary economy, and that there might be systems of the in-kind economy superior to some systems of monetary organisation has never really been defended. One reason for this is that in history monetary thinking infected all nations, as it were, and destroyed the seeds of the in-kind economies. It can be shown what this peculiarity of the monetary system is based on, a system that is able to relate the most distant nations and at the same time dissociate people within a nation. Nonetheless it also happened that some remnants of in-kind economies were maintained and then developed into a higher order, that occasionally forms of in-kind economies reappeared, as they did in the disintegrating Roman Empire. One might expect these rare episodes to be studied with great enthusiasm – but no: the in-kind clearing system of ancient Egypt has hardly been investigated, even though it was a very highly developed institution, the existence of which would not bring discredit even to our age.[9] It would be exceptionally tempting to study the implications of generalising such an institution. In Hellenic times every major landowner seemed to have held his current account in the state warehouse. This made it possible, for instance, to receive payments of rent made at some place at an entirely different place in the country, without this leading to a transport of cereals – just as today a transfer at the post office [bank] does not involve a transport of money. It would only be appropriate to find these kinds of facts explained in the sections we find on barter economics in the various textbooks and encyclopaedias. And concerning war economics, why was attention devoted to money taxes and money loans during the war of secession and the Napoleonic wars, but not similarly to the in-kind taxes and other interventions based on in-kind economics?[10]

These remarks must suffice. As soon as one directs some principled attention to the questions of an economy in-kind, the material starts flowing in. Suddenly facts are related which were isolated before and the wealth of phenomena of which we get a clearer picture is enlarged significantly; furthermore, the theory is prompted to more detailed development by economic reality. One can draw all sorts of parallels, compare the in-kind credit economy with the monetary credit economy and so on. One can investigate for what reasons, if at all, crises of overproduction could occur in a barter economy that is organised along the principles of free markets. Thus one could determine whether these crises are related to the monetary order as such, or to the free market, or maybe to the free market in a monetary economy, or maybe to something else altogether. In brief, the scope of the subject would be widened significantly. The issues of stock-keeping, of systems of storage, of state monopolies in raw materials, and many other topics could be analysed according to principles of a monetary economy and according to principles of an in-kind economy. In consequence, the questions that arise in a mixed economy could presumably be treated theoretically much better than ever before. Theory, present reality, history and prediction would stimulate and inspire each other.

Since the systematic connections of the science of war economics have already been discussed,[11] I would like to recommend that theoretical viewpoints guided by considerations of in-kind economics be developed. I think I have demonstrated above that a more detailed treatment of the in-kind calculus and of the science of in-kind economics would significantly advance the science of war economics (also, of course, the whole of economics, which may be revitalised by these fresh perspectives). Economic theory would then be liberated from its traditional bounds and could treat questions of war economics within its own terminology and concepts. The science of war economics as a separate discipline would still be of value as a summary for practical purposes. Today, however, it has to deal with questions insufficiently covered by general economics. Once the theory of in-kind economics is taken seriously, a wealth of important perspectives would gain attention, which up to now were easily put aside because they were difficult to classify. Future writers will be categorised as to whether they considered the in-kind calculus or not. Such taxonomic results have always been of particular importance in the history of all sciences. Every systematic taxonomy ensures extensive treatment of some perspectives while neglecting others. Any enlargement of the systematic taxonomy that allows for inclusion of a larger number of perspectives is therefore to be considered as progress, provided it is logically flawless.

It would certainly be a theoretically worthwhile endeavour to have investigated in-kind economics even before the *in-kind macro-economy* is realised more widely than so far. *Theory best serves practice when it is unrealistic in a certain sense: when it is ahead of reality, not just following it.*

NOTES

* First published as "Die Naturalwirtschaftslehre und der Naturalkalkül in ihren Beziehungen zur Kriegswirtschaftslehre", *Weltwirtschaftliches Archiv* 8 (1916) 245–258, repr. *in Durch die Kriegswirtschaft zur Naturalwirtschaft*, Callwey, Munich, 1919, 174–182. Translated by Christoph Schmidt-Petiri and Thomas E. Uebel.

1. Compare O. Neurath, "Nationalökonomie und Wertlehre" *Zeitschrift für Volkswirtschaft, Sozialpolitik und Verwaltung* 20 (1911) 69, 88f. [repr. in Neurath, *Gesammelte ökonomische, soziologische und sozialpolitische Schrifte) vol. 1*,, ed. by R. Haller and U. Höfer, Hölder-Pichler-Tempsky, Vienna, 1998, 470–591]; "Probleme der Kriegswirtschaftslehre" *Zeitschrift für die gesamten Staatswissenschaften* 69 (1913) 489ff. [repr. in Neurath, *Gesammelte ökonomische, soziologische und sozialpolitische Schriften*, vol. 2, ed. by R. Haller and U. Höfer, Hölder-Pichler-Tempsky, Vienna, 1998, 201–249]; "Einführung in die Kriegswirtschaftslehre", *Mitteilung aus dem Intendanzwesen*, Vienna, 1914, sect. VIII [repr. in Neurath, *Durch die Kriegswirtschaft zur Naturalwirtschaft*, Callwey, Munich, 1919, 42–133].

2. A. Jöhrs, "Die Volkswirtschaft der Schweiz im Kriegsfall", *Weltwirtschaftliches Archiv* 8 (1912) 33.

3. Aristotle, *Nicomachean Ethics*, 1094: ". . . the end of economics is wealth."

4. A. Smith, *An Inquiry into the Nature and Causes of the Wealth of Nations*, London, 1776, new rev. ed., Oxford, 1869, 5: "and a general plenty diffuses itself through all the different ranks of society"; and (ibid., 32): "the real recompense of labour, the real quantity of the necessaries and conveniences of life."

5. J.G. Büsch, *Sämtliche Schriften,* 16 vols., Vienna, 1813–18, vol. 9, "Von dem Geldumlauf in anhaltender Rücksicht auf die Staatswirtschaft und Handlung" (431).

6. P. Colquhoun, *A Treatise on the Wealth, Power and Resources of the British Empire,* London, 1814, 2nd ed. 1815, German trans. by J.G. Fick, *Ueber den Wohlstand, die Macht und die Hülfsquellen des britischen Reiches*, Nürnberg, 1815.

7. K. Ballod, "Die Nahrungsmittelfrage für Deutschland im Kriegsfalle" *Verwaltung und Statistik*, August 1913, 225ff., and J. Popper-Lynkeus, *Die allgemeine Nährpflicht als lösung der sozialen Frage*, Reisner, Dresden, 1912.

8. W. Neurath, *Gemeinverständliche nationalökonomische Vorträge*, Braunschweig, 1902, 271.

9. F. Preisigke, *Girowesen im griechischen Ägypten, enthaltend Korngiro, Geldgiro, Girobanknotariat mit Einschlus des Archivwesens*, Strassbourg, 1910.

10. Compare the important work of C. v. Hock, *Die Finanzen und die Finanzgeschichte der Vereinigten Staaten von Amerika*, Stuttgart, 1867.

11. Compare G.v. Mayr, *Volkswirtschaft, Weltwirtschaft, Kriegswirtschaft*, Berlin/Leipzig, 1915, 25ff.

OTTO NEURATH

10. THE CONCEPTUAL STRUCTURE OF ECONOMIC THEORY AND ITS FOUNDATIONS*

I. THE NEED FOR THE REFORM OF ECONOMIC THEORY

1. This essay summarises the results of attempts to create a consistent structure for an economic theory that is able in principle to provide equal theoretical treatment to all possible forms of economic activity.

2. The lack of an adequate set of theoretical concepts was already sensed before the World War, but is felt even more clearly now that the conflict between the market economy and administrative economy becomes ever more evident, though it had already started earlier. Whereas the market economy has been thoroughly investigated theoretically, the phenomena of administrative economy – price controls, rationing, compulsory production, centralisation of distribution – has been neglected so far. This disregard is one of the reasons why most predictions of economists about the possible duration and the probable economic institutions of a World War have failed – a failure that underscored the crisis of economic theory that has been noted for some time now.

3. The conceptual foundations attempted here are independent of exchange considerations. Here exchange will be treated only later on as an individual fact. In the traditional structures of concepts, exchange generally has been taken into account even where it did not seem to warrant consideration at all. Everywhere the aim was to deduce prices, interest rate and the like; thus it became difficult from the start to see phenomena of a market economy and of an administrative economy side by side.

4. The present reconstruction of economic theory tries to retain as much as possible of the traditional structure, but some aspects could

only be used after adaptation and augmentation, some had to be eliminated altogether. It became apparent that competing arguments often in fact belonged to different levels of the problem in question. Certain incorrect statements did not need to be rejected completely, but could be admitted if restricted to a narrower field of application. In order to be able to proceed consistently in this reconstruction, it was necessary to make some use of rather wide-ranging arguments.

II. THE QUALITY OF LIFE

5. The course of experiences of a human being, as far as their enjoyment is concerned, will be called the '*quality of life*' [*Lebensstimmung*] of a subject within a defined period of time.

6. The term 'quality of life' seeks to encompass both happiness and unhappiness. The term 'happiness' could also be allowed to cover phenomena of both happiness and unhappiness, but a term is preferable that in no way indicates the direction of the enjoyability.

7. It follows that the quality of life is connected with all types of experiences, with eating, drinking, reading, artistic sensibility, religious contemplation, moral speculation, loving, hating, heroic and cowardly behaviour. If a quality of life is assigned to artistic sensibility this does not mean that the latter is nothing but quality of life or could be derived from it alone.

8. We can start the investigation of the quality of life in different ways. Here the assumption is made that we imagine several possible courses of life from a certain moment. This always happens, for example, whenever we have to decide to act in one way or another. Without entering into any discussion of the kinds of resulting qualities of life, already we can declare these courses of life to be equally or unequally enjoyable.

9. More far-reaching is the statement that one of two unequal qualities of life is more enjoyable than the other. We will call the more enjoyable quality of life the one of '*higher intensity*'. Accordingly we can also speak of *lower* and *equally high* intensities of qualities of life.

10. For the sake of precision we should mention that we assume that three or more qualities of life in a given period of time can be ranked according to their intensity, so that we can say of the highest one that, compared the lowest, it is *more higher*, as it were, than the second highest one.

11. If we have ranked some qualities of life, we can give them indicators with respect to their intensity. If we use numbers, we can assign 0 to one of them and +1, +2, +3, etc., to the others in one direction, −1, −2, −3, etc., in the other. Under certain conditions we might have a reason to assign 0 to the highest or the lowest quality of life and then proceed in only one direction. In this way we have created a basis for a *scale of qualities of life*. We can now assign to each additional quality of life a place on this scale; it can either coincide with a point on the scale or fall between two points.

12. The introduction of negative and positive numbers in the scale does not imply the introduction of opposite positive and negative quantities of quality of life, any more than the introduction of negative and positive temperatures implies the concept of negative and positive heat.

13. Furthermore, assigning numbers to the points of the scale does not fix the concept of multiples of the intensity of a quality of life. The index of 4 does not measure the double intensity of 2; in mineralogy the hardness of 4 is not twice the hardness of 2.

14. The comparability of qualities of life could be introduced from the start in a more general way, with limitations stated afterwards. For example, it could be stated that we can compare the qualities of life of the same person at different times or the qualities of life of different persons. In ordinary life we make all these comparisons, by attempts at empathy with our own past or with our neighbours. We say, for example, that we are feeling happier in one year than in an earlier one, that a child at play is happier than a man who had been shot in the stomach. In the present essay we try to show how far we can get with a minimum of assumptions.

III. THE BASIS OF LIFE AND THE LIFE SITUATION

15. So far we have considered qualities of life as such, just as we can consider colours as such, for example, by expressing something about their relations to each other. Yet we can also go on and *investigate the connection between qualities of life and the state of the world*. We shall pursue these considerations only as far as seems useful for *our* particular purpose.

16. The condition of the world in a period of time, in so far as it can in any way be connected with qualities of life, shall be called the '*basis of life*' [*Lebensboden*] for this period.

17. We assume that qualities of life can be carrelated with bases of life *unambigiously*.

18. One of the most important tasks of the theory of qualities of life is to investigate the connection between qualities of life and the bases of life.

19. The theory of qualities of life may also be called 'theory of happiness' or 'felicitology.' The traditional expression 'eubiotics' is less commendable as it means instruction for a happy life, whereas the other names indicate a scientific investigation of happiness.

20. Making happiness the subject of special investigations does not mean that people act exclusively for the sake of happiness nor that they should do so; nor does it mean that happiness plays a particularly important role in the structure of the world. It is only dealt with as a fact, as a May-bug is dealt with by a zoologist without claiming that May-bugs are something especially important, or that May-bugdom has to be promoted everywhere. This protest is necessary because so often discussions of happiness are offered together with advice and doctrines of salvation; the correctness of mere statements suffers accordingly and the theory of happiness cannot be evaluated properly. The fact that results of a theory of happiness are applied to actions affects the theory of happiness as little as chemistry is affected by the use that is made of it for the rules of health. Looking at health, efficiency and other facts exclusively as sources of happiness does not mean that on other occasions such facts could not come to the fore on their own and that then perhaps happiness would appear only as a condition for something else.

21. In order to know the quality of life during a period it is not necessary to know the complete basis of life; according to the view which is at present most widely accepted it would suffice to know certain changes within the human body, generally those supposed to take place in the brain. We shall call the sum of those last conditions, which would just suffice to determine the quality of life unambiguously, '*the inner condition*' [*Innenlage*] of the quality of life in question. It is not necessary to discuss its character more closely as no further mention will be made of it; it was noted only to indicate that here seems to be material for further research.

22. What concerns us now is the dependence of the inner condition on the other component parts of the bases of life which influence them more or less indirectly. As we do not intend to make minute investigations, we shall restrict ourselves to saying that the inner condition at one

moment seems to be dependent on the inner condition of the previous moment and a number of further elements, among which may be mentioned the process of digestion, the state of nutrition, of the muscles, of the skin's warmth, and much else. We shall call the sum of these conditioning elements the '*condition of life*' [*Lebenslage*]. The relations between the individual elements need not always be discussed in detail.

23. In our rough observations we can extend the concept of the condition of life to a still further layer of influences; we can replace the state of digestion by the bread which is just being digested, the state of the skin's warmth by the dress that influences it directly, as elements of the *condition of life in the wider sense*. Then somebody's condition of life at a certain moment can be characterised, in terms of amount and in their sequence, of bread eaten, clothing used, work performed, the illness suffered, etc.

24. Besides these components of the condition of life, other things belong to the basis of life which influence the quality of life indirectly; we shall call them the '*external condition*' [*Sachlage*] of a period. Here belong fields that produce bread grain, swamps that produce germs of disease, bread that is stored, houses ready to be used, and more such things.

25. Parts of the external condition are of interest to us as causes of life conditions. Yet parts of the condition of life itself can also become causes of conditions of life; this is true of the bread which, just eaten, counts as condition of life due to the pleasure it provides, but as a cause of conditions of life insofar as it enables humans to produce more bread.

26. As far as we can coordinate the happiness of a period to a fact, we want to call this fact '*pleasurable*'. If one basis of life causes a higher quality of life than another, it may be called '*more pleasurable*'. Observations on the pleasurableness of bases of life are offered, for example, by the theodicy's attempted demonstration that we live in the most pleasurable of all possible worlds. We can make such comparisons without dissecting the bases of life into its elements; it is sufficient to know that a quality of life is coordinated to a basis of life as an undissected whole. Certain dissections can be performed, however, and show the dependence of the level of the quality of life on certain facts.

IV. ECONOMIC EFFICIENCY

27. If two sequences, whose bases of life are equal except for one initial condition, show different levels of pleasurableness, then we shall

call the initial condition, which causes the more pleasurable basis of life, '*more economically efficient for a certain subject*' [or, simply, 'more economical']. In the same sense we shall speak of *uneconomic conditions* and ones of *equal economic efficiency*.

28. Consider a person who can enjoy two pieces of ripe fruit in the days to come. In one case, the wind blows down the ripe fruit from the tree with the two fruits; in another case, it blows down the unripe fruit, which has to rot uneaten. Then we can say that the initial condition of the wind direction facing the same group of things was more economical in the first case than in the second.

29. We introduced the direction of the wind, so to speak, as an independent variable, assuming that the direction of the wind does not entail any essential differences for the rest of the initial basis of life. For if one starts from the supposition that everything is dependent on everything else, one has to suppose that a change in the direction of the wind also causes a change in the rest of the basis of life. If we could not introduce independent variables, then there would only be the different pleasurableness of total bases of life, but no economic efficiency of individual determining factors.

30. To be able to consider the economic efficiency it is not necessary to dissect the structure of effects, any more than such dissections are necessary for considering pleasurableness, as briefly discussed above. We shall see that there are several ways in which the consideration of economic efficiency can be extended to include the structure of effects.

31. Our terms for the consideration of economic efficiency are so general that we can compare conditions of any kind with each other with respect to their economic efficiency. Further, human actions can be counted among these releasing conditions. Instead of the wind, people can take down at one time the ripe fruit first, at another time the unripe one first. We can then call the releasing conditions, which cause the ripe fruit to be taken down first, more efficient economically than the releasing conditions which cause the unripe fruit to be taken down first. More complicated processes may be involved. For example, people could either first bear privation and drain a swamp which causes disease, then cultivate the fields and finally be well fed and healthy; or else people could first cultivate the fields, then fall ill from marsh fever, and continue not only to be ill but also to get little yields from badly cultivated land. We could then say that the first sequence of actions is more economical than the second.

32. Under certain circumstances we can find certain trains of thought in the shape of visions of the future, as premises for action; we can call these trains of thought more or less economical according to the intensity of quality of life which they could produce from the same given conditions.

V. ECONOMIC THEORY

33. Just as we can investigate single actions or ways of behaviour with respect to their economic performance, we can also investigate whole groups of them, even whole orders of life. We can compare whole orders of life, that is the sum total of actions, measures, customs, habits and the like, which are characteristic of individuals and peoples, as to their economic performance, without entering into the detailed structure of cause and effect. Insofar as we consider a group of actions or an order of life from the point of view of economic efficiency, we shall call it an '*economy*'.

34. The scientific treatment of economies, that is, of orders of life as the conditions of qualities of life, will be called '*economic theory*'; here we accept the traditional term and do not require a new one.

35. We have delimited the economy as the sum total of actions, measures, behaviours, etc., which can be considered as conditions for smaller and greater economic efficiency. These actions and ways of behaviour are not assumed to be [appropriately] purposive and consciously goal-directed. Actions [and behaviours] are treated as to their effects on qualities of life, be they [appropriately] purposive or not.

36. We can delimit the ensembles of actions, measures and behaviours, the economies, in different ways. As regards the number of the persons involved, we can distinguish household economy, national economy, world economy. When we do agricultural economy we consider a group of activities characterised by their field of action. Theoretical agricultural economics asks how the same fields, woods, human and animal forces can produce various components of conditions of life by applying different technical, biological, chemical, etc., methods, as when it asks what happens by changing the condition of the fields, the swamps, the woods, etc. Other economies can be delimited and their different methods compared in a similar way: the economy of hunting, of water, of robbery, etc. In a comprehensive economic theory, discussion of agricultural methods (three-fallowing, rotation of crops,

etc.) finds its place as much as that of methods of overall organisation (market economy, administrative economy, etc.). Sometimes we shall disregard the technical methods and only study certain forms of economic organisation for their economic performance, at other times disregard the latter and only study the former independently.

37. That robbery is illegal does not constitute an obstacle to its treatment in economic theory. It does not make sense that a city's commerce, [trade and] home labour are seen to merit careful study in their effect on the conditions of life of the inhabitants, whereas the influence of smuggling is gladly neglected. Similar attitudes have contributed to the neglect of war as an economic activity on the part of economists; instead, whenever war is at issue, its 'moral justification' is discussed.

38. If we consider the different forms of economy, irrespectively of how we have delimited them, as in certain respects independent variables and if we compare them as to their effects on the qualities of life, then we are engaged in *comparative economic theory*. This requires an adequate stock of suitable means of representation, so that economies of the most varied types can be treated according to the same principles of description. It is relatively easy to introduce trade with metal coins and trade with paper notes as independent variables and compare their effects on the qualities of life, but it is difficult to compare religious systems in their effects on the quality of life.

39. Comparative economic theory will in part be able to make use of very abstract *models* and *schemas*, which represent bases of life and perhaps also the intensity and distribution of qualities of life. The facts thus stated will lend themselves to being summarised in the form of tables which have the advantage of displaying simultaneous changes without bringing them into mutual dependence and of registering lacking data by empty places. *Formulas* will only be available to express the relations discerned after further advance of insight. These models and schemata are sometimes simplified representations of complete orders of life, sometimes merely of sections thereof. In the latter case it is easier to incorporate more details, but there is the danger that the dependence on facts which form part of another section will not always be sufficiently noted.

40. The creation of such models need not be restricted in any way. Models can be created in which individual elements (people or things) are endowed with qualities which do not occur in real life or with real-life qualities, but in connections and in relation to transfers that so

far have not occurred in real life. Finally, models and schemas can try to represent the historically given life, or at least types which have occurred, but also can take account of processes which so far are alien to reality. While possible worlds are thus admitted, it is also advisable to see to it that the system of models contains some from which conclusions about real life can be drawn.

41. The grouping together of different forms of economy can be effected from different points of view. There is no reason to stick to one only. For example, results of the examination of economic efficiency could form the basis of one grouping: those economic orders could form a group which allow a certain distribution of qualities of life or only those economic orders in which certain intensities of quality of life could appear. Still other viewpoints could be considered. For instance, money economies could be juxtaposed to economies in kind, the latter being understood as moneyless economies. Here transitions of all kinds are possible. One could distinguish different stages of the economy in kind, from the household economy in kind to the national, even world economy in kind (quite apart from the credit organisations in the economy in kind etc.). Money economies for their part could be divided into those of mercantilism, liberalism, etc., each of which have certain peculiarities. Furthermore, peace economies and war economies could be juxtaposed. One could investigate whether war economies constitute distinct types of economies which are strongly differentiated from related peace orders. Similarly, trade economies and administrative economies can be juxtaposed, and certain group formations can combined with others.

VI. MARKET ECONOMY AND ADMINISTRATIVE ECONOMY

42. The preceding remarks already allow us to demonstrate with a rough example how different economic forms can be compared on the basis of a uniform mode of description. In this case, the causes of transfers [of goods and services] are the independent variables and are investigated for their economical efficiency. Whereas market economics must take account of a great number of individuals acting independently yet influencing each other to similar degrees (which may, under circumstances, be fixed), the theory of administrative economy

deals with an administration that exercises the power of executive decision: the actions of the central body determine those of the others without necessarily being determined by them. To what degree mutual influence is possible remains an open question; mixed forms shall not be discussed here either.

43. In the *market economy*, of which there exist several varieties, people influence each others' actions exclusively by means of the higher and lower qualities of life that result from the processes of exchange.

44. In the *administrative economy* there are other influencing factors which are added to profit and loss as rewards and penalties; the resulting transfers may occasionally be the same as in the market economy. It could happen that due to the administrative centre's actions, transfers took place in the same way as they would have done through the process of exchange.

45. However, the administrative economy can, by rewards and penalties, prompt the individuals to do things which they would not have done in an economy characterised by exchange, because without these rewards and penalties the consequences would have been different. For example, the administrative economy could enforce a transfer, the completion of which would not mean a lower quality of life for anybody, but a higher one for one individual. Such a transfer of course would not have taken place in the market economy. Consider two human beings, the first of whom owns a winter coat in a summer environment, whereas the second owns a summer coat in an autumn-like environment. The latter does equal service as a winter coat in the same environment; only an autumn coat would, for the second person, cause an higher quality of life in connection with all the other conditioning factors. In the market economy there is no way for the winter coat of the summer person and the summer coat of the autumn person to be exchanged, if these are the only objects of exchange. In an administrative economy the transfer would take place, if the general principle for exchange were accepted that those transfers will be executed which produce a higher quality of life for some and do not lower that of anybody else.

46. Of course, only the administrative economy is able to bring about transfers which some participants in the market economy fear would cause a lowering of their qualities of life. In an administrative economy new consequences due to certain rewards and penalties require consideration. This is, for instance, the case if in times of war food stuffs are distributed equally, while the distribution of luxury articles is unequal.

In the free market economy, the distribution of scarce food is strongly influenced by money income.

47. We must also consider the case of a market economy where, as a consequence of the combination of free competition, credit and other facts, a certain complex of conditions is formed which causes all participants to experience lower qualities of life than they would in an administrative economy which removes certain complexes of conditions. For instance, in the model of a monetary market economy so-called general crises of overproduction can occur. All kinds of goods and workers are available, but in spite of this the entrepreneurs can, by the round-about way of money, only sell by taking a loss, especially when credits are cancelled because of stagnant sales. The results are stagnation of production, dismissal of workers, bankruptcies of entrepreneurs, which in turn means a lowering of the quality of life in general. If a model of an administrative economy makes such things impossible by preventing reduction of total production, then it is more economical for the individuals involved.

48. It must be realised that institutions of administrative economy have always played a certain part, especially in the fields of tax, customs and tariffs and of social welfare; their role is discernible not only in matters of state, but also within factories, cartels, whenever rewards and penalties take effect. If a cartel beats outsiders by undercutting them, that is, with temporary losses for the cartel members, then in effect a measure characteristic of administrative economy is applied.

49. Typically, it has not been the institutions of market and administrative economy that have been juxtaposed, but rather the institutions of market and state economy; measures characteristic of an administrative economy were considered instances of state socialism. As noted, however, measures of administrative economy can also be taken in a market economy. The expression ‘state socialism’ is also infelicitous since a measure can belong to administrative economy without being socialist.

50. The separate treatment of state economies, especially in the area of finance, is likely to come to an end. Already today we know of so many transitional phenomena between market and state economy, especially in the form of central bodies, that a separate treatment of state economies no longer seems to be justified scientifically. Why should price differentiation be described as a measure of state economy at one time, and a measure of market economy at another time? And are the

penalties and rewards imposed on the workers by a factory different in character from similar measures imposed by a state administration? Need price differentiation according to income, affording relief for poorer circles, be treated differently in form from taxes imposed on the richer part of the population to provide assistance to the poorer part?

VII. THEORY OF EXCHANGE AND THEORY OF ECONOMY

51. The market economy as a structure of institutions and modes of behaviours was here juxtaposed to the structure of administrative economy as to its influence on the distribution of conditions of life. There is no difficulty to incorporate into our representation all those discussions of the question, for instance, of how the real wages of the workers depend on other factors in economy, because the real wage is part of the condition of life. The same is for instance true of attempts to establish a connection between working time and real wage.

52. On the other hand, the pure theory of exchange or of the market does not belong into the theory of economy proper in so far as it investigates on what prices depend or under which market conditions all exchange stops or when, as it is sometimes put, an equilibrium has established itself. These discussions of the pure theory of exchange represent, however, extremely valuable auxiliary considerations for the theory of economy, for they serve to provide data for the detailed description of the influence of particular conditions and processes on the intensity and distribution of the qualities of life. A history of prices would accordingly not immediately belong in economic history, but a history of the conditions of life of the individual strata of the population would, if it is described as resulting from the order of life.

53. We think it very important to construct the theory of economy uniformly in such a way that even in the most minute investigation the connection with the basic questions is always preserved, in contrast to contemporary practice where discussions are collected under the heading ‘economic sciences’ for which no common unifying concept can be found at all. As often happens in the early stages of a science, everything is collected that is auxiliary for a science and everything for which this science is auxiliary. In a similar way the theory of siege was occasionally still treated as part of mathematics in the eighteenth century.

54. We can study the transfers within the market economy whose economic efficiency we investigate, without studying the actions to which they owe their origin; but we can also try to deduce them from the actions and their guiding principles. We enter another layer of the problem if, for example, we assume that each person tries to select among the pictures of the future those which in each case bring forth the most economically efficient actions.

55. The desire to execute the most economical action can only be realized, however, if only one picture of the future appears as the most desirable. If several equally economical modes of actions are foreseen, it is impossible to decide for one of them solely on the basis of the considerations entertained so far, for nothing in them determines what happens if a person has to choose between two actions of the same economic efficiency.

56. Reality thus demonstrates to us two important possibilities. First, a type of reasoning, which has nothing to do with economic performance, provides a motive for action and causes a decision between the equally economical modes of action either by way of tossing a coin or something equivalent. We want to call such a supporting motive an '*auxiliary motive*'.

57. If, however, there is no auxiliary motive, then a less economical mode of behaviour will result due to indecision. Even if the person is of the sort that comes to a decision after some time of hesitation, the hesitation itself marks the action of the person as less economical. Indecision does not necessarily come to an end in time; in principle, it can lead to the destruction of those who vacillate, as the example of the starfish shows. Set between two vessels, one with sea water, the other one with fresh water, it glides onto the sea water; but set between two vessels of sea water it remains undecided until it is dehydrated.

58. If a number of people confront each other in the marketplace, the behaviour of each is determined by the prices conceivable for all things at a given moment. We can imagine that for each price system an individual is faced with the decision whether and to which degree he wants to act as buyer or seller. We must, however, realise that in each price system there can be several equally foreseeable possibilities for the individual, among which he has to choose by casting lots. Demand, therefore, would generally be an unambiguous function of all prices which are deemed given at the moment and of the result provided by casting a lot.

59. The theory of the market economy does not, however, deal exclusively with the pure theory of exchange, but also with the theory of the market in the widest sense, including long term measures. Here the individual cannot be assumed to be equipped with full insight, if the model we create is to represent real life to some degree. Already on the stock exchange bargains can be made only if at least one of two participants misjudges the future development. Representing the credit system and the crises [of overproduction] in particular requires that a great number of new assumptions are made concerning relations of cause and effect. But even certain simple price-formations need new foundations. The price-formation during a strike, for example, is based on the uncertainty of both parties about the outcome as well as on phenomena of fatigue. The curves of supply and demand change according to the length of time of the strike. But these are details which do not touch the position of the theory of the market and of prices within the theory of economy proper. When the changes mentioned are regarded as causes of changes in conditions of life, they belong directly to the theory of economy, otherwise they do so only indirectly as auxiliary considerations.

VIII. IN-KIND MEASUREMENT AND REALITY

60. Let us now turn to applying the general considerations outlined to real life. Since we start with the qualities of life it would be important to possess a survey of the qualities of life of individuals and of whole peoples in the form of *an inventory of the qualities of life*. This would give us a foundation in experience; later on we could investigate on which bases of life these modes of life depend.

61. We are today far from being able to determine character and intensity of qualities of life sufficiently, and especially we cannot do this directly. All attempts, which appeared over time in the history of [social] science and which sought to circumscribe the qualities of life of human beings and to arrange them according to character and intensity, have so far remained all too vague. The scales of qualities of life to be employed there are still lacking as well. We shall restrict ourselves, for the time being, to maintaining the possibility of such scales of qualities of life in principle. These could be based on biographies known generally in the literature.

62. Our chances are much better if we turn to compiling *an inventory of conditions of life* [*Lebenslagenkataster*]. With some expectation of success we can attempt to assemble all conditions of life into certain larger groups and arrange them according to the pleasurableness of the qualities of life caused by them. We can, for example, state what food the individuals consume per year, what their housing conditions are, what and how much they read, what their experiences are in family life, how much they work, how often and how seriously they fall ill, how much time they spend walking, attending religious services, enjoying art, etc. We can even discover certain average biographies, deviations from which appear unimportant for rough investigations. In similar ways we can also determine the conditions of life of whole groups of people by stating which proportion of them suffer from certain ailments, which proportion dies at a certain age, which proportion lives in certain homes, etc., finally even which proportion enjoys particular types of conditions of life. It is obvious that quantities which can be measured and determined clearly find more extensive treatment than the vaguer ones like religiosity, artistic activities and the like. But one must beware of thinking that all those quantities which can be treated more easily are more important, or essentially different from the vague ones. Occupational prestige, for example, is as much a part of one's income as eating and drinking.

63. The basis for these surveys of conditions of life, which are of decisive significance for us, is provided by household descriptions and related data. Though works in these fields are usually oriented toward monetary calculations and mainly try, in the analysis of household budgets, to find out which proportion of the money income is distributed over different areas of conditions of life, they nevertheless provide much additional material, especially if some attention is given to real descriptions, to the fate of the family and similar things. The great theoretical significance of these household descriptions would thus finally become evident, having long been disregarded by the theorists as matters of social policy only and thus lacking adequate conceptual treatment.

64. It is household descriptions and similar representations that provide us with a considerable part of the conditions of life; in addition, data are needed which refer to the external conditions and to the shifts within the basis of life which have a different influence on the conditions of life depending on which rules of goods transfers are chosen.

This is the task of *calculation in kind* which tries to gather the conditions of life and the external conditions at each moment and view them in their connection with the preceding and subsequent ones. Calculation in kind could, for example, start by finding out which raw materials are available at a certain time and at which places, how much water power, how much and which kind of labour power, inventive power, stupidity, diligence, etc. This cluster changes into another at the next moment. Certain things are transformed, as food into human body, other things into machines, etc. If a whole people is the subject of the study, the movement of the raw materials can be followed through their various stages by taking account of the production, consumption, storage, import and export. In a similar way individual spheres, such as agriculture, industry, etc., can be distinguished and investigated for how much in terms of power and material enters into them, how many products, how much waste material, etc., leaves them to enter other spheres. What has been said before may be repeated: facts which do not lend themselves to being stated in amounts, as inventive power, etc., must not therefore be considered to be of absolutely indifferent character. If inventive power could be measured in horse power like working power, it would be added to the other powers. The pure impossibility of such measurement must not induce us to overlook that the gift of invention can, for example, replace other powers in certain circumstances.

65. By calculation in kind we get purely empirical data without at first knowing anything about the conditions of transfer. We could imagine two peoples as models on whose identical initial conditions we let different influences take their effect in order to study how the external conditions and the conditions of life are changing from moment to moment. We could then perhaps state that, described up to a certain degree in terms of calculation in kind, one basis of life proves to be of better economic efficiency than the other for certain subjects involved. The next step of investigation would then have to relate these differences to the rules of goods transfer whose application would then already be a matter of experience.

66. The calculation in kind requires a uniform structure of statistics as a whole along the lines here indicated. A *universal statistics* must be created which can assemble the totality of statistical data according to one scheme, that is, in a way that allows the individual surveys to be linked to each other. The first task would be to develop and coordinate statistics of production, consumption, utilisation and storage, as well as

a number of other statistics which currently are bandied about without common rules and connecting links. Special attention must be given to the delimitation of the conditions of life.

67. In this way we would gradually return to the endeavours which assisted the start of economic theory, when economists generally were interested in finding out what the conditions of the wealth of the people are, which institutions increase it and which decrease it. This is not the place to demonstrate the gradual replacement of stress on the lively contribution of reality to theory by a methodology producing models which distinguished themselves more by their logical coherence than by their applicability to possible cases in real life.

IX. GROUPS AS OBJECTS OF INQUIRY AND THE EXTENSION OF COMPARABILITY

68. We have so far paid careful attention to representing the concepts of the theory of economy without violating the assumption that only those qualities of life can be compared with each other which the *same* individual may experience from some point onwards. We saw that we could also treat the simple questions of market economy in this way, according to certain theories, by making the quality of life of the economic agent independent of the qualities of life of others, so that it is unaffected by charity or envy and similar qualities. We will see that these latter qualities can also be taken account of in the representation of the orders of life, though certain extensions of the basic assumptions will then be required, but we are already faced with these when we introduce groups of people generally as objects of inquiries into economic performance.

69. So far we have, even when dealing with the qualities of life of groups of people, only ever spoken of the economic performance of given processes for single individuals. We can, however, also introduce the concept of sums of qualities of life of a group of people as a comparable quantity, without violating the assumption that only those qualities of life can be compared with each other which the same individual can experience starting from a given moment. Let us assume that a group of people is subjected to different institutions. If it is ascertained that in one case all participants have a higher quality of life than in another, we can say that *the sum of the qualities of life of this group of people is higher than in the other*, and that the institution which caused the higher sum has a better economic performance.

70. We saw that, for the definition of comparability of two sums of quality of life, it was sufficient to presuppose the comparability of the qualities of life of the same individual. There can be cases, however, where comparison is impossible under this presupposition. Consider a group of two people: the quality of life of one person is higher in the first case than in the second, whereas the quality of life of the other is lower in the first case than in the second. If we hold to our assumption that only qualities of life of the same individual from some point in time onwards can be compared, we are stuck – unless we allow the qualities of life of different individuals to compared *in certain circumstances*. For example, it might turn out that to each quality of life in the first case can be coordinated a lower quality in the second case, even though we cannot attribute the higher qualities of life in the first and the second case to the same individual. This would happen if the quality of life of one of them were higher in the first case than that of the other in the second case and if also the quality of life of the other person were higher in the first case than that of the first-mentioned in the second case.

71. But even this assumption concerning the comparability of the qualities of life of different individuals – one which many can accept only with hesitation – is of no help, if the qualities of life cannot be coordinated in such a way that to each quality in the first case corresponds a lower one or one of the same height in the second case.

72. We could suppose it possible, of course, that somebody experiences the qualities of life in the first and second case simultaneously by empathy, without their having a mutual influence on each other, and makes a comparison between them. In effect, this demand is made of every statesman who is supposed to have the total happiness of all in mind. Such comparisons can, if they succeed, form starting points for further considerations, but they cannot claim to be results of calculations.

73. Even though we cannot always extend the study of economic efficiency so that it relates to groups of people as references, it is still possible to do so in a great number of cases, in particular, in those that have great practical significance. For example, in the case discussed in §45 we can say that the efficiency of the administrative economy is better than that of the market economy with respect to the group of two persons. This example makes sufficiently clear how these two types of economy, as conditions for goods transfers, can be compared and that they deserve equal treatment. Needlessly to say, even in those cases

where we cannot aggregate judgements about economic efficiency so that they relate to groups as reference, we can still issue scientifically valid statements about the efficiency of the order of life for each individual member of the group. We can then still compare the qualities of life which individuals or subgroups with a similar fate can experience in different circumstances from the same point onwards, and which distributions of qualities of life can result.

74. Since, in §70, we have dropped the assumption that only those qualities of life can be compared with each other which are experienced by the same individual within a given period, a number of further assumptions seem appropriate now. One could allow comparisons of qualities of life of different individuals in different periods of equal length, as well as of qualities of life of the same individual in separate periods of time of equal length.

75. The revisions of our assumptions hinted at above have a number of consequences. We can now speak of a sum of qualities of life whose duration is three times that of another or includes three times as many people. Three dimensions of the qualities of life could be distinguished: *duration, intensity and the number of persons involved*. It requires special thought how to compare qualities of life which differ from each other in all three dimensions. In any case, we can now focus on the concept of the sum of qualities of life of two groups of people which are different in size. This concept becomes important for the assessment of economic efficiency, for instance, when we consider a population that is subjected to different orders of life. Thus, if the population itself is the object of inquiry and if the orders of life have an influence on birth and death rates, then the population does not only consist of different individuals, but also their number may be different in the two cases. If one population consists of three times the number of individuals than another and the qualities of life are equally high for all, then the sum of the qualities of life of the one population could be said to be three times that of the other.

76. For the study of economic efficiency in earlier times such sums of qualities of life were of considerable importance. Today we are more interested in the *average of qualities of life*. In the case at hand we would say that though the sum of the qualities of life is three times that of the other, the average quality of life is the same. It can happen that the sum of qualities of life is greater whereas the average quality of life is lower. Sometimes it is possible to compare average qualities of life,

but not the sums of qualities of life. For example, in our example this is the case if the qualities of life of the first group are equal among themselves, but are higher than the qualities of life of the second, which again are equal among themselves. The opposite case can also occur that the sums, but not the averages of qualities of life, can be compared. Finally, there are cases in which neither the sums nor the averages can be compared.

77. In those cases in which we cannot compare the average qualities of life, we may, however, try to compare the average conditions of life with each other, as in the case of consumption statistics. But it must be stressed that to the average conditions of life there do not always correspond average qualities of life. Often the former are nothing but quantities for calculation. Of course, if there are no other ways left, such a last resort is welcome. Moreover, the very principles have not yet been clarified according to which averages of conditions of life can be compared. If one of the averages contains more food, clothing, etc., less work, less illness, etc., than the other, we may probably say that the corresponding quality of life is at least not lower than the other. However, if one contains more food, less housing, more work, less illness than another, then a new basis for the comparison of these average conditions of life is required.

X. THE ASSUMPTION THAT THE INCREASES IN QUALITIES OF LIFE ARE COMPARABLE

78. So far we have been able to take account of those increases in the quality of life which follow from the addition of new people or new periods. We saw that these increases can be measured, if it can be assumed that the intensity of the relevant qualities of life remains the same. It is possible therefore to say that a quality of life has three times the duration of another or covers four times as many people than another, the duration of time being subdividable at will, but not the coverage of people. In comparing sums of qualities of life certain difficulties emerged that could be overcome by allowing all increases in intensity also to be comparable with each other.

79. Our statement in §10 that qualities of life can be so ordered that there obtains the relation ‘more higher’ between different qualities of life, leads us to suppose that, starting from the same point, of two increases in quality one is larger than another, if at the starting point the

sums of quality of life were the same and subsequently the one is higher than the other. More far-reaching than this is the claim that each increase of height is comparable to any other, even if the starting points are not the same. This would grant us the means of comparing all sums of qualities of life with each other.

80. For the assumption that increases in qualities of life are always comparable with each other has the consequence that they are also measurable. After all, we can always construe increases in qualities of life so that they are not of different but equal intensity. Then we can make up a larger distance by adding several smaller increases – a fact not always recognised by those who declare increases in height to be comparable but not measurable.

81. Yet another assumption has to be made in order to proceed from the measurability of increases in qualities of life to the measurability of qualities of life themselves. This requires that the initial quality of life, whose increase is under consideration, be declared equal to a certain increase. If this additional assumption is made, which may seem a matter of course to many, then we have introduced measurable qualities of life by the mediation of 'merely comparable' increases of qualities of life. Many who agree with the assumption at issue are likely to wish to retreat from this consequence.

XI. THE COMPARABILITY OF INCREASES AND THE STUDY OF ECONOMIC PERFORMANCE

82. That increases of intensity can be arranged in sequence, even if they do not have a common starting point, is important for the study of economic efficiency provided the corresponding changes in conditions of life can also be arranged in a sequence. Let us think of a child who likes to drink sugar water the better the sweeter it is. Now, there may be the possibility for the child to drink sugar water prepared either with one or with several pieces of sugar. It is conceivable that the increase in quality of life resulting from the drinking of sugar water with two pieces of sugar instead of one, can only be equalled again if the transition is made from sugar water with two pieces to one with four pieces of sugar, say. Then we can say: growing increases in conditions of life correspond to constant increases in quality of life; or vice versa: falling increases in quality of life correspond to constant increases in conditions of life.

83. Suppose the sugar water stays the same, but the heating is changed; there would be a certain result. But this does not mean that, if sugar water and heating were changed at the same time the result in quality of life would correspond simply to the sum of the single resulting changes. It could be that the enjoyment of sugar water together with warmth would increase or decrease the quality of life more. Concerning some relations between conditions of life and quality of life, a certain independence [of the effect of each element] may be assumed occasionally, but to construct the quality of life from independent aspects of the quality of life as [those corresponding to] food, clothing, etc., is in no way justified by experience.

84. Even though, in principle, the quality of life as an undissected whole is coordinated to the temporal course of the conditions of life, the question can still be asked, what the consequences would be if one constructed the quality of life from elements of independent aspects of the quality of life and made some more assumptions. These other assumptions might be that these aspects of the quality of life are coordinated to certain conditions of life which consist of parts of the same kind; that falling increases of quality correspond to equal increases in the conditions of life; that the parts of the conditions of life can be subdivided at will. If we make all these assumptions, then somebody who aimed at the highest possible quality of life in gradual approximation would act with the best economic efficiency if he would fix it such that the occurring increases were equal in all areas. We see how unrealistic the assumptions are which we would have to add to our deliberations in order to reach what many use as their starting point for the study of economic efficiency. The present essay intends to demonstrate that one can do without these assumptions which are especially characteristic of the doctrine of marginal utility.

XII. INTRODUCTION OF POSITIVE AND NEGATIVE INCREASES

85. By the deliberations just sketched, but also in other ways, one can arrive at negative and positive increases. Even if certain elements of the conditions of life can depress the quality of life, this does not mean that therefore there are negative parts of the quality of life. For this to be the case it is necessary that we can *combine independent parts of the quality of life* which *cancel each other* in certain cases. Under certain

conditions we can treat the negative part of the quality of life as displeasure [or pain], the positive ones as pleasure, and introduce for both the common name ‘sensation’. We prefer to use the name “sensation” to the name “feeling” which seems loaded with meaning in psychology. We can treat qualities of life undissected like sensations.

86. If in some cases pleasure and pain appear only in connection with each other, the person mentioned in § 84 would aim for the groups of pleasure and pain to always increase equally with regard to the different aspects of quality of life. Some assume that differences between magnitudes of pleasure and pain can be calculated; we shall not investigate here whether this is so or not.

87. If it is our aim to compare descriptions of conditions of life of single individuals or of whole peoples with reference to their quality of life, then we tend to be especially inclined to try to construct the qualities of life out of single negative and positive elements. Nothing would be simpler, if we could coordinate certain positive figures to, say, the bread which is consumed, the living space that is occupied, etc., and likewise certain negative figures to effort of work, illness and such. Yet there seems to be little chance of achieving algebraic sums in this way which would be practically usable, if to higher figures there always corresponded higher qualities of life.

XIII. DERIVATIVES OF MONEY CALCULATION

88. From §78 onwards we have dealt with certain types of considerations, not because we are of the opinion that in a foreseeable future they might be of any significance for the elaboration of theory of economy, but to show at least in rough outlines how, with the help of certain intermediate links, our earlier discussions can be connected with those views which for many represent the obvious basis of economic theory. It is understandable that one should search for a roughly adequate calculation of the quality and condition of life to be placed alongside the highly refined money calculation, which even operates with decimals. One was not inclined to believe how extraordinarily crude the basis is on which the money order is founded as a matter of fact. (On close examination the money order reveals itself as something not very rational, but as something that can mainly be explained by tradition and accidents of history.) In addition, monetary calculation got people used to treating all magnitudes as sums and differences. In the following

a number of examples are intended to show how concepts of traditional economic theory can be interpreted as derivatives of the money calculation.

89. *Cost accounting* is connected with the assumptions given in §86. By contrast, we do not need the opposites of pleasure and pain at all and use the accounting of sensations by merely assuming that there are phenomena of higher and lower pleasure. Cost accounting, however, as far as it represents the view closest to ours, sees in the opposition of pleasure and pain the very essence of all economic accounting. Even if the mistake were avoided to add up pain and material expense together under cost, we would have to object if effects are seen as connected only with pleasure, causes only with pain. There may be work that is performed with pleasure, and results of work which cause pain. Should now the pleasure of work be added to utility, the pain of result to cost? Moreover, cause and effect cannot be isolated at all in the way demanded by the cost accounting. Often the cost accounting tries to treat the omission of measures of more uneconomical performance as a 'cost' of the more economic ones.

90. Yet cost accounting becomes immediately understandable when it is regarded as a derivative of money calculation. Cost then corresponds to expenses, utility to income, the difference to either gain or loss. In the framework of money calculation it is understandable that an action is declared to be efficient only if it provides a positive difference, because it is the character of money to remain unchanged if it is not used. However, real life often behaves differently from money. Sometimes it can be more economical to undertake something which according to cost accounting would cause a negative difference, namely, if in other cases the negative difference would be even larger. It is an error anyway to believe that the study of economic efficiency is linked to the opposites of pleasure and pain. If someone who would only be capable of pleasure were confronted with an unlimited quantity of all possible sorts of things, his thoughts about best economic performance would have to concern how to make the best use of his limited time of consumption in the most economical way.

91. Just as cost accounting can be considered a derivative of money calculation, the same seems to be true of the *theory of economic factors* [*Zurechnungslehre*] which – disregarding the triad 'land, work and capital' for which we have no use – is usually based on the assumption that increases in the quality of life which are connected with some part

of the condition of life, could be proportionally attributed to the contributing causes in a general way. Such procedure is reminiscent of the attempt to apportion the performance of a steam engine to boiler, piston, valves, etc. This is not to deny that it can make sense to find out the importance of alterations in these components. But the theory of factors becomes intelligible at once when we think of it as applied within money calculation and as charged with the task of establishing relations between money prices of parts of the condition of life with money prices of partial causes of the condition of life, or of investigating the distribution of money sums to profit-making enterprises.

92. The *current concept of consumption*, [so-called] *real income*, is also understandable as derivative of money calculation. Given our own approach to economic efficiency, it seems appropriate to comprehend also work and illness under the concept which covers food, clothing, housing, theatre visits, etc. These things, however, are not part of the [current] concept of consumption and real income, which covers only what appears as a reflection of money income. Real income [in this sense] has little significance in our approach to the study of economic efficiency. Two people, for instance, who consume the same amounts of goods, have the same real income; who consumes less, has a smaller real income. Suppose there are three workers: the first works ten hours and receives ten pieces of bread as wage, the second works only eight hours and also receives ten pieces of bread as wage, the third does not work at all and receives nine pieces of bread. The first two obviously receive the same real income, the third a smaller one. But in terms of sums of quality of life, the third has probably the highest, the second a lower and the first the lowest one. This contradiction between real income and quality of life is not repaired if a real wage per time is introduced. Take the case that at a certain place a worker cannot work more than four hours, for which he receives a wage of eight pieces of bread; at another place he can work eight hours and receives twelve pieces of bread as wage. If the eight pieces of bread are below the minimum of existence and eight hours of work not a special strain, the first case would mean a lower quality of life though the real income per hour is greater. What can be said about the real income of the individual also applies to national income.

93. The concepts *national income* and *national wealth* are also derivatives of the money calculation, even if they are not expressed in money terms. Frequently national income is coordinated to national

wealth in a similar way to how money revenue is coordinated to money wealth. By expressing national income and national wealth in kind, nothing is altered in the theoretical structure. We need the concept of the totality of conditions of life which is not identical with the national income during a period; nor is the concept of the basis of life at a certain moment identical with the national wealth at this moment. Among liabilities, national wealth recognises foreign debt, but not swamps causing disease; among assets a quarry will figure, but not the power of invention. The computation of national wealth and national income in money terms is always a questionable affair from the viewpoint of our treatment of economic efficiency, since money prices stand only in an indirect relation to the quality of life and mainly serve to express the distribution of purchasing power and the money order as such. This becomes especially obvious where the free trade economy has been significantly curbed and price maxima and price differentials are applied. In a state, which has introduced a thorough grading of prices according to income, the money unit has no longer a uniform purchasing power; the purchasing power of a coin depends on the hand which holds it. How could stores of goods be expressed in money terms in such a state? Would it make sense to add incomes? This would require the creation and application of a well-constructed system of prices.

94. The above noted contradictions become especially obvious, if we examine *economic calculation in a war economy*. Calculation in kind takes its start from the given fields, swamps, forests, waste land, machines, stores of all kind, people, etc. We then describe the alteration of the conditions of life how it would have happened in peace-time, by compiling the amounts of food, clothing, theatre visits, frequency of illnesses, amount of work, etc., in their distribution over the groups of population (perhaps we also determine averages) and describe the final situation anew. In the same way we describe the alteration of the conditions of life in war-time. Finally, the total situation after the conclusion of the war will be established and compared with that which would have occurred if peace had prevailed all along. This final state has further significance as a cause for the conditions of life. To make an estimate of this, a number of deliberations of a more general nature about *expectations of qualities of life* are necessary. We shall disregard the discussion of the principle of judging single facts.

95. How could money calculation represent such outcomes? It is based on the formation of prices and, strictly speaking, can measure

the total outcome after the peace treaty only by the way in which the individuals, who form the price, judge the future development. Add to this that the money calculation can very well take account of a destroyed house in dollars and cents, but not of a destroyed existence. It is likely that just these discussions will provide a serious challenge to money calculation after this war. Another contributing factor for its decline will be that the future tendencies towards economy in kind will automatically push it aside; especially the in-kind calculation of the economic plan, which is likely to continue being important, will be effective in this direction. The role of money may well be considerably diminished, perhaps also its use as unit of calculation. Then the theory of money may be compared with a theory of food vouchers and a time may arise when the science of monetary economy will be underestimated to the same degree to which we were inclined to overestimate it.

XIV. SUMMARY AND PROSPECTS

96. The purpose of the present essay is to look at practical measures, ways of behaviour, groups of institutions and whole orders of life as conditions initiating qualities of life and to compare their economic efficiency within a comprehensive theory of economy. The theory of economy can keep close to real life by looking at historically given forms and studying how things came about, how they might have come about and what may come about in future under various conditions. However, it can also deal in an *abstract-constructive* way with economic forms whose realisation is out of the question. Both approaches have in common that, from a starting point, real or imagined, several possible developments are considered.

97. The introduction of a new conceptual structure and the new names here suggested are restricted to the most urgent changes. It would be a vain effort to create a completely new world of concepts and names. This would too easily lead to the slippery slope of perfectly adapted concepts and names which, in fields as little clarified as ours, often leads to absurdities. Each change of a more important concept means clearly a change of the whole structure of concepts, and this leads to a chain of new names. We can always only start from the state of concepts, which we find at hand, and can only work with the whole in view, since we cannot master the world by a chain of single insights following each other. We must rather try to catch hold of it by means of

an intricate network of concepts and thoughts; to elaborate its meshes and make them equally usable everywhere is a chief task of the sciences. We cannot rid ourselves from the traditional structure of concepts in one go. Even its transformation is effected with the help of traditional concepts.

98. The choice of names, from this point of view, has the object of characterising as many forms of economy as possible. Of the suggested names, the term '*war economy*' has already been accepted, and the currently suggested name '*administrative economy*' [*Verwaltungswirtschaft*] may be accepted too. The name '*theory of war economy*' which belongs to the name 'war economy' and was suggested roughly at the same time, and which expresses clearly the acceptance of war economy as a special discipline, has to overcome much greater opposition; similarly the expression '*theory of administrative economy*' [*Verwaltungswirtschaftslehre*] may not be easily accepted. The expression '*theory of economy in kind*' [*Naturalwirtschaftslehre*] also belongs to this group; it was stressed specifically to create a powerful opposite to 'theory of money economy'. Just as the theory of economy in kind is the opposite of the theory of money economy, '*calculation in kind*' [*Naturalrechnung*] is the opposite of 'calculation in money'. As far as it can be foreseen, the expression 'calculation in kind' has some chance to be accepted. It is a characteristic of the names here chosen that they leave it undecided as far as possible whether their objects can be dissected into parts or whether they are indivisible wholes (which we want to call 'plenitudes' [*Fülle*]), whose details (called 'accessories' [*Zubehör*]) we cannot detach though we can describe them. It is in precisely this sense that the expressions 'quality of life', 'basis of life', 'condition of life', 'inner condition' have been suggested here. We also discussed the divisibility of qualities of life as an extension of our approach, but *the main argument rests on undivided qualities of life*. Should the divisibility prove feasible, the remarks made here need by no means be revoked, but only augmented.

99. We have not created all these concepts as an artificial exercise of playful thinking, but in light of the urgent necessity to do justice, by analytic scrutiny, to everyday experiences and especially to the important events of the present time. That the margins of these concepts are often blurred need not worry us, as their centres are clearly enough recognisable. How some originally given complex is understood in this way is shown, for example, when a choice between two vocations is

made. Then we have to take into account at the same time everything we can learn about the vocations in question: the probable working hours, the type of work, the possible accommodation and livelihood it affords, the probability of illness, distribution of holidays, chances to marry, social honour, and much else which cannot pointed out at all in detail. We try to get a picture of the life connected with the one and the other vocation in all its manifoldness. Prepared by such considerations we may enter the labour market and participate in the formation of prices whose clear simplicity does not show any of the complications of the preparatory thoughts, since it is based, partly, on the totality of facts which is more enjoyable in one case than in another and which makes the demand for one vocation greater than for another.

100. The total theory of economy was deduced from one main concept, that of economic efficiency; it defines clearly the direction of each individual investigation which may be claimed to belong to the theory of economy in our sense. The pure theory of price was thus discarded and appears only as an auxiliary theory, insofar as it throws light on alterations in conditions of life, while the traditional theory of income, especially of real income, appears as a part of economic theory which requires much improvement. Historically the type of economic theory promoted here can be regarded as related to all those approaches which put wealth – what one ‘produces’ and ‘consumes’ in the widest sense – into the centre of their considerations; it is linked to all those scholars who simultaneously treat different forms of economy and to all those who as utopians treat of possible institutions. A small number of thinkers exerted their influence directly and the results of their research were incorporated in our presentation, often after some transformation. The following may be mentioned especially: Aristotle, J.J. Becher, Quesnay, Steuart, Smith, Ricardo, Sismondi, Thünen, List, Roscher, Gossen, Stuart Mill, Karl Marx, Leon Walras, Carl Menger, Wilhelm Neurath, Johann von Komorzynski, Vilfredo Pareto.

101. It need not be a matter of surprise that the concepts here presented require a high degree of abstraction, because that is characteristic of all conceptual structures. We know that a cartwright can push a lever under a wheel without having the thoughts of a physicist, but the conceptual basis is common to both. To show this common basis requires a great refinement of thinking. This has to be said with some apology because economics is often reproached for containing too few hard facts. That may be true of those parts of economic theory that

move away from real life but still claim importance when decisions in real life are taken. If, however, a theory is called unworldly because it deals with forms which have not occurred in history, then the present groundwork for a comparative economic theory bears the reproach gladly. Indeed, it has to do so if it wants to serve the active people of our time. Nothing is more damaging to agents than sticking only to the past and present in their thinking. Theory ought to consider the sensible possibilities of things to come and should hold ready for use all the equipment which may be needed to master the future. Someone who keeps exclusively to the present will soon only be capable to understand the past, especially in our era when developments which formerly occurred over decades now take only years. It may be the case that the time is right for us to overcome the one-sidedness of the traditional economic theory and allow market economy and administrative economy, money economy and economy in kind to exist side by side. Perhaps the time has come for a *newly reconstructed economic theory in which the different forms of economy are equal members of a higher plurality*. It remains a further task to combine this economic theory with a *comprehensive theory of happiness* on the one hand, and, on the other, with a *general theory of orders of life*.

NOTES

* First published as “Das Begriffsgebäube der Wirtschaftslehre und seine Gurndlagen”, *Zeitschrift fü die gesamte Staatswissenschaft* 73 (1917) 484–520, repr. in O. Neurath, *Gesammelte philosophische und methodologische Schriften,* ed. By R. Haller and H. Rutte, Hölder-Pichler-Tempsky, Vienna, 1981, 103–129. Translated by Thomas E. Uebel, based on a draft by Marie Neurath and Robert S. Cohen.

PART 3

SOCIALISATION THEORY

OTTO NEURATH

11. A SYSTEM OF SOCIALISATION*

Contents: *I. Utopianism as Science*. – *II. Fundamental Concepts of Economic Science*. 1. Quality of Life and Condition of Life. 2. Order of Life and Basis of Life. 3. Economics and Efficiency. 4. The Plasticity of the Economy. 5. Economic Science. – *III. Socialisation*. 1. Its Essence. 2. Distribution, Exploitation, Power. 3. Schematism. 4. Terminology. 5. Possibilities of Socialisation. 6. The Economic Plan as a Substitute for Profits. – *IV. Economic Planning*. 1. Universal Statistics. 2. Types of Life Conditions. 3. Calculation in Kind. – *V. Rationalisation*. 1. Performance, Health, Well-being. 2. Working Methods. 3. Management. 4. Social Engineering. – *VI. The Institutions of Socialisation*. 1. Centrally Taken Measures. 2. The Central Economic Administration. 3. Associations and Banks. 4. Accounting Offices. 5. Economic Councils. 6. Expert Groups. – *VII. Socialisation and Social Democracy*.

I. UTOPIANISM AS SCIENCE

Civil war is raging in Germany. Famine, disease, and murder are at work, the Horsemen of the Apocalypse. How could they be resisted? Only by our will and knowledge. This misery has befallen us not at least because we lacked clear aims. Marxists killed playful utopianism, thus saving the unity of the [Social Democratic] Party and 'scientific rigour', but also paralysing the resolve to think up new forms. The doctrine of historical necessity became quietism for many; what Marx said about active engagement in reconstruction was forgotten. As if conscious work on the order of society with a specific goal would be opposed to the realisation that what is willed as well as the willing are necessary for development! In place of creative action one pursued detailed analysis of the more accidental forms of the doctrine of surplus value and other parts of the Marxian edifice of ideas, the real impetus and force of which will only be appreciated by the future. The industrial proletariat and their allies found themselves with much political power in the November Revolution. What was lacking, however, was an idea of the economic future that could have guided their will. Dumb resistance and random destruction became the expression of unsatisfied proletarian longing and bitterness. These powerful forces can only become creative if socialisation, the conscious realisation of the new order of life, is based on an intellectual analysis and if utopianism becomes effective as science, as social engineering. This essay seeks to delineate the possible directions of this development. It starts from the uncontroversial premise that in addition to other factors, one also has to take into account one's own will as an influence on the 'historically necessary development'.

How we think about historical events – this is itself conditioned historically – significantly affects these events, whereas astronomy cannot significantly affect the course of the stars. It is assumed of the views of socialisation sketched here that socialisation, as prophecy, has already begun to become a cause of its own realisation. Of late, demands for the planned administrative economy, wages and taxes in kind, an economic plan and other things have been voiced more than once or even have begun to be put into practice. Among these proposals we find that of Kranold-Neurath-Schumann; its main points will be analysed here. This proposal concerns mainly the socialisation of a state, e.g. Germany. Global socialisation would require an additional consideration of other forms of economic order. In any case, it must be noted that an economic plan may be imposed on different structures of low-level economic institutions. In Germany, socialisation should not be understood as a transformation of the individual firms, but rather as a transformation of the structure of the economy as a whole. The central order may be wholly socialist, while craftsmen and peasants are united by a system of co-operatives; furthermore, some settlements may even govern themselves according to neo-communist principles, connected to the socialist superstructure through certain duties alone. Thus socialisation may pave the way to a future economic tolerance through the cultivation of non-capitalist forms of life.

II. FUNDAMENTAL CONCEPTS OF ECONOMIC THEORY

1. Happiness and misery of the members of a human group (the *quality of life* [*Lebensstimmung*]) directly depends upon, besides the personal characteristics of the people, housing, food, clothing, education, entertainment, work, illness and other things (the *condition of life* [*Lebenslage*]).

2. It is due to conscious measures, institutions and types of behaviour (the *order of life* [*Lebensordnung*]), that fields, forests, swamps, rocks, humans, animals, machines and other things (the *basis of life* [*Lebensboden*]) become the source of situations of life that give rise to more or less happiness, for instance, by cultivating the fields and growing cereals, by producing bread through the co-operation of miller and baker, or by trading cereals for cotton garments by trade.

3. To the extent to which we can capture this dependency of the quality of life on the order of life through calculations or schematisations, we shall call the order of life an 'economic order', or 'economy', and we shall say that one economic order is of *higher efficiency* than some other just in case the first allows for situations of life yielding more happiness than the second given the same basis of life.

4. We need not consider the economic orders merely as preconditions for higher or lower economic efficiency, but also as preconditions of different *distributions* of situations of life amongst the members of a certain group. The differing quantities of the components of a condition of life (higher or lower quantities of housing, food, clothing, work etc.) may be distributed in different ways over the members of a group, causing a changing distribution of the quality of life, the 'plasticity of the economy.' In case I, the plasticity of the economy exhibits a regular distribution of the quality of life, while in case II, there is a large class of people with a mediocre quality of life and two small classes with a higher or lower quality of life, respectively (Figure 1). The plasticity of the economy may exhibit a basic structure or lack a definite order altogether.

5. Economic theory examines economic orders as causes of economies of different efficiencies and different plasticities. It compares historically given as well as imagined orders of life ('utopias') with each other. When economic theory deals with the question what economic orders may be put into practice, it becomes part of social engineering. When it gives an outline of the future development we shall call it economic prophecy, conditioning the events it predicts insofar as it influences action.

III. SOCIALISATION

1. While the order of life was accepted as fate in the past, it has now become to an ever higher extent the object of our conscious

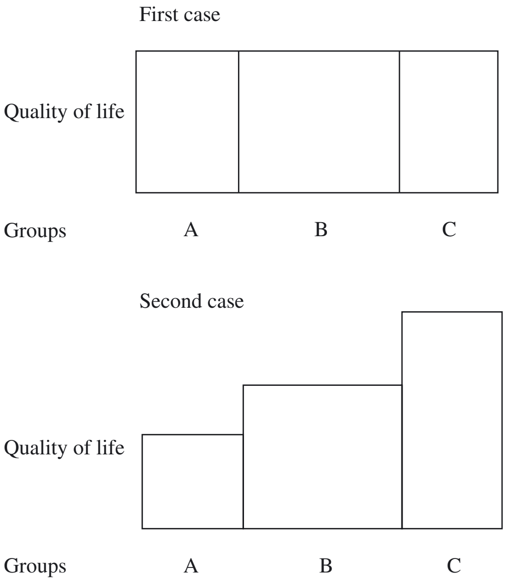


Figure 1

analytic will. Socialisation, that is, the goal-directed realisation of the socialist order of life, is the demand of the day.

Here we shall be speaking of the socialisation of the economy only, i.e. of a total socialisation, and use the expressions ‘socialisation of a part of the economy’, ‘socialisation of agriculture, of the press, of the medical services etc.’ only insofar as we are dealing with the incorporation of these elements into a socialist general plan. The misleading expression ‘socialisation of individual firms’ will be avoided; it is commonly used to label nationalisations, the take-over of a firm through its workers or the introduction of profit-sharing. Many use these expressions in order to calm the people as if this could be achieved by words alone. Yet the people want to have a better life, they do not want to tolerate inherited or acquired privileges of property, they want to rule.

Socialisation is an organisational reconstruction and not, as some think, merely a legal operation through which private property is converted into common property. The latter would be of no help unless an administrative economy guided by a plan would be created as well.

2. Whoever is striving for the socialisation of the economy thus has to ask: how will it alter the distribution of housing, food, clothing, education and entertainment, work, illness and hardship, i.e. the plasticity of the economy? How will it influence the exploitation of all resources, the economic efficiency? Will it still allow crises to occur and tolerate the waste of resources caused by numerous retail outlets and useless variation? How will it change the control over economic life, which, by the way, is not just demanded for the sake of a new distribution and use of resources by the people, but also in its own right?

The most difficult problem is that of the exploitation of a given basis of life by the economic order. It has taken a long time until it was proven fairly convincingly that the traditional form of the market economy was unable to prevent depressions and the waste of resources of all kinds, but indeed caused them automatically. It had already been observed in Hellenic times that Egyptians destroyed papyrus plants to raise profits, and that the Dutch did something similar in analogous periods of the modern development. There is a long way, however, from such observations to comprehensive studies of the kind provided by Sismondi, Karl Marx, Henry George, Wilhelm Neurath and others. The movement for socialisation generally assumes as a premise that the traditional economic order is less efficient than a socialist one, that socialisation will increase production in the interest of the workers. It seems that due to the aggressive demand of the masses the new order is being realised more quickly than it is possible for the scientists to carry out this test of efficiency, which only a few are engaged with anyway.

The problem of distribution, the question how an economic plan can be designed is logically speaking of a much simpler character, but nevertheless it has seldom been examined. Popper-Lynkeus and Ballod-Atlanticus are the only ones who have actually carried out such a calculation for Germany. Theory and statistics of the distribution of the different situations of life are in a poor state, since the monetary calculus has put income at the focus of attention.

The problem of power has been badly neglected. It concerns us here only in so far as the organisation of power influences the workings of the economy. Only this neglect explains that the idea of councils [*Räte*] has been put into effect in its most crude form, without a greater number of trained scientists attempting to think through the different possibilities. We do possess a few designs for rule by councils, but except for the social engineer Rathenau no-one seems to have attempted to integrate these into an utopia.

3. Let us now ask what difference socialisation would make.

Instead of a *free market economy* (a) it will bring an *administrative economy* (a_1), i.e. a centrally made decision, to realise an *economic plan*, or at least its support. Instead of *rule by the masters* (b), as we have known it, it will bring *rule by the community* (b_1), and make the entire people the ruler of their fates. Instead of an *economy of the masters* (c), it will bring a *collective economy* (c_1). Instead of an economy that serves a privileged caste of masters it will bring an economy that yields the same advantages to all.

Socialisation may thus be defined by the formula a_1 b_1 c_1. Furthermore, socialisation puts in place of *under-use* of resources (d) the *full use* of resources (d_1).

Socialisation can be realised in a number of ways. Either – using the terminology of Tönnies – in an *order of society* (e), an order that works with payment according to performance, contracts etc., or in an *order of community* (e_1), an order that adapts performance to the abilities and consumption to the demand that is formed through custom. Socialisation can be based on the *principle of society* (f) or on the *principle of community* (f_1). For instance, some order of the society might be in place but the principle of community be decisive for individual actions, as in the co-operatives which bring together the principle of community with an order of the society.

In the process of socialisation, we will also distinguish whether it is based on the further *development* (g) of the existing institutions, the use of the civil servants presently in office, or instead on the *elimination* (g_1) of the old-fashioned institutions. Then there is the question whether the socialisation shall be striven for *peacefully* (h) or *by force* (h_1).

The form of society, the form of community and the form of guilds are the types of frameworks for humans interaction that are at issue today. Each of these types can be adopted exclusively, but they can also be realised in combination. The following diagram distinguishes the individual orders of life and the presently existing movements for a collective economy far more conspicuously than is possible in reality and sketches how the three peaceful types may be combined (Figure 2).

Restricting ourselves to combinations of the elementary phenomena a, a_1; b, b_1; c, c_1; d, d_1; e, e_1; f, f_1; g, g_1; h, h_1; we get 256 possible forms, of which only a small part will occupy us here, however. Our formulas

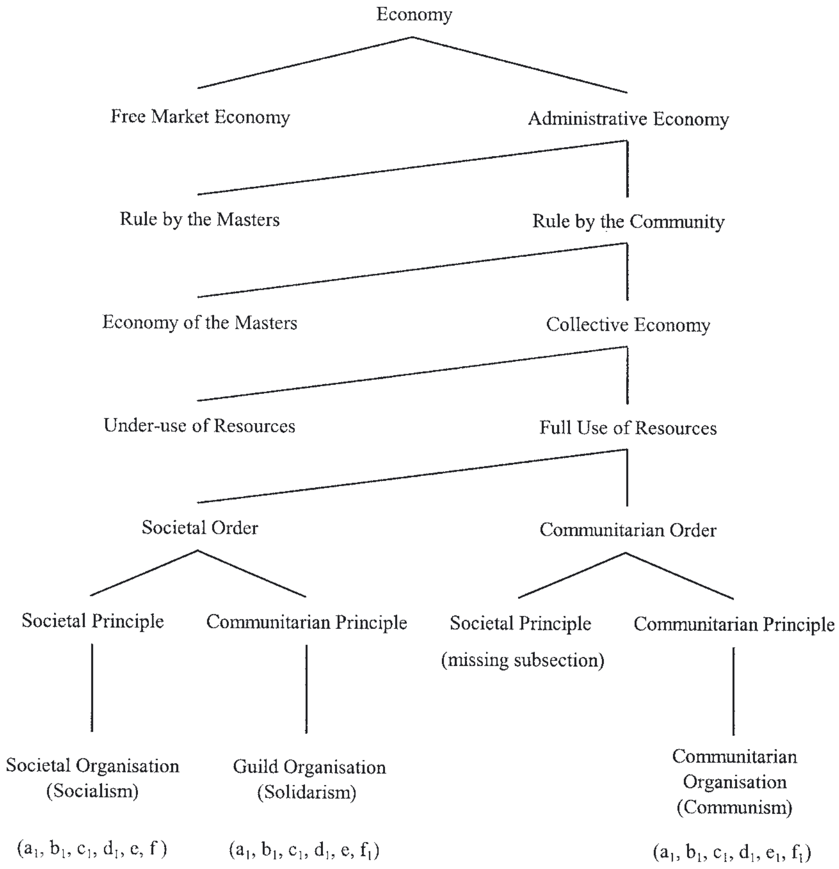

Economy
Free Market Economy
Administrative Economy
Rule by the Masters
Rule by the Community
Economy of the Masters
Collective Economy
Under-use of Resources
Full Use of Resources
Societal Order
Communitarian Order
Societal Principle
Communitarian Principle
Societal Principle
(missing subsection)
Communitarian Principle
Societal Organisation (Socialism)
Guild Organisation (Solidarism)
Communitarian Organisation (Communism)
(a_1, b_1, c_1, d_1, e, f)
(a_1, b_1, c_1, d_1, e, f_1)
(a_1, b_1, c_1, d_1, e_1, f_1)

Figure 2

enable us to characterise briefly and precisely certain phenomena; in particular, they make it easier to see whether we capture *all* cases within a certain section. We need not be confused by rough distinctions and classifications; it is possible to refine them later. The conjunction of a_1, b, c_1, d_1, e_1, f_1, for instance, would be represented by a patriarchal community, the conjunction of a_1, b, c_1, d_1, e, f, by a socialist monarchy. Some forms are utterly irrelevant, for instance, a_1, b_1, c_1, d_1, e, f_1, g, h_1, i.e. a co-operative movement attempting a violent revolution.

We should not forget that the elementary pairs do not yield exhaustive classifications. For instance, it is impossible to say of each economy whether it is an economy of the masters or a collective economy, as numerous mixed forms are also possible. To be sure, each element of this pair may occur individually. A collective economy in the purest sense is well imaginable. By combining the classifications that are of interest today, we get the following (Figure 3).

It is high time to sort out the terminology in this field. The distinction introduced by Tönnies, already widely used nowadays, between *order of society = socialism* and *order of community = communism*, should be generally adopted. Considerable confusion is caused in thought and action (it is stained with blood) by the fact that the violent form of socialism, widely referred to under the name of 'Bolshevism' in Germany today, which aims at the elimination of outdated institutions, carries the name 'communism', just like the utterly peaceful movement that aims at establishing settlements in the spirit of a fraternal living together, far away from the big cities. If a change in meaning of the common terms should not be possible, a re-labelling ought to be vigorously pursued in the interest of politics. Today we have almost reached the point that 'communist' means something like a violent person. This is not just a consequence of purposive libel and incitement, but also of the disordered terminology. This confusion has been supported by the fact that the Bolshevik form of socialism is represented in Germany by the Communist Party of Germany (KPD), formerly the Spartakusbund. The communists of Tönnies' terminology are often also called 'anarchists'. This name applies to all those that are of an anti-state conviction and is much too vague, however, since it comprises the wholly individualistic Stirner as well as the community-oriented Kropotkin.

It is not the least because of this terminology that the Bolshevik socialists and the anarchist communists, or anarchist neo-communists, to be precise, have joined forces in Germany. They are also unified, of course, in that Bolshevism perceives socialism only as a transitory step to communism, in that none of them believes in the further development of the traditional forms of economic organisation and in that both equally met with the intolerance of the ruling classes. If there existed a far-reaching tolerance in the economic sphere, a peaceful kind of Bolshevism might develop that could exist together with other orders of life. For that, however, Bolshevism would have to abandon its own intolerance.

Common Forms of the Collectivist Movement (a_1, b_1, c_1, d_1)

<table>
<tr><th colspan="2">Name</th><th colspan="3">Societal Organisation
(a_1, b_1, c_1, d_1, e, f)</th><th>Guild Organisation
(a_1, b_1, c_1, d_1, e, f_1)</th><th colspan="2">Communitarian Organisation
(a_1, b_1, c_1, d_1, e_1, f_1)</th></tr>
<tr><td colspan="2">Representative Author</td><td colspan="3">Marx</td><td>Vogelsang and Rathenau</td><td colspan="2">Kropotkin</td></tr>
<tr><td rowspan="2">Typical Form</td><td>Agriculture</td><td colspan="3">Mechanised Plants</td><td>Co-operative of Peasants</td><td colspan="2" rowspan="2">Collective Settlement</td></tr>
<tr><td>Industry</td><td colspan="3">Factory</td><td>Co-operative of Craftsmen</td></tr>
<tr><td colspan="2">Order</td><td colspan="4">Societal Order (e)</td><td colspan="2">Communitarian Order (e_1)</td></tr>
<tr><td colspan="2">Principle</td><td colspan="3">Societal Principle (f)</td><td colspan="3">Communitarian Principle</td></tr>
<tr><td colspan="2">Means</td><td>Elimination (g_1)</td><td colspan="3">Evolution (g)</td><td colspan="2">Elimination (g_1)</td></tr>
<tr><td colspan="2">Measures</td><td colspan="2">Violent (h_1)</td><td colspan="3">Peaceful (h)</td><td>Violent (h_1)</td></tr>
<tr><td colspan="2" rowspan="3">Popular Name and Formula</td><td rowspan="3">Bolshevism
(a_1, b_1, c_1, d_1, e, f, g_1, h_1)</td><td colspan="2">Social Democracy</td><td rowspan="2">Co-operative Movement
(a_1, b_1, c_1, d_1, e, f_1, g, h)</td><td colspan="2">Anarchistic Neo-Communism</td></tr>
<tr><td rowspan="2">(a_1, b_1, c_1, d_1, e, f, g, h_1)</td><td>(a_1, b_1, c_1, d_1, e, f, g, h)</td><td>(a_1, b_1, c_1, d_1, e_1, f_1, g, h)</td><td rowspan="2">(a_1, b_1, c_1, d_1, d_1, e_1, f_1, g_1, h_1)</td></tr>
<tr><td colspan="3">Uniting the Programme of Socialisation:
Socialism and Solidarism and Communism (a_1, b_1, c_1, d_1, h)</td></tr>
</table>

Figure 3

5. The programme of socialisation here discussed makes an attempt at a simultaneous realisation of socialism, solidarism and communism (a_1, b_1, c_1, d_1, h). It provides for co-operatives for peasants and craftsmen, for collectivist settlements on a communist basis and for large-scale socialist production in agriculture and industry to exist side by side, in order to do justice to their different aspirations to realise a collective economy in their own way.

The principles of organisation may be summarised as follows. Essential for socialisation is a distribution of the different situations of life according to an *economic plan*. This presupposes an exploitation of the basis of life as prescribed by the plan. That the flows of raw materials and resources occur according to a plan does not mean that that plan is known to everyone! It is conceivable that peasants, sitting on their plot of land, continue to produce in peace for their own needs, following the old custom, because their actions correspond to the new plan of the collective economy. The authorities do not have to pursue a centralised formation of the will, it is enough if deviations from the economic plan are avoided and deficiencies are compensated for.

The total order is one of society, it is purposeful and rationalist, and such an order is not opposed to giving space to traditions and the principle of community in some areas. It is an important task for social engineering in a planned organisation of society to integrate fully the structures of community and the structures of guilds. This problem seems to be solvable, since the simultaneous realisation of all three movements is in accordance with the direction of development.

Nothing would be further off the mark than to believe that in the socialist epoch what we have seen in the recent past would be intensified without bounds: the merely partial development of human potential, the prevalence of full specialisation and the division of labour. That is not so. In fact, many energetic proponents of socialism in large production and of the division of labour only conceive of these measures as a transitional step towards a form of neo-communism. Moreover, the concern to conserve the already existing non-capitalist structures of small and medium scale and to create new non-urban communist settlements unifying commerce and agriculture is quite significant today and well-suited to work for a future that will enhance the development of the whole human potential and the unification of labour in conscious denial of their opposites. If socialisation wanted to destroy the culture of the peasants and the craftsmen and prevent neo-communism, it would not just encounter enormous resistance, but also pave the way to new conflicts, which modern social engineering had better prevent and avoid. Mere majority decisions will give way to an *economic tolerance* that can support several non-capitalist forms of economy simultaneously, just as in the United States settlements of Quakers are tolerated next to settlements of Mormons. (Do we really need an economic Thirty Years War to teach us tolerance?) The economic plans thus have to show how production and consumption of the manifold of smaller economic structures can be combined.

6. The economic plans would not only prevent the economic mistakes of the past but, importantly, would also describe the possibilities of the future. Just as estimates are required for a budget, so estimates for the macro-economy will be required for a socialised economy.

The general economic plans will have to *replace net profits* in regulating the economy. In a free market those enterprises were undertaken that yielded the highest money profits. The profits occurred automatically, as it were, and one obeyed the relevant demands like players obey an acknowledged rule of a game. At certain points of economic life, profits were disregarded in the common interest. On behalf of the state, schools, hospitals etc. were built that did not yield any profit. How mistaken it was to take profits as indicating efficiency may be seen from the fact that certain commodities widely needed were not produced at all, because the masses of the population did not have the money to buy these goods and were thus unable to 'produce' this profit. Nonetheless, the production of these goods would have produced more happiness than not producing them, and so it would have been more efficient. But profits did not even secure the most efficient exploitation of the resources considering the different money incomes, since increases in profits could occasionally be achieved by the destruction of goods or restrictions of production. Profits lost all appearance of being justified as indicator of efficiency when the administrative economy was extended and, particularly during the war, prices and wages were fixed by state intervention. If the wages of the workers in the production of coal were set high, and the price of coal low, profits in the production of coal fell, without this implying anything at all about the acceptability of the production of coal from any perspective whatsoever. The extent of intervention of the state or large associations in the administrative economy is growing from day to day. Wages and prices of goods are no longer fought over in the market, but in commissions. The authorities that determine wages and prices indirectly determine profits, i.e. the income of the entrepreneurs and of those having a share in the profits of the entrepreneurs. Since more and more frequently one can only reach conclusions about the relations of power involved from the fact that higher or lower profits are made, the decisions as to whether some specific production should be undertaken must be reached on another basis. We have to consider directly what different situations of life a certain basis of life will yield today and in the future in different cases. The happiness of all need not be decisive here, the happiness of a certain class may be, but only on the basis of an in-kind calculus including the whole of the economy and not on the basis of individual monetary calculations of individual firms. Applied administrative economy thus means centralised in-kind calculations based on an economic plan, it need not mean a collective economy, it need not mean a socialist distribution of the different situations of life! Whoever supports any kind of administrative economy, be it run by the state, by associations or guilds (Wilhelm Neurath, Rathenau), or some other kind of structures, inevitably paves the way for a planned economy and prepares the economic plan of socialism. The socialised economy always is an administrative economy following a plan.

IV. ECONOMIC PLANNING

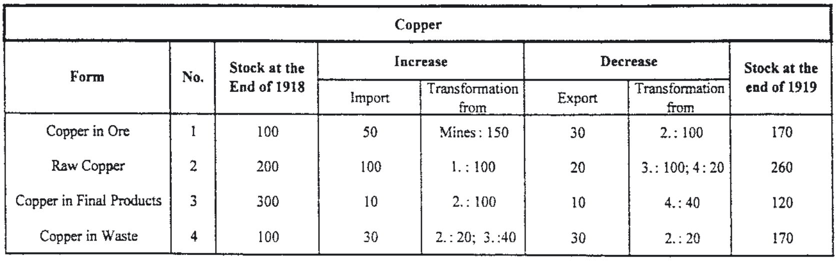
1. Socialisation presumes a clear economic plan that renders apparent the efficiency and plasticity of the economy. For this a redesign of statistics is required. The statistics of the 18th century had become a means of rendering the nations happy under the influence of enlightened absolutism. The liberation movements and the economic liberalism that put an end to the authoritarian state undid these initial attempts at a *universal statistics*. Statistics was now understood as a means of suppression, indeed, it was considered a repressive mechanism itself, an interference with personal liberties. The statistics were disaggregated, so that today we only have individual surveys compiled by diverse institutions without a common structure or design. The best statistics often cannot be integrated with each other. Since a common approach is lacking, data about some areas have not been collected at all, even though this would have been simple.

2. We cannot directly capture the quality of life and we will therefore stick to the condition of life, i.e. housing, food, clothing, working hours, etc. These we have to classify as types of situations of life. For instance,

we get several types of situations of life for the peasants of some area. The final outcome would be a ‘topography of situations of life’. The attempts by Le Play will now be pursued at a theoretically higher level. The condition of life will be dealt with in rigorous economic theory instead of in the logically unsatisfactory conglomerate of so-called social policy.

3. By employing an in-kind calculus – intended to supplement the common monetary calculus with its incomes, taxes etc. and provide the basis for investigating the economy – it will be shown how certain quantities of mines, fields, forests, swamps, etc., and imported resources and machines etc., yield certain quantities of coal, copper, flour etc., which in turn become part of the conditions of life on the one hand and means of production on the other, such as raw materials or auxiliary inputs for machines etc. Universal statistics will have to track the individual raw materials overall, by attempting to capture import, export, production (transformation), consumption and stockpiling for all forms of raw materials (Figure 4). Further subsections would complete the picture.

In a similar way, other tables would show what enters as raw material and auxiliary input (energy) into the individual processes of production, what is produced out of them, how fertiliser, seeds, machines, etc. enter agricultural production, how milk, butter, meat , fibre plants, etc. are gained from it. Whatever appears as ‘increase’ in one table will figure as ‘decrease’ in some other table, so that in the end a closed statistic system is reached. Where the collection of data is not possible for the moment, estimates have to take their place. In general, conjectural statistics ought to be developed further. In a closed statistical system this technique can be used more easily and successfully than in individual cases.



Copper

Form	No.	Stock at the End of 1918	Increase		Decrease		Stock at the end of 1919
			Import	Transformation from	Export	Transformation from	
Copper in Ore	1	100	50	Mines: 150	30	2.: 100	170
Raw Copper	2	200	100	1.: 100	20	3.: 100; 4: 20	260
Copper in Final Products	3	300	10	2.: 100	10	4.: 40	120
Copper in Waste	4	100	30	2.: 20; 3.:40	30	2.: 20	170

Figure 4

V. RATIONALISATION

1. The economic plan shows how different situations of life arise on the basis of life and for this it presumes technical knowledge of all sorts. We have to know the ability of a worker if we want to ascertain the yield of a piece of land, we have to know the effects of premiums and many other things.

The structure and realisation of economic plans may be split up under the following headings: technology of machines (appliances, methods etc.); technology of labour; management; social engineering. Socialisation uses these technologies consciously and proceeds rationalistically, at times perhaps intentionally fostering anti-rational, traditional behaviour in the interest of the general plan!

The free market economy, aiming at profits, enhanced the development of machines and the technology of labour and management in so far as this improved the performance of the enterprises, i.e. lowered the cost of production. Whether the condition of life of the people improved for the economy as a whole was not an issue. Health and well-being of the workers were only considered by the employer in so far as they affected the quality of work. Measures of rationalisations within the individual firms could decrease the efficiency of the macro-economy, as was the case at the beginning of the machine age, when the sudden introduction of machines lead to dismissals as well as an increase in the working hours.

The socialised economy takes health and well-being of the worker into account in exactly the same way it takes into account the final product that indirectly influences his condition of life. Any potential improvement of working methods is only considered for realisation if it takes account of performance, health and well-being. The research into working methods that is now developing, the scientific management of companies, the Taylor system, piece-work pay and all other means of technology will also be used by the socialised economy, but only in the common interest.

It is not at all impossible to introduce these measures in certain areas of life and leave tradition and received customs intact in others, if there the elimination of the old would cause particular unhappiness or were to have other undesirable consequences. Yet there are no objections in principle against socialisation employing the Taylor system and piece-work pay, even if they do not increase profits. The working people decide for themselves whether they want to lay the bricks according to outdated rules or following scientific principles that take into account output, health and well-being on equal terms, just as technology takes account of health in its sub-discipline of work hygiene. It is not of the essence of scientific management to investigate effects on the private economy, it is not in the nature of premiums and piece-work pay to help only the entrepreneur. For instance, we could think up systems where the piece-work pay decreases in such a way that the worker is no longer making more money if he moves away from the optimum for well-being and health. Premiums also may be paid if noisy works are not undertaken.

If we seriously start to pursue socialisation, the systems of premiums will have to be extended first of all, since this is the only way of protecting the industrious workers from the lazy ones, especially since in a socialised society the workers cannot be punished by being dismissed and rendered incomeless. It is only within certain branches of industry, for instance crafts and agriculture, that the system of premiums need not be applied, if one wished to foster the inclination to work without the carrot of material gain. In the distant future this may come to an end altogether, maybe if large-scale production and the division of labour have been widely eliminated. Attempting to do without premiums and piece-work pay in the traditional large-scale production plants, however, is likely to worsen the condition of life of society at large.

Premiums will have to be put in place of shares in the profits that until now were an important incentive for the executives. These are entirely new methods the elaboration of which presumes an extension of the science of management.

2. Besides premiums and piece-work pay, the principles for most efficient working methods will play a decisive role. The selection of the right movements and the right tools at the workplace will be accompanied by the selection of workers for certain jobs. Already today, every firm is able to choose appropriate people for its workforce in the interest of increasing its profits. Such a method even yields monopoly gains unless it is practised by all firms. The profits realised through such a selection, which many firms share in part with the workers, are often praised as an achievement of the Taylor system. This ignores the fact that the sudden and general introduction of the Taylor system in the traditional structures and the selection of the most suitable workers does not imply an increase in wages and that it would have an

equally disastrous effect as the introduction of the machine system a century ago.

3. The working people will be in favour of scientific management only if the economic order prevents its abuse. For the technology of work and management techniques to improve the condition of life, a corresponding increase in the pleasure of work needs to be achieved, i.e. a corresponding redistribution of talents across the different professions must be attempted. This requires social engineering beyond the bounds of the science of management and of working methods.

4. The question will no longer be how to select from a given group of workers those best suited for a given job; instead, the question will be how to bring about a combination of people and jobs such that a maximum of happiness is achieved. Given a group of 100 people, there will always be 10 that are best suited to become coachmen. But one will have to ask whether automobiles should not be preferred to coaches generally if among the 100 people more will be found with an interest in metalworks and car driving than with an interest in woodworks and coach driving. Pursuit of a job or profession is itself part of the condition of life and a good distribution of jobs and professions represents an increase in happiness just as an increase in production does.

These examples should suffice to show how the rationalisation of the economy strongly influences people, more than its general influence on efficiency, through changes in the distribution of situations of life (the plasticity of the economy) initiated by the fundamental redistribution of labour tasks.

Setting of industrial norms and types, as well as specialisation, are part of social engineering and their importance will be realised only if the majority of firms are involved. Their technical importance need not be considered here. It can hardly be denied today that the free market was in conflict with these endeavours. Already there are some who favour the setting up of an extensive structure of capitalist trusts, so that a standardisation in technology can be realised that raises production. Obviously, a socialised economy may do the same thing.

It requires special investigations how the capacity for innovation, general flexibility and many other abilities, which allegedly only occur in the free market, may also be fostered in an administrative economy of a socialist nature.

VI. THE INSTITUTIONS OF SOCIALISATION

1. The preceding discussion has sufficiently shown that the process of socialisation requires an economic plan, the administration and management of which needs to be carried out by a central authority.

Urgent problems of the day need to be solved. Strike fever endangers the body of society, workers ask for more money. It is in opposition to economic thinking that those workers who are more aggressive, who work in important industries or are better organised should receive higher wages than others. Besides the fact that these wage wars confuse the labour market, they start the spiral that knows no end: higher wages – higher prices – higher wages – higher prices. There is no point in explaining to an individual group of workers asking for more money that they ultimately just raise prices in the condition of life they are in now. The members of an individual group which receive an increase in pay before all others secure a larger share of the ‘national product’ for themselves. Only if all workers simultaneously ask for a general system of pay can this argument have any effect. Hardship will soon force us to consider a general system that unifies all pay agreements and other wage settlements and co-ordinates them.

As soon as such a general system of pay will have been approved, the simultaneous introduction of a general price system will become an absolute necessity. The workers will want to know right away what they will be able to buy for their wages; at the same time, these wages determine the price of the goods. Through the co-ordination of the general system of pay with the general price system, the life situation of the people will be determined in a rough form. It will also become clear then that nominal wages and nominal prices are irrelevant. The workers do not care whether they get commodities at low prices if they receive low wages or whether they get them at high prices if they receive high wages. Discussions will thus concentrate on in-kind wages, which may for convenience be computed in monetary terms. The economic plan and the in-kind calculus will be the basis of centralised investigations of wages and prices. High nominal wages and nominal prices are only of interest for payments of money dues (e.g. interest payments on loans), which weigh heavily upon people if wages and prices are low. In the same way the number of working hours will be set. The economic plan shows what condition of life will result given a 9, 8, 7 or 6 hour working day.

The centralised distribution of the different situations of life requires a regulation of production, which in turn presupposes control over the flows of money and credit (this involves abolishing the banks' duty to confidentiality) and, gradually, the assumption of full control over the use of money. The general duty to deposit shares in a bank's safe and to conduct only cashless transactions are among the essential means of socialisation. Some rationing of raw material and of many goods of everyday use will be permanent, even if with increases in production free choice will again become more common. The gradual displacement of the market with a system of distribution with as much free choice as possible is the final aim of every movement of socialisation.

2. These and all other comprehensive measures and the control and development of all economic organisations need to be achieved through the agency of a central body which we shall call the '*Central Economic Administration*' (Figure 5). The current fragmentation of economic organisations into different areas of competence will be ridiculed by later generations and held responsible for our poor economic performance. The latter is due not in the least to eliminating the free market without creating a planned economy at the same time, but allowing an economy to develop that behaves randomly, where the left hand does not know what the right hand is doing and where neither of them knows what needs to be done. The elimination of the coercive [war] economy and the development of the planned economy are pursued at the same time, such that different economic principles are followed in different areas. The Central Economic Administration must design the economic plan in accordance with all those institutions involved, ensure uniform enactment and must only allow differences that are compatible among themselves (indeed, it should foster these). The Central Economic Administration must also relate the domestic economy to foreign trade. The latter is more and more developing into trade by compensation which the Central Economic Administration must oversee, since the import of raw material will frequently be paid for through the export of the final products that it is used for.

The Central Economic Administration also would have to organise research into working methods and promote the rationalisation of the economy in general (the importance of which has been pointed out above).

3. Wherever possible, the realisation of the measures to be taken would be left to non-bureaucratic *Producers Associations* that

administer themselves (Figure 5). These associations are to be consulted in the course of determining the economic plan and have a vote in it. They may be of different kinds.

Craftsmen and peasants may be grouped in co-operatives, which take responsibility for the raw materials and additional inputs and ensure that the final product will be available to all people and not just to the wealthy. Membership of some co-operatives could be compulsory so that a comprehensive system of co-operatives could be created to which all peasants or craftsmen need to belong, thus eliminating their competition with the big producers.

Special organisations would have to encompass the big production plants. These can be construed along the lines of cartels and mixed firms. These associations would control primarily the regulation of production; the distribution would be carried out in conjunction with the central authorities.

As socialisation amounts to the disposal of end products according to the principles of a collective economy, the co-operatives of the craftsmen and the associations of industry would, just like the peasant co-operatives and the agricultural associations, be united in national associations that control the production from the raw material till the end product. For instance, the national association for construction works would comprise the production of construction materials, the administration of building land, and the actual construction works. To what extent committees, commissions and individual commissars will be decisive here is of no importance in the present systematic inquiry; it also does not matter whether the individual firms are private or state owned, as long as they observe the economic plan.

These associations may be under the partial control of a group of banks, which would thus become a means to socialisation. Special banks for socialisation and compensation could perform special duties. More or less by themselves banks would change from being central pillars of the institution of money to central institutions of the administration of goods. They would have to supply the branches of production with raw materials, auxiliary inputs etc. and ensure the supply of food and other goods to the workers. The tax system would also undergo fundamental changes and is likely to assume an in-kind structure through the mediation of the banks.

4. The system of associations and banks requires complementation through a system of statistical institutions, the accounting offices.

Socialisation can only be secured through a complete reconstruction of statistics. All collection of statistical data, whether initiated by towns, state authorities, associations or trade unions, would have to be of a standardised structure. The accounting offices would have to be structured accordingly and cover the whole of society; they would have to be united in a *Centre for Calculation in Kind* (a part of the Central Economic Administration) that produces the topography of the different conditions of life, the flows of raw materials and energy for inclusion in the economic plan (Figure 5).

5. From the point of view of social engineering, the socialisation could be carried out by a despotic ruler just as well as by a republic of councils. The suitability of these different constitutional forms from the political point of view depends on the historical circumstances.

Wide parts of the population, especially the manual workers who demand a socialisation, perceive in the current parliamentary apparatus an immortalisation of the rule of the urban intelligentsia. Just as the last revolution overthrew the rule of the aristocracy and landowners by the urban intelligentsia that was close to capitalist thinking even in its non-capitalist quarters, the present revolution will overthrow the rule of the urban intelligentsia by the whole of the working people. This has little to do with a fight between democracy and non-democracy. Yet capitalist circles derived an advantage from the mobilisation of democracy against the masses and the republic of councils they asked for. The masses could just as well ask for a perfect political democracy, which would put an end to the domination of the urban intelligentsia. It would merely have to be decreed: elections are to be held according to occupational groups and only members of the same occupation may be elected in such a way that they can be voted out at any time. Indirect elections in larger firms could be integrated into the system of proportional representation. It is obvious that in such a parliament, elected by all citizens, male and female, the capitalists would receive only a small number of votes. Whereas the demand for political councils must at least partly be considered insufficiently thought through, the demand for *economic councils* is of far more fundamental significance.

Fundamental to the works councils is the idea of a 'constitutional firm'. By themselves, works or factory councils are of relatively little significance for the process of socialisation. Closely related to them, however, are the higher economic councils (which [also] have nothing to do with the political councils). The non-capitalist working people ask for guarantees that there will really be a socialisation. Even a socialist majority in parliament could not ensure that every part of the economy must be under control. To ensure this is one of the main jobs of the economic councils which will have many sub-organisations.

The economic councils would constitute a hierarchy that culminates in a top *Workers' and Farmers' Control Council* [*Arbeiter- und Bauernkontrollrat*] which, together with the Central Economic Administration, would exercise control over the whole of the economy (Figure 5). It is only through a hierarchy of such economic councils that the workers will be able to discipline themselves, since they will always resist and distrust external institutions. Whether the companies with the executive directors will be represented as a separate 'class' in the higher councils cannot be decided here, this will be a matter of the balance of power. From the point of view of social engineering, their continuous employment is welcome, since this socialisation plan aims to leave the management of the companies to individuals. Wherever possible the entrepreneurs of today should be kept as managers and not become unemployed recipients of pensions as a result of rushed nationalisations. Their sons, of course, would not inherit this role.

The control council would consist of

(a) the national trade councils [*Landesfachräte*], which would unite the next lower level of regional or local councils according to their industries. (National trade councils would exist for food supplies, housing, construction works, the garment industry, the health care system, education and entertainment, agriculture, forestry, mining, transport, banking, distribution/logistics, the civil service.)
(b) Representatives of the workers, male or female, elected at their place of work, who would counteract the tendency towards ossification that will also occur in the economic councils. These workers would return to their jobs after a while, to enjoy the reforms they supported.
(c) Representatives of non-capitalist organisations: trade unions, representatives of the unemployed and of war invalids need to be mentioned here.
(d) Representatives of the authorities and other public offices.

Just below the national trade councils there would be the *local* (or *regional*) *trade councils*, which would have to be elected by the factory councils of the different industries (food, housing etc.) or immediately by the members of those occupations that do not elect work councils (medical doctors, peasants, writers etc.). It will be an important task of social engineering to join these specialist councils with the trade unions: if membership in the latter were made obligatory, they could even be united with the specialist councils. It is also conceivable to make the trade unions the bureaucratic apparatus of the trade councils, considered as bodies of economic representation. Socialisation opens up a whole new sphere of activity for the trade unions. If it were impossible to find such new areas for them, their resistance against socialisation would be provoked, for it tends to usurp their place. Since the socialist movement owes so much to the trade unions, which also command an excellent organisation, there are many who want to assign new responsibilities to them. However, the unions also have strong enemies among those workers who want to see the economic fruits of the revolution.

During the process of socialisation, the works councils will have to assume the control of money and raw materials in the firms through nominated experts who ensure compliance with the regulations. The socialisation would not gain if the works councils occupied a managing position. Nor could an increase in production be expected from such a role. To what extent that would be desirable for other reasons is a different question. The works councils often have a disorganising influence on the economy and thus harm the interests of the working people. Often they also exhibit capitalist behaviour by pushing for a distribution of the profits among the workers and some sort of profit-sharing. All such individual measures are, like individual demands for pay, fundamentally non-socialist. According to socialist principles, the income of a worker can depend on his immediate success at his job or from the development of society, but never from the profits of a firm that still acts on the free market. It can be a socialist measure to pay the typesetter more because he managed to set more letters in an hour, but not because he set a book that had better sales on the market. Furthermore, in the process of socialisation the profit of entire firms, indeed, of entire groups of firms, will become a set magnitude and will be used for purposes of calculation only.

In short, particularly the higher councils serve the overall purpose of socialisation, while the works councils do so only at the lower levels. Worker councils [or soviets] as the lowest political level require a different investigation altogether.

6. For the Central Economic Administration and the economic councils to be able to accomplish their tasks, an *organisation of experts* will be required (Figure 5). The more every individual is allowed a share of power, independently of his knowledge of the facts, the more attention has to be given to the systematic consultation of experts. It would be advisable to install a group of experts for every individual branch of the economy. They would have to be close to the existing universities, institutes, associations. These groups of experts would deal with the five following kinds of questions.

(a) Commercial issues. Some of these would concern the accounting procedures, which would be centralised under the guidance of representative trustees.
(b) Issues relating to working methods. Among these are psychological and physiological investigations that examine fatigue and nutrition.
(c) Technological issues.
(d) Management issues. Among these are all investigations into scientific management (the Taylor system).
(e) Economic, statistic, and legal issues. Questions of social engineering extending beyond the individual firm also need to be considered, these should be treated by special section of the body of experts.

VII. SOCIALISATION AND SOCIAL DEMOCRACY

Socialisation is demanded particularly by those who had to suffer most under capitalism, the factory workers. To bring about socialisation, however, the factory workers have to unite with the craftsmen, farmers, civil servants and the professionals to form an anti-capitalist bloc. The leaders of the factory proletariat mostly felt estranged from these groups of people. Furthermore, their emphasis on the slogan of class struggle often intensified, sometimes provoked, opposition between the factory workers and all other members of society, even the non-capitalists.

Overview of the Organisation of Socialisation

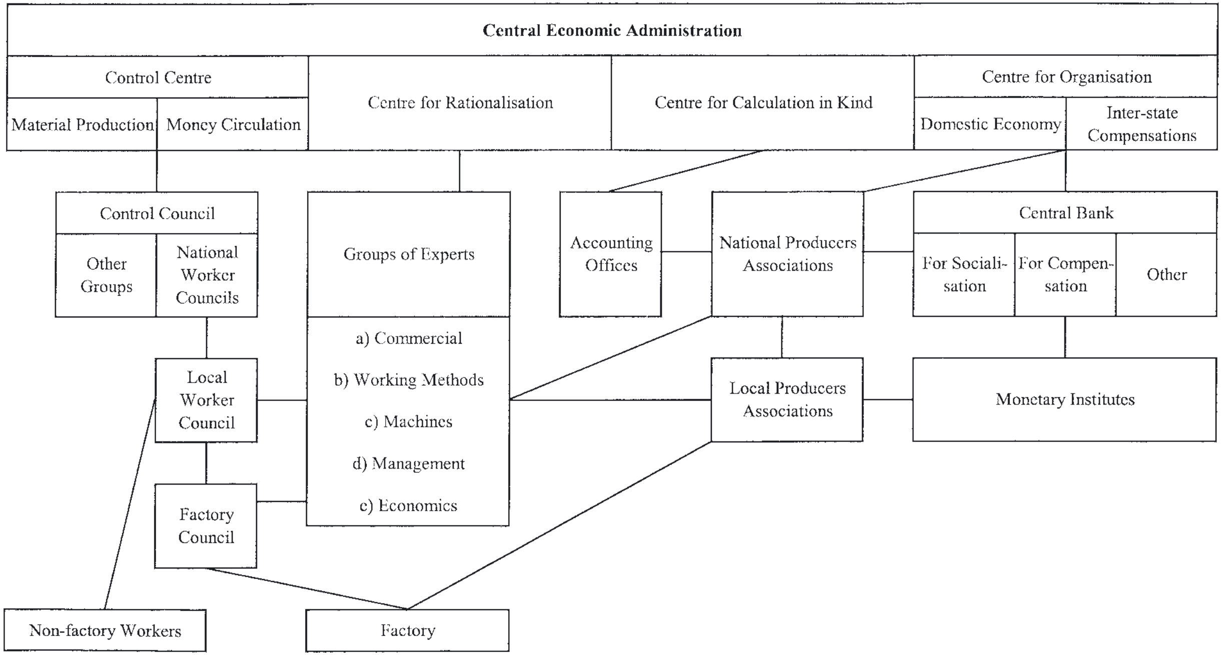

Central Economic Administration
Control Centre
Material Production
Money Circulation
Centre for Rationalisation
Centre for Calculation in Kind
Centre for Organisation
Domestic Economy
Inter-state Compensations
Control Council
Other Groups
National Worker Councils
Groups of Experts
a) Commercial
b) Working Methods
c) Machines
d) Management
e) Economics
Accounting Offices
National Producers Associations
Central Bank
For Sociali-sation
For Compen-sation
Other
Local Worker Council
Factory Council
Local Producers Associations
Monetary Institutes
Non-factory Workers
Factory

Figure 5

No doubt it is a significant task to dissolve classes, but this can occur successfully only if education and organisational restructuring are also involved. For this a social democracy requires a comprehensive system of socialisation that attracts and satisfies people from all backgrounds. It was from the co-operation of all that Kropotkin expected the rise of a new era. The near future will decide whether the dissolution of the classes only occurs through a violent class struggle which, as the example of Russia shows, will lead to Bolshevism if consistently pursued in one direction. Breaking up the old mechanisms of the state invites resistance even of those mechanics that would be prepared to shape the socialist system.

Whoever wants to achieve socialisation with a minimum use of violence and as peacefully as possible, must consult the current generation of civil servants, teachers, judges etc., as far as at all possible; in addition, the classes thus far neglected should be enabled to enter into the bureaucracy. If it has been possible to offer ‘special hardship examinations’, that is, early final year examinations for high school students about to be conscripted, and shortened university semesters for soldiers, then it is also possible to offer ‘special hardship examinations’ and shortened semesters for proletarians. This first cohort of the proletariat should then enter the offices of the bureaucracy immediately. All other well-intended movements of people’s universities, which only aim at raising the level of education, but do not confer any bureaucratic powers, have little immediate significance for socialisation.

The Social Democratic Party was surprised by the success of the political revolution. It was only gradually that individual leaders were forced by the masses to proceed from the ‘socialisation of appropriate firms’ to the ‘limited planned economy’; unless they want to lose their positions of leadership, they will soon have to espouse the slogan of ‘total socialisation’. It is no longer possible to counter the demands of the masses by pointing to the hardship of the present time. No worker can be made to believe that a planned administrative economy is less efficient than an unplanned free market economy. The elimination of the so-called surplus value, which many social democrats think has become insignificant today, does not represent the most pressing task, but rather the reorganisation of the entire production in the interest of the working people, the elimination of the waste of resources and of useless variations. It is these that burden the working people more than any 'surplus value', only providing the entrepreneur with possible profits.

The masses are driven by dark longings, the historical power of which is more forceful than certain inhibitions on the part of the leaders. It will not be long before the vague demands will give way to a clear programme. Then an economic plan will rule in a society characterised by great diversity, a society that seeks to unite the operation of agriculture and industry and eliminate the differences between town and country. Social Democracy will have moved from the historicism which rendered the movement strong and powerful in the past, to the utopianism, which signals a new era of consciously shaping the future in knowledge of the historical necessities. It is not difficult to link this new movement to the existing Marxist ways of thought and so to develop further the party tradition that has been of such a practical importance. Conceiving of the interpretations and explanations, the necessary restrictions and extensions that this requires, is no longer the task of science, strictly speaking, which points out possibilities and determines the facts of the past, present, and future.[1]

NOTES

* First published as "Ein System der Sozialisierung", *Archiv für Sozialwissenschaft und Sozialpoliti*k 48 (1920/21) 44–73. Translated by Christoph Schmidt-Petri and Thomas E. Uebel.

[1] [Under the heading "Further Reading" (*Ergänzendes*) Neurath listed the following of his works: *Durch die Kriegswirtschaft zur Naturalwirtschaft*, Callwey, Munich, 1919 [excerpts trans. in Neurath, *Empiricism and Sociology*, ed. by M. Neurath and R.S. Cohen, Dordrecht: Reidel, 1973, 123–57, and in this volume (Chapters 3, 5, 6 and 9)]; *Wesen und Weg der Sozialisierung*, Callwey, Munich, 1919 [trans. "Character and Course of Socialisation" in Neurath, *Empiricism and Sociology*, *op. cit*., pp. 135–50]; *Die Sozialisierung Sachsens*, Arbeiter und Soldatenrat Chemnitz, Chemnitz, 1919; and, written with W. Schumann, *Können wir heute sozialisieren?*, W. Klinkhardt, Leipzig, 1919.

OTTO NEURATH

12. TOTAL SOCIALISATION

OF THE TWO STAGES OF THE FUTURE TO COME*

Contents: Introduction. *Part I: Socialisation and Economic Plan* 1. Signs of the Time. 2. Total Socialisation. 3. From Under-Utilisation to Total Utilisation. 4. From the Economy of the Masters to the Economy of Community. 5. From Market Economy to Administrative Economy. 6. From Net Profit to the Economic Plan. 7. From Monetary Economy to Economy in Kind. 8. From the Rule of the Masters to the Rule of the Community. *Part II: The Organisation of the Socialist Administrative Economy* 9. Foundations of the Organisation. 10. The Central Economic Administration. 11. The Economic Associations. 12. The Accounting Offices. 13. The Banking Concern. 14. The Economic Councils. 15. The Groups of Experts. *Part III: Socialisation: Decline or Revitalisation of our Civilisation?* 16. Prophecy, Utopia and History. 17. The Economic Order and Historical Change. 18. Forms of Life. 19. Foreign Trade. 20. Domestic Economy. 21. The Stages of Socialisation. 22. Economic Tolerance. 23. Intuitive Interpretations.

INTRODUCTION

The sad confusion we can witness in Germany today is to a large measure the result of a lack of clear insight. The ‘people of poets and thinkers’, the ‘exemplary organiser’ does not possess an effective economic programme. That the adherents of a dying economic order have nothing to offer is not astonishing, of course, but the same is true also for the reformers. Leading Social Democrats, under the guise of upholding the scientific attitude, have ridiculed the demand for a comprehensive picture of the future state for so long, with very few exceptions, they have killed off any interest in socio-technical constructions. Those who in recent decades did seek to design the basic outlines of the future economic order, either for purposes of predicting the future or in order to contribute to the shaping of it, often have not been members and certainly were not the leaders of the Social Democractic Party.

Developments seem to show clearly that those critics were right who predicted the decline of the free market economy and its replacement by an economy of giant organisations. If Social Democracy is not to lose its leading role, it must refashion its 'Erfurt programme', which overemphasised large industrial plants and nationalisation and hardly mentioned the planned economy of the future and the comprehensive organisation that must sustain it. Perhaps the new programme of the Social Democrats, which is in the process of being formulated, will seek a closer connection with the earlier one of Marx and Engels, which looked forward to the transformation of the capitalist system – not merely to its development like the Erfurt programme – by means of measures like the 'communal plan' and by 'unifying agriculture and industry through the gradual removal of the difference between town and country'.

The programme of Social Democracy must become a programme for society at large. The time is past when it could limit its efforts to uniting the factory workers. Socialist orders of various kinds can be designed; what matters is to find one which suits the historical situation so that it can be realised deliberately. Hopefully the new order will be established without a struggle between factory workers and other groups of the population. Such a conflict, which many people think unavoidable as the class struggle between 'proletariat' and 'bourgeoisie', strikes deep wounds into the working people and often creates enmities which make matters worse. It becomes ever clearer that the leaders of the industrial workers have to unite with all the others who have suffered from the traditional order: craftsmen, farmers, teachers, civil servants, medical doctors, technicians, in short, all those who a certain verbiage deemed 'bourgeois'. 'Capitalism' has taken advantage of these divisions and tried to enlist these 'non-capitalists', who partly suffered greatly, against the workers, who it also tries to split.

As long as Social Democracy stresses its ideal of the large plant it will have craftsmen and farmers as adversaries as they cannot accept the ideal of large-scale organisations and economic planning unreservedly. The near future will probably see not so much the general expropriation of capitalists but rather the liquidation of 'capitalist' privileges and a measure of submission to the will of the people in matters concerning the essentials of subsistence. Decisive historical conditions point this way; the only question is whether it will be brought about with upsets and distress or with intelligent foresight.

Of all the attempted predictions of the future economic order which will at the same time transform the vague longings into clear intentions, Rathenau's is the most comprehensive. His conception of the guild-organisation, which has much in common with Wilhelm Neurath's theoretically elaborated 'pan-cartellism', is characterised by the traits of the giant industrial organisations. Yet his 'New Economy' does not satisfy the pressing demands of the broad masses and moreover contains a basic error. He believes he can operate the guild economy with net profit and money calculations, turned to communal use but without an economic plan. Still, the coming era would bring less suffering and more self-determination if representatives of all movements would follow Rathenau's example in creating visions for the future.

Whereas in Rathenau's conception the economic plan is missing (even though he himself promoted the idea of planning through his administration of raw materials during the war), the indisputable credit for having designed an economic plan and having moved the question of distribution into the very centre of deliberation must be given to the two utopians Ballod-Atlanticus and Popper-Lynkeus. Their programmes also tend to over-emphasise the large plants, to the neglect of other large-scale organisations, and disregard traditions too much in order to be directly applicable.

The programmes proposed by Kautsky and others suffer from their longstanding neglect of socio-technical construction. Their visions are faint and they cannot satisfy the demand for a well-constructed theory nor the demands of the clamouring masses.

The socialisation programme of Kranold-Neurath-Schumann was designed for immediate realisation. It came from the camp of the Social Democrats and found approval among the Independent Socialists. It provides a place in the new economy for farmers and craftsmen through a cooperative system and for technicians, doctors etc. through new types of associations. It gives due consideration to the deeply felt needs of the working class (and was noted for it) by stressing the distribution of housing, food, clothing, education and leisure, work and stress, according to social principles. It demands comprehensive organisations, central planning offices and the public control by all working people of production and consumption on the basis of an economic plan; in doing so, it prepares for an economy in kind. This programme stimulated the creation of the Saxon State Office for Communal Economy and the Bavarian Central Economic Administration.

The only programme that has been put into operation to a larger degree so far is Otto Bauer's, which has been developed theoretically in several respects. Up to now it lacks an economic plan and perhaps stresses expropriation too much, but it recognises comprehensive organisations as bearers of an administrative economy. It will hardly be able to avoid the creation of a controlling institution in the form of higher economic councils. At present it is the only programme of German [and Austrian] Social Democracy that has been accepted as a government programme.

The socialisation programme of the Ministry for Economy of the German Reich has also been published recently. In recognition of the circumstances Wissell and Moellendorff, who earlier on had been in favour of a liberal economic organisation, have now adopted the standpoint of a centrally planned economy. They recognise higher economic councils, but still give freer play to entrepreneurs than can at the moment be allowed. Their programme shows some features of an economy in kind, but still lacks the economic plan itself. If this programme, which has much in common with Rathenau's, would be realised, an essential step towards socialisation would have been taken. Some essential additions will have to be made, to be sure, before the broad masses will accept it.

In due course all these endeavours to plan the economy for the community may be combined into a uniform movement, perhaps carried forward by the conditions of the world economy. The present publication seeks primarily to characterise the socialisation movement in historical terms, as part of a powerful process of transformation. To do so in an easily intelligible way, we use slogans to characterise the transition from the old to the new order and broad outlines to characterise the structure of the socialist economy. More specific questions about socialisation are dealt with popularly but in detail in Neurath and Schumann, *Könnern wir heute sozialisieren?* (Leipzig, 1919). Among those who have influenced this essay are Ballod-Atlanticus, Breysig, Erwin Hanslick, Kropotkin, Friedrich List, Eduard Meyer, Marx, Müller-Lyer, Wilhelm Neurath, Popper-Lynkeus, Rathenau, Ratzel, Schurtz, Oswald Spengler, Tönnies, Turnau-Fr. Oth.

Munich, July 1919

***

I. SOCIALISATION AND ECONOMIC PLAN

1. Signs of the Time. Consider the most burning concerns of our day – without forgetting our weary routines. The World War broke out amidst delirium and deception. Power went to the military leaders and their party friends, to the producers of guns, shoes and tinned food, to those well versed in the tricks and tracks which provide intermediate profits. The people bled and went hungry – then came the great collapse. Of inner unity there was no question in Germany, too deeply ingrained was the hatred against the rulers, too grotesque were the lies and irresponsibilities that were uncovered. What people in the know had recognised long ago as the essence of our and others' politics was now obvious to everybody.

The bad conscience of the rulers at first left power to the leaders of the workers without any measure of resistance. In the Reich and in the federal states too, men came to power some of whom had suffered greatly for socialism but all of whom, in general, lacked the belief that the time was ripe to bring it about. Educated in trade union work and used to quarrelling about detailed issues of Marxism, they were not equipped to draw the outlines of a social structure, yet the time cried out for a powerful vision of the future that would inspire new feelings of community and new duties.

Dumb dissatisfaction took over, riots and strikes perturbed Germany. Furious masses of workers longed for liberation from their long-born servitude – no one offered clarification. All sorts of people spoke of peace and orderliness and yet did not shy from using violence to halt a movement that only needed proper avenues to lead to the land of the future. Praise and glorification of the political victory last November did not help, the workers sensed that all the political gains were pointless unless they were followed by economic ones.

Months were devoted to commission meetings; they ended without any decisive result. Under the strongest pressure from the masses the government of the Reich decided in favour of 'socialisation of those branches of the economy ripe for it'. Coal and salt mining were sacrificed to the workers after long bargaining; now they should keep quiet for 'this is socialism'. But what did it help them that they burnt nationalised coal instead of privately mined coal, that their corn had been fertilised with nationalised potash instead of private potash? The workers demanded socialisation: it was the leaders' business to work out how it could be effected. They in turn mostly referred to the Erfurt programme, though they shrank from its radicalism. Socialisation was identified with nationalisation, the legal measure of expropriation was put in the limelight – the comprehensive form of organisation which even the Erfurt programme did not elaborate on continued to remain in the dark.

Is it to be wondered that in such sombre times the gates were opened widely to a stream of parables? 'Experiments should not be made on those who are dangerously ill'; 'a defeated people needs rest'; 'only after there has been a general recovery (namely of free market entrepreneurship and the other achievements of the imperialist-liberal era) can socialisation be attempted'. As if socialisation would not bring recovery and liberate society from the damages which the free market economy inflicts. War mongers who had started a World War, whose outcome could not have been foreseen, now presumed to warn of 'experiments'. Even the nationalist chord was struck and 'foreign instigators' were accused of having started this fundamental upheaval – as if the suffering and disappointed working class needed their assistance to revolt!

A new order of life is approaching, unconsciously furthered even by those who object to it and who form associations to prevent an economy of associations. Step by step the mass movement forces advances which a few thinkers argued for already in earlier times. We witness how a programme for a new economic order is in the making, an order which we are approaching more quickly than many believe. Thoughtful persons cannot derive their confidence in the future from this longing alone, of course, but want to welcome the future as a consequence of the past, as a result that is integral to the historical development with its innumerable different strands, and recognise it as a phase of history that announces itself everywhere. Only when we see where we come from and where we are going will we be able to decipher the signs of the times, to separate the essential from the inessential and to judge the impact of individual occurrences. One such possible overview is presented below.

2. Total Socialisation. Socialism is approaching and we help it along by 'socialisation'. In general we shall speak of the 'socialisation of the economic order'; of the 'socialisation of individual branches of the economy' we shall speak only in so far as these branches are included in the comprehensive socialist plan. Far from us are those calming phrases about 'socialisation of those branches of the economy ripe for it', indicating mere nationalisation. How much of socialisation would not have been found by comparison in Czarist Russia, in the shareholder's France? Many people believe, because a total nationalisation would submit the distribution of all products to the will of the people, that a partial nationalisation would do so partially, but matters are otherwise: about the fate of the products nothing would as yet be decided. For instance, nothing prevents national coal, extracted by a 'socialised' mine, from warming luxury homes, fuelling luxury industries and being held back from the broad masses. The aim of socialisation is to produce and distribute the final product socialistically.

We shall never speak of 'socialisation' if a plant has been taken over by its workers, if an industrialist introduces profit sharing or a landowner divides his land for housing projects. What have such measures to do with the socialist organisation of production and consumption? Socialisation is concerned with the whole, it is always total socialisation, however shallow or deep the impact of the overall measures is. If we control all plants and the production in the way the Hindenburg programme did [during the war], if we distribute the products according to definite principles without any expropriation, then we have done more for socialism than by removing all industrialists, putting workers' councils in their place, but leaving the old order of production and market unchanged.

What is more essential for socialism need not, however, be what appears more significant for the movement at the present moment. Even the most powerful leader cannot apportion the forces at will, but can only make connections between them and adapt them to the ideal proportion. Today there are mainly three powerful movements which can prepare the way for socialism. One demands power within the factories, one demands higher wages and a lower cost of living, the third demands political power for the working people without independent means. All three movements have to be transformed to a certain degree to be able to help bring about socialisation. The political power gained would have to serve the centrally planned economy, the workers' councils would have to control the execution of the measures towards socialisation initiated with a wider vision by economic councils at a higher level, and the demands for wage-increases and price-controls would have to be systematised so as to anticipate the distribution of the 'national product' after socialist principles.

Once these now separate movements would have received a ‘higher blessing’ by integration into an overall programme for socialisation, they would presumably receive more systematic, theoretical attention than they have so far. Only the creation of a theory, that is, a doctrine attending to all realities and practical possibilities, can safeguard an undisturbed development which can call on a common stock of ordered experience. The sooner a historically and socio-technically founded theory of total socialisation is achieved, the sooner deliberate construction will take the place of the disorderly, often so contradictory, violent revolutionary movement. The struggles so far, which pitted factory workers against factory workers and which united farmers, craftsmen, civil servants, teachers, doctors, students against them, have mainly been the result of a lack of insight into what socialisation really means.

3. From Under-Utilisation to Total Utilisation. The critics of the traditional economic order issued two severe indictments: that it accepts mass poverty side by side with massive wealth and that it accepts crises, depressions, unemployment and waste of all sorts of energy. The first fact is easily deduced from the distribution of power. It needs no explanation that the stronger party enforces such a distribution of living conditions which secures many comforts for itself without any work, whereas the weaker party must work long hours for little food and clothing. But it struck many thinkers of different persuasions as a pointless nightmare that, in the advanced money and market economy, entrepreneurs, intentionally or unintentionally, would create unemployment, close factories and so counteract the full utilisation of resources in the pursuit of profit. In its simplest form such a procedure was used, for instance, in the Dutch colonies, where plantations of spices were burnt down in order to reap higher prices: with fewer goods on the market, the net profit was higher than with larger sales at considerably lower prices. The same thing happens, though in a less obvious way, when workers are dismissed and production is reduced in times of crises, even though the production tasks remain unfulfilled.

The traditional economic order appears less economical than a socialist economy which would replace under-utilisation by total utilisation. The lower degree of utilisation of the traditional market economy has still other facets. The free market economy wastes energy which could serve the production of utility goods, for instance, when an excess number of shops are kept open with underoccupied staff.

An abundance of material and energy is used in advertising of all sorts, from poster hoardings to crowds of commercial travellers flooding the land.

In even greater measure the under-utilisation characteristic of the traditional economic order manifests itself in a multiplicity of goods that is to nobody's advantage. To win the fight of competition ever new forms of goods of restricted use are thrown on the market, pen-knives, suitcases, etc., in shocking numbers. The producers are not interested in the quality and durability of their goods but, on the contrary, in a quick change of fashions. This holds true not only for the articles of consumption of everyday life, but also for the means of production like machines and machine-parts. An overabundance of different wedges, screws, etc., are in use, because the competing firms cannot agree on the much smaller number of technically necessary 'norms'. In the same way the great variety of motor cars and of other machines can be explained which could be replaced by a much smaller number of 'types'. Instead of continuing to produce in each factory all sorts of machines and machine-parts in small numbers in order to maintain competition, each factory could be given part orders and fewer types could be produced in greater number. Such 'specialisation' could mean large scale saving of energy. Such technical uniformisations are a matter of course in a planned socialist economy. In it there is no concern for the profit of single establishments but only concern for the common interest.

Socialism is more economical, its process of production purified and rational. To the technology of mechanised production, already in the late 19th century, the technology of labour and of management, better known as the 'Taylor system', was added. Now a type of social engineering will be joined to these technologies which looks at a people's economy as a whole as if it were one factory which should work more economically. Whereas in the past the profit of the entrepreneur conditioned the improvements of the working process, it is the efficiency of production, together with the health and comfort of the workers, that are decisive in socialist society.

4. From the Economy of the Masters to the Economy of Community. Total utilisation of the economy does not mean that socialism has been established. Even a state that practices slavery can have total utilisation of its resources. History teaches us that there is even a connection between absence of crises and slavery, since slave owners cannot ‘dismiss’ slaves as easily as a free entrepreneur can dismiss workers.

In the traditional economic order, happiness and unhappiness, the ‘quality of life’, are distributed at random. When we survey this distribution – “the physiognomy of the economy” – we notice that those families continually have at their disposal the indispensable conditions of a pleasant quality of life – favourable ‘conditions of life’ – who have succeeded in acquiring indirect rights in large enterprises as shareholders. For example, those who own shares of a large bank can mostly enjoy life quietly, a pleasant existence is secured for their grandsons, whereas the grandsons of great philosophers, artists, scholars and technicians do not enjoy such privileges. Skillful manipulation of the money apparatus, if only on the stock market, in general secures the most favourable living conditions, whereas the great masses of menial and mental workers live their lives inadequately housed and shortened by illness and toil. It is the money men and all who are busy with making money as entrepreneurs, as directors and their assistants, who receive most of the benefits of a people’s economy.

Socialism wants to get rid of the privilege of one group, it wants to replace the economy of the masters with an economy of community [*Gemeinwirtschaft*]. It wants to distribute everything that pertains to living conditions – housing, food, clothing, education, leisure, work and toil – not according to inherited or acquired privileges of ownership, but according to general principles, taking into account performance, age, health, gender, etc., of the individuals. In a socialist society everybody has the security of a minimum of housing, food, clothing, education and leisure, once the generally required minimum of work, apportioned in all kinds of degrees, has been contributed. Additions to the minimum can be envisaged as premiums for extra work or special care expended on the health and comfort of the environment; such premiums would be payable in the form of extra entitlements for housing, food, clothing, etc.

When economic conditions improve, minimum amounts and premiums can grow, working hours can decrease. A great variety of living conditions can be considered. Some smaller groups of individuals can be allowed self-sufficiency (we will return to this) if they fulfill their contribution to the fulfillment of general social needs, particularly also for future production.

5. From Market Economy to Administrative Economy. The free market economy was planless in principle. Individuals who engaged in the economy aimed at a maximum of profit in the 'market'. The collision of competing buyers and sellers, amongst whom the leaders in production, the entrepreneurs and the banks played the decisive roles, was supposed to provide for the needs of all in the best way and with most favourable conditions.

Criticism has shown that the economy of free competition, the market economy as it has developed over time, is neither economical nor does it serve socialist principles of distribution. The traditional economic order has subjugated ever growing circles of people without ensuring that even their simplest needs are met; it allowed a desperate housing shortage to continue in Germany even though plenty of productive forces were available. Socialism tries to replace the planlessness which springs from the disconnected activities of individual entrepreneurs by an administrative economy according to a plan, by an economic order in which central institutions survey the entire economy in order to participate in decisions on work, production and consumption.

Socialism seeks to bring about a socialist administrative economy. Administrative economies of still different characters can be imagined, for instance, some which are based on trusts or cartels which would oper-ate as directed by masters; while they would eliminate uneconomical features, they would secure additional income for a preferred group of individuals.

6. From Net Profit to the Economic Plan. In the free market economy the individual entrepreneur decided to proceed with a particular sort of production if it promised higher net profits than others. How are decisions be taken in a socialised economy?

Many believe that in a future economy of community the state or the associations will direct the economy according to a plan, but that in doing so they will base their decisions on some 'net profit', even though it no longer goes to a class of masters. Such 'profits' would furnish the basis on which decisions are taken, say concerning whether the building of a canal or of additional housing is to be preferred. This is a fundamental error.

We must be absolutely clear about this: even if net profit survives, it can no longer affect decisions in an administrative economy, be it socialist or not. In a free market economy, net profit results automatically (in a manner of speaking), it can provide orientation for one's actions (though we may leave undecided whether this advances efficiency). In an administrative economy the decisions about production, distribution, wages and prices, about the entire distribution of living conditions, are decisions to taken by the whole – be that the state or associations of the individual professions and branches of production, or associations of producers, workers and consumers. It is quite conceivable that these decisions are also about sums of money or 'net profit', but these profits would only indicate where the power in the negotiations lies, they are the result of negotiations and could not even appear to be indications of profitability. What can one conclude if, for example, negotiations between associations result in high wages for coal miners and low coal prices (thus low profit in coal mining) and low wages for farm workers and high food prices (thus high profit in farming)? These 'net profits' are, so to speak, indirect concessions of employer's income. Nevertheless, in an administrative economy the decision can be taken to expand coal mining in spite of its low net profit and to restrict agricultural production in spite of its high profit; it can also be decided to distribute net profits in a different way, so that the association with higher net profit must subsidise the one with lower net profit, or in other ways.

What is the basis for such decisions in an administrative economy? Certainly not considerations of creating or changing net profit, but considerations of the consequences of the production of coal and of agriculture. The administrative economy investigates what the production and distribution in the various possible cases are and which of the outcomes correspond best to the desired goal, be it a master-oriented or a community-oriented economy. In short, it bases its decisions on an economic plan. In the administrative economy the plan is what net profit is in the market economy: the indicator of what is economical. Economic plans can also be devised for market economies, but within such an order they can have no effect on the decisions of the economic agents.

7. From Monetary Economy to Economy in Kind. The socialist administrative economy does not get rid of net profit alone; in the last resort it also puts an end to money economy. In the traditional economy money was not only a voucher for goods of all kinds, it was also the basis for any decisions about production. Money was the unit by which profits and profit expectation were measured as well as means of production and income. What role could money play in an economic plan, which determines the everyone's welfare in a direct way, not via exchange and vouchers? How could improvements in housing be measured in monetary terms or even the effort expended on them?

Some people will recoil from such considerations and be afraid of falling into a vacuum. Still, if we had to decide whether a school or a hospital should be built by public means, all along we have had to arrive at our decision not on the basis of net profit considerations, but by an immediate evaluation in terms of the consequences of these measures for people's health and education. In the future, growing crops will be decided in the light of people's nutritional needs in much the same way as building schools is decided in the light of educational needs.

If no longer sums of money, but things themselves are taken as the basis for our decisions, then we cannot speak of monetary economy but only of economy in kind [*Naturalwirtschaft*]. It does not matter for this characterisation whether money is still in use as vouchers for goods, or whether vouchers replace money entirely and entitle directly certain consumption goods, or whether money is still used in some capacity as a unit of calculation. This kind of 'monetary calculation' can remain side by side with the 'calculation in kind' of the economic plan; in such a case it is useful to speak of an economy in kind with reckoning in money.

8. From the Rule of the Masters to the Rule of the Community. Socialisation means launching a planned administrative economy not only *for*, but also *by* society. It is conceivable that a community economy could be introduced by a despot or through a dictatorial bureaucracy. But comprehensive socialism aims at direct rule by the people over the economy – not only as a means for the realisation of a socialist society, but also as an end in itself, as an expression of human dignity.

In recent times the rule of the masters [*Herrenherrschaft*] has been chiefly maintained by the dominance of entrepreneurs, of certain court circles and aristocrats as well as the large land owners. Important support was given by non-capitalist groups who were accorded preferential treatment in virtue of their honour and education: army officers, civil servants, doctors, teachers, etc. Following old traditions they exploited educational possibilities from which factory workers and farmers' sons were practically excluded. The urban intelligentsia exercised its power through parliament and bureaucracy, institutions which had previously been reserved for the aristocracy and landowners alone. Socialism tries to break these privileges, it tries to extend participation in ruling power to all, and especially to make educational facilities accessible to all on the basis of aptitude tests.

It is characteristic of the rule of community [*Gemeinherrschaft*] that everywhere the common will, the will of the community formed in whatever way, expresses itself. It is not essential that every section of the community is autonomous, for this can lead to the dissolution of society. In the community-oriented economy it is possible for certain individuals to lead industrial enterprises if they submit to an economic plan, but the right of inheritance will gradually be phased out. In future managers of industrial concerns will be selected according to their ability. Perhaps the right of inheritance will survive longest for farm holdings where accommodation with the socialist planned economy is easiest. The question is whether forms of law can be found which secure the advantages of family continuity without giving rise to capitalist privileges.

On the basis of the outlines just drawn of a possible, indeed very probable economic order of the future, quite different specific programmes can be developed.

II. THE ORGANISATION OF THE SOCIALIST ADMINISTRATIVE ECONOMY

9. Foundations of the Organisation. We know what the aim of socialisation is: full utilisation and community-oriented economy [*Gemeinwirtschaft*]. We know how this is to be achieved: through the economic plan of an administrative economy [*Verwaltungswirtschaft*], which under a common rule [*Gemeinherrschaft*] will bring about an economy in kind [*Naturalwirtschaft*]. How could such a socialist administrative economy be organised?

For the conceivable future an institution will have to be in charge of the work of experts and economic officials which will function as the Central Economic Administration [*Zentralwirtschaftsamt*] for a certain economic area.[1] Several such central economic administrations could be subordinated to economic institutions at yet higher levels. The organisation of the entire production would best be effected through associations. Certain registrar's offices would have to provide statistical information. Especially for the period of transition, a banking concern with special banks for certain purposes would be considered useful. Economic councils serve the purposes of control of and influence on the economy. Groups of experts would assist them and the associations of production.

10. The Central Economic Administration. The Central Economic Administration has to create the unity which our present economy has been lacking all along. The Central Economic Administration will form a centre for all the offices and departments in the various ministries and other organisations and associations that deal with economic issues.

Above all the Central Economic Administration has to devise the economic plan which will become the order of the day in the same way as the financial plan was the order of the day towards the end of the 18th century. Then the secret of the financial economy, the secrecy of the monarchs, was broken; now the secret of the political economy, the secrecy of the entrepreneurs, will be broken. The Centre for Calculation in Kind will have to design a 'universal statistics' which will comprehensively cover the foundations of the economy in their interrelationships and demonstrate their importance for the living conditions.

For instance, a statistics of raw materials will have to be developed which charts the course of specific raw materials and what happens to them.[2] Such [input-output] charts can be applied to the case of metals; if necessary, new subheadings can be added. It is presupposed that, e.g., import and export statistics for raw materials are compiled as they were during the war. It is not enough to know what sorts of machinery are imported and exported, it is important to know at least approximately of what raw materials they are composed, how much of it is copper, aluminium, iron etc. For instance, the heading 'transformation' covers the extraction of copper from copper ore, but also keeps track of waste products. Estimates will play a large part in the calculations, just as statistics based on estimates (conjectural statistics) won itself a place of honour in war economy. The probability of serious error is diminished by cross-checking the figures. Another group of statistics will have to show how raw materials and energy are distributed. Each branch of production has to be surveyed on its own.

For statistical purposes one can form larger groupings such as industry, agriculture, mining, etc., but one can also devise more numerous subgroups; what is important is that the inputs and outputs agree so that the universal statistics (covering also machines, animals, parcels of land, etc.) can be developed as one comprehensive structure. Only then will the numerous individual statistics acquire sense and significance; so far they were compiled by different offices and lacked interrelation: not even the table headings agreed. Attempts to represent statistically (as far as possible graphically) the transfer of goods according to amounts and destinations can now be combined with production statistics. These can show quantitatively, via input charts, which raw materials things are made from and, via output charts, what raw materials are good for what things.

The ultimate aim of the economic plan, however, is the 'topography of living conditions' which shows the distribution of living conditions (made up of the available food, housing, clothing, education, leisure, work, toil, etc.) according to certain types. Calculations about how much meat, bread, living space is average per head of a population provide only inadequate information. Even the statistical accounting of living space and the consumption of bread and meat according to different groups of the population is of little use, since what matters is to determine whether bad housing conditions are compensated for by good food or aggravated by insufficient nourishment. The Centre for Calculation in Kind will define 'types of living conditions' (there have been previous attempts to achieve this) and then show how many individuals each year fall under the various types if one economic plan is adopted and how many, if another plan is.

The definition of such types of living conditions will be a most important task in the coming years, since the now liberated people will demand an account of what has been achieved. The types of conditions of life will have to consider the prospective course of life, that is, mortality, likelihood of illnesses, etc. It will be essential to know the changes between highs and lows in the living conditions that individuals can be expected to experience. Purely quantitative determinations will not suffice and need to be supplemented by descriptions. Along these lines, the Centre for Calculation in Kind will show how food, housing, clothing, education and leisure, work and toil are distributed among the population. It is on this information that the community economy of the future, for which the economic plan as a plan for the distribution of living conditions is fundamental, will be based.

As the Centre for Calculation in Kind works in the service of the economic plan and the socialist goal by devising an appropriate distribution of living conditions, so the Centre for Rationalisation works in the service of deliberate attempts to improve the economic efficiency and the health and comfort of the workers. For instance, it will be its task to examine the consequences of piece work on production and the workers in order to avoid its resulting in injury, as it does in the capitalist economy, and to ensure that it serves to protect the diligent against the lazy workers and to help improve productivity.

The Centre for Organisation of the Central Economic Administration assists in starting the Regional Production Associations and the Central Banking Concern with their smaller organisations and in keeping them going. The Centre for Organisation will also have a leading role to play in the negotiations which prepare new connections throughout the new economy. The wage struggles of the traditional economy are about to come to an end. Soon it will no longer be a matter of better organised workers overtaking others and enforcing better working conditions for themselves in their wage negotiations; soon the workers' associations will decide amongst themselves the wage levels and working conditions, since in the last resort the better paid workers are sustained by the worse paid. The result will be a general system of wages in which all wages and salaries, including those of directors and factory owners [if retained], will be agreed according to danger, risk, comfort and exertion of work, locality and manner of work, age, etc. Alongside the general system of wages there will be a general system of prices, since the workers will want to know what their money wages mean in kind. The close link between the general systems of wages and prices constitutes a significant step towards the organisation of provision in kind. Besides many other central tasks concerned with the internal economy, the Centre for Organisation will also have to ensure that import and export serve the general interest. This will, in ever growing degree, be achieved through contracts fixing the amounts of goods to be imported and exported (compensation contracts).

In parallel with the Centre for Organisation there will be a Control Centre whose task it is to make it possible for the people themselves to check how far the use of money, raw materials and energy corresponds to the general principles which were laid down by the legislative or other bodies.

11. The Economic Associations. The doctrine that there is a trend towards ever more comprehensive organisations has been confirmed fully, less so the doctrine that small businesses will be replaced by large-scale concerns. We can see even strong cultural forces at work against the latter, aiming instead for the unification of agriculture and industry (mentioned in the *Communist Manifesto*), as well as the removal of the contrast between town and country (which played no role in the Erfurt programme).

The economic plan requires the economy to be unified. This does not mean that all decision-making is centralised, as many Social Democrats wish. It is enough if a central body ensures that independent decisions by various economic groups will fit into the general plan and that certain changes are brought about in the interest of the general plan. For example, a cooperative of craftsmen can be allowed to continue alongside an industrial association; the only requirement is that each single craftsman belongs to an association that is concerned with the implementation of the economic plan. That association will control, e.g., whether the craftsmen's cooperative returns the products made under their own management from assigned raw materials to the people as a whole in accordance with the economic plan.

Whereas the large organisations of craftsmen, farmers, etc., are indispensable due to their undeniable socio-technical merits, the question whether large units should replace the small ones in industry is of lesser importance and concerns production technique alone. It is in principle possible for a socialist administrative economy to be organised with small units in continued existence, but it is altogether impossible without the comprehensive organisations.

There is much that speaks in favour of developing existing organisations and additional ones so as to obtain a consistent system of production associations of the most varied kinds which, subdivided into regional associations, could be allowed a considerable measure of self-administration. To assist the provision of living conditions each regional association should contain, as far as possible, all stages of production; for instance, the regional association for building would have to encompass the production of building materials, the administration of building land, house building itself and the distribution of housing units. There should be regional associations for public health, for art and recreation, for food, for clothing, etc.

In each of these regional associations, nationalised plants, industry-wide organisations, craftsmen's cooperatives, etc., would be suitably combined. Former managers should continue to be employed wherever possible so as to prevent the sudden replacement of experts by unqualified personnel. The socialist apparatus of political power must secure the orientation towards an economy of community; a sufficient number of control posts must be spread thoughout the structure of associations and gradually people of the new order will be provided. In the country, farmers' cooperatives will be of decisive importance; within them, the influence of servants and agricultural workers should be safeguarded. Large properties of land would either be organised separately and controlled by organs of the economy as a whole or be managed by the farmers' cooperatives.

The regional associations as sketched here, with their cooperatives and groups of self-administrative bodies, in principle could absorb the existing cartels, cooperative associations, etc., and make use of the chambers of commerce for their regional economic centres within the new community-oriented economy. In order to counteract the capitalist tradition adequately, there is a need to ensure the assistance of economic councils which in the near future are the most reliable representatives of the common interest. There could be other formations besides the types of organisation just mentioned, since for total socialisation only the realisation of an economic plan by a central body of a comprehensive organisation is essential, but not the special shape of the smaller parts. For example, there could exist special settlements with their own economic constitution which by combining farming and crafts seek to develop new forms of community life.

12. The Accounting Offices. Total socialisation, the total rule of the people over the economy, requires the economic plan, and with it the development of statistics, as a necessary precondition. Even before they begin their work all bodies which make statistical investigations, administrations, cartels, trade unions, insurance companies, etc., should be required to report to the Central Economic Administration which, in collaboration with its Centre for Statistics which is in charge of all statistical data collections, will fit the individual results into the universal statistics.

Whereas the statistics of living conditions needs special preparation and development, the provision of production statistics and statistics concerning raw materials can be entrusted to uniformly organised local offices of accounting which would be coordinated to the regional associations and work in close contact with the Centre for Statistics.

They would form intermediate links in the new self-administrative bodies.

13. The Banking Concern. Since the programme of socialisation, as sketched here, aims to make use of traditional organisations and functionaries, it will also assign important tasks to the banks. It is less important to 'socialise' the banks, which many interpret as the requisitioning of accounts or some such; it is much more important to turn the banks into tools for total socialisation.

Banks could be charged with the control of the movement of money and credits in the public interest, which is a necessary condition for socialisation. Above all, it will have to initiate the general introduction of a cashless clearing system and of the obligation to deposit any shares held. In addition there will be other great organisational tasks that will fall to the banks according to this socialisation programme, be it the creation of large-scale associations, the fusion of different industrial enterprises and the reorganisation of production. Another task would be to supervise the inter-state goods exchange (trade compensation). Further tasks for socialisation and compensation banks (which have been discussed elsewhere already) cannot be discussed here.

In any case, it will be clear from what has been said so far that for each economic area a banking concern has to be created within which the banks for socialisation and compensation will be especially important. The more the economy in kind is going to replace the money economy, the more the banks will be concerned with the distribution of means of production in place of credits and the more directly they will serve the movement of goods themselves and become an integral part of the developing stock-keeping economy.

14. The Economic Councils. The economic councils [*wirtschaftliche Räte*] are of the outmost significance for the control of all measures of socialisation. Workers have no confidence in bureaucracy. It reflects the spirit of the times that factory workers and workers in all occupations take an active part, but this cannot replace bureaucracy.

The existing council movement [*Rätebewegung*] has accorded an undue significance to the factory councils. For socialisation the power of the workers is decisive not within the factory, but within the people's economy as a whole. Economic councils of a higher order are the most competent executives of the control of socialisation, for they do not pursue the local politics of individual firms or plants.

It is essential for the idea of councils that their members are representatives of an occupational group and can be recalled. The frequently heard claim that the decisive significance of the council principle is the elimination of the owners' representatives reveals its weakness at once when we note that the percentage of representatives of the 'managers' (including these owners) is exceedingly small. Due to their opposition to this numerically insignificant group, which could work alongside those of the workers and of others, the adherents of the idea of political councils expose themselves to the reproach that they are enemies of democracy, prompting even many factory workers to join anti-socialist circles.

The reproach of being undemocratic has also been made against the economic councils which have nothing to do with the political council movement. Yet the 'equality of representation' on economic matters, which is often the capitalist employers' first concession, is by no means democratic itself. Let us stress that an effective representation of the proletariat through democratically elected councils is possible after all. The indirect election of higher councils can conform to the requirements of proportional representation, if everybody else is represented through suitable means.

The workers in a factory elect a factory or works council. Very small businesses elect a common council for their group. The factory councils of the same branch of industry in an area elect a local trade council of about 20 members (e.g., the council of the metal industry in Berlin). For these trade councils the workers of the same branch of industry who are not employed in factories can elect representatives as well. For occupations where there are no factories there also will be trade councils which are elected only by members of this occupation. From these local trade councils the regional trade councils are elected, coordinated to the regional associations which they have to control. Where necessary, district councils can be installed between the local and the regional councils.

This council organisation is responsible for economic discipline. It alone can secure the cohesion of the economy in troubled times like ours and prevent disruption through transgression of their duties by factory councils tending towards decentralisation. If it is not the case that all workers together are responsible for the working of the economy, there would be no bar against strikes and riots which are not encouraged in socialism since they tend to favour workers in establishments which are essential within the socialist economy.

Representatives of the regional trade councils of all branches of the economy would form one group of the Workers' and Farmers' Control Council as part of the Central Economic Administration. A second group would be formed by additional male and female workers who would be seconded from their place of work for a certain period of time in order to counteract the tendency towards rigidity which even the council organisation is not immune to. A third group would be composed of representatives of trade unions, cooperatives, etc., in short, of all non-capitalist organisations. A fourth group would represent administrative agencies and other public bodies.

It is partly a question of power how far the economic councils have a controlling or executive influence. Socio-technically important tasks can be entrusted to the regional trade councils, but also to the local ones. These will make very significant contributions to the socialisation in town and country when local associations have to be formed to decide the distribution of orders or the fusion of plants, for instance. In terms of the socialisation programme formulated here, the factory councils will have mainly controlling powers, since there are weighty socio-technical arguments against their functioning in a managerial capacity. Management is best entrusted to individuals who should be responsible to the higher councils. In the initial stages these will be the former directors and employers, but even later individuals who do not depend on their factory councils may be commissioned by the whole community.

The trade councils can best be linked organisationally to the trade unions which will gradually lose their old functions and will acquire new ones within the framework of socialisation. How the trade unions could be expanded to include all of the working population as obligatory members will not be discussed here.

15. The Groups of Experts. The socialist administrative economy will open new fields of activity to experts of all kinds, especially engineers, doctors and economists. Tackling the scientific management of the economy without any consideration of net profit will encourage an unexpected demand for psychologists, physiologists and technical, managerial and social engineers. They will have to be distributed across the social structure with much foresight.

A second circumstance also favours the increased significance of the experts: the general disillusion about the market economy. We do not believe any longer that in the free play of supply and demand the good commodity defeats the bad one. The individual customer is not an expert but is deceived by appearance and advertisements. Finding out that some furniture is faulty may take years and then there is little one can do with this knowledge. This weakness of the consumer in the market has in recent decades led to the creation of public and private bodies for the examination of consumer goods. Often they were accorded the right to forbid forgeries and anything that produces harm; this already is a transgression on the part of the state in the eyes of the defenders of free competition. Such experts who pass judgement on the quality of goods and so aid the buying public will play an increasing role in the near future. Finally, the growing power of the working population itself will need experts to support its causes, a development seen in Russia where experts receive high wages in order for their cooperation to be secured.

The experts will assist the economic councils in the control of factories and production associations, they will have to advance the socialisation and the use of scientific management everywhere. For each branch of the economy (building, food, clothing, mining, etc.) five groups of experts will be needed. Experts of the commercial group will control accounting and assist commercial reorganisation; a second group will address the problems of work, be it issues of the diet of the workers or issues pertaining to their psychology. In addition to groups for technical machine engineering and managerial engineering (Taylor system), a fifth group would deal with interconnections of a more comprehensive kind, as between different types of production, transport and export. It need not be discussed here how deeply these groups of experts would be involved, whether permanently or only on request.

III. SOCIALISATION: DECLINE OR REVITALISATION OF OUR CIVILISATION?

16. Prophecy, Utopia and History. A distinction has to be made between conceiving of possible orders of life (utopias) and forecasting their coming order. If we embark on predicting an order of life, then such a generally known prediction must itself be taken into account as effective, either as an inhibiting or stimulating cause.

If the picture of the future which we design becomes a cause of its own realisation, we can justifiably speak of the deliberate shaping of the future. This does not contradict the idea of historical necessity; this becomes clear once we realise that designing visions of the future is itself historically conditioned just as much as the preparedness of the masses to be influenced by them. The social engineer who, emboldened by all the circumstances at work, embarks on the introduction of a new economic order must for that adhere no less to a strict conception of the necessity of the historical course of events than a quietist who waits for the future to develop 'on its own', from numerous random single movements. It took a long time until we refused to accept social orders as given. With their attractive descriptions, horror stories and social poetry in the form of novels the early utopians prepared people's emotions and their will to shape their lives deliberately.

The economic order of the market was born under the influence of farsighted thinkers. Purposefully the traditional order with exhortations and prohibitions was removed and free competition was realised. It would be wrong to say that the Manchester doctrine of free competition, the doctrine of 'laissez faire', was the cause of this fundamental change, but it would be equally wrong to say that this change, which in other fields was already afoot, was the cause of these doctrines. Instead we must consider these doctrines, together with other circumstances, as cause of the total course of events. Put in most general terms, it should be accepted that it is the totality of phenomena at one point in time (measures taken, institutions, wishes, thoughts, imaginations, natural events, etc.) that is the cause of the totality of phenomena of a subsequent point in time. We must avoid looking at one section of this totality as the cause of another section, for instance, to think of the processes of production as causes of the religious, moral or political phenomena. To be sure, these causes can be deemed to be of varying significance, just as we can appreciate the possibility of altering them.

All these considerations about the role of individual causes in the system of causes start from conceiving several possibilities for the historical course of events. Whoever does not dare to do this is unable to say anything about the significance of these individual characteristics. However, this is not generally realised. Many believe that one can do strictly scientific work in, e.g., historical economics and demonstrate causal connections without having to consider possibilities as a utopian does; they believe that it is properly scientific to study what exists by historical and constructive methods, but that the prediction of future economic possibilities lies outside the field of science. Still, whoever wishes to demonstrate the necessity of the economic development from 1800 to 1850 – that is, whoever regards a different development as impossible – must survey the possibilities of the future in the framework of the knowable. Meanwhile those who restrict themselves, under the name of history, to the description and annotation of the interconnected events of the past, without bothering about necessity, would object to prophecy and utopia with little or no understanding at all. Not so the true scientific and truly rationalist attitude towards visions: its adherents will always endeavour to advance prophecy and utopia from the stage of poetic imagination and vague graspings to the stage of methodical study. A truly rationalist attitude towards action, meanwhile, will try to make use of social engineering and connect insight and action. Unless we are badly mistaken, this kind of prediction will be typical for the coming era.

Economic orders can only then be shown to be historical necessities in the past or the future if a system of possible economic orders is known where they can be compared with each other in many ways. Traditional economics has neglected the creation of such a system completely; its subject matter was the economy of trade and exchange and its analysis was regarded as *the*, not a, theory of economy. Moreover, the whole structure of concepts was exclusively adapted to the money economy; often the construction of a concept was determined by the connection with money, though the latter was disregarded thereafter. Concepts like ‘capital’, ‘commodity’, ‘national wealth’, ‘national income’, ‘factors of production’ are of this kind. They will disappear from science [as fundamental concepts] as soon as administrative economy will be treated on equal terms with the market economy, economy in kind on equal terms with money economy. We move towards a change in the economic order and at the same time towards a change in the structure of the concepts of economics. The essential progress will be that no longer a one-sided body of concepts will be replaced by another one, but that in principle the most varied economic orders can be treated by the same conceptual tools. Once we have come to appreciate in theoretical considerations configurations which are different from those we experience daily, then we shall have advanced, in the domain of the will, in social engineering and along with it, in the field of knowledge, prophecy, utopia and history. The age of historicism is over, the age of utopianism is just beginning.

17. The Economic Order and Historical Change. This is not the place to develop a system of possible economic orders, given certain definite conditions; we shall only speak of the historical sequences which are readily at hand. Changes in the structure of society that are basic for the economic order lead us to suggest a certain periodisation suitable to comprehend the development of our own age and classical antiquity.

The intention here is not to give a strict categorisation but only to indicate a trend which has been confirmed by the forms of war economy and the present economic tendencies. We want to scrutinise two different cases of historical developments: the rise of ever new forms through the elaboration of certain features and the re-appearance in a new embodiment of older forms thought to have been overcome. We must not disregard a future possibility as improbable just because it shows characteristics known to us from a distant past. Roughly then, we shall distinguish four phases, characterised by the dominant type of group formation, which apparently have been passed through in more than one area on earth, at least in certain respects. Since we only seek to develop an overview of the seeming chaos of historical experience so as to better view to our own development, a tentative sketch may suffice.

18. Forms of Life. Community life, based on tradition and custom, gains authority gradually by working via the emotive bonds in family and clan. The development of larger social groupings, particularly by subjugation [of smaller ones], disturbs this sense of community and prepares for the unemotional form of state organisation. The original community did not have a division of labour, total human beings performed the necessary work in a small circle.

The division of labour, arrived at on the basis of various considerations including physical aptitude, dissolved the old bonds; crafts and towns developed. Members of the same occupations formed groups which copied the old community in guilds and similar associations, which were often of a religious and moral nature but also already recognised legal contracts. Guilds supported the partial humanity of craftsmanship, though on a traditional basis.

After the phase of the guilds, especially in the modern development of Central Europe, came the phase of atomised society. For this stage contracts between individuals are characteristic as well as a deliberate and far-reaching division of labour. The individual, detached from family and guild, became part of a giant machine. Partial human beings, specialists, were the tools of society; there were no people who created or enjoyed what they did with their whole being.

Already in the third phase the submission of the individual began, namely, under large organisations like cartels and trusts. These grew out of particularistic efforts for gain but now are gradually transforming themselves into organs of the common good. The collectivist society is in the making. Happiness of all is becoming a supreme law. The traditional economy of community of phase one, which had to give way to the economy of the masters, is being reinstated in phase four, as it were. The community rule of the new age evokes memories of the old community rule.

We saw in Part II above that within the framework of a deliberately devised economic plan it is possible for forms of economy of various kinds to co-exist without being forced into competition: craft cooperatives, special settlements with shared work, industrial associations. In this way perhaps the intolerance of the market economy will be overcome, which destroyed everything that stood against 'laissez faire' and the wish of expansion for capitalist gain. Manchester liberalism, a total urban growth, treated community and guild movements with contempt – they in turn also considered only a single form of life as the correct one and opposed any deviation. Maybe economic tolerance will be introduced by intelligent social engineers deliberately, maybe it will come as a consequence of economic struggles which could be compared with religious struggles.

The development in antiquity did not lead to the full development of the free market economy; it collapsed before that. In that period of collapse, for example in the time of Diocletian, some associational structures emerged which could be interpreted as starting points of a collectivist phase. Here we cannot discuss such anticipations or the influence of different phases on each other: in our auxiliary overview construction, peoples and 'civilizations' succeed each other in history. However, when the Phoenicians were already a trading nation, the Greeks still led their lives in a narrowly confined agricultural economy and Rome had not yet become a state. Once Greece had reached the money economy, officials from Rome came to be advised in economic matters and constitutional issues.

19. Foreign Trade. The community-ruled economy in kind changed into the master-ruled money and market economy, often under the influence of foreign trade. The traders were the chief promoters of the new economic order. The trading voyages that led to the world economy did not strengthen the close links that existed between the members of a people through their participation in common work, but rather called for the credit granted to the far-travelling merchant. Traders were the first to leave the close-knit groups that formerly traded with others by barter (once the oldest form of inter-group economy, robbery, was no longer dominant).

As soon as trade policy began it was protectionist. Kings and city states used markets and other opportunities to provide advantages for themselves and their citizens, either cheap goods or duties to be collected. Gradually international trade became an important part of state politics, associations were formed to start productions in foreign lands by giving credit. In our own development, protectionism was followed by free trade, especially under the influence of England. The weaker became the servant of the stronger permanently: development was prevented by free competition. In the second half of the 19th century a period of protection through customs began and became increasingly strict.

The events of the World War, in between phases three and four, strengthened this protectionism even further. Trade relations between states themselves, from large-scale organisation to large-scale organisation, appear to develop. Export and import are ever more frequently determined quantitatively in advance (trade by compensation). At this stage there is still preferential treatment of states, even if the home economy is thoroughly socialist. This is likely to be overcome only in a world economy without a market, with a kind of world economic plan and a kind of world wage and system. It may happen only in a more distant future, yet we must not think of it as world-wide state socialism, but rather as a system of different types of groups with considerable independence that are integrated into the economic plan.

We can see how barter between small groups with administrative economy was superseded by international trade connections between individuals spread across the whole world, until a new barter economy between states with an administrative economy begins to recapitulate the old form on a higher level. Finally, phase four will see victory for state-less world socialism.

20. Domestic Economy. As in the case of foreign trade, a recurrence of old forms happens in the field of domestic economy which is, after all, strongly influenced by foreign trade. At the beginning there was an administrative economy in kind of clans and families; this can become highly developed if the formation of an isolated state is possible, a fact which has been little noticed. The large store-keeping economy of the ancient Egyptian kings and princes, with their accounting facilities, their wages in kind and other institutions was on a much higher level than the Greek money economy of the fourth century. This accounting system in kind was developed under Hellenism with its money economy to such a degree that one can speak of a giro system in kind for grain, etc. If somebody had to deliver grain in Southern Egypt, he could deliver it to an official store in Northern Egypt and leave it to the state to decide from which store to issue it for use.

Money economy therefore does not necessarily result from the shortcomings of economies in kind, as many believe, but mainly is due to the influence of trade connections in the world economy. Trade brought it about that certain things were used as international means of exchange and wealth for storage, and among these gold and silver were preferred in the end. For while the demand for iron tools and raw iron can reach a limit when the need of everyone is fulfilled, the wish to amass treasures proved to have no limit; trade in treasures became the origin of the money economy. One looked for goods which are demanded by the rich and powerful, and by the poor as well.

Handling of these international means of exchange, which gradually became the general means of exchange and valuation also in the domestic economy, caused alienation between the members of one people, though it brought about relationships between distant people, even with enemies. In countries with an original agrarian constitution an obligation for sharing had developed. It seemed a matter of course that a farmer who borrows seed or a horse from another transfers part of the proceeds to the lender; if the harvest fails due to the weather, both share the loss, for everybody knows about the harvest. But affairs are different if a merchant goes to sea and takes along goods for trading. Who is to check the profit? The obligation to pay a fixed amount seems an obvious solution. (Such merchandise is also generally evaluated in terms of international means of exchange.) Soon the merchants' obligations took the form of amounts of gold and silver, money obligations. Similarly, it became general custom to consider all debts in money terms.

Whoever lends money to somebody else has the right to demand the money back at any time, together with an additional amount, the interest. Both is in conflict with the spirit of community. We saw that fixed obligations do not really fit a farming economy, nor does a fixed sum of money to be returned (to be used, perhaps for house building or the like). Only a merchant who quickly gets rid of the goods which he bought for borrowed money can repay the money. That a money lender regards the return of the sum lent plus interest as natural is connected with the fact that money, left in a box, remains unaltered. The general spread of credit and interest destroyed the farmers and in many countries made town dwellers, merchants and money lenders the masters. In the age of guilds, even later still, money business and trade is felt as something unnatural (Aristotle) or immoral (Catholic Church of the Middle Ages). The money market economy then set in, broke all fixed relationships, free competition made brother the enemy of brother, the guild and urban economy dissolved: the individual became master of the economy.

In the modern development, especially in the machine age, this atomising society was connected with free enterprise. Large-scale administrative economy, store-keeping economy and the like continued to develop in the military field (from there it will spread its influence again over the whole economy). Gradually, in our countries at the end of the 19th century, free enterprise began to create new associations, cartels, trusts; community-oriented politics also grew considerably. These great organisational forms lead to the socialist economy. At its start money will be kept as a unit for calculations, but later it will disappear and give way to the economic plan. Money will be dethroned, the administrative economy in kind will start its rule, at first restricted to states and then spread of over the whole world economy.

The dissolution of clans and guilds and the isolation of the individual reached their zenith in the 19th century; from now on the individual will more and more be incorporated into new associations which form his fate. Comprehensive organisations, but also new small ones, help shape life. The reappearance of the administrative economy in kind, however, will not mean the return to the restrictions imposed by traditional administrations; on the contrary, we witness how the deliberate engineering of machines is being supplemented by the deliberate design of factories and even of whole orders of life. Social engineering is the result of this development. What more the future holds in store we can only guess, if we take an even wider view.

21. The Stages of Socialisation. In quick strides we have passed through the phases of economic development, strongly schematised to make visible certain connections. The origin of a global administrative economy in kind can have no analogies, of course, since there is only one earth. (In general, how the surface of the earth is shaped has many unique consequences, but this we cannot discuss here.)

Socialisation will pass through several stages. How long the 'pre-socialisation period' will last in Germany (not a bad name for the transition stage) is not yet clear. There are some indications that we will quickly advance to socialism, though hopefully not, as in Russia, by destroying existing organisations. The economic plan, the distribution of a fixed subsistence minimum under the control of the entire people can be created quickly, but former entrepreneurs may survive longer as quasi-hereditary managers of industrial establishments. But since we consider total planning and socialist distribution as the main objectives of total socialisation, this fact need not cause anxiety. At the start the people will take over the existing organisations; the emotional patterns created by this order will serve socialist aims without being altered at once. Perhaps one day workers will be stimulated not by expected premiums but by pleasure in work and reward and penalty will be replaced by public approval and disapproval and by community spirit.

Let us not accept the widely shared opinion that socialism will accelerate the present trend towards large work establishments. We are witnessing growing resistance against metropolitan life and the soulless factory life. Life at work is considered a part of living conditions as much as consumption goods are. The longing for settlements of small groups, for a combination of agricultural and industrial work, as already demanded in the *Communist Manifesto*, seems to be a characteristic of our times.

The next future but one will perhaps not be characterised by the rule of the Leviathan world organisation but much more by the enlivening activity of smaller groups and associations, combined into a unit on a higher level which, however, would be conciliatory and not despotic. Research into the technology of work and the occupations will liberate the worker and not put him in servitude as before; it will find out which forms of life are most appropriate for different types of human beings.

22. Economic Tolerance. That the levelling power of the free market economy must be broken is the conviction of many who work for the introduction of the new civilisation. Socialisation can only then be of real duration if it respects human beings in their variety and does not enforce new subjugation. The idea of world revolution, often expressed, has a tyrannical trait. A tyranny, even a socialist tyranny, would soon be broken. Should China, India, Central Africa really get one and the same socialism? Each comparative study of different orders of life teaches us that it was the tendency to organise the economy in all civilisations after the same pattern which made the free market society so much hated.

If socialism should bring liberation, it must be joined by tolerance, it must do justice to the differences in civilisations and fit each one into the economic plan and the administrative economy in its own way. Such a world programme of socialism does not exist today. The Germans, the Russians, each believe that their brand of socialism is the only one that brings salvation. Should wise social engineering not be able to prevent a thirty years' economic war, which anyway would end in tolerance?

Today's socialism has many intolerant traits which impede victory in a country. Why could the peaceful movements for community-oriented economy not be united? Community economy, guild economy, social economy characterise certain periods, but they also exist side by side and give satisfaction to different types of human beings. If today a socialism which is based on large enterprises wants to dictate, it meets opposition from the cooperative movement and the community movement which wants to unite agriculture and industry in settlements. Their adherents must not be mixed up with those 'communists' who are radical socialists or 'bolsheviks'.

There are good prospects for social engineering and it corresponds to the coming spirit of economic tolerance to attempt a unification of social movements (socialism), cooperative and guild movements (solidarism), and those for new communities (peaceful settlement movements). It is possible to make socialism, guilds and cooperatives and the community movement, all part of an economic plan in an administrative economy. (Such an attempt must itself be a social movement, since only through deliberate contractual organisation can such a union of different components be established.)

These peaceful movements are confronted by revolutionary ones of which the 'bolsheviks' are most in the news. According to widely held views we may define bolshevism as that form of socialism which favours the large enterprise and works for change through force as a matter of principle, not using but eliminating traditional organisations, removing former officials.[3] The ensuing sharper class struggle, which is also fostered by the German Social Democracy, alienates a great number of 'non-capitalists', civil servants, doctors, technicians, etc., who would otherwise like to join the socialist movement.

23. Intuitive Interpretations. What does this all mean for our hearts and feelings – pleasure or pain? It depends on the kind of happiness that we long for whether what happens brings fulfilment or not; it depends on what we consider essential and what superficial.

Some will speak of a 'regression' into 'primitive' times whenever they hear of the coming administrative economy in kind; they see in it the senility of a culture of great age, its return to a state of infancy. Others impatiently long for the moment which brings the manifoldness of the new order of life and the new, total human being. They are looking forward to the rediscovered paradise into which they or at least their children and grandchildren will enter with songs of victory, released from the 'capitalist fall from grace' which held men in servitude for thousands of years; they view the market and money as a sickness from which we are beginning to recover.

Some may seek to determine the cause of this painful development and ask whether we could have been spared it if states with planned economies had established world connections instead of individual traders who travelling from one people to the other created an isolating society; or whether perhaps the accidental shape of the surface of the earth favoured the formation of islands of civilisation and impeded wider contact between the states and in this way gave rise to the development for social isolation. Others may even try to show that this island existence itself made the development of humankind possible, albeit accompanied by unavoidable suffering. Those who listen, detached from pleasure and pain, to the orchestra that is history – opening with community, bringing in society as its counterpoint and uniting both in a higher unity – may even admire this rhythm.

We have reached spheres that clearly transcend what can be known by science but most likely exercise an influence on science no less than on individual experience which is, after all, guided by the most general ideas and sentiments. To be aware of all these influences is the duty of every social engineer who, without being swayed by love or hate, must think of all the possibilities that could be realised – and of which *one* may be realised by those who will to do so.[4]

NOTES

* First published as *Vollsozialisierung. Von der nächsten und übernächsten Zukunft*, Eugen Diederichs, Jena, 1920. Translation by Robert S. Cohen and Thomas E. Uebel, based on a draft by Marie Neurath. Seven illustrative tables have been dropped which either overlapped with those of Chapter 11 or did not further the information given in text.

1. [Compare Figure 5 of Chapter 11. The only differences are, first, that Figure 1 of *Vollsozialisierung* does not note the information input from Factory and Local Worker Councils and Producer Associations to the Expert Groups (as also noted in the schema in Neurath (1920f)); second, that it adds as subordinate to the Centre for Organisation a "Centre for Economic Operations" with subordinate representatives in various government agencies (as also noted in the schemata in Neurath (1920c), (1920d), (1920e), (1920f)). Eds.]
2. [Compare Figure 4 of Chapter 11. Eds.]
3. [Compare Figure 3 of Chapter 11. Eds.]
4. [Under the heading "Overview of the Literature" (*Literaturübersicht*), Neurath listed the following writings at the end of his essay: W. Neurath, *Gemeinverständliche nationalökonomische Vorträge*, Braunschweig, 1902; W. Rathenau, *Die neue Wirtschaft*, Berlin, 1918; W. Rathenau, *Der neue Staat*, Berlin, 1919; C. Ballod-Atlanticus, *Der Zukunftsstaat*, Stuttgart, 2nd ed. 1919; Popper-Lynkeus, *Die allgemeine Nährpflicht*, Dresden, 1912; A. Menger, *Neue Staatslehre*, Jena, 3rd ed. 1906; O. Bauer, *Der Weg zum Sozialismus*, Wien, 1919; O. Neurath, O., *Durch die Kriegwirtschaft zur Naturalwirtschaft*, Munich, 1919 [excerpts trans. in Neurath, *Empiricism and Sociology*, ed. by M. Neurath and R.S. Cohen, Dordrecht: Reidel, 1973, 123–57, and in this volume (Chapters 3, 5, 6 and 9)]; O. Neurath, *Wesen und Weg der Sozialisierung*, Munich, 7th ed. 1919 [trans. "Character and Course of Socialisation" in Neurath, *Empiricism and Sociology*, *op. cit.*, pp. 135–50]; O. Neurath, *Die Sozialisierung Sachsens*, Chemnitz, 1919; O. Neurath and W. Schumann, *Können wir heute sozialisieren?* Leipzig, 1919; R. Wissel and W. v. Moellendorff, *Wirtschaftliche Sebstverwaltung*, Jena 1919; Marx, *Capital* [many editions]; *Communist Manifesto* [many editions]; *Erfurt Programme* [many editions]; P. Kropotkin, *Landwirtschaft, Industrie und Handwerk*, Berlin, 2nd ed. 1912; F. Tönnies, *Gemeinschaft und Gesellschaft*, Leipzig, 2nd. ed. 1911.]

OTTO NEURATH

13. ECONOMIC PLAN AND CALCULATION IN KIND

ON THE SOCIALIST ORDER OF LIFE AND THE HUMAN BEINGS OF THE FUTURE*

Contents: Introduction – *I. The study of economic efficiency and the economic plan*. (a) The 'condition of life' in the framework of Marxism. (b) Economic efficiency. (c) Relief maps of qualities of life and the inventory of conditions of life. (d) Totalities of conditions of life and the economic plan. – *II. The socialist administrative economy as moneyless economic order. – III. The economic plan and the human being of the future*.

INTRODUCTION

Socialism in practice – and we are speaking here only of this – will, according to Marxism, be brought about by the political victory of the proletariat; it will make use of all those organisations of late capitalism which prepare for central planning. The goal of socialist organisation is pursued consciously so only in part. Groups of the international proletariat, moved by solidarity, can be very successful in the class struggle without having very clear ideas about the socialist aim or about the historical development. It is nevertheless an essential part of socialist development to raise people's consciousness and to continue the intellectual developments initiated in the bourgeois period, which often made individuals more isolated, but in the framework of a world view which fulfils mankind as a whole. Such consciousness can also take the shape of social theories whose significance for the fate of the proletarian socialism we should neither overestimate nor underestimate.

The labour movement is above all characterised by a sober matter-of-fact attitude which is clearly expressed in the work of political organisation, in the building of a proletarian structure besides and apart from the bourgeois state. The distressed masses of humanity want to improve their condition as quickly as possible. The Marxist philosophy of history of proletarian socialism is hard though full of promise; its economic theory is free of sentimentality. And yet socialism is full of human warmth – not only the socialism of utopian dreams, but also the socialism put into practice in history. It is perfectly possible to use Marxism as the foundation and to give proper due to all that is human – everywhere, not only in the 'appendix': this frequent misconception arises because often questions of socialist teaching and education are linked with psychological issues, much less so, however, with questions of economic and social organisation. Here we will discuss the conceptual foundations of the study of the economic efficiency of socialism with reference to Marx and Engels; at the same theme we will show how the results of this scientific investigation can satisfy the longing of a loving heart desiring to reach out beyond the personal.

Supra-personal love has been cultivated by all peoples at all times, either within the dominant world views or independently of them; attempts have been made to develop it beyond any temporal form as something 'universally human'. Such a type of behaviour is perhaps characteristic of human nature, and it would count against the 'reality' of socialism if, at least tentatively, a place could not be found for such emotions and thoughts in the socialist age.

We believe we can show that love, harmony, devotion to the supra-personal do not merely find shelter somewhere in socialism, but are furthered by its organisational form and even develop most closely together with the economic plan and calculation in kind which we otherwise know only as cold institutions. In its effects as well as in the conscious formulation of its aims, the socialist labour movement has at all times been a cultural movement affecting the whole human being, a fight for liberation from capitalist dependence, for a better physical and mental life and for a free personality. Though daily work in the organisation cannot always pay attention to the furthest aims and effects, a longing to fill political and organisational activities with emotional and intellectual life is clearly discernible in the socialistically minded labour youth whose development represents the hope of socialists. This tendency is especially significant because, to some extent, it offers the possibility to harvest the fruits of socialism already today: to allow the men and women of today to develop emotionally and intellectually, to cultivate a deeply felt solidarity. There have always been cautious judges of human life who thought it objectionable to sacrifice too much of the present to a distant future. We cannot know how the goal might change on the way and if each generation mainly serves the future, the present could be impoverished. It should therefore be important that the way itself can be of value to us and that it is justified not only by its goal. What the believer in proletarian socialism can be and do already today can be shown to be worthy of human endeavour, even if the future should prove to be different from what Marxists expect. Convinced socialists need not be deterred, however, from basing their modes of action and behaviour on confidence in the victory of proletarian socialism, from which they draw so much stimulation for the present.

One of the foundations of the labour movement is the unity of thinking and acting. Marxism in its theoretically developed form as well as in its emotional and intellectual effects, which are often not recognised as Marxist, is increasingly becoming the world view of a new era. Marxism is always alive and living and it is not bound to Marx to whom it owes its name. It is perfectly possible for a Marxist to disagree with Marx on some points. If social and economic theory and the philosophy of history had reached a higher level of scientific development, we would no longer refer to the formulations given by Marx, but always in the spirit of Marxism simply approach the facts, just as other developed sciences do. In these social scientific fields we are still just beginning, however, and as the explorer of a new country Marx could not yet give his ideas the clarified formulation which, so to speak, secure them a life of their own; we always refer back to the work of this great thinker in its historical form since he, like nobody after him, had the power to take into simultaneous account a multitude of relations and to comprehend them with special attention to their reality. Even though collaborators in the intellectual world of Marxism are in principle not tied to any views expressed by Marx, their trust in his work as a whole is so great that they pursue with greater confidence a thought that derives from their study of the world if they find it already in Marx. It is in this spirit that the connection with Marx and Engels has been given particularly weight here.

Proletarian socialism appears here as a planned structure in which many thinkers and organisers collaborate. In a similar way, the whole of life increasingly appears to us like a work of architecture from whose overall design individual action derives its meaning and significance, instead of, in isolation from the whole of life, from its correspondence or conflict with principles of some sort. This book aims at being a constituent part of the structure of proletarian socialism – that socialism which the proletariat consciously brings into reality – and is to be regarded as a building block which is useful only if it fits into the acting and thinking of the socialistically minded proletariat.

This book intends to make statements about facts and not to express personal moods. Somebody may declare that everything said here is correct and still say ‘No’ to the events here described. Such a person may be of the opinion that socialism in this form will be brought about by the proletariat – but condemn it. In spite of this, this work will perhaps contribute to winning for proletarian socialism those who really should belong to it, but who have more difficulty in finding their way to it because in its accidental shape it outwardly shows too little of the human qualities in which in fact it has always been rich. Admittedly, proletarian socialism has been recalcitrant in this respect. The experiences of the past make this understandable. The great leaders of socialism have sharply objected when the bourgeoisie, closely linked to capitalism, arranged petty devotional plays full of ‘soul’ and ‘spirit’, while it allowed ‘soul’ and ‘spirit’ to wither in their capitalist order and made ineffectual the few people with true soul and spirit. Socialists have stressed repeatedly that one must first take care of earthly food, housing and clothing before claiming the right to care for spiritual matters. Socialism takes care of food and drink, of housing and clothing, and therefore has a full right to care for education and leisure, art and science, improvement and inspiration, indeed anything concerned with spiritual matters. The day may not be far off when all who sincerely long for the flourishing of humanity in the forms which are possible today will declare their allegiance to the cause of the working class fighting currently for its physical and spiritual existence, and to its historical task: socialism.

January 1925

I. THE STUDY OF ECONOMIC EFFICIENCY AND THE ECONOMIC PLAN

(a) The ‘Condition of Life’ in the Framework of Marxism. In its original version by Marx and Engels, Marxist economic theory was

mainly concerned with three questions: 1. What is the condition of life of the proletariat in the bourgeois-capitalist order? 2. How does the bourgeois-capitalist order bring about this condition of life of the proletariat? 3. What historical processes condition the rise and fall of this order and the resulting distribution of conditions of life? These three questions can be answered in a very general form along the lines of Marxism roughly like this.

1. The condition of life of the proletariat – a class appearing for the first time in the bourgeois-capitalist order – is lower and less secure than that of corresponding groups of workers in the preceding economic order. There is a tendency for the condition of the proletariat, unless it defends itself through anti-capitalist organisations, to deteriorate more and more in comparison with the conditions of the ruling classes. It is expected that socialism, the economic order of the future, will have no class differences, therefore no proletariat, and presumably no misery.

2. The bourgeois-capitalist order, particularly through the private ownership of means of production, continually produces unemployed and starving, as well as under-employed and miserable groups of workers as a reserve army, which exerts pressure on the rest of the workers, who as wage earners will accept much less favourable conditions of life than what they produce for the ruling classes. The depression of the condition of life of the proletariat is not caused by the surplus consumption of the ruling classes alone, but more than that by the misery of the reserve army (which serves as means of pressure), for this group has to be fed in the end by the whole of the working class.

3. The bourgeois-capitalist order replaced the feudal order of guilds; it will be replaced by the socialist order of a classless society through the process of revolution. Together with the ever-growing proletariat which knows its aim, the ruling classes prepare unintentionally for the coming of the new order by promoting centralisation and concentration in the interest of their profits.

Marxism originally came about in the attempt to find a scientific approach to deal with the perfectly practical question of the century: Is there a possibility of saving the proletariat from growing misery? This was the beginning of a comprehensive way of thinking and of conceptualising issues which was particularly applicable to all economic problems. We may elaborate the questions mentioned above as follows.

1. What complex of statements is it at all possible to make about conditions of life and distributions of the conditions of life (theory of conditions of life) and what empirical conditions of life can be ascertained for definite groups, at definite places and time (research into conditions of life)?
2. In what way do definite institutions of the orders of life (economic orders) determine the distributions and levels of conditions of life (theory of economy)?
3. What historical circumstances determine the rise and fall of orders of life, including economic orders and the distribution of conditions of life connected with them (historico-philosophical analysis of economic history)?

These groups of questions can be separated from each other in a purely logical way. It is for example possible to describe and compare the distributions of conditions of life of two economic orders, without entering into the question of how these orders are constructed or what circumstances determine these distributions of conditions of life, in much the same way that it is possible to ascertain and compare the performances of two engines without even knowing whether they are steam engines or electrical engines. In general these distinctions are not made in scientific works dealing with other problems; however, it is sometimes advisable to make such distinctions for specific purposes. Here we will attempt to make the theory of conditions of life the centre of our considerations so as to be able to improve economic theory.

Though the concept ‘condition of life’ [*Lebenslage*] played an essential role in the early period of Marxism, its applicability was not analysed theoretically. That is understandable, for what was it that Marx and Engels wanted? They were men close to actual life; in the spirit of their philosophy of history and of their purposeful attitude, they wanted to work toward the transformation of the existing economic order, to shake up the traditional approach, and to prepare a new one. It was necessary to show the evils connected with capitalism; question and answer could be formulated so roughly that it was possible to apply the concept ‘condition of life’ without special preparatory investigations.

Friedrich Engels gave the title *The Condition of the Working Class in England* to his first book which he published in 1845, shortly after he had come to know Marx. "The condition [*Lage*]" – "condition" is the word used in the English introduction, dedicated "To the Working-Classes of Great Britain" – "of the working-class is the real basis and point of departure of all social movements of the present."[1] And Engels made an effort to show the condition of life of the proletariat as the precondition of its "sorrows and joys", as he put it, in the fullness of real life.

Engels' starting point was the condition of life of the weavers prior to the capitalist order of the factory system: "So the workers vegetated throughout a passably comfortable existence, leading a righteous and peaceful life in all piety and probity; and their material position was far better than that of their successors. They did not need to overwork; they did no more than they chose to do, and yet earned what they needed. They had leisure for healthful work in garden or field, work which, in itself, was recreation for them . . . " Such a condition of life, in which industrial and agricultural work is combined, can be found as an aim in the *Communist Manifesto*! Summing up, Engels maintained: "They were comfortable in their silent vegetation, and but for the industrial revolution they would never have emerged from this existence, which, cosily romantic as it was, was nevertheless not worthy of human beings."[2] Here Engels abandoned mere reporting, which would have confined itself to statements about higher and lower conditions of life, by inserting a personal judgement, under the influence of his time, concerning 'what is worthy of human beings'. But if we disregard such occasional remarks, we have in this work a perfectly consistent description of conditions of life such as can be incorporated into the framework of a scientific presentation.

Engels then compared this condition of life of the former weavers with the condition of life of the factory proletariat whose wages are hardly enough to keep 'body and soul together'. He reported on the insufficiency of food, shelter and clothing. "They are deprived of all enjoyments except that of sexual indulgence and drunkenness . . . And if they surmount all this, they fall victims to want of work in a crisis loss . . ."[3] To complete the description of life conditions Engels added data on disease and mortality and he did not forget criminality to round off the picture with a description of the whole mental and emotional existence. He expressly stressed that the condition of life of the proletariat was characterised not only by baseness but above all by insecurity.

In this early work the question of why the beginning of the capitalist order of the factory system had to worsen the condition of life of the workers is only sketched in outline, but hints are also given as to how the proletariat will be induced to take its fate into its own hands in order to improve and secure its condition of life. Occasionally Engels made use of sharply characteristic figures, especially when he dealt with health issues. He did not seem to have felt a strong need to substantiate everything with figures, however, since the deterioration of conditions of life was obvious. In order to deal with the problem, the question of a greater or lesser decline was not to the point. It was sufficient to state that, in general, workers did not go hungry in the past, but that at present they often starved; the measure of bread consumed did not need to be given in kilograms.

Marx was careful to avoid phantasies and wishful dreams and kept to immediate experience or at least to trains of thought which could be based on the philosophy of history. In the centre of his thinking therefore stood the investigation of the capitalist structure as the source of proletarian misery and of the historical counter-forces which would overcome capitalism. Continually and with much emotion, he too spoke of the condition of life of the proletariat; but no more than Engels did he tackle the question of how far the concept of condition of life can be used in the examination of socialist institutions – of which he gives only a hint. After having roughly established how unfavourable the condition of life was, the task was to show that it was a necessary result of the capitalist-bourgeois order. Crises and the reserve army, which are decisive factors for the proletarian condition of life, are brought about by this order, not as accidental disturbances, but as essential phenomena. The unfavourable condition of life of the proletariat with its insecurity would not be overcome within capitalism, but by the overcoming of capitalism itself, which had to be understood historically.

Remember how sharply Marx characterised the miserable condition of the workers, for example in the section "Senior's Last Hour" in *Capital*. He is even fiercer in the section "The Greed for Surplus-Labour. Manufacturer and Boyard". The periodicity with which miserable conditions of life and complete hopelessness follow each other, is closely described in "The Strife between Worker and Machine" and in the section "Repulsion and Attraction of Workers through the Development of Machine Production". "The uncertainty and instability to which machinery subjects the employment, and consequently the living conditions [*Lebenslage*], of the workers becomes a normal state of affairs, owing to these periodic turns of the industrial cycle." Marx included everything that the worker experienced in the concept of condition of life: "No wonder that a kind of plague of malnutrition broke out. These experiments were made at the cost not only of the food of the workers; with all their five senses they had to suffer."[4] Statistical data on mortality among factory workers add to a picture that is already dreary enough. The necessity of suffering in the capitalist order is mainly revealed in the section "Progressive Production of a Relative Surplus-Population or Industrial Reserve Army". To the deterioration of living conditions of those workers who serve the ruling class directly is joined the deterioration of the conditions of life of those who as part of the reserve army exert the necessary pressure. "The condemnation of one part of the working class to enforced idleness by the over-work of the other part, and vice versa, becomes a means of enriching the individual capitalists and accelerates at the same time the production of the industrial reserve army. . . . [The stagnant surplus population] forms part of the active labour army, but with extremely irregular employment. . . . Its conditions of life sink below the average normal level of the working class . . ."[5] Here Marx arrived at the concept 'average normal level' without, however, treating its general applicability. Yet what condition of life meant for him becomes especially clear when he spoke of the simultaneous "maximum of working time and minimum of salary", of the "sphere of pauperism" as the "lowest sediment of the relative surplus population", and when, by way of summary, he declared: "Accu-mulation of wealth at the one pole [i.e., the capitalists] is, therefore, at the same time accumulation of *misery, the torment of labour, slavery, ignorance, brutalization and moral degradation* at the opposite pole, i.e., on the side of the class that produces its own product as capital."[6]

When Marx spoke with such bitterness of the condition of life of the proletariat in the bourgeois-capitalist order, he thought of the more favourable conditions of life of the working people in a socialist order, but without describing in detail the connections between the classless socialist order and the people's conditions of life. If we take Marxism to be a consistent approach we have to elaborate it in such a way that it can incorporate all sorts of studies of conditions of life; we can start along the lines of the remarks just quoted from Marx and Engels.

In the bourgeois-capitalist order the distribution of conditions of life does not figure in the decisions of individual members of the market.

All the individuals try to get as favourable a condition of life for themselves as possible. It is different in the socialist order. In it organised society deals with the distribution of conditions of life; its decisions are made on the basis of the consideration of possible distributions of conditions of life. Here the distribution of conditions of life is not only an effect, but also a goal of human action. The theory of conditions of life has become necessary for the first time in our early socialist era. The more we approach socialism the more we will have to face these problems. The more that organised workers have an influence on distribution of income, mainly through political action affecting trade contracts, tax laws and other things which change the process of production, the more frequently must systematic thought be given to the problem of how far the reduction in income of one category of workers can be compensated by the reduction in income of another category of workers. In the highly developed and fully organised capitalism of the late capitalist or early socialist period (Müller-Lyer) it already becomes apparent how closely the wages of individual categories of workers are interrelated. In the transition to socialism all categories of workers would, so to speak, pay wages to each other and therefore be directly confronted with the question of how decreases here, increases there, have to be assessed, with a view to the total and general condition of the proletariat. Raising the wages of the agricultural workers may under certain circumstances decrease the wages of metal workers. Which distribution of conditions of life would be preferable?

(b) Economic Efficiency. When Marx and Engels investigated the distribution and increase of conditions of life, they carried further in a certain sense the utilitarian thoughts that had developed in the eighteenth century on an individualistic basis by investigating the happiness and unhappiness of groups of people, speaking somewhat vaguely of the ‘greatest happiness of the greatest number’. In these individualistic considerations, which often leave the structure of the community entirely in the background, human beings are individuals living side by side. In contradistinction to capitalism, socialism takes people in their interconnections; in the socialist view, consciousness of enslavement and dependence belongs to the condition of life of a person just as much as poor food and housing. The feeling of freedom, the feeling of being part of a whole, cooperation in the total life of the community is also

part of the condition of life. Socialism does not speak of a number of human beings, but of a human association.

Inasmuch as Marxism and utilitarianism direct their attention to pleasure and suffering as something of central importance and particularly investigate the joy of human beings in its dependence upon social institutions, they represent a kind of continuation of ancient philosophy, predominantly of Epicureanism, which was persecuted by the Church for centuries. It is an indication of a deep affinity that Marx's doctoral thesis sought to clarify certain problems of the Epicurean philosophy of nature. The time may not be far away when modern social Epicureanism, supplemented by certain Stoic tendencies, will require a corresponding general philosophy for its completion, so that a close union of natural science, of theories of the world, orders of life and of happiness will once again be realised as it had been in antiquity, free from theology.

Catholic theology did everything to fight the teaching of Epicurus, to obstruct its spread, to discredit its founder and adherents. His doctrine was basically untheological as its intention was to eradicate the fear of the gods, to grasp and rule the world empirically and morally without reference to gods or divine interference. The attempts of isolated Catholic thinkers like Gassendi to salvage something of Epicurus for Catholic thought, were bound to miscarry for internal reasons. Marx expressed his opinion in his sarcastic manner: "It is as though one wanted to throw the habit of a Christian nun over the bright and flourishing body of the Greek Lais." For Marx, Epicurus was "the greatest representative of Greek Enlightenment" and he would have considered it an honour to be called a successor of Epicurus.[7] Up to the middle of the nineteenth century, in most philosophical circles sympathy for Epicureanism was considered as some sort of defect.

Whereas the Epicurean of antiquity investigated the happiness of men as an effect of their individual actions, the socialist theory of orders of life, as a kind of 'social Epicureanism', deals with the happiness of human beings as an effect of *social* actions. *What is the effect of different orders of life, of different measures, on the conditions of life of human beings and thereby on their happiness and unhappiness?* In the Epicurean spirit, this is a question of Marxist economic research, which counts among the constituents of happiness and unhappiness along with the physical all mental and emotional experiences of a pleasant and unpleasant nature. This does not mean that a modern socialist sees in happiness the ‘highest goal’, the ‘purpose of life’, but only that he looks for an answer to this question when he cooperates in the creation of an institution.

What about the applicability of the concept of condition of life, and of the other concepts connected with it? Let us think of an isolated farmer with everything that surrounds him: fields, horses, meadows, mosquitoes, swamps, bacteria, rocks, cows, tools, chickens, living quarters, flies, clothes and all the other things which become important for the man by the way in which they interrelate and effect an increase or decrease of bread, meat, diseases, pleasure of the eye, emotions, etc. That is, we can ask the question of how this totality, which we have intentionally described without anticipatory classification, can within a definite period have a more or less pleasant effect on the farmer, depending how everything is interrelated, including the work the farmer has to perform.

Should more oats be cultivated? On this depends an increase or decrease in the number of horses, and thereby also an increase or decrease in the amount of horse dung, as well as an increase or decrease in pulling capacity, which again is connected with the amounts of oats in so far as a certain number of horses is needed to harvest a certain amounts of oats. Depending on the time the man spends in cultivating more or less oats – or more or less grain, or more or less potatoes – more or less time will be left to him to drain a swamp which causes disease. In the initial situation we can think of the man once with a good deal of oats and corn, and many malaria germs, and then again with less corn, less oats and less malaria germs. In the one case he will eat better and be more ill, in the other eat less well and be less ill. Between these two possibilities – and indeed others – he will have to choose. But we can try to imagine, by sympathetic feelings or by questioning, in which of these cases the farmer feels more comfortable, happier, better, in which he is ‘better off’.

The pleasantness or unpleasantness of experience we propose to call ‘*quality of life*’ [*Lebensstimmung*] – or just ‘quality’. We use this word which covers happiness as well as unhappiness; wealth as well as poverty.

The being that experiences the quality of life we propose to call the ‘*subject of a quality of life*’; in our example this was the solitary farmer.

As far as we can speak of a more pleasant, more pleasurable, happier quality of life we propose to call it ‘*higher*’. Several qualities of life can occasionally be arranged in a series according to their height. Two qualities of life can also be '*equally high*'. We cannot, however, say of one quality of life that it is twice or four and a half times as high as another.

Inasmuch as we consider some part of the world with all its constituents, its institutions as a conditioning factor of the quality of life, we propose to call it the '*basis of life*' [*Lebensboden*]. A basis of life which causes a higher quality of life in a subject we will call '*more favourable*'; that is, we will speak of equally favourable bases of life, of more favourable and less favourable ones.

If the farmer, on the basis of certain deliberations, divides his work effort between the production of grain and the fight against malaria, the result of these deliberations plays the role of the initiating condition. One complex of decisions, measures, etc. can be compared with another with respect to the effect produced on the quality of life of the farmer.

We propose to say of the initiating decision (as well as of the process determining it) that it possesses a '*higher economic efficiency*' if, starting from the same situation, it produces the higher quality of life for the subject concerned – during a given period, since we cannot foresee the effects in an unlimited future. The economic efficiency of one decision and the measures resulting from it can be larger or smaller than the economic efficiency of another. The economic efficiency of two situations can also be equal.

The totality of measures, institutions, employments of a person or a group, we propose to call the '*order of life*'. As far as we can recognise the order of life as an initiating condition within a study of economic efficiency, it may be called an 'economic order' or, briefly, an 'economy'.

The sum of the characteristics of an economic order which are of significance for economic efficiency may be called the 'type of economy'; the kind of relationships between human beings and the means of production, and among people themselves, belong here.

Experience teaches us that we can isolate a part of the basis of life which, as it were, surrounds the subject of a quality of life like a shell and which, if we assume complete knowledge, possibly determines the quality of life unequivocally. To know the quality of our farmer we need not take account of the fields, swamps, horses, etc.; it is sufficient if we know what his food, clothing, home are like, what the situation is concerning malaria germs in his blood and the possibilities of taking a drive, reading books, listening to the radio, developing an awareness of his personality, of feeling powerful and capable, enlightened and enraptured. These conditioning factors, which we place as closely to the subject of quality of life as possible, we propose to call the '*condition of life of the subject of the quality of life*'; we speak of a higher condition of life, if it brings about a higher quality of life, and correspondingly of a lower condition of life. If we possessed complete knowledge of the central nervous system we would be able to penetrate to this 'innermost' shell.

(c) Relief Maps of Qualities of Life and the Inventory of Conditions of Life. To achieve clarity about conceptual relations we started from a single individual, from one subject of a quality of life. Marxist discussions deal with groups of people, with classes within nations or with nations themselves. In particular, the measures which these groups of people take and which affect them as sensitive beings, are to be investigated. It becomes clear very soon that it is not possible without further investigation to say of some measure that it would be better economically than some other where a whole group is concerned as we were able to say where economic efficiency for an individual was considered.

Let us assume there are two farmers and two different policies or measures that are to be compared with each other. One question is: what happens if only the one measure is applied, and another, what happens if only the other measure is applied. Let us assume that under measure I the quality of life of each farmer is higher than under measure II. Obviously then measure I has a better economic efficiency for the farmers A and B taken together.

We see that the concept of a total quality of life of several persons is not meaningless in principle. But what is to be done if for A measure I is economically better than measure II, but for B measure I is economically worse than measure II?

If we decide to admit the comparability of the qualities of life of several persons, then totals of qualities of life can be compared despite the relationship just mentioned. This would be so if we knew that measure I produces a higher quality of life in A than measure II in B; that measure II produces a higher quality of life in B than measure I in B; and that measure I produces a higher quality of life in B than measure II in A. Then evidently measure I for A and B together produces a higher quality of life than measure II for A and B together.

But even the assumption of the comparability of all qualities of life, which in the eyes of many seems to be too far-reaching, does not always lead to success. Let us assume it known that measure I produces a higher quality of life in A than measure II in B; that measure II produces a higher quality of life in B than measure II in A; and measure II produces a higher quality of life in A than measure I in B. Then it is impossible to say whether the total quality of life of the group consisting of A and B is greater under measure I or II. This is the kind of problem that can arise if rising wages of agricultural workers are linked with falling wages of metal workers.

We cannot therefore always compare totals of qualities of life with each other, and we have to resign ourselves in many cases to indicating only that the quality of life of certain people or groups of people decreases, that of others increases, under the impact of certain measures. Let us for example assume there is a human society or class consisting of six individuals. Each two of them always behave alike – they may form a class or a group within the class. In a certain situation the first pair may have the lowest quality of life, the second pair a higher one, the third pair a still higher one. In another situation the qualities of life of all three pairs are equally high, say as high as that of the middle pair. We can speak of *relief maps of qualities of life*, as it were. Let us think of a plane, with parts of the area accorded to the persons, with their qualities of life erected as prisms on top of these parts of the area. In the first case we would get a succession of steps, each step comprising two persons with their qualities. In the second case we would get a plane containing all six qualities; its height would correspond to the height of the middle step in the first case. The relief maps only need to show differences in height; the absolute height of the prisms does not matter. If the highest prisms were twice as high as the middle ones, their 'twice as high' would have no meaning in our investigation. The steps can only be arranged according to a scale (as e.g. the mineralogical scale of hardness). A transition from these 'steps' to a 'plane' is described in the *Communist Manifesto* where it says that "the conditions of life within the ranks of the proletariat are more and more equalised".[8]

There is no possibility of expressing the effects of measures on the quality of life of human groups under all circumstances in a uniform way and of comparing the effects in one case with the effects in another by way of calculation. In general it is only possible to juxtapose relief maps of the qualities of life; which of them is to be preferred has to be decided each time in the way we decide whether we prefer to eat this or that dish, whether we prefer this or that architectural plan. In a socialist society it is an organisation representing the ‘will of the whole’ that takes such a decision, not differently from the Crusoe-like figure of the farmer with whom we started. Power factors of all kinds will determine the decision, but there is no way to calculate what the economic efficiency of the totality of measures and institutions is.

Now we know how to handle qualities of life – whenever they are given. Qualities of life of whole groups, however, are never given to us in an unmediated form, so we can only deduce them and try to discover them by empathy. There is no telepathic communication between people which could give us information directly. How did Engels compare the quality of life of English factory workers before and after the factory system? His basic assumption was that more work and less food, less clothing, and living in darker houses lowers the quality of life in general, especially as the cultural self-esteem of the workers had also been reduced. He did not assume that some newly developed religious feelings of blessedness could produce sufficient compensation. Engels therefore contented himself with stating these changes of the condition of life.

For our concrete investigation, the relief map of qualities of life is therefore replaced by an *inventory of conditions of life*. So far too little attention has been given to the inventory of life in scientific research. Economic theory in particular took little interest in it and was mostly concerned with the effects of certain institutions and measures on shifts in commodity prices and incomes, but not with how the condition of life of the people as a whole changes. What has been said about ‘national wealth’ and ‘national income’, moreover, does not stand up to serious criticism. So it happened that the description of conditions of life was sidelined as ‘social policy’, neglected as far as systematic treatment was concerned. Even as description of households it was little valued theoretically and mainly elaborated in terms of household budgets. Such descriptions featured above all else things that could be bought for money! In general even summaries concerning work load, morbidity, mortality, food, clothing, housing, educational possibilities, amusement, leisure time, etc., were missing. There can hardly be any doubt that in the development towards socialism such descriptions will acquire ever greater significance. What was begun by Le Play and others will be continued on a higher scientific level, incorporated into a comprehensive theory of the distribution of conditions of life.

To master the data collected by an inventory of the conditions of life we shall find ourselves obliged to define certain types of conditions of life and to declare certain conditions of life to be equally high which differ with respect to content. We may perhaps declare that the condition of life of a certain stratum of craftsmen is equal to that of a certain stratum of peasants. This is methodologically defensible, though of course a conventional element enters the investigation thereby; however, in this field this can never be entirely avoided. It is of great consequence if types can be created whose application allows insight into social interconnections essential for economic efficiency.

In general increases in food, clothing, living space, etc. are quoted as improvements in living conditions, though it should never be forgotten that with improvement in the condition of life, certain things are felt as deficiencies which on another level may hardly have been noticed. But it is not necessary always to look at the levels of the condition of life. We can imagine that a human society might declare that it would prefer to suffer equally due to unpleasant art, religious conflicts, restriction of power rather than due to hunger, lack of housing, etc. It would then be very important to learn from the descriptions of the conditions of life what, in each case, is the character of the restrictions that have to be taken into account.

That descriptions of income are not sufficient is obvious. A man with an annuity and no work would then be put on a par with a working man with the same earnings – to say nothing of the fact that two categories of workers who earn the same but will not live equally long, have different conditions of life.

We see that in the last resort we can only compare totalities of qualities of life (conditions of life) of whole groups or classes with each other, as the effects of certain measures and institutions. What does this mean for real life?

(d) Totalities of Conditions of Life and the Economic Plan. We shall not deal with the development of the socialist order in detail. In the same way that important elements of the feudal and guild order have survived in the capitalist order, partly changed in their basic significance, capitalist, even feudal and guild, residues will remain in the socialist order after having undergone fundamental changes in function long before. Transactions of money and credit, restricted and controlled in many respects, will eventually cover everything like a transparent veil until

even this is torn. Let us think of a socialist order more or less established, the old residues much restricted, the forerunners of the remote future still not much in evidence. Then the organised whole will be obliged to survey the totality of conditions of life. The society has to be conceived as a single individual that organises its economy according to a plan.

In the well known explanations of “The Fetishism of the Commodity and Its Secret” Marx made some socio-technical remarks on the socialist order:

> Let us . . . imagine . . . an association of free men, working with the means of production held in common, and expending their many different forms of labour-power in full self-awareness as one *single* labour force. All the characteristics of Robinson’s labour are repeated here, but with the difference, that they are social instead of individual. All Robinson’s products were exclusively the result of his own personal labour and they were therefore *directly objects of utility for him personally*. The total product of our imagined association is a social product. One part of this product serves as fresh means of production and remains social. But another part is consumed by the members of the association as a means of subsistence. This part must therefore be *divided* amongst them. The way this division is made will vary with the particular kind of social organization and the corresponding level of social development attained by the producers.

And then Marx went on to discuss the principles of distribution. As one of the different possibilities he mentioned the distribution of products in proportion to the work performed.

> We shall assume, but merely for the sake of a parallel with the production of commodities, that the share of each individual producer in the means of subsistence is determined by his labour-time. Labour-time would in that case play a double part. Its *apportionment in accordance with a definite social plan* maintains the correct proportion between the different functions of labour and the various needs of the association. On the other hand, labour-time also serves as a measure of the part taken by each individual in the common labour, and of his share in the total product destined for individual consumption. The social relations of the individual producers, both towards their labour and the products of their labour, are here transparent in their simplicity, in production as well as in distribution.[9]

Marx saw no necessary connection between distribution of products and distribution of work load in the socialist economic order, but only a conventional one, based on the decision of the social whole proceeding according to a plan. The distribution of products to those who work is not based on any relationships of exchange among different work establishments, it is not based on an accounting system using a single unit of any kind – more on this later – but it is based on an economic plan which, when considering distribution of work, tries to assess the benefit for the whole that can be achieved by different possible combinations.

This is a standpoint which fully corresponds to that which Marx took in *The Poverty of Philosophy* already in 1847: "the time of production devoted to an article will be determined by the degree of social utility."[10] That is, the social whole considers different economic plans with various distributions of work and production and chooses that plan which brings the highest usefulness – the maximum in quality of life, to apply our terminology consistently. The number of economic plans to choose from can be restricted from the start by certain principles of distribution, for example by the principle of distribution that the qualities of life – or the conditions of life causing them – are related to the work performed, namely by assigning a greater amount of products for consumption to a greater expenditure of work effort. This can mean that each worker is given elements of the conditions of life, perhaps according to his free choice, such that work and the other elements of the condition of life together always produce the same quality of life. A man who works for six hours and reaches a quality of life of a certain level through one radio performance, one cinema visit and two excursions in a certain period would perhaps reach the same quality of life if he worked seven hours and has two opera performances, one excursion and two and a half pumpkins at his disposal. By 'corresponding' allocations the same quality of life can be given to the man who works more and the man who works less. It can, however, also mean that the man who works beyond the average can reach a higher quality of life than the rest. Thus the man working seven hours would exceed the quality of life of the man working six hours for one radio performance, one cinema visit, two excursions, and of the man working seven hours for two opera performances, one excursion, two and a half pumpkins, if, say, ten theatre performances, sixteen bananas and a philosophical lecture would be allocated to him. Such an allocation would be a kind of 'quality-of-life premium', for additional work. If by coincidence only one kind of constituent of the condition of life were used for compensation, something like this might result: six hours of work with thirty bananas produce the same quality of life as seven hours of work with fifty bananas. If a premium of quality of life were wanted, the man who works seven hours would have to be granted, say, sixty bananas.

The totality of the conditions of life as a result of measures, taken during a given period of the economy, is described by the economic plan. Just as the bourgeois state draws up a state budget, so a socialist society has to draw up an economic plan. Of course, an unlimited number of economic plans are possible, just as an unlimited number of state budgets are possible, but in practice the choice will be between a few characteristic examples. Though the state budget has its figures for income and expenditure and their difference, decisions are not taken with regard to such a monetary result. Rather it has to be considered that schools, hospitals, etc., have to be built as well. School education, which was to be expanded by the newly built schools, need not be expressed in terms of money, as school education is not an object of commerce. But there existed at least a survey of cost and income, expressed in terms of a unified money accounting. In the economic plan of a socialist society even this monetary unit is missing to which everything can be related. All the available constituents of the basis of life can be ascertained in exact numbers, even quantities of elements of the condition of life can be determined numerically, but such *accounting in kind can never be reduced to one unit*, and a 'surplus' can never be found by calculation. One economic plan contains at the start a definite amount of buildings, animals, forests, machines, etc., and reserve stocks, and a definite amount of constituents of condition of life – homes, food, clothing, education, inspiration, working time, leisure time, morbidity, etc., as annual output, as well as a definite situation at the end which again contains buildings, machines, etc., and reserves. The other economic plan contains other quantities. And now the appointed organisation, be it a parliament, a body with dictatorial powers or some other body must decide which economic plan should be put into operation, as already mentioned above. The execution may then be put into the hands of a 'central economic administration' or some other office. It is perfectly possible to respect the wishes of particular groups of consumers for variety and free choice to a considerable degree – if the society as a whole agrees.

It is impossible to operate the principle of socialism – '*by* society *for* society' – in any way but by a uniform solution to the question of the totality of qualities of life and the measures that bring them about. From this it follows that, purely theoretically, only a socio-technological structure which is perfectly centralistic is conceivable for a working socialist economy. Marxist philosophical-historical studies in general lead to the same result as shown, for example, in Hilferding's remarkable predictions of the general cartel and a future order without money.

The concentration and centralisation of the late capitalist epoch prepares just such administrative and economic centralisation. By electrification, radio, trusts, the League of Nations, the way has been prepared for a psychological adaptation to an economic plan and its central administration; gradually, also economic thinking will be transformed in this direction. In Russia it took relatively long before the idea of the economic plan began to be discussed. Real life had not yet forced it into existence. So all kinds of theories about economic calculation were put forward, which will never have counterparts in real life. Time and again the attempt was made to obtain comparable economic calculations by way of a kind of conventional index figures, especially in agriculture. Only the further development beyond state capitalism and socially controlled individualism to the collective socialism of the future will force this clarification on everybody; until then the idea of the plan will only make an occasional appearance because, beside educational significance, it can have few practical consequences. Only at a later time will social engineers be helped by it to avoid mistakes. This is not the place to discuss in detail how in individual countries or in the whole world a social organisation can come into being through which the idea of the economic plan can become historical reality.

Of course, an economic plan which determines the totality of life for one or more years cannot be fixed in all details in advance; in many instances, it will serve much more like a framework within which specific measures are carried out. Changes during the time when the economic plan applies must be taken into account; similarly a state budget nowadays can admit alterations during the year in which it applies. But in each case it is a uniform total plan about which a decision is taken, a total plan which represents the multiplicity of the empirical abundance of experience to the executive body.

The economic plan is a 'plan of production' insofar as it provides information about the way in which resources of raw materials, land, work power – animal and human – are to be combined to get a definite result in the conditions of life. The economic plan is a 'plan of consumption' (to use this popular expression) insofar as it shares out parts of the conditions of life after it has been decided what is to be kept in store. But it should be stressed right away that these two plans of production and consumption are interlocking all the time. For even though considered in terms of production the work achieved by men and steam-engines have to be treated equally, the human effort expended, the displeasure and loss in leisure time incurred must also be taken into account in the plan of consumption or, to be more precise, in the plan of distribution of the conditions of life, that is of the qualities of life. But there is no necessary interconnection of the two plans in the way in which wages are connected with profit and production in the capitalist economic orders. In the socialist economic order two different economic plans can be almost identical in their plans of production but totally different in their plans of consumption if, for example, different principles of distribution are applied. The term 'consumption' is better avoided; it is acceptable to say 'consumption of bread', but one cannot say 'consumption of enlightenment' or 'consumption of love'.

Calculation in kind can be applied not only to the total economy but also to each work establishment, if only to make it possible to compare their 'ways of working'. This is a technical calculation which *operates as exactly as possible with units of the most varied kind*. This also *cannot be reduced to one single unit*, although it has been tried again and again by some socialist thinkers, lately especially by Russians. Horse power, amounts of raw materials, of lubricating oil, factory space, working hours, etc., have to appear side by side. In the socialist order the economic efficiency of a single factory cannot be deduced from the accounts of the factory alone. This was also impossible in the capitalist order, but then the profitability of a factory was confused with its economic efficiency, because the question of how the operation of a factory may improve the totality of conditions of life of a society was not raised at all. The profitability of a factory can of course be assessed in isolation. It is only necessary to juxtapose expenditure and income in money terms, taking into account the definite situations at the beginning and at the end. But whether a certain factory is more efficient, is better for society under one kind of operation than under another, can only be decided by finding out which of the two fits into the better economic plan. For instance, a factory might be managed in the best technical way and increase its production, yet could still be uneconomical because the product is of no use, for example if the factory that produces necessary complementary goods cannot produce enough. In the capitalist order this is partly revealed by such products remaining unsold.

However there is no such verdict of the market in the socialist economic order. In socialism there is only a decision on a total economic plan, based on careful calculations and questioning of groups of consumers, workers, etc., and from this follows the assessment of the economic efficiency of the individual establishment.

The economy of a society can be compared with a gigantic building and the economic plan with an architectural blueprint. The man who wants to join in modelling an economy is a kind of architect who for example has to build a fortress in the battlefield. The means at his disposal are not bought. He cannot even provide a 'money account', which would in any case be meaningless with respect to the construction erected, but he has to consider how to combine the available work force, stones, trees, spaces of ground to accomplish a whole series of results: protection against attacks, living quarters, accommodation for the sick, etc. He certainly has no unit with the help of which he could add what he has spent together into one sum to find out by subtraction what he has done well or badly. But that is basically what people ask of the economic architect when they impose on him the duty to use one general unit like money to design his work. The architect does not need a unit for his creation, nor does the body which organises the economy. But the architect will determine as exactly as possible the size of the building components, of the volume of the constructed space and much else, in figures and measures; and the architect of the economy will behave in the same way.

Most bourgeois theorists of the capitalist economic period – and some socialists under their influence too – have adhered tacitly or explicitly to the view that the market exercises sufficient judgement on the economic efficiency of the individual establishments. Falling profit is supposed to indicate that production is somehow not adapted to the total mechanism. For good measure the purchasing power of the population and the needs of the population also have been mixed up here. It has been said that there was no need for books when in fact people could not afford enough money for books to make the profits of the entrepreneurs sufficiently large. Thus the widespread opinion came about that money calculation could serve as a basis for a judgement of economic efficiency, at least in the capitalist economic order.

But even the most eager defenders of this point of view usually have to admit at some point or other that money calculation is not always the highest authority to pronounce judgement on social economic efficiency. Thereby they concede that even for them there exists another highest authority according to whose judgement in certain cases money calculation cannot be used.

Ludwig Mises is a very typical representative of the free trade economy, which could be called the ‘economy of chaos’ by its opponents, just as an administrative economy is called the ‘economy of coercion’ by its opponents.[11] In his book on the socialist economy Mises has propounded the view that only money calculation based on one unit could form the basis of production; money calculation discloses whether production should be undertaken or not. Nevertheless we find this remarkable statement:

> If there is more of the monopolized commodity than can be placed at monopoly price, the monopolist must lock up or destroy so many surplus units that the remainder may attain the price needed. Thus the Dutch East India Company, which monopolized the European coffee market in the seventeenth century, destroyed some of its stocks. Other monopolists have done likewise: the Greek government, for instance, destroyed currants in order to raise the price. Economically, only one verdict on these proceedings is possible: they diminish the stock of wealth which serves to satisfy needs, they *reduce welfare*, they diminish riches. That goods which could have satisfied wants, and foodstuffs which could stilled the hunger of many, should be destroyed is a state of things which the outraged populace and the discerning economists unite, for once, in condemning.[12]

This means: in this case of a destruction of commodities, Mises admits a concept of wealth separate from the money calculation, to which he appeals. But restriction of production often equals or approaches destruction of goods. The difference is not very large between the English fishing fleet throwing fish back into the sea, as Archenholtz relates of the eighteenth century, and the modern English fishing fleet not sailing out at all, as the newspapers report. Ships remain idle, workers are condemned to unemployment, and nourishing fish does not get to the hungry whose purchasing power is not great enough or does not take a course of which the owners of means of production approve. Ludwig Mises maintains now with emphasis: “Even in monopolistic undertakings, however, destruction of economic goods is rare. The far-sighted monopolist does not produce goods for the incinerator. If he wishes to place fewer goods on the market he takes steps to reduce his output. The problem of monopoly must be considered, not from the point of view of the goods destroyed, but from that of production restricted."[13]

Leaving aside that the 'rare' cases can be of as much interest for a theoretician as the less rare ones, there is certainly no basic difference between destruction and restriction of production. Moreover, in actual economic life, if fishing for herrings is stopped, the unemployed fishermen are unable to enter other branches of production and the ships generally remain idle. Mises must concede, however, that even if perhaps these workers turn to road work for lower wages instead of catching fish, or if the ships are used for small pleasure cruises, there is underuse even though complete non-use is avoided. He arrives at the remarkable statement: "But these, of course, are less important goods, which would not have been produced and consumed if the more pressing demands for a larger quantity of the monopolized commodity could have been satisfied. The *difference* between the *values of these goods* and the *higher value* of the quantity of monopoly goods not produced represents the *loss in welfare* which the monopoly has inflicted on the national economy."[14] We see that here Mises also arrives at a concept of wealth which obviously is divorced from money, since it is used to assess a money calculation, namely that of the monopolists. If, in the case of monopoly, according to Mises, there is a calculation of wealth by which one can judge money calculation, *then it should always be available and allow judgement on all economic processes*.

Mises does not even reject all monopolies and even less does he admit that there are many other reductions of wealth in the traditional economic order. Starting from the premise that the socialist economy would be one single gigantic monopoly economy he states: "Here private profit and social productivity are at *variance*. A socialist society under such circumstances would act differently from a capitalist society."[15] But he suspects it would be naive to assume the socialist society would do what is absolutely good. "We have no standard on which to base a valid decision between what is good and what is evil in this context."[16] Even though Mises did not apply this qualification when he discussed the decrease of wealth above, it may be conceded to him that there is no generally valid measure. What can still be maintained, however, is that the capitalist order produces a chain of events which is unpredictable, whereas in the socialist economy production and distribution can be decided according to a plan, and each decision, whether it increases or decreases wealth, can correspond in any case to the will of those concerned.

As a matter of fact, Mises and other theorists who have similar views, have to admit that they themselves tentatively introduce a measurement of wealth, though somehow outside of their own theories, which serves them in comparing 'monopoly economy', 'economy of free competition', 'socialist economy'. Above we have tried to do so not only tentatively, but with greatest possible precision, and have shown that these 'decreases' and 'increases' of wealth cannot be found so easily – e.g. if certain groups of the population undergo improvements in their conditions of life and others simultaneous suffer a deterioration in theirs – *but that a socialist economy can take decisions even if one final sum cannot be found*. Even some socialists have agreed with Mises' thesis[17] – without calculation with *one* unit, an economy is *not* possible; socialism does not acknowledge calculation with *one* unit; it follows that socialism is impossible – and therefore they try to establish that in the socialist state there also can be such a calculation. For us it is essential that *calculation in kind in the economic plan must be the moneyless basis of the socialist calculation of economic efficiency*.

II. THE SOCIALIST ADMINISTRATIVE ECONOMY AS A MONEYLESS ECONOMIC ORDER

The socialist administrative economy, in contradistinction to the free trade economy, does not recognise a 'commodity', does not know 'money'. Marx quite consistently declared in his *Contribution to the Critique of Political Economy* that "the wealth of bourgeois society – or, as he calls it even more precisely in *Capital*, "the wealth of the societies in which the capitalist mode of production is the rule" – is an "immense accumulation of commodities".[18] For Marx and Engels, money as well as commodity are specifically capitalist categories. Socialism is planned production and planned distribution by a single economic personality, by society, whereas commodity and money presuppose a multiplicity of unorganised independent economic personalities. In the socialist society there is of course no cost accounting in the sense of capitalist cost accounting. One can only establish that the use of labour, of ores, etc., in connection with the formation of certain components of conditions of life is more economically efficient in one case than in another. But one cannot attach a negative sign to the labour expended and the ore used, nor a positive sign to the things produced to find out the difference. In the capitalist economic order the market itself determines the sum of the costs, as we indicated above. Who should determine the cost in the socialist economy? Whether I prefer five hours of work and the production of five amounts of foodstuff to six hours of work and the production of seven amounts of foodstuff, can be decided in the socialist order only by free choice, by comparing one combination of work and product with the other. But I cannot compare the first amount of labour with the first quantity of product and the second amount of labour with the second quantity of products, and then juxtapose the two differences to find that one is larger than the other. In the capitalist order it is not the combinations of labour and product that are compared, but rather that labour is expressed in terms of money, product in terms of money, the situations at the start and at the end also in terms of money, and then it can be determined whether there was profit or loss. The profits of the two combinations are then compared, and the profit may be found to be larger in one case than in the other.

Already in the partly centralised economy of late capitalism money calculation loses much of its autonomous character. Formerly it seemed at least as if the market as an 'external' power determined cost, profits etc., as it were, 'automatically'. But in the partly centralised economy of late capitalism the prices of raw materials and semi-finished products are determined 'arbitrarily' to a great extent, for example by business concerns; sharing general costs among the establishments of a concern is also based on conventions. If an article is sold cheaply to damage a competitor, losses are balanced by profits on the sales of another article. The low price of the first article may then possibly appear as a low cost for another concern in the economy which uses it as semi-finished product for further production. Certainly no firm will say: as a matter of principle the price of this article should be higher and to find out whether production is rational we will replace it by the 'true' price. Nothing like the 'true' price exists anyhow; price is the combined result of all market factors and among these also belongs the intentional influence exerted on the price without regard to the momentary net profit. In roundabout ways, all speculations on the stock exchange affect the cost accounting of the capitalist order which is unsuited to serve as a basis for achieving the efficiency of technical or economic scientific management. When some government supports the rate of exchange, this will express itself in the cost of many goods, and similarly so when certain exchange rates rise because a trust has ordered some large scale manipulations on the stock exchange to do down an outsider. 'Money', 'commodity', 'cost' are parts of the inventory of the bourgeois-capitalist order; it may be mentioned in passing that their functions are continually changing.

In socialism, production can never be based on calculation with one unit of any kind, not even with the help of any kind of 'labour vouchers', even if the distribution of 'consumer goods' is effected by means of labour vouchers, and some conventional arrangement is made so that a certain quantity of goods are given for a certain amount of labour vouchers. The use of labour, of machines, of raw material, of land for purposes of production could never be regulated with the help of labour vouchers in the way that it is done today with the help of money prices for work, machines, raw materials and land. *Labour vouchers as measure for distribution are far from representing a general denominator for the economy*. Marx sharply rejected Gray's work money in his *Contribution to the Critique of Political Economy*. And in the "Critique of the Gotha Program" he noted: "Within the co-operative society based on common ownership of the means of production, *producers do not exchange their products*; just as little does the labour employed on the products appear here *as the value* of these products, *as a material quality possessed by them*, since now, in contrast to capitalist society, individual labour no longer exists in an indirect fashion, but directly as a component part of the total labour."[19] That is, for Marx there is no 'purchase' as a basis of production in the socialist order, as is assumed by some guild socialists, not only for the time of transition: they let the contrast between consumers and producers continue even into the socialist period.

The more we grow into socialism and the more we approach the final, perhaps sudden phase of the radical change of the economic order, the more we must continue the eradication of the capitalist way of thinking that was begun by Marx. The approach of the new era reveals itself in the transformation of the totality of our emotions and ways of living. But the concepts of the economic theory of the capitalist era also have to be regarded as things that are historical. We must understand, for instance, that the Austrian theory of value with its many subtle insights is in the final analysis a 'money theory without money', for its concepts are derived from money concepts, even though its statements do not mention money any more. It is characteristic of our era to recognise as obvious statements which make sense only in relation to money. Thus Wieser was able to invent a calculation of value according to which a greater amount of some consumed goods could, under certain circumstances, have 'less value' than a smaller amount, whereas it is immediately intuitive that a greater amount may under some circumstances have the same value as a smaller amount, but never that it may have less value. But as we have seen above, it does occur in the price formation of monopoly goods that a greater amount earns less money than a smaller amount when they are sold. This phenomenon of the institutions of free market and money, however, does not admit an interpretation in the theory of value such as Wieser has attempted. Only someone prejudiced by money calculation can make such claims which simply contradict all common sense. All of money-oriented thinking will gradually disappear, not just the contrast between buyer and seller.

The distribution of conditions of life within socialism (housing, food, clothing, education, amusements, inspiration, travel, etc.) can be arranged in very different ways, and much freedom of choice is possible. There is no necessary connection between the work performance of the individual and what he receives; instead, for example, needs might be regarded as the first concern. First of all, it is possible to determine how much labour was expended on an object only to a limited extent and under theoretically sharply defined conditions; and second, there are elements of the conditions of life among those to be distributed which are not the result of labour at all, but are simply available only in limited amounts. We need only think of bathing in a river, of staying in some region or at a certain spa. In socialism it may well happen that something that required no labour for its production is given as premium to somebody for their work, while somebody else receives for the same work a premium which required more labour than the recipient had performed. Distribution draws from a gigantic social reservoir in which some of the elements of conditions of life do not require any labour while other parts do.

Of course, socialist society will choose from among the calculated economic plans the one that is considered the most favourable with respect to sorrows and joys, with respect to the quality of life. While the components labour effort, labour time, mortality, morbidity, are separately amenable to numerical calculation, there are, however, no naturally given units that could be combined into a single quantitative figure. Let us consider a simple example: a certain amount of bread can be produced in a year by some specified labour if economic plan I is used, and by another sort of labour if economic plan II is used. (Food, housing, clothing, etc., may remain the same.) According to the views expressed here, socialist society decides its plan on the basis of a total assessment which can be justified in figures.

Economic plan I

	Number of workers	Working hours	Work intensity	Frequency of illness
workers' category I	10	4	heavy	6
workers' category II	5	6	light	2

Economic plan II

	Number of workers	Working hours	Work intensity	Frequency of illness
workers' category I	5	3	heavy	8
workers' category II	10	7	light	3

In case I, for example, workers engaged in heavy physical labour work for four hours and fall ill six times, in case II they work only three hours but fall ill eight times, perhaps because less time is devoted to protective measures. How far does the shorter working time compensate for more frequent illness, say colds or bronchitis? The decision as to choose economic plan I or II should be made as much as possible on the basis of quantitative data, but it cannot be determined by calculation with one single unit.

However certain conventions can be introduced for purposes of distribution, for example one hour of heavy work could be declared equal to two hours of light work, and frequency of illness could also be taken into account as an additional burden of work. After the introduction of such a conventional point system the result may look like this:

Economic plan I

	Number of workers	Number of points	Total points
workers' category I	10	6	60
workers' category II	5	5	25
			total: 85

Economic plan I

	Number of workers	Number of points	Total points
workers' category I	5	7	35
workers' category II	10	4	40
			total: 75

If this conventional relationship of quantities were accepted, case II would be chosen, because it shows a lower burden. But now one has to check whether this convention leads to the same decision as the total assessment that was made before its introduction, in order to examine the suitability of the convention. It is certainly possible to regulate the distribution of consumer goods on the basis of such points; if bread were the only item of consumption, the workers with 10% more work points would get 10% more bread. But what should the procedure be if there are different kinds of consumer goods? Either each worker has to be allotted a definite number of things of each kind according to his number of work points – and here we entirely neglect the still more difficult distribution of certain services – or each individual receives the right to take consumer goods from the total pool according to the number of points of his labour vouchers. Obviously each item of consumption has to be associated with a certain number of points. To prevent chaos in the socialist order, the sum of points accorded to the annual stocks of consumer goods must be equal to the sum of points at the disposal of the consumers.

How can points be assigned to individual articles of consumption? If there were natural work units and if it could be determined how many natural work units, in a 'socially necessary' way, have been spent on each article of consumption, and if further it were possible to produce any amount of each article, then, under some additional conditions, each article could be assigned the number of points that represent its 'work effort'. But besides consumer goods, the means of production also have to be produced, and the 'socially necessary' work for this has to be deducted from the points which are available for consumption. Let us now assume that the distribution is done through free choice of the consumers in proportion to their work. Marx used such schemes. It is important to realise that they can be applied only if certain conditions are accepted.

In the actual socialist economy of the future some raw materials will be in short supply and thrift will necessary. If there is a great demand for articles made from these raw materials, either rationing will have to be introduced or the number of points for their distribution will have to be increased beyond the number representing the work spent on their production. Conversely articles in little demand will be offered for fewer points than would the work spent for their production.

But even if it were possible to make use of labour vouchers, in some form or other, for distribution, especially in the time of transition, this does not provide a reason for speaking of the existence of a 'money order' in socialism, as is sometimes done, for these vouchers do not circulate; they are only certificates of supply and cannot help to 'evaluate' production. The use of the term 'money' here would be in contradiction to the usual scientific terminology and also to that of Marx. One cannot state that case more clearly than he did: "*These tokens are not money, they do not circulate*."[20] Marx certainly did not believe that in socialist society a money order would serve to secure a rational plan of production and work and a rational distribution.

Marx anticipated that in the first socialist period the capitalist way of thinking would still have an after-effect; therefore he thought that in this period "stamped with the birth marks of the old society" roughly the same principles of distribution would be used as are known from the capitalist period. The "equal right" which would then be applied would be "bourgeois right", as he pointed out in his "Critique of the Gotha Program".[21] The right of working people – and only work confers such rights, though invalids, the old, etc., are excepted from this – to receive consumer goods will in this period be in proportion to their work performance. Marx rejected claims for the "undiminished proceeds of labour". As outlined above, consumer goods will be assigned certain figures, and for each work performance a certain sum of figures will be 'paid out'. Marx thought of this period – whether it is short or long, or if it occurs at all, does not matter – as *without money and without commodities*. Marx regarded money and commodities as definite capitalist categories which are *not* carried over into the first transition period as capitalist residues.

This position is perfectly understandable; socialist economy was seen as planned in contrast to the capitalist economy which is confused, chaotic, unruly. Marx always saw something essentially anarchic in capitalism – in *The Poverty of Philosophy* he notes that "the anarchy of production . . . is the source of so much misery"[22] – because commodities are not ruled by men, but men are dominated by commodities and money. The historically determined removal of this economic order will, in Marx's analysis, also bring with it the removal of the conflicts which are connected with the unruliness of the money order and exploitation. In his descriptions of all these phenomena, which constitute the critical power of *Capital*, Marx stressed several times that money circulation in a fully developed capitalist economy is not only a reflection of the circulation of commodities – he dealt with this in volume 1 where mainly the circulation of commodities and formation of capital are described – but that, beyond this, it has something like a life of its own which brings about the horror of the crises. It is in any case remarkable that in certain quieter times something like a "rule of irregularity establishes itself as a blindly acting law of the average", as Marx noted in volume 3 of *Capital*. Marx saw the basis of crises mainly in the capitalist money order, which is why he repeatedly stressed money crises as a phase of every crisis.

> There is a contradiction imminent in the function of money as the means of payment. When the payments balance each other, money functions only nominally, as money of account, as a measure of value. But when actual payments have to be made, money does not come onto the scene as a circulating medium, in its merely transient form of an intermediary in the social metabolism, but as the incarnation of social labour, the independent presence of exchange value, the universal commodity. This contradiction bursts forth in that aspect of an industrial and commercial crisis which is known as a money crisis. . . . Whenever there is a general disturbance of the mechanism, no matter what its cause, money suddenly and immediately changes over from its merely nominal shape, money of account, into hard cash. The bourgeois, drunk with prosperity and arrogantly certain of himself, has just declared that money is a purely imaginary creation. "Commodities alone are money', he said. But now the opposite cry resounds over the markets of the world: only money is commodity. As the hart pants after fresh water, so pants his soul after money, the only wealth. In a crisis, the antithesis between commodities and their value-form, money, is raised to the level of an absolute contradiction. Hence money's form of appearance of money here is also a matter of indifference. . . . Money which represents commodities long since withdrawn from circulation continues to circulate. Commodities circulate, but their equivalent in money does not appear until some future date. [23]

Marx always stressed that only to a certain extent does money circulation represent commodity circulation. He continues the passage quoted accordingly: "When the production of money has attained a certain degree and volume of production of commodities the function of money as means of payment reaches beyond the sphere of circulation of commodities."[24]

In volume 3 this is developed further in detail.

> In the way that even an accumulation of debts can appear as an accumulation of capital, we see the distortion involved in the credit system reach its culmination. These promissory notes which were issued for a capital originally borrowed long since spent, these paper duplicates of annihilated capital function for their owners as capital in so far as they are saleable commodities and therefore can be transformed back into capital. . . . commodity capital largely loses its capacity to represent potential money capital to a great extent in times of crisis, and generally when business stagnates. The same is true of fictitious capital, the interest-bearing paper, in as much as this itself circulates as money capital on the stock exchange. . . . This fictitious money capital is enormously reduced during crises . . .[25]

The system of money and credit as main constituents of the capitalist order are in this way revealed as obstacles to production and supply, as uncontrollable formations of an anarchic nature, alien to humanity. "The circulation of commodities differs from direct exchange of products not only in form, but in its essence. . . . there develops a whole network of social connections of natural origin, entirely *beyond the control* of the human agents."[26] The money order, just like the whole capitalist order, is not amenable to reform, to control, to regulation according to a plan. To show this was one of the main tasks of Marx and the few theorists who regard money as 'incorrigible'.

The views of Karl Marx quoted here give special force to his total doctrine. The coming socialism is bound to capitalism by historical connections; but it does not need these capitalist residues for purposes of social engineering, and therefore will lose them. The socialist economic order separates itself as a whole from the capitalist economic order; there is a fissure between the two orders. Though things to come prepare themselves gradually, though capitalist centralisation is very much a forerunner of socialist centralisation, there will certainly be a jolt when the socialist order unfolds freely and at the same time new personalities are in power. That certain ways of thinking and institutional left-overs from the capitalist order will necessarily continue, as discussed above, does not alter the fact that the total structure is of a basically different kind. The contrast between the structures of socialism and capitalism will probably be sharper than that between capitalism and feudalism.

Marxism expects less than the utopians do from the enlightenment of the masses about the character and aims of socialism; above all, it counts on the organisation of the working class as a political power which applies more or less force in removing certain groups of people from their ruling position, thereby allowing a new order to break through. After the necessary initial alterations, political change will probably happen with increasing speed; in the same way the transformation of the economic order, the overthrow of the market order, will probably occur fairly suddenly. The revolutionary spirit will not be confined to the struggle over the political order, for it will also spark the struggle over the economic order. But just at what point the transformations of the capitalist order, at what point the political preconditions make possible these sudden changes is an issue concerning which even people who on the whole share basic views can differ. Marxism does not tell us about how far the capitalist economic order can be forced forward in particular cases or how far instead pillars of the coming order can be built successfully. But the response to concrete questions of the day is quite different according to whether one believes that the money and market order of the capitalist period is compatible with the first period of socialism or whether one believes that already the first period has to be revolutionary in this respect from the very start. Though Marx's temperament was always characterised by a basic revolutionary mood, he frequently restrained it due to his personal experiences and historical and socio-technical reflections; concerning the overcoming of commodity and money circulation and of the whole money order, however, he always seems to have upheld this revolutionary mood. Thus we can understand why he declared time and again: The money order is an institution of capitalism; they will both end together.

As we saw, the socialist order is, according to Marx, based on an economic plan which regulates production and distribution independently of each other, so that social 'utility' is served best on the whole and that the total economy produces as many 'use values' as possible. Engels who generally deviates very little from Marx, has explained this in more detail, especially in his decisive polemic against Dühring.

Dühring had put forward a 'socialism' in which autonomous organisational parts of the whole economy, as representatives of society, exchange products with each other which have absorbed the same amount of work, using metal money as a basis. It was important for him to avoid a central distribution without money, which seemed to him opposed to civilisation. Along the lines of Marx's teachings, Engels tried to demonstrate that this attitude is self-contradictory and unsocialist, preserving capitalist thinking and behaviour within socialism, in which Dühring actually had no confidence. In his *Anti-Dühring* Engels wrote:

> For socialism distribution will, as far as it is dominated by purely economic concerns, be regulated by the interests of production, and production will be furthered most by a way of distribution which allows *all* members of the society to develop, preserve and exercise their abilities as completely as possible. . . . every society based on the production of commodities has this peculiarity: that the producers have lost control of their own social interrelations. Anarchy reigns in socialised production. . . . But the transformation, either into joint-stock companies, or into state ownership, does not do away with the capitalistic nature of the productive forces. . . . [The] solution . . . can only come about by society *openly and directly taking possession of the productive forces which have outgrown all control except that of society as a whole*. . . . [In this way] the social anarchy of production gives place to a social regulation of production upon a definite plan, according to the needs of the community and of each individual. . . . the government of persons is replaced by the administration of things, and by the conduct of processes of production. . . . [This] exposition of the principal features of socialism . . . is not at all in accordance with Herr Dühring's view. . . . Let us pass on to his positive creations, the 'natural system of society'. This system . . . consists of a *federation of economic communes*. . . . The economic commune itself . . . 'a community of persons linked together by their public right to dispose of a definite area of land and a group of productive establishments for use in common, jointly participating in its proceeds'. . . . How is this production carried on? Judging by all Herr Dühring has told us, precisely as in the past, except that the commune takes the place of the capitalists. . . . how puerile is Herr Dühring's idea that society could take possession of all means of production in the aggregate without revolutionising from top to bottom the old method of production. . . . 'Labour' is here 'exchanged for other labour on the basis of equal evaluation. Service and counterservice represent here real equality between quantities of labour'. . . . This exchange, however, does not take place between individuals, as the community is the owner of all means of production and consequently also of all products; on the one hand, it takes place between each economic commune and its individual members, and on the other between the various economic and trading communes themselves. . . . As to how the level of this wage of the future is to be determined, Herr Dühring tells us only that here too, as in all other cases, there will be an exchange of 'equal labour for equal labour'. For six hours of labour, therefore, a sum of money will be paid which also embodies in itself six hours of labour. Nevertheless, the 'universal principle of justice' must not in any way be confounded with that crude levelling down which makes the bourgeois so indignantly oppose communism, and especially so the spontaneous communism of the workers. . . . Let us now look how [the economic commune]

> works. . . . Accumulation is completely forgotten. Even worse: as accumulation is a social necessity and the retention of *money* provides a convenient form of accumulation, the organisation of the economic commune directly impels its members to accumulate privately, and thereby leads its own destruction. . . . The exchange is effected through the medium of metallic money, and Herr Dühring is not a little proud of the 'world-historical import' of this reform. But in the trading between the commune and its members the money is not money at all . . . It serves as a mere labour certificate . . . it functions merely as Owen's 'labour money', that 'phantom' which Herr Dühring looks down upon so disdainfully, but nevertheless is himself compelled to introduce into his economics of the future. . . . The 'exchange of labour for labour on the principle of equal valuation' . . . is the *fundamental law of precisely commodity production*, hence also of its highest form, capitalist production. . . . By elevating this law to the basic law of his economic commune . . . Herr Dühring converts the basic law of existing society into the basic law of his imaginary society. He wants existing society, but without its abuses.[27]

Thus Engels. Early on in the career of Marxism he declared with complete clarity that a socialist economy is an administrative economy without money which takes decisions on the basis of an economic plan and which knows no exchange relationships, no money based on precious metals, nor any variation of it such as the 'labour-money' that individual socialists of all shades refer back to time and again. And yet even under very special circumstances it is not possible to work out a scheme which would demonstrate its applicability. It is clear that labour is an element of the plan of production and, as effort, of the plan of the conditions of life too, as far as it concerns the objects produced by labour that enter into distribution.[28] It is also clear that, after deductions of the labour used for 'investment', the labour expended can be distributed in the form of objects produced by labour, and not more. Yet it is quite inconceivable that any decision concerning the economy of the socialist society could be deduced from considering the labour expended. Until somebody will present a sketch of labour accounting, analogous to Popper-Lynkeus's sketch of a method of accounting in kind, the claim cannot even be properly refuted, since denotationless words cannot be discussed properly. We merely tried to show that the study of economic performance, which starts from quantities measured with different units and ends up with quantities measured with different units, does in no way allow reduction to one common denominator, especially not to the common denominator of 'labour'.

Marx wanted to establish the role that is played by the dependence of the worker and his labour power on the capitalist order. For this purpose he showed with the help of a very simple scheme how the worker is ground down and broken, using premises of all kinds. This certainly does not mean that a scheme can again be constructed, with the worker and his labour as the basis, for consideration of the much more comprehensive problem of the distribution of conditions of life by the whole economy. Marx himself certainly never attempted it!

Finally, one must consider that a study of economic efficiency must be so general that it can be applied to an ‘economy’ which involves no labour at all; its task might be to distribute a limited amount of things in the interest of the highest quality of life. An economy like this could start with private property. People have sources of food, clothing, homes, healing waters, etc., at their disposal, without expenditure of labour. Exchange relationships develop, there will be a market, money can be introduced, interest and much else. There will be exploitation and people who are exploited. Then socialism arrives. Private ownership in resources will be abolished, a central power will take over distribution. Now there will be several economic plans among which a choice can be made. Where could a system of ‘labour accounting’ come in here? And what should the ‘general denominator’ be here?

Our own world stands between two worlds, one in which everything is produced by labour and another in which nothing is so produced. The very presuppositions of economic accounting must therefore admit other things beside labour. Note, moreover, that the ‘utilities’ with which the measures of socialism are concerned, according to Marx and all people who shape real life, cannot be submitted to a calculation with a common denominator. To be sure, one must investigate types of calculation in kind more closely, such as those by Popper-Lynkeus and Ballod-Atlanticus. Popper-Lynkeus elaborated the idea of calculation in kind most consistently. However, by making it an integral part of an anti-Marxist argument he made it extremely difficult for Marxists to conceive of him as co-worker in the great structure of the world to come. Ballod-Atlanticus occasionally abandoned calculation in kind, yet he joined forces with Marxism so that already early on his work enjoyed support from Karl Kautsky, who otherwise does not favour this way of thinking. It was entirely befitting the circumstances that the phenomena of the war economy stimulated an interest in Popper-Lynkeus, that the experiences of the Russian revolution rendered the idea of economic accounting more significant. Currently, however, a certain stagnation is noticeable and it may take some time before more than just a few people will attempt to conceive of socialist economic accounting in more concrete terms. Only then will it be generally realised that, in terms of social engineering, a type of socialism is not even conceivable that retains circulation of money, calculation in money and exchange of products.

The path to socialism leads via capitalist institutions, concentration of industrial establishments and banks, within which the working class attains decisive influence, getting the upper hand over the entrepreneurs here and there, until the moment, perhaps of longer duration, when the last revolutionary impulse breaks the political power of the bourgeois classes and puts an end to entrepreneurship as an institution.

But the abolition of entrepreneurs is not sufficient to bring about a social or community economy (*Gemeinwirtschaft*). The aim of Engels' polemics against Dühring was precisely to show that if, after socialisation, the individual economic establishments retain far-reaching autonomous rights and exchange commodities and money between themselves, this will amount to engaging in capitalist economic practices. The capitalism of individuals would then be replaced by "capitalism of groups", as Kurt Eisner called it when he wanted to characterise that part of the factory council movement which intended to combine individual businesses after socialisation in a manner similar to that suggested by Dühring. Socialism is centralism and will succeed as such. But it is misleading to give the name 'planned economy' to economies featuring large centers such as those of Wissel and Moellendorf or to a war economy that has no economic plan: *lucus a non lucendo*. Though the 'war economy' realised some parts of an economic plan and partly restricted the capitalist order, in the last resort it still served the ruling classes who removed these restrictions after the war.

Once there is clarity within the labour movement about the character of the socialist economy in the sense of Marx and Engels, intense attention to statistics will become an unavoidable necessity, if only for purposes of decisive criticism of the capitalist order. With the help of a sufficient number of statistical estimates one could show what distribution of conditions of life and what creation of means of production are brought about in the capitalist order and what a socialist order could have accomplished with such material. For the time being, little time and energy is left for these questions, given the urgent necessity for organised labour to take hold of capitalist positions on the way to socialism: institutions of communal economy must be created, guilds organised, workers' banks founded, cooperatives developed. Among the demands of the day, thinking about the coming socialism and its preparation is given little space; the labour movement will have to recognise its importance already because it may have to face the danger that successes within the capitalist economic organisation may unconsciously divert the thinking of many members onto capitalist tracks. When socialist fighters have to take on the for them so unenjoyable task of running the capitalist machinery that was taken over by the workers, they serve the working class as faithfully as at another post; but it is possible that in doing so they give less thought to socialist organisation and automatically use the categories of capitalist economic thought. The labour movement can take counter-measures by having economic plans worked out already now, by starting to prepare a universal statistics, thereby being able also to criticise the capitalist order. The automatism of the market order for private entrepreneurs, even for nationalised autonomous economic enterprises in a capitalist order, must be paralleled by the economic plan, by calculation in kind for the socialist society. Society must know from which conditions it starts at a certain moment and what it can undertake.

Many of the factors concerned and their connections can be expressed in terms of statistics. For example, we can show the amounts of raw materials that enter a total economy, how they are employed in production with the help of machines, animals and human labour and then move on to the particular branches of the economy, only to enter circulation again either as means of production or as conditions of the life of human beings (housing, food, clothing, education and amusements, health, enlightenment, etc.) or to be discarded as useless waste. In the case of agriculture, its input chart would show us the amounts of artificial fertiliser, machines, human work force, etc. that enter into this branch of the economy and its output chart what we get in terms of meat, milk, fodder, etc. But also smaller sections of the economy can be depicted in this way. We can, for example, show the input and output of fat for a whole country.

A major difficulty here is that up to now different statistics could not always be linked to each other, because they were not made according to a uniform plan and uniform principles, and because statistical inquiries were undertaken without common standards by the most diverse bodies, by cartels, public offices, insurance companies, hospitals, trade unions, scientific bodies. Often minor alterations would have sufficed to make the linkage of inquiries possible. But what can we do if, for example, in production statistics iron tables are featured as iron products, but in import and export statistics they are classed together with wooden tables? Sometimes the original data could still be incorporated within a uniform scheme, but their statistical transformations make such interrelations largely impossible. What can we do if in one statistical table men are classed in groups of three years, in another of five years? The idea has not yet been commonly accepted that each individual statistical table has to form part of one great universal statistical survey.

The last attempt at such universal statistics was made in the eighteenth century with its enlightened absolutism. The absolute ruler wanted to know how matters were with the population and the trades in order to be able to influence them systematically in the interest of the whole. The French Revolution and liberalism cut back the power of the state and put the free market society in its place; soon, any central intervention in production was rejected; moreover, any kind of statistical inquiry was thought to imply a deprivation of freedom. Secrecy of production is the basis of free competition! Socialist centralism, which grows from democratic foundations, will do away with this obfuscation, it no longer admits any secrets of production but demands full statistical clarification. It will probably not be long before the central bodies of the labour movement either create such a type of statistics or support its development for the benefit of movement. As long as statistics are in the hands of the opponent, the labour movement is lacking an important tool for reconstruction! Outright forgeries are less of a danger than the very neglect of certain inquiries such that certain problems are not treated at all.

Above all the labour movement needs a statistics of the conditions of life. Its object should not be to establish total consumption or average consumption – these are of little significance – but the ‘standard of life’[29] of the main social groups and classes.

In the course of this a number of difficult questions will have to be faced, as shown above. As soon as there is no money accounting and therefore no balance sheet for individual establishments, their technical efficiency must be examined according to its significance for the total economy; that is only possible with reference to the economic plan. It has been shown in the form of impressive sketches, mainly by Popper-Lynkeus and Ballod-Atlanticus, how such an economic plan, or more correctly, how a whole group of such economic plans has to be designed such that from it the efficiency of individual establishments can be deduced. It is important that these two attempts exist, because they show us how something like this can be done at all. Chemical factories are accustomed to prepare similar accounts about the chemicals they use and the chemicals they produce. It can be expected that technicians, in particular, will elaborate methods of calculation in kind, as soon as they have grasped the nature of these problems, and that they will help us to estimate the performance of individual establishments as the basis for the study of economic efficiency. This is not a question of precision. If money accounting has so far been exact, it has been so only insofar as sums could be stated down to the third decimal place. It has remained open, however, whether these exact figures give an exact representation of economic reality. Could one be sure whether when the figure for a sum of money was greater the wealth was greater too? Is it not rather the case that increases in wealth are measured in terms of money like potatoes being weighed on an apothecary's scales which is exact to a hundredth of a milligram but allows mistakes of 100 grams and more?

The present task is to create the foundations for such studies of moneyless economics. This is not easy. Yet rough estimates often suffice, as can be seen in the organisation of whole areas of life which also know no individual balance sheets in terms of common units of calculation. Think of the administration of public health, of security, of education. The performance of a school cannot be expressed by the balance account of this individual school. In a socialist economy an individual factory resembles an individual school, hospital, court of law. Whether a hospital achieves good or bad results in healing people can be estimated approximately; to assess its effect within the whole system of public health is much more difficult. The theoretical investigation of such a possibility will only then become more common when a serious approach is made to the question of how an order without money can become the historical successor of our capitalist order. Scientific research has paid hardly any attention to this field; a rare exception is the investigation by A.W. Cohn: *Can money be abolished?*[30] Developing the socialist doctrine in this direction would also represent an extension of the structure of the thought of Marx and Engels. There are enough connecting points for proceeding in this way; Marx and Engels thought of socialism as moneyless, without circulation of commodities and without profit and loss accounting.

There can be no doubt: the concepts of the capitalist order, even if stripped of their money character, still contain it in their structure. Overcoming capitalist thinking as a general phenomenon presupposes a comprehensive process. It is highly probable that socialism as an economic order will have succeeded first, so that socialists will be produced by the socialist order, and not the socialist order by socialists, which, by the way, would be in perfect harmony with the basic idea of Marxism. The scientific anticipation of such conceptual developments is possible only to a limited degree, because we cannot foresee historical reality in its fullness. It is therefore only with hesitation and with some reservations that we may apply theoretical considerations of the possibilities of an order without money to the reality that is to come. To be sure, an active person must struggle through to one resolute decision, however much his deliberations and thought might lead him to conceive all sorts of possibilities and to indecisive behaviour. Thinking takes many lines, action only one. By deciding on one among several courses of action, one among the theoretical possibilities has been chosen and thereby also its further consequences. If someone expects the socialist order from the course of history and acts accordingly, he will have to put up with an order free of money, as Marx and Engels have done.

To summarise. The theory of the socialist economy knows only one economic actor, society, who organises production and distributes the conditions of life according to socialist principles, on the basis of an economic plan, without using profit and loss accounting, without circulation of money – be it metal or labour money – without using a common unit of calculation at all.

III. THE ECONOMIC PLAN AND THE HUMAN BEING OF THE FUTURE

The Marxist conception claims: Marxism is not only a way of thinking about the transformation of the capitalist into the socialist order, but in addition it is the thinking that will dominate this coming socialist order. Marxism appears, so to speak, as the content of the new consciousness as it develops chiefly in the socialist proletariat. Marx and Engels did not try to introduce new ideas into the proletariat, but rather to formulate clearly the strong and powerful ideas and moods already existing in it, to comprehend their consequences and then work in the spirit of proletarian development.

In this sense, Marxism embraces all that is alive in the socialist proletariat, the clear and the not-so-clear ideas, views and feelings, in so far as these can develop into one coherent whole. Therefore, we understand Marxism to be the entire world view and emotional attitude of the socialist proletariat, as far as it can become the general world view and emotional attitude of the era that is just dawning, just as, to a similar extent, Catholicism was the general world view and emotional attitude of the European Middle Ages. To be active in the spirit of Marxism therefore means to express, or help to create, views and feelings which are fit to exist in the socialist reality. The Marxist world view as a whole will also be shared by non-socialists, just as medieval Catholic thinking could also be found in non-Christians.

Our preceding discussion has shown how the idea of an economic plan and of calculation in kind are rooted in Marxism and how they will become a necessary part of economic organisation and economic thinking in proletarian socialism. The claim that a certain form of organisation will someday be dominant means that the whole of human conduct will change in accord with it, for the totality of feelings, inclinations, phantasies, institutions and measures form one gigantic structure. Already today we can throw light on some of their inner connections, or at least vaguely anticipate them.

It seems easiest for us today to predict the further development of the organisation of production, because it comes about through the familiar behaviour of human groups and less through the decisions of individual leading personalities, whose actions are, of course, closely connected with the historical situation as a whole. From the development of the organisation of production a variety of tentative inferences can be drawn about the development of human thinking and feeling.

Let us consider an informative example. In Russia we saw the urban industrial workers in alliance with a mass of small peasants against the former ruling classes. Whereas the industrial workers had been trained in centralism and solidarity by the large scale organisations of late capitalism, the peasants could not achieve more than some narrowly defined communitarian feelings. And still some serious Marxists in Russia hope that the small peasants, who smashed the feudal landownership and thereby put themselves in permanent opposition to czarist powers, would gradually adapt themselves organisationally and emotionally to the new order, although many concessions were made to their economic individualism. Marxists had little hope for propaganda except in individual cases, unless the conditions of life and production are changed at the same time. But a decisive influence is expected when great areas of electrification have been created. Where peat, coal and other sources are available, large power stations are being built which provide electricity for the surrounding rural areas. The peasants who after the end of feudalism entered a kind of bourgeois freedom are now getting accustomed to using electricity to light their sheds, to drive their machines and to use it in their households, just as we in Central Europe know it from alpine villages. It does not take long until all who are connected to an electricity grid want certain institutions changed, demand something new, and are thrown together for this purpose. Though at first the peasant continues his individual farming he already uses centrally produced power, learns to participate in this organisation and gradually feels part of the social power that produces electricity. And without being aware of it his feeling and thinking undergo a deep transformation. The person, whose previous horizon was the narrow village community and who had learned a kind of individualism of production since the 'Mir', the village community, had declined, now becomes a member of a gigantic structure of planned economy. In Russian socialist circles it is hoped that in the Russian small peasant, simultaneously with adapting to the economic apparatus of the state, there will develop the new socialist human being, as a consequence of a change in the organisation of production in which he has not even much participated.

Even opponents of Marxism will hardly be able to deny that the situation exists psychologically as described here and that it makes sense to say that through the introduction of electricity the Russian peasants were brought closer to socialism in their attitudes. It is obvious that the peasants become dependent on those socialist powers which build the power stations and introduce electricity on their farms. This example shows what it means when first an organisation of production can change, and in consequence also thinking, feeling and conduct. It is obvious that also the peasants' ideas of justice and much else will change in this way.

Electricity has a much more 'socialising' effect than steam, for example; central steam engines can at most create gigantic factories in one place, whereas electricity can technically integrate large regions. The interconnection of steam centres through combines is much looser than the interlinking network of places of production through a single centre of electricity. For adequately prepared people the electric power station becomes a kind of symbol for the centralisation of the planned socialist economy in general. Just as the central electric power station looks after the small factories of its grid, so the socialist society looks after its members. Such concrete symbols are often of decisive importance for people of a simpler sort. It is somehow revealing that, as Trotsky relates, apart from the revolutionary first names 'Octobrina', 'Ninelj' ('Lenin' backwards) we also now find 'Rem': R = Revolution, E = Electrification, M = Mir. People who conclude from certain indications that electrification will grow can also perhaps add in anticipation that the possibility of socialism will thereby grow, that is, socialism as organisation and socialism as an emotional-intellectual phenomenon. After all, the new era is significant as a bringer of organisations and new human beings.

If in spinning such ideas we allow our imagination free rein, we could perhaps think that the economic order of anarchism will be historically necessary in some more distant future. Its precondition would be an organisational form of production which would make it possible for small groups, unconnected to others, to transform cosmic energies, for example. An invention might be made which would allow the production of food, heat, etc., with the help of an apparatus easily be built by everyone. If such an invention were made, then those people who hate large authoritarian organisations could live life fully and could fulfil their longing to join congenial friends in a common existence. Such small communities could create highly differentiated ways of life and the emotional and intellectual understanding between the groups might become difficult. Whoever wanted to introduce such anarchism before its historical conditions have come about, however, would be a romantic utopian as Fourier was.

In the classless socialist era there will be a deeper interest in organisations of production also for emotional reasons, in the sense outlined previously. The bourgeois era has always stressed, sometimes with true but more often with false enthusiasm, that what matters are soul and spirit, yet has successfully traded in dollars and gunpowder. The proletarian era will for a long time remain suspicious of such enthusiasm. It will strive to be more sober, first, by planned organisation, to feed people, to clothe and educate them, to give pleasure through art, to promote happiness in the ordinary sense and only thereafter to save souls. But maybe thereby it will create something much more sincere and soulful than the bourgeois era which tended to show off its soul as if on a silver plate.

If the distribution of characteristics among human beings were stable, so that among a thousand people there would always be a definite number with certain inherited qualities, the following would result. Through the transformation of economic and social orders the gene pool of innate qualities does not change, except for certain effects of increased or decreased alcoholism, syphilis and tuberculosis. On the whole it can therefore be expected that socialism will have to deal with as many kind-hearted and as many coarse people as capitalism as far as innate preconditions are concerned. As many people will probably be inclined towards cruelty under socialism as now. Nevertheless the coming of socialism means an important transformation affecting all parts of the new order. An attempt will be made here to demonstrate, in approximation, the general human implications of the socialist economic plan, not only as an institution that produces and distributes housing, food, clothing, education, amusements, mental development, enlightenment and much else. Beyond that it will also have emotional significance and produce feelings such as were known in the Middle Ages, when people spoke of the kingdom of God and its reflection on earth. As there were people in the Middle Ages who were deeply moved by the giant organisation of the Church, of feudalism, so there will be people in socialism who will be deeply moved by the giant organisation of their time; even today there are people who demand such emotions which capitalism gives little occasion for.

Let us therefore assume that inherited innate qualities remain unchanged in socialism, that the victorious proletariat with the support of the crumbling bourgeoisie takes power and, after all sorts of mistakes, enthusiastic experiments and torments, at last forms a classless society which develops production and distribution, on the basis of an economic plan, using the large organisations at hand. What happens to the human situation? Capitalism which tolerated only few anachronisms, as in the field of public administration, had the peculiarity of forcing even people of a loving disposition to behave in an unloving way. A factory owner was forced to dismiss workers in times of war, under pressure from the credit banks, in order to avoid bankruptcy. A stock market operator, who wanted to provide for his family, could only gain by the loss of somebody else, even if his conscience rebelled. Socialism is fundamentally constituted so that it does not force a loving person to behave unlovingly; rather, it incorporates unloving people so that by premiums and threats of punishment it makes them behave as a loving person would naturally behave. In the socialist economic order, a premium may be given for catching as many herrings as possible. The commander of the herring fleet may be an unloving person who is not interested at all in whether people go hungry or not. Only the premium for a greater catch may induce him to do his best. But it would not happen in the socialist economy that a premium would be awarded for decreasing the catch of herrings, as happens in capitalism in certain circumstances. In this way the number of kindly persons will not be changed; however the number of actions would grow of which a kindly person could approve for their effect on the happiness of people. For him there remains the final blemish, that these actions were not done out of love. Yet even though the inherited innate dispositions towards kindly behaviour would not increase, all impulses of that sort would have freer play than today when in the capitalist sphere all loving behaviour on a large scale is marked as 'impractical' and 'uncommercial'.

The basis of the idea of socialist organisation is a type of action that increases happiness, not a definite way of thinking. That is why much hypocrisy will be avoided. There is much more of it in religious periods, because their ceremonies express a definite view about God and divine things, which prompts many people to lie to themselves and to others. In the socialist period, inner emotional development will be much more detached from outer action. How to respond to the socialist organisation, the economic plan, is left to each individual: whether he sees in them just an institution or whether he feels that they have for him some deeper emotional significance, such that he can approve of them as a kind-hearted person. Such approval would enhance his quality of life.

Since today the pressure of the capitalist order, due to its essential character, is towards loveless hard-heartedness, the loving inclination of individuals for socialist community has a greater impact on the introduction of the new era than it will have on its preservation after the victory of a socialism within which there are no counter-tendencies. On the other hand, such loving attitudes, and any direct emotional acceptance of the coming order of life, will be important for the architecture of life in general, because theological influences will have little social significance even though they may remain valid for individuals. In times in which belief in the direct intervention of God, or in the magical effects of certain actions, is strong, purely moral motivation can decline; fear of and hope in God and magical powers then have a stronger effect. It is certainly no accident that times of strong faith in the effective powers administered by the priests are more tolerant towards immoral priests and monks than times in which miracles and magic deeds play a smaller role; then it is much more frequently demanded of a priest that he give a moral example so that he can exert his authority. As the era of Marxism with its 'social Epicureanism' will have less religious support than the corresponding era of Catholicism, it can be expected that the powers shaping the community will foster respect for the order of life itself. By this alone, individual commandments and prohibitions will be pushed into the background; they had been highly valued, especially for their divine origin, and were continued to be taught by a theologising philosophy to which Kant to a considerable extent belongs. From the architecture of life of a society follows what is championed and valued; from the architecture of personal life, how individual actions have to be understood. Of course, external actions will be regulated by laws which will perhaps already be expounded more clearly than those of our own era. The totality of the actions of all members of the society in the service of happiness will be the greatest concern of the socialists, and much less the actions and convictions of single individuals to which the era of Catholicism paid so much attention. This totality of actions is at the center of the socialist doctrine of the order of life.

In the medieval order the religious person could accept existence as it was, could interpret the hierarchy, the feudal system, as a divine order, could regard the aristocrat as father to the peasants. If the aristocrat was hard and exploited them, he sinned against God. It was not contrary to the idea of feudalism to demand care for the peasants, it was not contrary to the rules of the guilds to demand care for the apprentices. And even if people were as brutal and heartless as in the capitalist-bourgeois order, the order was on the whole reconcilable with a religious conception of true humanity.

In the capitalist-bourgeois period however only the scientific or organisational brain could find gratification, namely, the ambitious man who seeks advantage over others, who wants to be the best inventor, the best constructor, the most intelligent thinker, the most successful monopolist and magnate. What corresponded most to the idea of this era was the personality as independent power in itself, the fully flourishing personality true to its own conviction. What unites and joins people together had its effect mostly outside the life of capitalism, belonging, as it were, to the eternal stock of human community which never disappears.

In the socialist period the kind-hearted person can to some extent feel at home. There love is no longer condemned to play a role outside the life of society, as a private matter so to speak. Someone who is kind and loving can give full expression to this characteristic. Its conscious awareness puts the era of proletarian socialism in clear opposition to the medieval period and closer to the capitalist-bourgeois period, whereas the community spirit finds itself again as a formative power to a degree similar to that of the Catholic Middle Ages, but on a higher level. For the organisation of the socialist society is not something that comes to people from outside only; solidarity is a community-forming force coming from within. People's inner life changes so that it can support the organisation which on its own would have an empty and questionable existence with little chance of a long duration. The idea of the economic plan has to be understood not only as a matter of social engineering, but also a matter of emotional concern.

Whereas in the medieval world the imaginative phantasy of the religious person created a kingdom of heaven, which could at least be linked to real life as a dream, the imagination of the socialist person who loves humanity can create a dream of a loving community on earth, for which there are enough starting points in actual life; it need not be a game of merely romantic longing, as true charity had been in capitalism, mostly a matter alien to reality. A socialist of the actual future, full of charity, could dream of the most loving communion of human beings with the same inner intensity as a mystic dreamt of union with God, and he would try to bring to life as much of it as he and other people of the same loving disposition can. And in anticipation we can perhaps try to draw a picture of a socialist community of life. To do this we have only the words and pictures of our own and earlier times. Let us imagine a 'village of loving community' which in later times may become a symbol or goal, a regulative vision, an instance of control for the hard, factual and sober measures which have been decided and whose implementation has been authorised.

People live in this village in an association which could embrace the whole of mankind; houses are built, the soil is tilled, there are herds to be tended, horses to be shoed. People form and create a whole. They all agree that everyone in whatever position should live fully and develop as human beings. To this end they sit together in council and think about their plan. There is a mentally handicapped boy in the village – what to do to give him his share of human dignity? He may look after the geese. In the capitalist order all the children would have been subjected to qualification tests to find out who is best suited to look after the geese. Let us assume that under the best child only five out of a hundred geese would be lost in a year, but the handicapped boy would lose ten. The socialists could nevertheless say: the five additional geese that the handicapped boy lost are sacrificed for his humanity; they make it possible for him to be a member of the community, and he is not pushed aside to go to the dogs. They could say the same even if it were 'cheaper' to let the boy vegetate in a home, without occupation. And if the problem is to fill the post of the village blacksmith, the socialists would proceed like this: there is a strong young man who had the misfortune of a tree falling on his foot when trees were cut down; since then he has a limp and cannot be used in ordinary work. But his strong arms enable him to become a blacksmith. Let him become the blacksmith then, even if the result of the selection test would be that he was only the third best qualified. Let the two better ones go to cut trees. In the capitalist order those less suited are pushed into the reserve army and there depress the wage level by being prepared to do lowly work cheaply. And if there is a woman with an untruthful imagination, would one not try to occupy her in telling fairy tales instead of eliminating her as a criminal? And if there are young and old construction workers, would it not be in harmony with socialist thought if the completion of older building projects is given to the older men who are familiar with old customs and methods and let the younger men who are keen on new things do the new houses on newly reclaimed ground? In times of capitalist free competition the older ones had to compete with the younger, and force themselves into younger ways while valuable traditions were perhaps lost, unless the youth was compelled to assume old-fashioned ways. Never rest, always compete! And in school, will the children be seated according to performance? Will there be beauty competitions? Excessive sporting events? Certainly not. Such behaviour is competition through and through, it means humiliation for many, it is a perfect application of the principle of the whole bourgeois order: the last is bitten by the dogs.

If the great plan which socialists create embraces all that is human, they will try to put all persons in places where they can develop without competition as much as possible; wherever competition is unavoidable it will be under equal conditions for all. The child who is slow to understand and has less good examination results, may be very conscientious. He may be good at keeping the classroom in order, opening and shutting the windows, looking after teaching aids, and he would be an integrated part of the whole in the same way as and not less than the less disciplined child who is brilliant in addition and multiplication. Why should a child who can tell the others funny stories for this reason be less well-esteemed than a child who can draw well? There will certainly always be sorrow and sadness, for example, if a person feels less richly endowed than he or she wished; part of mankind is born to suffer, but the social order should not add to the unavoidable. Certainly it will not be easy to select one man from among those with lame feet to fill the single post of blacksmith, and then think of something else for the rest. But in the village of loving community it is perfectly conceivable also to create more posts because there are more people of a certain kind. More people could live in wooden houses than in stone houses, because there are so many people who are specially suited for working wood. In the village of loving community there is no fixed scheme of occupations and production for which the suitable people will have to be found. Occupations and people belong together and occupations also exist for the sake of the people. The pleasure an occupations gives, the pride of being a useful member of the community, is also decisive in the choice of activity, not just the aim of producing as much bread, housing, clothing, education, amusement, enlightenment as possible. The Taylor system in its purest form would aim at the latter, without taking into consideration that in the manner of production an essential part of human fate is bound up.

It can happen in the village of loving community that people to whom socialist ways are alien are incorporated in such a manner that they have less to do with it. In the capitalist order anyone who does not persevere in the competitive struggle will perish. The person who is patriarchally inclined and seeks protection, the person who needs a change of occupation, who excels working for six hours but cannot work normally for eight hours at a time – all these perish or are employed far below their capacities. They appear to be good-for-nothings. Certain dreamers with a slow and quiet nature are ridiculed, people who might have enjoyed special esteem and honour in the Middle Ages. The socialist people in the village of loving community can take such peculiarities into consideration, because it is characteristic of socialism to order life not for competition, but on the basis of a uniform and lucid plan. Separation is necessary only for those who cannot adapt even to an order of any kind specially created for them: the proper criminals, who are perhaps to be regarded as of an unsound mind, and those who are unable to assess their own capabilities, megalomaniacs or overdefensives – in short, those who suffer from insanity, from 'disorders of conduct'.

As mentioned before, the time to come will not have to do with 'villages', nor with such narrowly circumscribed problems, but with giant organisations, with a giant complex of associations in many layers. All the same, for kind-hearted people it can appear to have at least in principle something in common with this village, though the people in charge of management will mainly be those who are to represent the masses in requiring satisfaction of their needs. The variety of desires will also have their effect organisationally. As a counterpart to the handicapped little boy with his geese there will be settlements for epileptics, with production equipment that is especially adapted to them. Language also, the world of concepts, poetry, will probably deal anew with such organisations, with such groups of people; above we discussed individuals in their places because we are today not yet able to carry out such thought experiments and, even if we could, would hardly find any understanding. The essential thing is that a hard and quite unsentimental reality actually may be able to produce results which will be in harmony with loving kindness.

Stories and essays of the socialist age may have subjects like the village of loving community. Such things may seem unsuited to moving people emotionally in an age like ours which followed one with a phantastic variety of God-centered theologising. A radical transformation of our social and economic order will probably have to occur first before this kind of imagination can take effect – side by side, of course, with all sorts of differently oriented mental attitudes which may encompass extreme religious inclinations as a natural reaction. According to some experts, we have to expect that the style of Gothic buildings with their 'miraculous' ramifications, their significant variety and their enormous height (which has an effect on architectural form even today) will probably be replaced by an architectural style that is more plain and simple, clear and 'earthly', something more like that of antiquity. Just as a certain architectural style will belong to the age of socialism, so will a certain way of describing orders of life which may sound to us today dull and trivial. Similarly, the best writings on life by Stoics and Epicureans may seem to us trifling compared to a sermon by Meister Eckhart and yet they deal much more with the shaping of people's actual communal life.

An age that will not so much value single houses and their multiplicity of detail, but much more the great sweep of streets and squares, entire districts of planned towns and cultural regions encompassing whole countries, will also perhaps see the greater sweep in the order of life and then try to state its problems more simply. The philosophers of the eighteenth century Enlightenment would be regarded as timid pioneers in so far as they once again took earthly existence naively, with the great sweep that will belong to socialism still missing. But at least in one ancient and traditional society, China, we see the role that is played by the doctrines and stories of Confucius and his school, which are on the whole untheological and concerned with the architecture of living together; this role is probably much greater than that which the writings of philosophers played in antiquity. We could imagine a great literature of socialism which spreads a similar mood of [ethical] affirmation and rejection. But the socialism of real life which develops its thinking along the lines of Marxism also allows scope for thinkers who, beyond affirmation and rejection, experience existence as historically given and take the transition from capitalism to socialism, from socialism to what follows, as something which, viewed historically, shows a course of development that is open to meaningful understanding. It could be in keeping with such a mood to accept Marxist views without letting them influence action! Someone like Laotse, a wise man of 'inaction', who did not want his ego to be master, but rather a pure executive organ in the course of world events, could fit perfectly into such a world. Laotse and his followers, such as Chuangtsu, who debated all aspects of life, did not need theology or magical actions. A treatment of the order of life along such lines would probably start with the idea of the large organisation and speak of the links between peoples within mankind, as Chinese literature spoke of the individual, family, emperor and empire. But also in socialism the attitude of individuals will always remain an important subject of consideration, whether they are passive or feel themselves to be agents, whether they retire inwardly and act only outwardly as if action were significant or whether they see the essential thing precisely in the external world and their task of fitting into it.

But the place of individual action towards individuals is taken in the socialism of the future by cooperation in social action for the happiness of all. The medieval man could give personal help to a suffering neighbour and in doing so display full insight into social life. Someone who is convinced that one serves the love of humanity best by individual help for a patient with tuberculosis, but at the same time votes for a bourgeois party and thereby obstructs welfare for the victims of tuberculosis and preventive policies being developed for thousands by a change of the social order, is in general either confused or insincere. Love of humanity is no longer manifested in alms giving but in the creation of social institutions. In poetry and other arts one was concerned in the past with the behaviour between individual people or of God towards human beings; in the socialist future one will turn to social relationships. In what form this will happen we will have to learn from the creators to come; this cannot be found out by reflection and deduction, it can only be experienced. Today we cannot have more than a vague sense of anticipation, otherwise we ourselves would be the creators of the forms of life to come – which will arrive only with the great leap of transformation.

This age of the future is essentially based on uniformity and community and yet will probably be richer in personal variety than the age of the capitalist bourgeoisie which has so praised individualism. In principle socialism has no special sympathy for each individual being quite different from each other individual. The kind of bourgeois social life in which everyone wants to show that they are more intelligent, more urbane, more brilliant than anyone else will be alien to it; similarly so, it will not make much sense to follow a series of lectures in which each speaker most pointedly maintains the opposite of what had been demonstrated before. Already now the proletariat does not attend a lecture because an entirely new kind of Marxism is put forward or even the opposite of what Marx had taught. Rather the solidarity of the class-conscious proletarians is fully alive also in the intellectual sphere. It seems to be a matter of course that one aims at experiencing a mental attitude which embraces the whole class and later the whole of mankind. Such an attitude presupposes the organisation of humanity.

Since the Roman Empire in peacetime united the people of the ancient world and did not simply force them into union, in Europe only Catholicism under German emperors even tried to gather people of the most different nations into a super-national association – and failed. In the bourgeois period the English, above all others, attempted to create an empire, partly by force, but to a much greater degree by a binding political organisation within which there was to be no war. But it is hardly possible that the declining capitalist age, which arouses so much animosity, can create a durable and true world empire. The socialist period, however, can live up to such a gigantic task of administration, as it is free of those disrupting forces of capitalism. There will still be difficulties enough when proletariats of different countries with different levels of conditions of life are to be connected.

The unifying ideas will perhaps at first be similar to those of antiquity, which managed with a doctrine of life which was on the whole untheological. What comprehensive world view may emerge within which (or side by side with which) religious traditions and churches find their place, can today hardly be guessed. Perhaps it will be a kind of Epicureanism turned towards the social such that within it essential parts of Stoicism could find their place. Such a social Epicureanism could serve the union of mankind well: the common striving for human happiness in different countries, by different peoples and at different times, need not in principle have the same result in the way that theologically based orders of life demanded that there be only one single system of commandments and prohibitions universally applied (of course softened by more or less forced local interpretations).

The Epicurean approach, revived mainly by utilitarians like Bentham and Mill, today serves socialism, for, if the principle of the increase of general happiness is to be adopted, wealth side by side with misery cannot be tolerated. The existing inequality can much easier be defended by quoting old religious texts; for example, passages of the Old Testament, which were to provide rules of life for a primitive nomadic people, were used in modern times to defend slavery in America. But one can also, by invoking the idea of the good, or by depersonalising the personal commands of a god and reducing them to a categorical imperative, defend private property of the means of production and other institutions of our day. The strongly Epicurean utilitarianism interested the bourgeoisie of the 19th century only for a short time, as long as they wanted to break traditional restraints. How little utilitarianism managed to reach general dominance can be seen from the fact that one of its main representatives, John Stuart Mill, did not make any use of it in his work on political economy. A large part of the bourgeoisie thought it more useful to persecute and discredit Epicureanism in the interest of their class, to declare vulgar any striving for happiness and the ethics of happiness itself and to ward off socialism with the help of 'noble ideas' and 'religious enthusiasm'. Representatives of Epicurean trains of thought remained without any noticeable influence. In that period of capitalism the sublimity of the principles declared at the time was almost in reverse proportion to common humanness. When social Epicureanism will triumph it will help to promote the union of mankind, especially as it does not display national chauvinisms but is on the contrary capable of respecting distinctive national characteristics.

If the coming age will create a comprehensive world view, then each convinced socialist will support such a unifying attitude and will try to integrate himself in thought and feeling, not alienate himself through special activities. In this respect Marxism resembles Catholicism which in Europe today is perhaps the only consistent spiritual system backed by political power, albeit one which uses past ways of thought and finds its main support in landownership, aristocracy, craft trades and now also in industry and commerce. But the imposing unity of its intellectual structure still exists. It was never considered to be particularly honourable to have discovered an entirely new kind of Catholicism. The heretics rather claimed that their doctrine was the true one and they took pains to convince everyone of their view, even to show that everyone had silently accepted it as part of their faith. Ideological unity is a ground of socialism as a consequence, not a precondition of solidarity; but by means of a planned process it will be much easier than under capitalism to allow differences between people within this community. In an order which is based on an economic plan, mothers can be granted shorter working time and assigned to special tasks; in the economy of free competition women had, as far as possible, to be on an equal footing with men to avoid their total enslavement. A purely superficial equality, which has nothing to do with the emotional harmony between people who share feelings, is one of the notable effects of an individualistically minded age. To be sure, this 'equality' obtains chiefly in the field of the order of production, i.e., where life is mainly lived. The multiplicity of 'movements' in art and fashion seeks to compensate for this but only destroys many remainders of the old commercial attitudes.

The idea of the socialist community does not really know pleasure in multiplicity or the highest achievement of each individual for its own sake, but in the whole bustle of life, which is not accepted as something given and dead but as something that is created by cooperation aimed at happiness. It offers to each individual a field of activity which is adapted to him and to the whole, so that his feeling as a human being is satisfied but also broadened by the existence of the structure in which he cooperates. The far-reaching commonality of education, the absence of strata like class or rank, may well prevent the formation of groups with very different human feelings or ideals, in spite of the variety of occupations and the adoption of conditions to the individual. The individual lives, according to the coming socialism, only as part of the whole, but without being sacrificed to the whole in principle or to anything super-personal to which he does not genuinely belong. Thus we find in socialism certain characteristics of the Catholic Middle Ages and of the materially minded bourgeoisie, whereas other of their features will remain alien to it forever. In its intellectual attitude and its organisation, it will to some extent return to primitive times in which there was a communism of small groups and a unified world to which everything belonged, be it a living or non-living thing, without being confronted by an other-worldly god.

In an order which is based on an economic plan, the happiness of man will be better looked after not only from the 'outside', but inner development is also given a better chance. Certainly there will also be new suffering, caused by strict organisation, sufferings from suppression which, against the spirit of socialism, are inflicted by cruel judges on the accused, by teachers on their pupils, by overseers on those supervised; there will also be new kinds of sorrow which will perhaps be overcome only in an even more distant future which again in turn will know new sorrows. Marxists may forecast only a limited historical existence to real socialism. We are now in a time, however, in which for the masses of the proletariat the current demand for the future is the creation of the new order. For a person who affirms life, it can never be an objection against something exciting that it will perish; all of us walk towards death and still we can cover the distance with much energy.

Proletarian socialism – the socialism for which the organised proletariat takes its stand as a political power, in contradistinction to the kind of socialism taken up by some individuals – is based on a perfectly down-to-earth world view for which the coming of the new era is a historical necessity. It will bring happiness to many to be able to affirm the order that is to come. It is painful for a kind-hearted person, in the time of capitalism, always to have to reject the existing order as soon as it is understood. The kind-hearted person can affirm the order and institutions of socialism, even though they have not been created from love but from the desires of people to live better! The socialist economic order is fully reconcilable with human charity, though much hardness may occur in it, though it may have come about through serious conflicts. In socialism nobody will be prevented from being kind and loving if he so wishes. It is characteristic of every world-view, every order of life embracing an entire new age, that it is capable of penetrating the whole of life. Marxism too, developing ever more fully, will penetrate the whole of life: what our homes are like, how we dress, what fascinates us in art and science, how we love and are loved, how we support each other or hurt each other, how we are happy and how we are sad, how we are moved and how we devote ourselves to something beyond ourselves, should such an urge be in us.

It is the conscious awareness of the new age, liberating it from dull tradition and the automatism of the market and creating a plan for economy and life, that will characterise the future – this much is perhaps obvious! Within this conscious shaping of the entire life, still there is much room for all the striving that gives happiness, for visions, for love and union of human personalities! Indeed, the deepest harmony between human beings, which stands in utter contrast to the character of free competition pitting friend against friend and brother against brother, will now gain symbolic significance in socialism, which unites individuals and whole groups into cooperation.

Love fully unfolded will become the image of the socialist community. The kind-hearted and inspired person, who, like the mystical seeker after God in the Middle Ages, longed to overcome the isolation of the individual, can now embrace an earthly entity, the consciously shaped socialist order of life, as something that is worthy of equal devotion – *for socialism as an idea is the order of life of a loving community.*

NOTES

* First published as *Wirtschaftsplan und Naturalrechnung. Von der sozialistischen Lebensordnung und vom kommenden Menschen*, E. Laub'sche Verlagsbuchhandlung, Berlin, 1925. Translated by Thomas E. Uebel, based on a draft by Marie Neurath and Robert S. Cohen.

1. [Neurath's expression is confusing: what he means is the Dedication, originally in English, of the German first edition of 1845, not the Preface to the English edition of 1892, nor indeed the proper "Introduction" to the book. (Neurath also did not give page references (except in the case of Mises, *Gemeinwirtschaft* and Marx, *Capital* vol.3) or publication details to any of the works cited

in this book.) See F. Engels, *Die Lage der arbeitenden Klasse in England*, Leipzig, 1845, trans. "The Condition of the Working-Class in England" in K. Marx and F. Engels, *On Britain*, Lawrence and Wishart, London, 1954, 1–336, at 3 and 334. Eds.]

2. [Ibid., 36 and 38. Eds.]
3. [Ibid., 131. Neurath did not indicate the ellipses but represented the quoted sentences as complete. In Engel's original they continue: " . . . are worked every day to the point of complete exhaustion of their mental and physical energies, and are thus constantly spurred on to the maddest excess in the in the only two enjoyments at their command." And ". . . when the little is taken from them that had hitherto been vouchsafed them." Eds.]
4. [K. Marx, *Das Kapital. Kritik der politischen Ökonomie. Erster Band*, Hamburg, 1867, 4th ed. 1890 ed. by F. Engels, trans. *Capital. A Critique of Political Economy. Volume One*, Penguin, Harmondsworth, 1976, 580, 582. Eds.]
5. [Ibid., 789, 796. Neurath did not indicate the ellipses and the (meaning-preserving) insertion of the phrase "stagnant surplus population",. Eds.]
6. [Ibid., 799. Neurath's insertion in square brackets. Eds.]
7. [K. Marx, *Differenz der demokritischen und epikureischen Naturphilosophie*, PhD dissertation Jena, 1841, trans. "Difference between the Democritean and Epicurean Philosophies of Nature" in K. Marx / F. Engels, *Collected Works vol. 1*, Lawrence and Wishart, London, 1975, 25–108, at 28, 73. Eds.]
8. [K. Marx and F. Engels, *Manifest der kommunistischen Partei*, London, 1848, trans. "Manifesto of the Communist Party", 1888, repr. in R.C. Tucker, ed., *The Marx-Engels Reader*, Norton, New York-London, 2nd ed. 1978, 469–500, at 480. Eds.]
9. [Marx, *Capital. Volume One*, *op. cit.*, 171–172. Neurath did not indicate the ellipses but added emphases. Eds.]
10. [K. Marx, *Misere de la Philosophie*, Paris, 1847, trans. "The Poverty of Philosophy" in K. Marx / F. Engels, *Collected Works Vol. 6*, Lawrence and Wishart, London, 105–211, 1976, at 134. Eds.]
11. [Neurath droped the "von" in Mises' name, in accordance with post-war Austrian legislation. Eds]
12. [L.v. Mises, *Die Gemeinwirtschaft: Untersuchungen über den Sozialismus*, Fischer, 1922, 2nd ed. 1932, trans. *Socialism. An Economic and Sociological Analysis*, Jonathan Cape, London, 1951, 388. Emphases added by Neurath. Eds.]
13. [Ibid. Eds.]
14. [Ibid., 389. Emphases added by Neurath. Eds.]
15. [Ibid. Emphasis added by Neurath. Eds.]
16. [Ibid., 392. Eds.]
17. [Neurath actually calls it Mises' "52nd" thesis without explaining the significance of the attribute. Eds.]
18. [K. Marx, *Zur Kritik der politischen Ökonomie*, Berlin, 1859, trans. *Contribution to the Critique of Political Economy*, Lawrence and Wishart, London, 1970, 27. Eds.]
19. [K. Marx, "Randglossen zum Programm der Sozialdemokratischen Partei", first publ. in *Neue Zeit*, 1891, ed. by F. Engels, transl. "Critique of the Gotha Programme", repr. in *Marx-Engels Reader*, *op. cit.*, 525–541, at 529. Neurath added the 1st and 3rd emphasis. Eds.]
20. [K. Marx, *Das Kapital. Kritik der politischen Ökonomie. Zweiter Band*, Hamburg, 1885, ed. by F. Engels, 2nd ed. 1893, trans. *Capital. A Critique of Political Economy. Volume Two*, Penguin, Harmondsworth, 1978, 434. Eds.]
21. [Marx, "Critique of the Gotha Program", *op. cit.*, 529–30. Eds.]
22. [Marx, *The Poverty of Philosophy*, *op. cit.*, 137. Neurath's quotation did not indicate ellipses. The full sentence reads: "In existing society, in industry based on individual exchange, anarchy of production, which is the source of so much misery, is at the same time the source of so much progress." Eds.]
23. [Marx, *Capital. Volume One*, *op. cit.*, 235–7. Neurath did not indicate the ellipses. Eds.]

24. [Ibid., 238. Neurath's text is corrupted here. It contains a reference "Bd. 2, S. 13 and 31", apparently referring to the quotation just given, but what it does is identify the quotation to come in the second half-volume of the first edition of volume 3 of *Capital*. Eds.]

25. [K. Marx, *Das Kapital. Kritik der politischen Ökonomie. Dritter Band*, Hamburg, 1894, ed. by F. Engels (orig. in two parts), trans. *Capital. A Critique of Political Economy. Volume Three*, Penguin, Harmondsworth, 1981, 607–8, 624–5. Neurath did not indicate the ellipses. Eds.]

26. [K. Marx, *Capital Volume One*, *op. cit.*, 207. Neurath did not indicate the ellipses but added the emphasis. Eds.]

27. [F. Engels, *Herrn Eugen Dührings Umwälzung der Wissenschaft*, Leipzig, 1878, trans. "Anti-Duhring" in K. Marx / F. Engels, *Collected Works vol. 25*, Lawrence and Wishart, London, 1987, 1–309. Neurath added the emphases, but did not indicate the ellipses or insertions. We have not been able to locate the first sentence of this quotation; thereafter the quotations are from 259, 265–8, 271, 274–5, 283, 285–8, 297 respectively. Eds.]

28. [One line seems to be missing in the text of this sentence. Eds.]

29. [Original expression in English. Eds.]

30. [A.W. Cohn, *Kann das Geld abgeschafft werden?* Fischer, Jena, 1920. Eds.]

OTTO NEURATH

14. SOCIALIST UTILITY CALCULATION AND CAPITALIST PROFIT CALCULATION*

> In a future society where class opposition has vanished the time spent on production of the various objects would be determined by their social utility.
>
> Karl Marx, *The Poverty of Philosophy*

In the remarks made by socialist and anti-socialist political economists mention is made ever and again of ‘rationality’, of the need to base all truly effective economic orders on the rational comprehension of production and its results. If therefore the socialist economy claims to be effective, it should be possible to prove its success by calculation with a single unit. Is this correct? Let us consider the capitalist profit calculation. What does it achieve, what could it achieve in principle?

What we find given are human beings with certain rights: human beings who own land, others who control machines and factories, human beings who control only their own hands, others who also own a few tools, finally the sick, the old and the young. All these human beings live, they receive housing, food, clothing, knowledge, health care, entertainment and much more, mostly by buying it for money. For certain people – the sick, the old and the young – the family and the social whole take over part of the care. For the life of the individual to be a happy one it is extremely important to have sufficient amounts of money. Nearly everything can be bought, goods well beyond the most luxurious daily consumption, even the power of rulers, for instance, by someone’s becoming an entrepreneur or banker. Thus an industry can be transformed most easily if one has ownership of the leading companies of a trust, less easily if one merely possesses the relevant knowledge.

In the capitalist order everybody is concerned to use their money so as to live most successfully. Those who live on meagre means will scrutinise their expenses, perhaps to make savings. Those who have more money than they need for daily life will acquire new sources of money in order to use the moneys that then come to them either for the improvement of their personal lives or the increase in their power. In order to see whether one has managed well or badly, one determines what one possesses in terms of money and monetary values at the beginning and at the end of the year. The difference is the gain or the loss made that year. From the standpoint of the economic order of capitalism it is utterly reasonable to make this calculation. Those who at the end of the year possess less money than at the start have managed their economic affairs badly in the capitalist order in any case, for, put aside, the sum of money, thought of as a quantity of gold, say, would have remained constant. Thus people will lend money only if they can be sure that the receive back more than they gave. Of the many ways in which money can be used, the borrower will choose those that will produce the greatest amount of money beyond the sum borrowed. (There is no need to discuss here what in the capitalist order renders it possible that someone should make more money from less.)

The money calculation of the capitalist entrepreneur is based on the fact that everything can be bought in the market (raw materials, labour power, patent, land, etc.) and that everything can somehow be sold (boots, dresses, machines, water, etc.). For every individual enterprise it is always possible somehow to determine its balance. The profit of the entrepreneur is increased sometimes by increasing, sometimes by decreasing the production, even sometimes by destroying goods already produced. The money balance says nothing about how the amounts of money are created. It is possible for an economy to exhibit a constant upward trend in terms of its balance sheets while the prodution is in permanent decline and the life of everybody becomes ever worse. The amounts calculated in gold can increase while everyone lives more badly than before. Thus it is possible that a money calculation made for all enterprises and for the state's own undertakings shows a positive balance, but that the people as a whole suffer.

Suppose the concentration of the capitalist order would lead to the existence of just one central bank and one related central trust. Then it would be possible to devise a money calculation according to which the entire economy made a rich profit even while it collapsed in its entirety! In cooperation with the central trust, the central bank could fix the figures for raw materials and produced goods so that a profit results.

Already today we can see that a trust or a cartel sells its own coal to its own iron works sometimes cheaper, sometimes more expensively, depending on what is of greater advantage to it. Restoring an enterprise to profitability can be effected such a way that many people go hungry, even die, while the money calculation stays healthy. Dead people do not figure as negative entries in the capitalist profit calculation!

The money calculation of the economic order of capitalism is very precise in terms of money sums, but it tells us nothing about the true 'wealth' of a people, neither about the use made of sources of raw materials nor about the distribution of the the goods produced; it tells us nothing about the rise or fall in the rates of deaths and diseases or about whether people feel better or worse.

The socialist economy, by contrast, is concerned with 'utility', with the interest of the social whole and the welfare of all of its members with regard to housing, food, clothing, health, entertainment, etc. To this end it seeks to employ the given sources of raw materials, the extant machines and labour power etc. Right at the start it must be determined what this is, the 'interest of the social whole'. Does it include the prevention of the premature exhaustion of coal mines or of the karstification of the mountains or, for instance, of the health and strength of the next generation? Once that has been determined at least in outline, it makes sense to ask what is the best use of the existing raw materials, machines, labour power, etc. One has to find the best way to achieve a non-wasteful exploitation of the coal mines, to ensure the health of the next generation, etc.

Now how can this 'best use' be calculated in a socialist economic order?

For such a socialist calculation there does not exist a unit of the sort which capitalism finds in money. Some had the idea to introduce a certain amount of labour as a unit. But how could this make it possible for the excessive exploitation of a coal mine to figure as a negative entry in the balance? How could a quantity of electricity which a river provides us with be entered as an increase in amounts of labour units? Or the increase in wind power used in the running wind mills? Again and again consideration is given to one or another type of socialist economic calculation with a single unit in order to show, for instance, that the type of economy I is less advantageous than the type of economy II, for I provides 1000 but II provides 1500 units. No author has yet devised a calculation for the entire economy (as Popper-Lynkeus did schematically for his economic plan), instead they rest content with abstract formulations or with a very partial calculation without showing how the calculation of the whole would proceed. This should make us suspicious: let us consider the matter in detail.

Let us suppose that everything which is dealt with in a socialist economy can be measured in units, even one's well-being; suppose that one would be able to say that a certain picture gives somebody three and two thirds times as much pleasure as somebody else and thus give exact calculations of the qualities of life. However implausible, let us assume this to be possible.

Suppose a society is given certain amounts of land, factories, machines, vehicles, workers, etc. Suppose it is capable of relating all these elements to each other and accordingly it could gain certain amounts of machines, factories, etc., in the current year, reduce its stock of coal to a certain degree and make available for choice by the population certain amounts of housing, food, clothing, education, health care, etc. But different possibilities obtain. In order to decide between them, their effects on the lives of the people would have to be calculated. Accordingly, an individual's housing, food, clothing, entertainment, health, etc., would be represented by a figure, that of another as a second figure, such that in the end one would arrive at a sum for the whole society. Then one could determine that in one case the totality of the qualities of life is greater than in another. In addition, one would have to consider the calculation of stocks, the deterioration of machines, etc. These could also enter the calculations as units of qualities of life if one considered their influence on the future: for instance, by determining that the increase in certain stocks most likely produces this or that increase in the quality of life of everybody.

Yet one would also have to take note of wear and tear and the expenditure of energy (chemical, electrical, human, animal, etc.) so that one would have two results: first, the sum of qualities of life created; second, the sum of energy expended. Next one would have to detemine how highly, as it were, a unit of life quality rates in expended units of energy. Then, given our assumption, we could compare the measures of the various socialist economic orders with each other by calculating, for instance, the units of energy per unit of life quality for every one of the measures. This is, after all, the goal which socialism seeks to approximate. In reality, however, the calculation of life qualities will be possible only by using estimates and empathy, never exactly.

Having reached this point though, we must stop. It is impossible to go beyond this and arive at a 'profit' and 'loss' calculation as we know it in the capitalist order. The concepts 'profit' and 'loss' have lost their meaning. Take the example of a company taking over the cutting of trees in a forest: tools will be worn out and human beings will be used to deliver wood for the social whole. How should one calculate whether the amount of wood delivered is 'equivalent' to the tools and the labour power used? Further: if such a calculation would be possible and if it showed that 100 units of wood can only be produced by the expenditure of 200 units of energy (labour and tools), would one then stop the production of wood? There might come a time in which it would be impossible to live without such waste, be it that an ice age begins or other emergencies befall us. All we can do is to find the best way of living, but it makes no sense to make entrepreneurial calculations of losses.

'Costs' in the capitalist sense and the 'negative quantities' of socialist calculation do not come to the same thing. In the capitalist order, both the labour expended and the raw materials that are used up appear in the same way as 'costs', for the entrepreneur spends money on both. For socialism, there is but one type of expense and that is the displeasure of work or the work-related sickness, etc. Beyond that there is only the increase or the decrease in the outcome. The work that is expended is a negative quantity as displeasure, whereas the raw materials which are not used remain without consequence (result nil) and only become positive quantities by being used. In our present capitalist order an entrepreneur pays money in order to lay an electricity line across somebody else's land even though that person is not thereby inconvenienced. Payment for this belongs to the 'costs'; in the socialist order, however, there are no 'negative quantities' in this case.

The 'positive quantities' of the socialist order also do not come to the same thing as the 'profit' of capitalism. Savings in coal, trees, etc., beyond amounting to savings in the displeasure of work, mean the preservation of future pleasure, a positive quantity. For instance, that coal is used nowadays for silly things is to be blamed for people freezing in the future. Still, one can only give vague estimates. Saving certain raw materials can become pointless if one discovers something new. The future figures in the balance sheets of the capitalist order only in so far as the demand is anticipated. The freezing people of the future only show up if there is already now a demand for future coal. Just as before, capitalism cuts down the forests even if the consequence may be karstification in a hundred years. In the tropics, and elsewhere, capitalism engages in over-exploitation without any care. In short, for capitalism such savings would mean a loss of profits.

In the capitalist economy every individual enterprise has its money calculation and profit or loss. In the socialist society it is only possible to estimate whether an economy as a whole of a certain structure is to be preferred to another. In a socialist economy the productivities of an engine factory and an agricultural enterprise cannot be compared, as they can be, by means of the balance sheet, under capitalism. Whether one should expand an engine factory or an agricultural enterprise only follows from what total plan is preferred. The distribution of the productive forces follows only from the economic plan, never from the comparison of different individual enterprises; it could be necessary to expand the technologically substandard agricultural enterprise while a first-class engine factory must be closed.

Organisationally this means that accounting in the capitalist economy leads to the balance sheets for individual enterprises, but not in the socialist economy. There accounting only shows the quantities of machines, oil, raw materials, labour hours, etc., used by an enterprise and what was achieved thereby in terms of finished goods, half-finished goods, waste. And the economic inspector of the central administration can test the technical rationality only on the basis of technical rules, for instance, by determining that a certain amount of rails could be produced with less coal and labour. But whether, say, an increase in the production of rails for the cost of decreasing the production of sewing machines would be economical is something that cannot be arrived by calculation. In addition, it is the case that commonly at the end of a production period other circumstances obtain than at the start. There will be new types of machines, the quantity of industrial and agricultural production will have changed, stocks will have increased and decreased. Finally, steam engines cannot be compared in a calculatory way with hay and tree trunks.

To sum up. The goal of individual enterprises in the capitalist economy is the maximum gain of money and because of this money calculation makes sense, namely, to establish whether the maximum has been reached. In a socialist economy the goal is the maximum of happiness and quality of life for everyone, of utility, and because of this the calculation of utility, happiness and quality of life makes sense. (As far as we know this is impossible to do in units.) By contrast, the calculation of labour units, even if it were possible, makes no sense given the goals of a socialist economy, for these are the increase in quality of life, not labour. It is only possible to reckon an economic order higher or lower than another in terms of their effects on the quality of life when both are considered in their entirety.

The place of money calculation in individual enterprises under capitalism is taken by calculation in kind, with its estimation of utility, of the entire economy under socialism. Marx never misunderstood this fact, he never spoke of calculation with a single unit in the socialist economy, nor did Engels. Both only knew the planned organisation of the economy, the expenditure of labour and the use of raw materials and tools in the interest of the utility for the whole.

NOTES

* Originally published as “Sozialistische Nützlichkeitsrechnung und kapitalistische Reingewinnrechnung”, *Der Kampf* 18 (1925) 391–395. Translated by Thomas E. Uebel.

PART 4

ECONOMICS AND SOCIAL SCIENCE IN UNIFIED SCIENCE

OTTO NEURATH

15. THE CURRENT GROWTH IN GLOBAL PRODUCTIVE CAPACITY*

This international congress is most likely the first ever for social technology. We have become accustomed, through machine engineering and management techniques, to recognise the importance of the details of the process of production. The theory of business cycles has rendered visible the most subtle aspects of business graphs, yet the large-scale deviations of the fate of millions are not systematically investigated in any discipline. We are still at the start of the age of social technology, when social processes will be considered like an engineer considers a machine. I wish to talk to you today only as a technician, as a social engineer. In accord with the programme of this congress my task will be to report on the growth of the productive capacity and its relation to the condition of human life. My time is short, so I can only provide a few programmatic statements, emphasise some striking statistical figures and show you a few charts which will provide you with an overview more quickly than words could do.

One of the main contentions of this congress is this: *the human misery of our age is due entirely to organisational causes*. Here we shall not talk about what is possible but rather consider our task to be the investigation of the concrete facts, so that we can make predictions about the relation between productive capacity and human living conditions (i.e. housing, food, clothing, education, amusements, leisure, mortality, morbidity, etc.) in case our economic order should change. My first chart [Fig. 1] shows you that already the development of productive capacity to date has overtaken the growth of humanity. Malthus is completely mistaken.

This chart shows us that the population increased between the period 1870–79 and that of 1920–30 by about 50%; the production of wheat also by 50%, of potatoes by 100%, of sugar by about 500%, etc. The rail

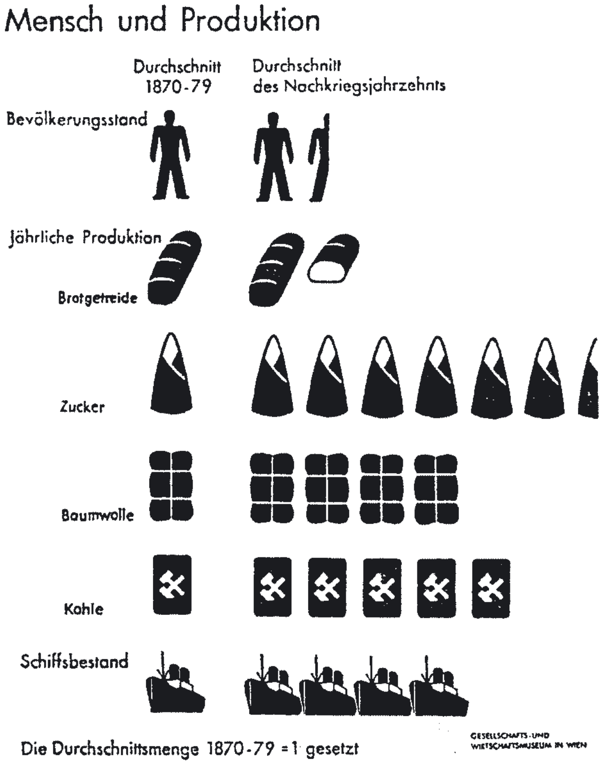


Figure 1. "Humankind and Production". *Legend*: Left vertical column: Average 1870–1879 (set at one unit). Right vertical column: Average of the decade after the [World] War. Horizontal columns (from top): Population; yearly production of bread-stuffs, of sugar, of cotton, of coal; available ships.

freight and cargo was quadrupled. Yet the 'efficiency' of the products was increased still further by technical advances, as is shown by a chart for the USA [Fig. 2].

I must emphasise that despite the at least proportional growth of humanity and food-stuffs scarcity still obtains in certain regions and for certain groups. Production figures do not always equal consumption figures. A large part of production tends to be put in storage and so is intentionally withdrawn from consumption; some part of production may even be destroyed to prevent it from reaching the market.

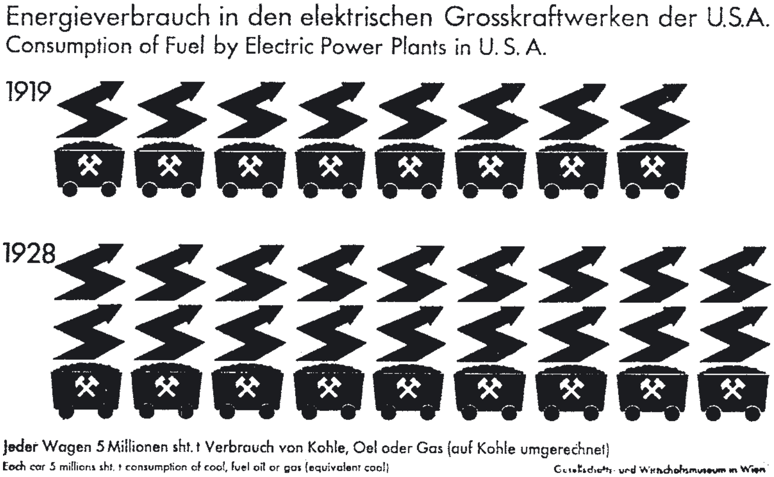


Figure 2. “Consumption of Fuel by Electrical Power Plants in U.S.A.”

In addition there are other circumstances which bring it about that *the real production is smaller than the effective capacity for production.*

The currently available means of production, in the currently available fields, can produce considerably more that what they do at present. We must take note of the fact that not only do we consume less than what would correspond to what we produce, and so do not fully make use of the current productive capacity, but also that this effective capacity for production is exceeded still more by the possible productive capacity of humanity. (I will offer some remarks about this possible productive capacity later.)

For more than a century but particularly in the most recent past the productive capacity has been increasing continuously and rapidly, in the interest of profits, but the coefficient of use is often decreasing, i.e. the increase of productive capacity is paired with a decrease in rate of consumption.

The production of American pig iron shows this clearly. The next chart shows the productive capacity during the years 1913 and 1930 [Fig. 3]. As you can see, at first there is a surplus capacity of 20%, later of 40%. Note that the chart takes account of the means of production in use, even though they are under-used, but not of those that have been shut down; in that case the surplus capacity would have been still larger.

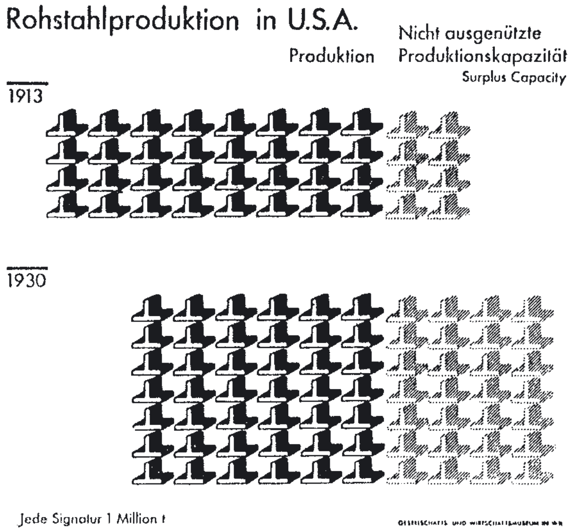


Figure 3. “Steel Production in the USA” *Legend*: Every symbol stands for 1 million tons.

It may be added that one could point to numerous statistical examples of a similar sort, e.g. the production of bottles with Owen-machines in Germany. The current rate of use is 49% whereas in 1913 it was 65% with a smaller effective capacity.

It is not always easy to determine the effective productive capacity. To be sure, we know the number of blast-furnaces, Siemens-furnaces, etc. But there are many factors which cannot be determined as easily. In such cases we must be content to be able to state [merely] that the maximal production is different from the minimal production, knowing [full well] that the maximal production is often considerably lower than the currently possible production (effective capacity).

We can conclude that in our economic order, built on profit, price, buying power, credit and interest, it is not even possible to use the full productive capacity. All that can be achieved is a change in under-use. Sometimes production very suddenly decreases radically – these are the [economic] crises.

Yet even under the best circumstances there is under-use. Permanently there exists a ‘reserve army’ [of workers], which in the USA alone numbers one million. Reduction of a certain production does not only find expression in the decreased consumption of its immediate products, but also in that at the moment of reduction in its production [other] workers are laid off and consequently the productive capacities for [other] articles of consumption are under-used. This can be demonstrated with the example of US-American pig iron and motorcar production [Fig. 4]. Whenever the production of motorcars falls at the same time as the production of pig iron, the number of employed workers falls also, but it does so not for technical reasons (rationalisation) but because of the market!

Productive capacity is permanently reduced because the demand for profit requires it. Concern with profit is older than finance and industrial capitalism. Already in the age when only gains by trade were

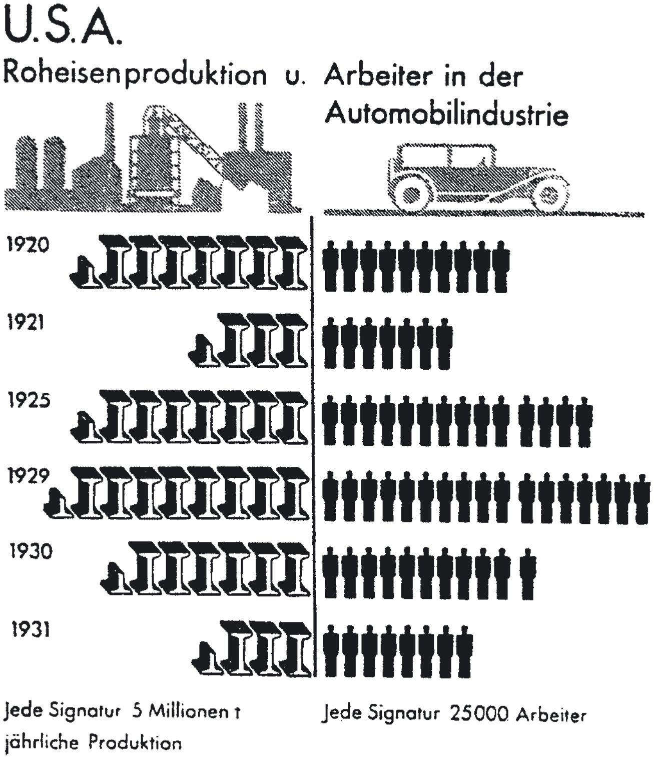


Figure 4. "USA: Pig Iron Production and Workers in the Motorcar Industry." *Legend*: Every symbol in left column stands for 5 million tons of yearly production, every symbol in right column stands for 25.000 workers.

known there existed a ‘commercial arithmetic’ of the following sort. Suppose

100 units at price 3 realise the amount of 300,
200 units at price 2 realise the amount of 400,
300 units at price 1 realise the amount of 300.

In such a case it is better to sell 200 units at price 2 than to sell 300 at price 1, for in the former the income is 400, in the latter 300. So what does the owner of 300 units do when he is to act rationally in the interest of his wife and children for whom he has to care? He’ll destroy 100 units! Whether he’ll burn them or throw them into the sea are technical details that do not matter here. It is important to point out that output is done away with not only by outright destruction but also by storage. Specialists know that storage in part represents hidden destruction.

Detailed investigations of these matters would not be without interest. Here we must do with two figures. In the year 1925/26 the store of wheat was 3.5 million tons, given a production of 90 million tons worldwide; now it is 12 million, given a production of 100 million, i.e. 12% as opposed to 4% before. It is difficult to destroy an entire harvest, apparently one must remain content with destroying only part of it. As regards cotton, there are considerations whether to destroy a third; whether this will ‘succeed’ is still open.

As you can see, organised efforts are being undertaken in order to enforce the under-use which businessmen demand. In my view, it is *pointless* to try to effect change *without concrete planning and central organisation of the processes of production*. I do not believe that crisis and unemployment in a capitalist economy can be overcome by the steering of credits and by an international fiscal and commercial policy. But my personal opinion does not matter here, but rather what I can report about productive capacities.

We saw that effective capacity lags behind possible productive capacity in our capitalist market economy. Let us ask: what would it be like if the productive capacity were fully used? Let us consider a hypothetical economy in which production would employ technology to its full extent. Following an American example, I shall call such an economy a ‘functional economy’. I shall use this neutral term ‘functional economy' in order to leave it open whether this order is upheld by a proletarian state, as in Russia, or whether this order could be created by an organisation of associations or by freely made conventions (something I doubt); I also wish to leave it open whether the output is distributed according to needs or to effort expended or whether people get different amounts for no special reason at all. All these organisational forms fall under 'functional economy'. In a functional order with its full use of productive capacities the distribution could still be traditional, i.e. non-socialist. At issue here is the productive capacity of such a functional economy, not the distribution.

The question needs answering of how we can, without falling prey to phantasy, best conceive of 'functional productive capacity' in a functional economy. This is a question of concrete considerations on the basis of concrete data.

We can imagine, for instance, that all factories are producing as well as only the best ones do now; we could achieve a sizeable increase in production if all factories would work in the same way to their best ability. Some will think this utopian, but given that some sectors of the economy exhibit a certain level of production nowadays it is not utopian to think that others could do the same. Let us compare American and European car production [Fig. 5].

We could consider how quickly production could be improved at all. History tells us of increases of production of 30% in 15 years. In the Soviet Union and in other countries there have been very large increases over short periods when new production sites in new sectors of the economy were involved.

Whereas the best factories produce about two to four or five times as much as average factories (according to US data), all of Europe would produce about 10 times as many cars per worker if the American production techniques were to be introduced.

In addition there are other matters to consider. If we consider a functional economy from a purely theoretical standpoint – in calculational, not historical terms (I will stay away from utopian considerations) – then we can disregard war as well as most wholesale trading, advertising, competitive measures and various other 'incidental achievements'. Let us imagine that the state employs the means at hand, which it otherwise would have employed for warfare and armaments, for the purpose of raising the condition of life of its people, i.e. for the production of housing, food, clothing, amusements. (Not an impossible thought,

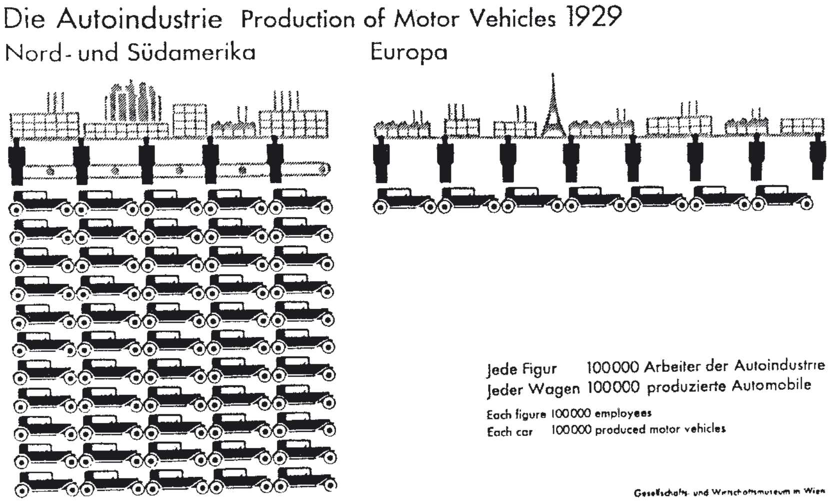


Figure 5. “Production of Motor Vehicles 1929”.

surely.) We know that in America a roughly a quarter of the workforce was employed in order to help wage the World War. Yet it would be dangerous to transfer these calculations to disarmament within the framework of our profit-oriented economy. Even if it were possible to disarm given the present [economic] order, it would be a grave mistake to assume that this would mean savings in effort expended; instead it could result in deepening the crisis and increasing unemployment immensely. Armies are like sponges which soak up the unemployed. The only country that at present would be able to make use of those becoming unemployed through disarmament would be the Soviet Union which does not have unemployment and does not suffer an [economic] crisis. Our capitalist economic order is rather such that a war with millions of deaths may be good for business. If war begins in the middle of a crisis, then the economic trend turns upwards immediately; for business, war means a distinct upturn. Moreover, war is not only good for business, it also sometimes raises the living conditions of people during the war. Such is the under-use of our resources in times of peace that the start of economic planning, which makes use of the reserve of workers and productive capacity, occasionally means a real improvement in living conditions.

The reserves are so great that, despite the war, the United States achieved an increase in living conditions during the war; we have similar reports about England during the Napoleonic wars. After the war France employed immense reserves in rebuilding the country, creating within six years housing for 4 million people and in addition 20,000 new factories. England suffered since the coal which Germany had to send to France as reparation payments prevented the sale to France of its own coal. But I shall not go into details here.

The analysis of business cycles does not do justice to our problem, quite apart from the fact that it does not show those dead and crippled. What we need, rather, is an analysis of the schema of the structure of social life. We must inquire how the real objects behave, not the money prices. These must not be confused: concrete matters of production and consumption have to be treated as one thing, money and credit as another. As a simple example of such a schema or social model[1] I want to briefly show you a graphic representation of Quesnay's famous "Tableau économique", which is not so easy to comprehend when explained in words [Fig. 6].

This schematic process represents a stable economic order. The 'productive class' pays a rent of 2 units of money to the 'class of landowners'. This class in turn uses 1 unit each for acquisitions from the 'productive class' and the 'sterile class' (tradesmen, industrialists, etc.). The 'sterile class' for its part acquires raw materials and food from the 'productive class', which in turn buys finished products from it. The 'productive class' consumes and sells the food (corn) and raw materials (wood) it has produced. The "sterile class" produces finished products for the other two classes from the raw materials (chairs). Ricardo set out to complicate this social model and to show that even these more complicated ones remain stable. This provoked criticism from some social economists like Sismondi. Above all, however, Marx showed that the logical preconditions of the capitalist order necessarily produce crises and that these are the logical consequence of the premises of our order. According to Marx, once one cycle of production is concluded, the new production begins under changed conditions – until the capitalist order itself is overcome. This leads to a historical prediction which is not the topic of this congress.

What do we have to do when we wish to develop a *concrete social schema*? We must develop a type of calculation that is free of preconceptions in treating social correlations. The next chart [Fig. 7] shows

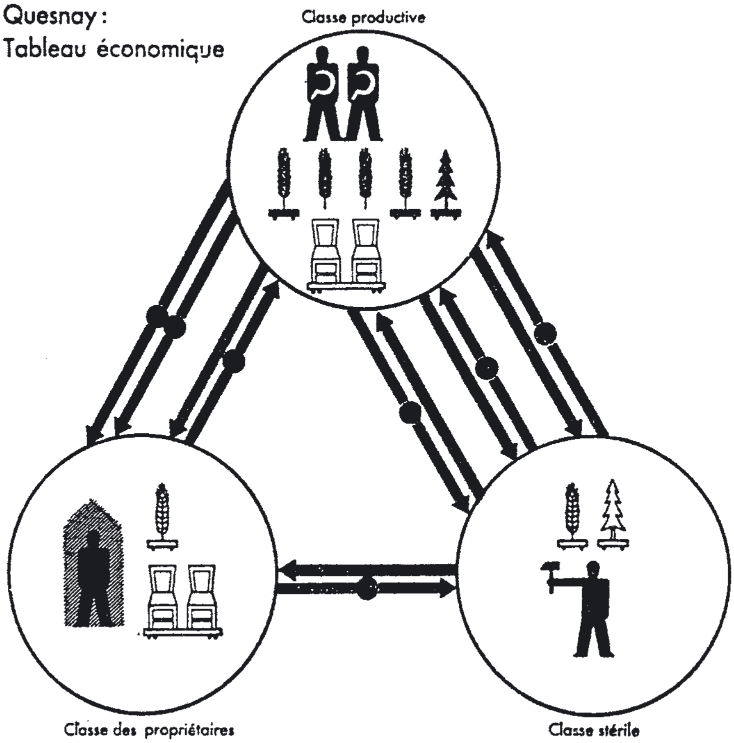

Quesnay:
Tableau économique
Classe productive
Classe des propriétaires
Classe stérile

Figure 6. “Quesnay: Tableau économique”.

a simplified process of production before and after rationalisation. The entrepreneur calculates a *private profit* of a gain of 1. Yet others note that he did not account for the unemployed which society had to care for; thus a *social profit* calculation would, if the costs of unemployment were to amount to 3, for example, arrive at the negative result of a loss of 2. In the second case, both calculations have a negative result, in the third case a positive one. But what is really the case?

Calculation in kind shows the result – provided the plan for the economy as a whole does not raise specific problems – that production is increased, both of raw materials and end products, while simultaneously the leisure time is increased and the amount of labour time

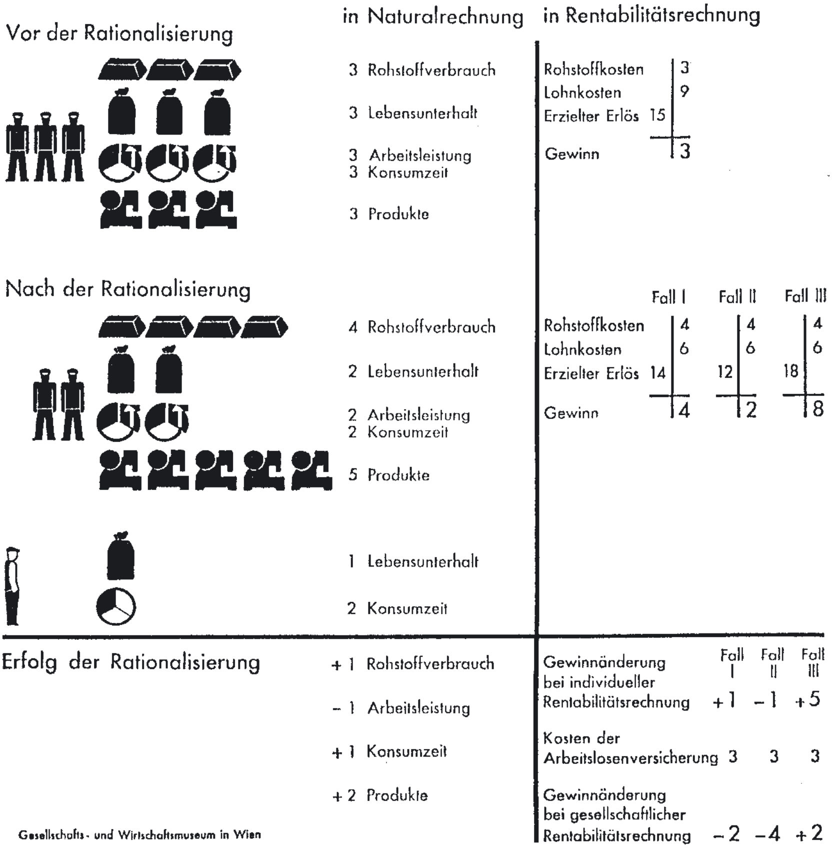


Figure 7. *Legend*: left column: Calculation In Kind; right column: Profit Calculation; top half above bottom line: Before Rationalisation; lower half above bottom line: After Rationalisation; below the bottom line: Result of Rationalisation. Terms used: ‘Rohstoffverbrauch’ = consumption of raw materials; ‘Rohstoffkosten’ = costs of raw materials; ‘Lohnkosten’ = wage costs; ‘Lebensunterhalt’ = cost of living; ‘Erzielter Erlös’ = amount realised; ‘Arbeitsleistung’ = labour time; ‘Konsumzeit’ = leisure time; ‘Gewinn’ = profit; ‘Produkte’ = products; ‘Fall I’ = case I, etc.; ‘Gewinnänderung bei individueller Rentabilitätsrechnung’ = change in profit for individual; ‘Kosten der Arbeitslosenversicherung’ = cost of unemployment insurance; ‘Gewinnänderung bei gesellschaftlicher Rentabilitätsrechnung’ = change in profit for society.

decreased. For calculation in kind, the living conditions count as successes, not as costs. This rationalisation would be a success even if the unemployed could not be used elsewhere. The workers as a whole produce more products and, still before the consumption of the products, directly experience an improvement of their living conditions by having a longer weekend.

The view that the unemployed represent a burden on society even though they consume as much as before does not make sense. To account for workers under costs is intelligible only from the capitalistic standpoint. For calculation in kind what matters is the increase in the condition of life – that is the 'success' of social engineering. Whether the entrepreneur or the worker gains does not matter here but only in capitalist money calculation which accounts for dividends as 'profit' and wages as 'costs'. Calculation in kind has no *'universal unit' of calculation*, but only specific units: kilogrammes, days of labour, acres of fields, etc.

Many of you may be perhaps wish to resist these views – this will be good for the discussion. But many you, I think, will admit at least the following. It is impermissible to compare the results of different economic orders with the help of money calculations, when at the same time the question needs answering *whether money is an appropriate tool for running an econom*y. What needs to be considered are the raw materials and consumption and how any changes occur concretely. The difficulties are great, not only theoretically but also in practice.

Consider the Soviet Union which has broken with the habit of treating the means of production as private property. There the profit calculation is still being used to increase the achievements of individual factories to the maximum. In my view this type of calculation may under certain circumstances bring it about that certain useful rationalisation measures which would improve the living conditions are not undertaken, because even the social profit calculation can be misleading. It just so happens that the economic plan, calculated in kind, prevents the worst consequences of such mistakes. For instance, it is impossible that some establishment in the Soviet Union would destroy a part of its production, say a third of the cotton harvest, in order to achieve 'better results'. That that is not done is not, however, a necessary consequence of social profit calculation. Profit calculation recognises the profits of companies in isolation, whereas calculation in kind must always go back to the total economic plan.

All discussions about these matters, if they are to be meaningful, must measure the success or failure of social organisations by the concrete change as regards the means of production and the resultant conditions of life. Such discussions must not proceed by calculations in terms of profit, monetary incomes etc., for against these some ‘very justified objections can be raised’, as I shall put it moderately.

What is the point of all of these considerations? *It is to develop a global economic plan purely in terms of conditions of life and production.* Developing this plan, which is bound to be very complicated, will in several respects still be simpler than developing a business plan, for example, for I.G. Farbenindustrie A.-G. or other trusts of its kind.

Let me ever so briefly sketch what the world would look like when it is viewed as one enormous factory. Let us first consider whether human beings can live on the Earth, what its agricultural capacity is. Many calculations (like the present one by Alois Fischer) show that about three times as many people could live on the Earth than at present, if new land were cleared and the best currently known methods of agriculture were used. If we were interested in self-sufficiency we would consider the agricultural capacity of regions isolated in times of war, but for our functional global economy this makes no sense. Thus we recognise that Europe and East Asia are full; as long as they do not increase their production they will even have to import [what they need].

In computing agricultural capacity attention must be paid to the fact that the tropical regions currently cannot serve to house Europeans. The empty spaces in Latin America and Colonial Africa and Asia [incl. Australia] can only partly be used by Europeans. Dividing the surface of the Earth into six ‘major regions’ should be readily intelligible [Fig. 8].

I wish to point out that much follows from these facts. The capacity for producing food-stuffs need not worry us. Rather we could calculate on the basis of the principle of international division of labour, for example, that in one region india-rubber is produced, cotton or coffee in another, etc. In a functional economy it is likely that one region may be mostly industrial, another mostly agricultural. In this way a few granaries could supply the whole world. This example shows how graphic schemata render such matters easily comprehensible.

In the same way too we can conceive of the effective production of coal and of other elements of the global economic plan. Thus a brief

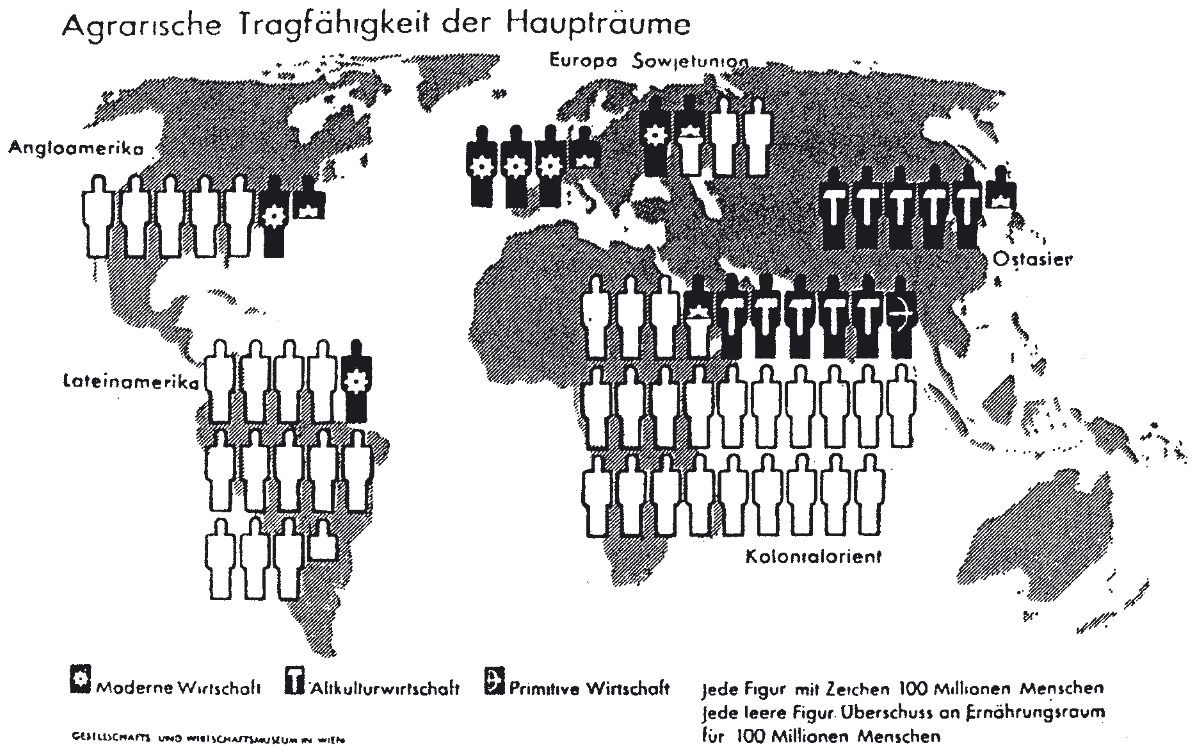


Figure 8. “Agricultural Potential of the Major Regions”. *Legend:* Symbol for cog-wheel = modern economy; symbol for hammer = traditional economy; symbol for arrow = ‘primitive’ economy. Every human silhouette with a symbol stands for 100 million people, every empty silhouette for potential food for 100 million people.

overview shows us that in principle there are no obstacles for the division of the Earth into different productive regions.

In the framework of a functional economic plan, the international division of labour is a most obvious precondition of reaching the maximum of potential productive capacity. This means universal mechanisation, even of large plantations, but not universal industrialisation. Let me stress that current developments rather take a different route!

The principle of monocultures, first broached in the capitalist economic order, could be thought further extended. Only one region of Colonial Africa and Asia would suffice to supply the global demand for india-rubber. Why start new cotton plantations, when those in India and the United States suffice? India may continue to produce jute, Central Africa cocoa, South America coffee. In this way we can think of the production of sugar, tea, etc., as concentrated in one or a few regions [Fig. 9].

Just a few granaries would suffice, similarly just a few regions for stock-farming. Already today a third of all pigs are raised in North America, another third in Europe. One third of all butter exports come from the small country of Denmark, increasingly being followed by Siberia. Roughly 90% of all wine is being produced in Europe.

Geology and history similarly suggest the principle of monoculture for mining, such that its large repositories of coal remain important for the industrial predominance of Europe and the United States until new ones are discovered, especially in Asia [Fig. 10].

Today matters are such that a number of interests would favour this type of international division of labour, but also a number of significant counter-tendencies are effective. In the capitalist economic system, being a state of plantations and agriculture means domination by the industrialised states and having fewer opportunities for profits; it means lower wages. Liberation from the colonial powers is achieved by starting one's own industry. For instance, India is starting a textile industry even though this wreaks much destruction in England. On the one hand, it would be desirable to have plantations here and industrial regions there, but the interests of the profit-driven economy render this impossible.

Incidentally, it is often the same sources of capital that finance both competitors. For political reasons, the Soviet Union has to be self-sufficient in its economic plan. It is difficult to devise schemata that show this clearly. (You will understand that 40 minutes do not suffice, even

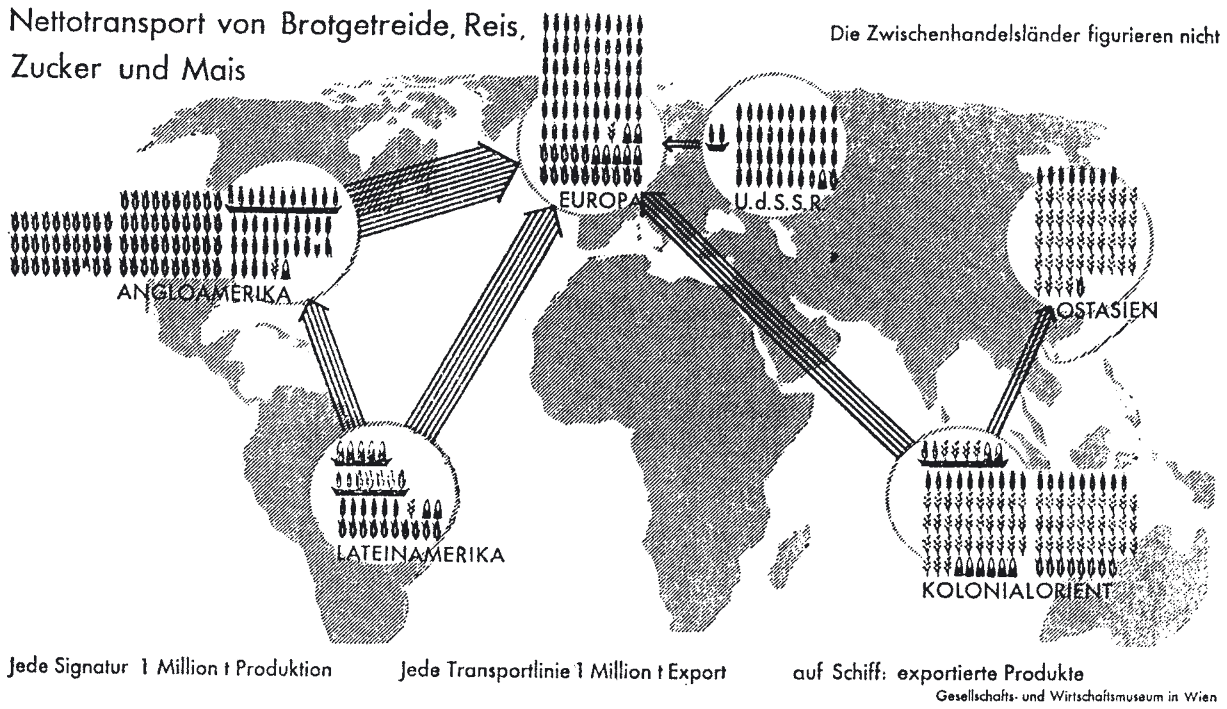

Nettotransport von Brotgetreide, Reis, Zucker und Mais
Die Zwischenhandelsländer figurieren nicht
ANGLOAMERIKA
EUROPA
U.d.S.S.R.
OSTASIEN
LATEINAMERIKA
KOLONIALORIENT
Jede Signatur 1 Million t Produktion
Jede Transportlinie 1 Million t Export
auf Schiff: exportierte Produkte
Gesellschafts- und Wirtschaftsmuseum in Wien

Figure 9. “Net Transport of Bread-stuffs, Rice, Sugar, Maize. (Intermediate trading nations are not considered.)” *Legend*: Every symbol stands for 1 million tons production; every line of transport for 1 million tons of export; symbols on ships represent products exported. A inserted text below reads: The ‘net transport quantities’ in this and the next chart discount quantities transported back as well as detours (e.g. oil refineries in the USA which use oil from Central and South America). The chart shows that only Europe and East Asia import wheat, rice and sugar, whereas the USA imports sugar, mainly from Cuba.

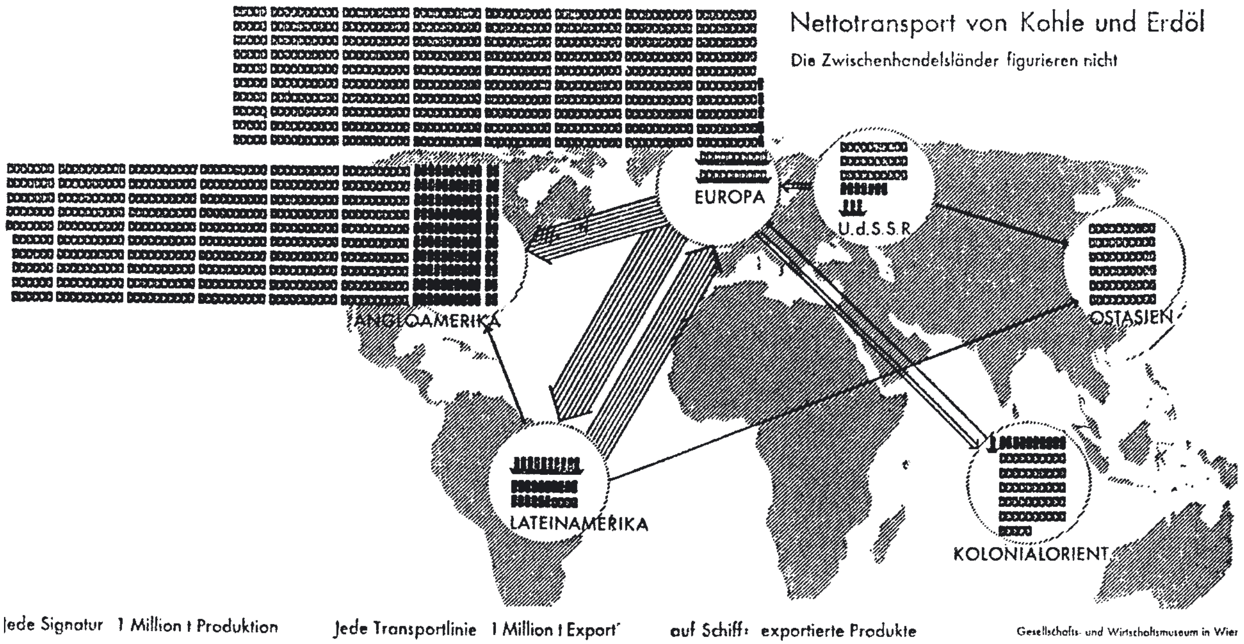

Nettotransport von Kohle und Erdöl
Die Zwischenhandelsländer figurieren nicht
EUROPA
U.d.S.S.R.
OSTASIEN
ANGLOAMERIKA
LATEINAMERIKA
KOLONIALORIENT
Jede Signatur 1 Million t Produktion
Jede Transportlinie 1 Million t Export
auf Schiff: exportierte Produkte
Gesellschafts- und Wirtschaftsmuseum in Wien

Figure 10. *Legend*: Net Transport of Coal and Oil. (Intermediate trading nations are not considered.) Every symbol stands for 1 million tons production; every line of transport for 1 million tons of export; symbols on ships represent products exported. An inserted text below reads: This shows that Europe exports coal, whereas Latin America, the Soviet Union and Colonial African and Asia export oil. It also renders visible the immense consumption of its own coal by Europe and the United States.

given rationalisation of the lecture and additional charts.) Next there follows[2] a chart showing the network of international finance in order to show how the current in-kind network is reflected in this [Fig. 11].

[You see that] the Soviet Union exists without permanent connection with the international capital. The connection between Europe and Colonial Africa and Asia is particularly important. Especially in its early stages capitalist development gave a major impetus to the international division of labour by the subjugation of the colonies. The current global network of capital is in part an expression of the international division of labour that resulted from this. Yet capital investment by the colonial powers in the regions of the South also points to tendencies towards self-sufficiency. Increasingly industries are being built there which compete with the industries of the old capitalist centers.

We see that East Asia, where raising the living conditions in a functional economy would require many more connections, is integrated only to a modest degree; the planned economy of the Soviet Union meanwhile, which is not part of the international division of labour, is protected by its isolation against war and crisis. In the capitalist economy, additional profit can be gained in the agricultural regions only by creating new industries. The mechanisation of agriculture, moreover – fertilisation, tractors, combine harvesters – only serves to heighten the crisis of global agriculture, which in turn one seeks to escape by the industrialisation of these regions. The larger the agricultural production, the higher the tariffs of the industrial regions with a residual agricultural sector, seeking to protect its farmers. Sometimes even typical industrial states make attempts at agricultural autonomy by imposing import duties. In response the agricultural regions boycott the industrial ones, thus sharpening once more the global crisis of industry. In light of this, for instance, Brazil ordered a stop of the import of machinery, especially of machines for the production of textiles, in order to relieve the textile industry. Everywhere a vicious circle that forces a universal crisis – but no automatic counter-measures.

As usual: one contradiction exists side by side with another, international division of labour next to increased demands for autonomy. Even in smaller regions within Europe, within the previous Austria-Hungary for instance, every state is trying to create entire new industries from the remains of the former division of labour. Everywhere large organisations [seek] planned profits by planned reduction of production and planned reduction of productive capacities, in other words by the

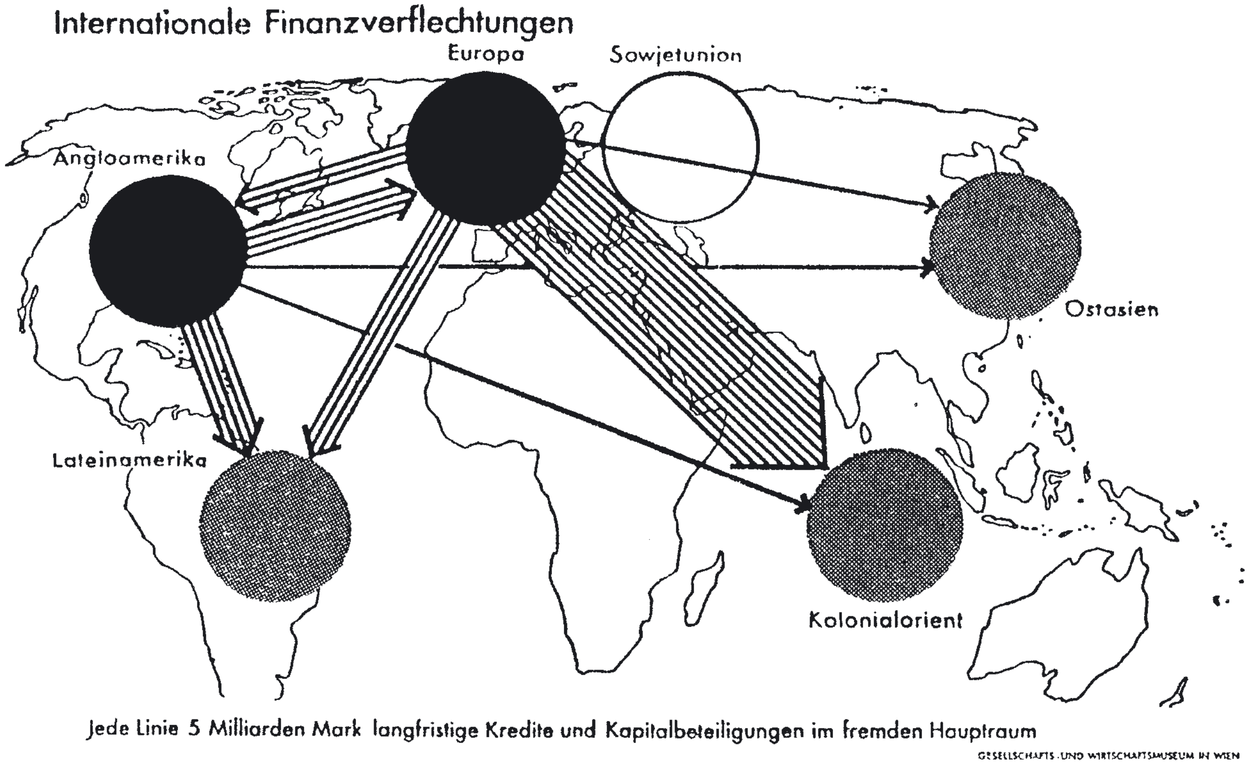

Internationale Finanzverflechtungen
Europa
Sowjetunion
Angloamerika
Ostasien
Lateinamerika
Kolonialorient
Jede Linie 5 Milliarden Mark langfristige Kredite und Kapitalbeteiligungen im fremden Hauptraum
GESELLSCHAFTS- UND WIRTSCHAFTSMUSEUM IN WIEN

Figure 11. “The Network of International Finance.” *Legend*: Every line stands for 5.000 million marks in long-term credits to and capital partnerships with the other major region.

planned reduction of standards, except in the Soviet Union. At the same time, small territories close themselves off from each other. In the capitalist order even the workers can be in favour of this. Those who eat beefsteak are forced to fear those who eat rice as cheap competitors – thus the slogan: "No yellow people for empty Australia!"

In a functional economy not built on profit it is of no consequence for the individual where others work, where their factories are located, just as within a single factory it is of no consequence to this individual where a certain machine is located, since that is determined by the demands of the production process and the convenience for the workers alone. In the functional economy those who eat beefsteak may be glad that there are people who prefer rice and require no extra cattle-farming. *A comprehensive functional economy favours plurality and free movement, the free profit economy requires unification and localisation*.

A functional economy is one enormous factory able to draw all of its electricity, say, from one or a few electricity reservoirs, into which all electricity is directed so as to enable the most far-reaching increase of productive capacities. War would thus be rendered impossible, surely.

In talking about the economic plan one must not employ expressions like buying power, profit, etc. We can only speak of means of production, productive capacity, etc. Now the question arises which economic order is able to secure the better general conditions of life. Let's put side by side the types already mentioned. Yet whether we analyse capitalism, socialism, the new capitalism, capitalist planned economies, the Soviet economy or any other, always it is required to base our considerations on concrete data, on a social model.

It is all too easy to overlook 'incidental phenomena' that are really fundamental and many reforms are all too eager to connect too much of the old with the new. Many wish to eat the egg, yet still its shell is supposed to remain whole: this simply cannot be done. Instead we must consider how the individual elements of a social model can be concretely connected with each other. To show this is what concrete statistics and the analysis of social models are supposed to do for us. In any case, it is possible to devise a functional global economy on the basis of a global economic plan and international division of labour.

Obviously, on hearing what I say about global economic planning and the international division of labour many will ask: what about transport? Experience can tell us about this. In the United States during the war the number of ship-building yards was increased from 50 to 400.

Construction continued after the war; Japan was very active in this respect; Germany was seeking to make up for its losses; Norway was building its own tankers to avoid expensive tanker charges. And now? 25% of all cargo capacity has been taken out of service or remains unused [Fig. 12]. Supposing one cargo ton capable of circumnavigating the globe once per year, a brief calculation reveals that this surplus cargo capacity would suffice to secure for each five member family in Colonial Africa and Asia an additional 300 kilos of industrial goods.

Just a few words about the use of the global capacity in general. In a functional global economy – the social structure of which is important but not of interest for our current quantitative considerations – it is possible for industrial regions to achieve increases in productive capacity of particularly those objects the consumption of which has no such narrow limits, like that of food, say. Over 15 years the production of motorcars was increased 12 times; similarly the production of gramophone records. Over the same period the production of electricity has increased 8 times. *Without doubt it is technically possible to achieve an average simultaneous increase in all types of production to 5 times of the present level within a period of 15 years*, maybe even more. One part of this enlarged capacity would be used up by shortening labour times and lengthening the times for consumption. In the industrial regions global capacity is rarely used up to the level of 80%, often the rate falls to 50% or less. The increase of production of the agricultural monocultures can be roughly calculated in the same way. Remember: large increases of production are possible especially if production is specialised. Canada produces a third, Holland a quarter of the cheese for the global market. There would be nothing wrong with commissioning three or four countries to produce cheese for the whole world – Holland would surely be amongst them!

I have reached the end of my remarks. To investigate the global economy and global economic planning in the way proposed a research institute is needed to make the necessary calculations. I do not think that the effect of the information thereby provided is unduly large, but its effect is important. Most certainly, we need to develop statistical methods, we need a universal statistics. A large part of our work will have to be done through the statistical analysis of business cycles which can achieve much: a good estimate is better than a false computation! But I must warn against resting content with statistical compilations. What is important, in addition to these, is the statistical analysis of the

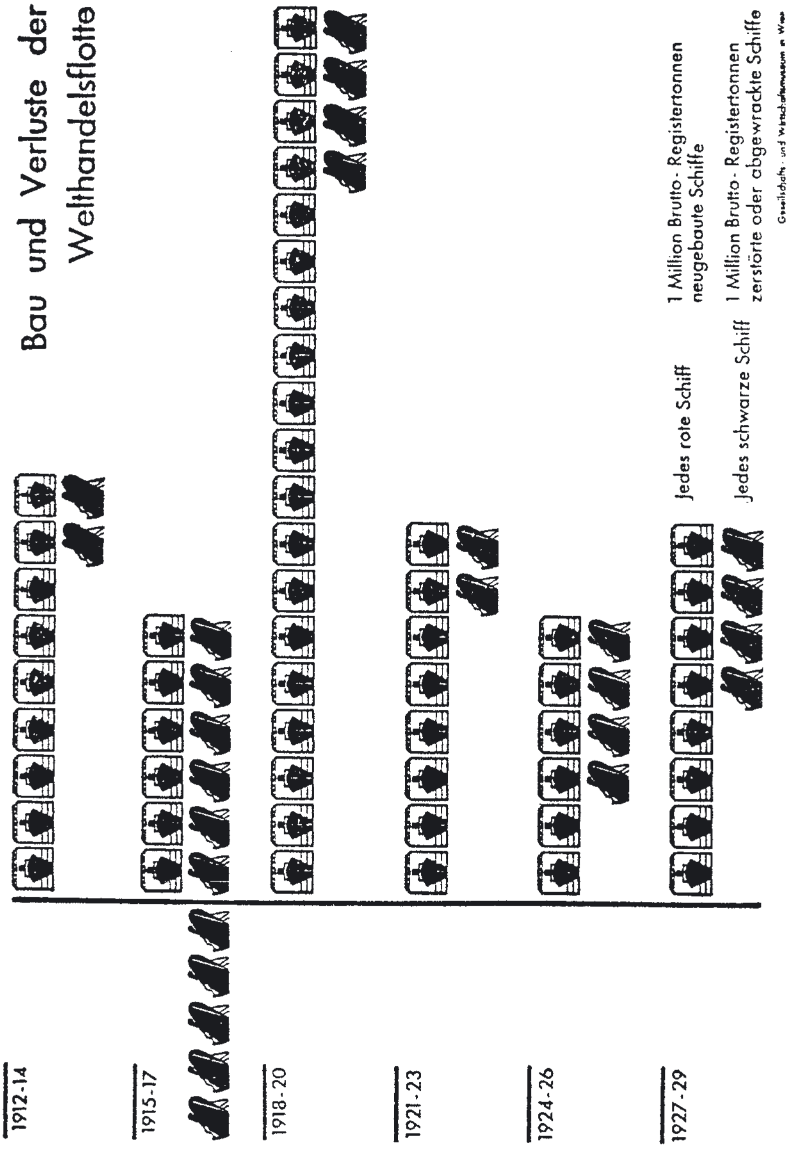


Figure 12. "Construction and Destruction of the World's Commercial Navy". *Legend*: Every level ship stands for 1 million gross register tons of newly built ships; every sinking ship stands for 1 million gross register tons of ships destroyed or broken up.

global economic network, which will lead us to consider schematic social models. The analysis of these schemata is absolutely essential. There is little point in stating that this much is being produced and that much could be produced, unless one can show how the social whole functions with all its technical conditions, machines, human effort; how the capitalist or the socialist or any other economy functions, how a large-scale economy in kind functions or a 'functional economy' that uses money. In the interest of consistent criticism all social models must be analysed in the same way; such a 'comparative schematology' is essential if one wishes to consider the issue of economic planning seriously.

It is also necessary to develop an *international relief map of life conditions*. This must display the relative height of conditions of life of the different groups of the global population. It is not sufficient again and again to present figures for averages – nothing is more misleading than that. An economy where one half of the population goes hungry while the other one lives in luxury may have the same average figures as an economy where all receive the same. We need concrete calculations. We need a social model and we need relief maps of life conditions. These are tasks which it makes sense to tackle. The relief maps of conditions of life and the social model will have to take account of production statistics and transport issues. All these are scientific demands. Demands concerning the type of life to be led will be discussed by others.

In times and countries when and where people appreciated matters of form, great sculptors emerged; where already small children build models, great engineers emerged. We are at the beginning of a period of social engineers, where every individual will have an idea about economic and social orders. To provide social and economic information in verbal and visual form is a significant task in this new age of consciously fashioning our economic order.

I must not, however, fail to note that the analysis here outlined, important as it is, leaves a great number of socio-historical questions untouched. Which order is the one of the future and how will it arrive? How long will the mass of people suffer to go hungry while there exists a surplus of food-stuffs? How long still will there be human beings who live in the sun next to others living in the shadow? History gives a very pessimistic answer. It would seem that in most countries decisive social changes do not take place by way of coming to agreements. But it would not make sense to be pessimistic ahead of time – that surely is not the point of this congress.

Here we did not come together to discuss problems which are of great importance to us as activists and to consult what each of us has to do when millions go hungry. Concerning these matters we here belong in different camps. But besides these very controversial issues that tend to provoke emotional behaviour, there are also questions concerning the analysis of economic orders, concerning the relation between productive capacities and relief of conditions of life (including unemployment, relative consumption, etc.). It is this that gives us our common platform and it is the great merit of this congress and its organisers to have sought out this platform which allows us to gain some clarity about certain things, about economic planning and economic calculation. Still, the full significance of all this for personal life and for whole orders of life is gained only in the context of historical questions which here we have left to one side.

Questions of organisation are most suitable for intelligent discussions that seek to avoid becoming emotional. All of us here agree with this latter point. It seems to me that scientific work so narrowly defined on such an occasion does not constitute a compromise, as long as we are aware of it; in my view, any such clarification that is undertaken seriously and conscientiously represents, directly or indirectly, a service to humanity.

[To a number of comments Dr Neurath responded as follows.]
In the capitalist economy, war has a more stimulating effect than the mere destruction of objects ready for consumption. The weapons, bullets, airplanes, ships, etc., are not market commodities, their surplus production does not reduce their price. Their destruction does not relieve an over-supplied market like the destruction of coffee, say, but it stimulates increased production. The issues of war, unemployment, crisis and productive capacity ought to be investigated together, if one wanted to answer the question of how to put an end to the current social suffering. But this leads into comprehensive sociological and historical problems which are not properly discussed here.

The question of the historical possibility of a functional economy, free of crises and war, was not my topic, but the tension between productive capacity and condition of life, on the one hand, and, on the other, between potential and actual productive capacity, and how it becomes possible by means of calculation in kind to reach a basis for the comparison of capitalist and non-capitalist (functional, socialist) economic orders.

In speaking of calculation in kind I mean a type of calculus that can be applied to all orders. A capitalist money economy can be represented by calculation in kind, namely, by showing what quantities of elements of the condition of life are being produced by what quantities of elements of the basis of life. Then one can contrast the achievements of a 'functional economy'. What's employed here are quantitative methods of scientific inquiry.

In speaking of the administration of an economy by means of an economic plan I mean a functional economy where elements of the basis of life are being transformed into elements of the condition of life on the basis of immediate, concrete measures, such that there is a change in the condition of life: food, clothing, leisure, morbidity, mortality. The paths taken by the raw materials and the end products must be rendered transparent.

In doing this I can leave undetermined which institutions initiate these movements of goods: whether this is the 'state', which itself is a collection of individuals standing in a certain relations to each other, not something that joins two disputants as a 'third partner'; or a non-state organisation, be it associations, communes or other organisations. Within certain limiting conditions still to be defined I could, of course, investigate in the scientific manner of a social engineer how such organisations function whose different structures may show different impediments etc. Such investigations would be closest in spirit to the scientific study of management.

Finally it is possible to investigate socio-historical questions concerning the individual power factors currently obtaining, how bankers, entrepreneurs, engineers, scholars, doctors, blue-collar and white-collar workers, etc., may behave in the various countries. Even if the broad historical developments are bound to be similar on the whole, nevertheless in some places these changes may come about by force, in others by means of political agreement. All this can be made the object of scientific study, but its presuppositions are different from the ones I discussed earlier. Concerning these issues the emotional behaviours assume greater importance, not only as regards the actions that are committed or omitted, but often also as regards the propositions that are understood, accepted or denied.

The logical analysis of the different possibilities is of the greatest importance. All too often one hears of proposals for changes that concern only individual elements – interest, wages, profit, etc. – without there being any attempt to calculate the effect on prices, profit and the entire economy. The analysis of social models is essential. Then it is possible to judge that many of these partial plans suggested are not only unwanted but also logically deficient. As a matter of fact, the market economy tends to be made worse by such partial measures.

The topics for this congress are organisational ones: from the problem of the improvement of the conditions for workers through the improvement of management to the problem of the total economy as a precondition of better conditions of life and, beyond that, to the large-scale historical questions of the development of humanity, a part of which is the transformation of the capitalist order into a new order.

There is much talk of the old order 'growing into' the new one, but this overlooks that in the pre-capitalist order individual capitalist companies were able to emerge in connection with a trade that was long-established, whereas this time the task is to connect individual elements by means of a plan. *The total plan is not a sum of partial plans which could put together afterwards*.

No clarification [of these issues] can be expected unless the entire complex of questions concerning economic planning on the basis of calculation in kind and the analyses of schemata is investigated scientifically. If such investigations were to show how an economic plan is to be developed, how calculation in kind may be used for this purpose, this still would not mean that we must overemphasise the historical importance of calculation in kind for the present.

I am not at all of the opinion that more can be 'achieved' by applying calculation in kind within the capitalist framework than critical insight. If one speaks, in monetary calculation, of the increase of production measured in money terms, then it is unclear whether there is an increase in kind, for the increase in money terms can mean a decrease of production. If I wish to consider the current order critically, then I must calculate in terms of fields, of machines, coal, bread, etc.

I do think that the use of commercial profit calculation in individual enterprises in Russia has occasionally led to the omission of helpful improvements and even to the consumption of raw materials that should have been used somewhere else, simply because they were cheaper.

Yet fundamental damage is unlikely to be done in this way because it is there impossible that products are destroyed to fix the sums calculated in rubles; detrimental changes due to the use of profit calculation remain localised. *In the present historical situation this kind of money and profit calculation may even be unavoidable. Probably the overcoming of the universal measure is possible historically only at a considerable later stage of development.* Yet this insight, which may warn us against utopian over-valuations of ideas, does not alter the fact that a comprehensive theory of universal measurement shows that money calculations cannot be the basis for correct measures of rationalisation. The faults of money calculation may have to be considered in the same way as other phenomena of friction of the transition period. We could sit down and redo the Russian calculations to establish to what extent calculation in kind yields the same results as the current social profit calculation; the differences will not be decisive and do not endanger the Russian economic plan.

All these are organisational questions, questions concerning calculi. Even though issues concerning the realisation of a global economic plan are not the order of the day, they nevertheless arouse enough interest to allow some suggestive remarks.

From establishing that a global organisation of the economy would deliver maximal results it does not follow that this organisation is a historical possibility. It may be that certain large regions (e.g. the Soviet Union) realise economic plans and in doing so effect a fundamental change of the conditions for the future. Possibly the path towards global economic planning leads through the destruction of connections already established, through suffering and misery. Great social transformation could take place by people coming to the realisation that a new age is about to begin and that they have to meet and consult how to introduce the new order with the least amount of pain. That would be a very reasonable way of proceeding, but in history it is rather uncommon. So far people have been in the habit, when introducing a new order, of killing great numbers of each other.

Most changes come about by terrible detours, with horrors and suffering. The World War, for instance, did not make much difference in this respect, even though it produced millions of deaths. This is neither economical nor is it rational in management terms, to say nothing about this in human terms. The great French Revolution helped in the transformation of the earlier mercantile, feudal and absolutist economy into the modern capitalist entrepreneurial economy – with much loss of blood. Are people different nowadays?

This congress is partially an expression of the fact that the number of persons is increasing who think beforehand about how such changes might be effected without these horrors. There were no such congresses before the French Revolution. Though the chances that the imminent changes will take place without similar happenings are not large, there is at least a chance that the coming social transformations will cause less pain than the French Revolution in some countries, because attempts have been made to think about these things in a calm manner. It is another question to what extent history supports such a prediction – a topic for another congress which, however, would not have the form of ours. It would require the discussion by those directly in positions of power, of the interests taken in war, for instance, by the entrepreneurs producing ammunitions or cannons, by the heavy industry and the entire armament industry, quite besides discussions of the interests of the large classes (entrepreneurs, banks, farmers, blue- and white-collar workers, etc.).

In practice the organisational changes are closely related to the social and historical changes. I cannot join those who think it possible to eat eggs without breaking them. In general large-scale organisational economic transformations are accompanied, if not by violence, then at least by radical measures. The gradual 'growing into' a planned organisation does not seem to be a possibility. For just this reason it is necessary to promote the understanding of the type of conscious planning that we aim for.

The monopolies in industry and in banking cannot be simply regarded as the beginnings of a planned economy. They impede planned production and consumption and are merely organisational exercises for the future. In the views of many, some kind of bank trust or central bank is supposed to lead the economy. Closer analysis shows that this would not have the result desired. It does not seem possible to me to overcome the crises within the framework of the existing economic system. Crises are most intimately related with our economy; crises will always result, whether one or another measure is taken, whether high wages are being paid or low ones, whether there is free trade or protective tariffs are introduced, etc.

One who sits on a powder-keg and throws his burning cigarette to the left into it will explode with it, of course. Given this, some may suggest never to throw one's cigarette to the left into the powder-keg – but if it is thrown to right into the powder-keg they will explode with it all the same. Never throw it to the left, never to the right, what is one to do? Not to smoke when sitting on a powder-keg! What is required are theoretical analyses that show that the existing system always leads to crises, whatever measures are undertaken; but there is no room for such investigations at this congress.

To be sure, in our order the crises cannot be overcome. But it is possible to achieve much by concrete interventions in the processes of production and distribution, even if the banking and money system is left in place formally. In other respects also fundamental changes in society take place behind the old façade; without those much deeper changes, however marked, nothing can be gained. That production and consumption can be influenced directly has been shown by the experience of war economy. It was possible to structure the economy such that the real needs – in this case, the uniforms, the cannons and the foodstuffs for the army and the population – were provided for by the central administration. The central power decreed: you will produce not sewing machine but hand-grenades, not flax but oil. It is possible in principle to have direct and central control of the economy in order to control production and consumption and yet to retain – as it was done during the war – the veil of the order of money and interest. During the war the government decreed: this trust will produce this quantity, this proportion of a product is for the army, this for one city or population group, that for another. And in addition things were arranged – even though this was not necessary to provide stimulus for production – so that stockholders received their dividend. This can be done, of course, but the result no longer is a true economy of money and interest. For such an economy it is characteristic that production is determined by money profit. In war economy – in many respects a "functional economy" – the control of production and consumption is primary, the money system with its profits is secondary.

We are in the middle of an enormous global crisis which we would like to end. But how are crises ended these days? In the good old capitalist times of 'laissez faire' this was accomplished as follows. If a company became insolvent, it went bankrupt; if a bank became insolvent it went bankrupt; that was end of it and then there was a new beginning.[3] Nowadays the company is supported by public means, with the result that instead of half a year the crises lasts three years or longer. This is not to say that one should simply let everything collapse, but rather that the current method of partial interventions by governments does not help to shorten or solve the crisis, but only serves to prolong it. Nowadays there is not even a proper liquidation with a proper bankruptcy and all the lamenting that comes with it. I am not saying that I am in favour of the latter, I am only stating facts. Within the present order we only have the choice between a short catastrophe full of horror and a long protracted malady, also full of horror. In previous times crises were solved by bankruptcies; nowadays banks and companies are given the opportunities to make profit in good times, whereas everybody pays when they make losses.

Some speak as if all that mattered was that the banks can go about their business, that rates of exchange remain stable, that payments can be made without problems, without considering whether the proper functioning of the apparatus of money and interest provides for the best conditions of life. That is the test! It is possible for an economy that is gradually becoming more impoverished to have properly functioning finances, providing dividends, interests, etc., yet also at the same time to have an reserve labour army with all its suffering. There is no immediate connection between a good circulation of money and the good provision of consumers!

A trained management engineer will think of an economy as a machine that produces a certain condition of life. The consumers are the final beneficiaries of the machine 'economy'. We have discussed the monopoly traders who destroy coffee, cotton, etc., the large organisations of producers and financiers; what is missing is talk of large organisations of consumers which could play an important role in an economy of associations. If a large organisation of producers could negotiate with a large organisation of consumers, then perhaps one of the paradoxes of our present order could be avoided, namely, that a greater amount of goods realises a smaller amount. That would still leaves paradoxes enough.

Yet the theoretical importance that a large organisation of consumers might possess must not be mistaken for its historical importance. The real development is pushed along by entirely different factors, the large power groups in mutual conflict. The various ways out that are open to us within the current order will not lead to success. So what will happen?

We too are sitting on a powder-keg, smoking, and maybe it will explode whichever way we throw the stubs.

NOTES

* First published as “Das gegenwärtige Wachstum der Produktionskapazität der Welt” in *World Social Economic Planning. The Necessity for Planned Adjustment of Productive Capacity and Standards of Living*. Material contributed to the World Social Economic Congress, Amsterdam, August 1931, ed. by M.L. Fledderus, International Industrial Relations Institute, The Hague, 1931, 105–141. (The English abstract of the lecture, under the title “The Present Growth of World Productive Capacity”, in the companion volume, subtitled “Addendum to Material contributed to the World Social Economic Congress, Amsterdam, August 1931”, has not been reprinted here.) Translated by Thomas E. Uebel.

1. [Neurath’s term “*Schema*” will occasionally be rendered, as here, as “social model”. Eds.]
2. [Literally: “On the next page you will see . . .”. Eds.]
3. [The text here features an example that suggests the text is corrupted. It is omitted here. Eds.]

OTTO NEURATH

16. SOCIOLOGICAL PREDICTIONS*

Beyond serving the daily needs of scientific research, we seek to expand and coordinate the formulations used in the various disciplines in such a consistent manner that it becomes possible to switch from one science to another without having to change one's scientific language in a fundamental way. This endeavour is considered philosophical by some because it transcends the framework of individual disciplines. Within its framework we shall here briefly sketch the place of sociological predictions.

Discussions of the logic of science rarely feature sociological statements as examples. Some believe that this is connected with there being no room in sociology for the application of mathematics. This cannot be the reason, for there are many sociological investigations that call for the use of highly developed mathematical tools, for instance, the probability calculus; moreover, there are the mathematical constituents of the theory of business cycles in economics. Still most sociological regularities that support the deduction of predictions are formulated in such a way that they are valid only for relative complex structures of certain geographical regions and historical periods. If one has established, say, constant quantitative relations between changes in illiteracy and criminality in some towns of certain region during a certain period, then one may suspect that the same quantitative relations will also be valid to some extent for the other towns of the area, but one would be hesitant to assume that they will hold for other regions and other periods, let alone towns that would be discovered on Mars.

For the most part the behaviour of physicists is strikingly different. If physicists were to discover uranium ore on Mars, they would assume without long hesitation that the formulae describing the rate of decay of uranium will be valid there also. And yet we can adopt a point of view that classes together in one group the predictions of physicists and sociologists and recognises only gradual differences between them with respect to their field of application. All of our scientific predictions rely fundamentally on certain quantitative relations remaining sufficiently constant, *even though the conditions in their totality certainly underwent alteration*. In sociology there is relatively little extrapolation from past experience, because it is assumed that common alterations of the totality of conditions have consequences for the quantitative relations between certain processes. By contrast, in chemistry it is assumed that the major part of the regularities which are relied on for predictions can be used without any change as far as one stays within the limits of practically relevant questions.

It is possible therefore, in order to be able to deal in a uniform way with predictions concerning towns, forests, uranium ores and masses of water, to say that *the areas of application for the regularities are of different size*. From this point of view, the 'laws' of physics would only cover a certain area, albeit an immensely large one the entire limits of which are left undetermined as such but are broadly assumed from the start. Such a process of relativisation and historicisation is not alien to the Vienna Circle; already Ernst Mach issued warnings against the exaggeration of physical predictions and thus raised the question of what would happen to the law of inertia if the paths of all the stars were to change. Whoever is considering the future application of certain physical, biological or sociological hypotheses concerning the relations between certain quantities therefore is at the same making, as it were, a *cosmological* prediction within the framework of which it is possible to issue individual predictions with the assistance of certain more or less definite hypotheses. Whereas careful sociologists generally try to indicate these limits, physicists rarely mention that all of their laws can only be stated with certain cosmological reservations; it is more likely that astronomers consider whether the rate of decay of uranium is not dependent upon a cosmological totality that might be different several millions years hence.

It is true that very many astronomical predictions, very many predictions in physics laboratories, etc., are considerably more reliable than the majority of sociological predictions, but this has nothing to do with a specific peculiarity of predictions in sociology. Meteorological predictions, which deal with more complicated complexes, are less precise than most astronomical ones. Predictions concerning the occurrence of earthquakes do not have a better record than predictions concerning the outbreak of revolutions or wars. Moreover, the very same astronomers who are so successful in predicting the paths of new double stars are rather unsuccessful when it comes to predicting the emergence of new double stars.

The overall cosmological conception just sketched can be found to some extent in the work of Harald Höffding. He adopted it in opposition to [the Neo-Kantians of] the school of Heidelberg, who started from 'two fundamentally different types of scientific approach to reality' (Rickert), the 'nomothetic' or 'generalising' and the 'idiographic' or 'individualising' method and all sorts of mixtures of the two. The persistence of this dualism in the form of many variations and guises most likely is connected with certain metaphysical proclivities which are of a more ancient origin. The separate world of heaven has been replaced by the separate world of human beings, confronting the rest of the world. This is supposed to be the separate reality of 'freedom', the realm of 'spirit', of 'inner experience', of 'norms' or of 'values'.

In science we may find that certain processes can be predicted successfully without it being possible to use the predicted quantities as basis for still further predictions. For instance, in economics one may be able to predict a certain change in some people's way of life without being able to use this change as an element in still further predictions.

Often data are collected without it being clear which predictions will be enabled by them directly or indirectly. Naturally it also very much depends on the general scientific outlook in which way these more 'incidental' observations of physicists, explorers and historians are recorded, which sometimes assume great significance. This holds even more of narratives and descriptions that do not enter into more detailed scientific analysis. A 19th century European historian makes a different selection for his description than a Greek one of the time of Alexander the Great, but similarly so authors of chronicles stemming from the same region in the 13th and 16th centuries.

To be sure, the personal interest also plays a role in such selections, as does the interest of the readers. This holds for travel reports as much as it does for sport reports and historical descriptions, but also for geological or biological, even physical descriptions, even more so if certain extra-scientific interests of the authors and the readers are touched upon thereby. It is of psychological interest to analyse the influence of such personal factors, but there is no reason to see in this a special 'value-reference' of the historical realm that would lift it beyond the mundane sphere of the physical – a view to be met with in varied forms not only in the case of the Heidelberg Neo-Kantians.

The metaphysical tendencies of the present time seek to find a foothold in all of the individual scientific disciplines. Since physics and biology are not exempt from this, not even logic, why should sociology be different, especially given the additional occasions it provides for emotional factors to play a role? The fact, say, that in the interest of achieving scientific successes one tries nowadays to rest one's predictions on a broader base, the fact that one considers larger groups instead of isolated elements, for instance, that one considers not just the life of single plants but of the entire plant- and wildlife together with its environment, has given rise to a metaphysics of totality [*Ganzheitsmetaphysik*] which can be detected especially in the field of sociology. The investigation of larger number of elements thus becomes a hook on which to hang 'holism' or 'universalism'.

In his book of 1935 J. N. Bews made the attempt to complement 'plant ecology' and 'animal ecology' with a 'human ecology'. He thought it possible in this way to prove "the importance of a holistic approach" which is detailed in the introduction by General Smuts, the proponent of holism. "What we in our human way call plan and design is present everywhere. Such is reality a vast Pattern of Patterns. And to trace these patterns of wholes is to discover the lineaments of beauty in all its forms whether we call them beauty or truth or good. The vision of this Harmony is what the gods feed on, and what mortal strive for, according to the Platonic mystic." Roughly the same attitude we meet with in the universalistic sociologist Spann who proclaims the 'failure of the entire naturalistic sociology", unlike the idealistic schools which could call on an 'ancient stock of truths since Plato". While, among other things, Spann declares that society is not "a causal fact of nature but a spiritual fact", General Smuts is no less decisive in attributing an absolutely special position to humans: "His innate adaptability and his intelligence have made him largely independent of environmental conditions and even *of natural laws*." Just as Philipp Frank has shown that modern physics is not more metaphysical than the physics of the preceding period, but that modern metaphysics seeks to help itself to the formulations of modern physics, so one can equally show that modern sociology becomes increasingly successful empirically but at the same time also finds a pronouncedly metaphysical employment.

Certain absolutist formulations render opaque many discussions of the structure of sociology. Sometimes, for example, people begin with complete predictions as their ideal and then ask to what degree this ideal could be approximated, instead of restricting themselves to distinguish the successful from the less successful predictions. Or one starts by asking, for instance, to what degree great men influenced history, instead of choosing the more careful formulation: which elements allow us to make more or less successful predictions? Thus one could attempt to establish whether the behaviours of human groups can be predicted to some degree without being able to determine the fate of individual persons. Yet it might also turn out to be the case that certain predictions concerning large human groups only succeed if it is possible to predict the behaviour of certain individuals. Then one could ask whether it would be possible to predict the emergence of such individuals; if this were not the case, whether one could predict their life to some degree if they were initially given to us as such; or, if we could predict at least some short but socially important periods of life, given we knew individual episodes. After all, in astronomy it is possible to calculate the path of a new comet, even though it was impossible to predict its emergence.

In a similar way it is possible to try to reduce many of these problems to the question of which statements would have to be assumed known in order to attempt successful predictions. Very often the question is raised, for example, what the ‘influences’ are that ‘law’, ‘custom’, ‘economy’, “political order” have on each other, without it having been established what the statements would have to look like that are employed in the derivation of controllable predictions and which linguistic form the individual predictions would take. It can be shown that it is doubtful whether terms like ‘law’, ‘custom’, etc., can continue to be used successfully in such a context. From the fact that certain statements can be classified as statements about law and investigated for their logical relations between each other, it does not follow that this logically analysable totality can be successfully related to the other totalities just mentioned in a scientific manner. From the fact that the text of the rules of conduct in a hospital allows the derivation of logical conclusions it does not follow the rules of conduct of the hospital – here taking the place of ‘the law’ – are fit to play a special role in sociological predictions. To be sure, once the statements of all rules are given one may successfully raise certain questions, but only what the social consequences would be if they were applied precisely. ‘Law’, ‘custom’ etc., are often treated as special ‘entities’ and thus give rise to many metaphysical speculations that hinder sociological prediction.

Since the all-encompassing prediction is an ideal for many, it should be noted that certain limitations show themselves particularly clearly in the field of sociology. Here we shall not speak of the difficulties that arise when we have to consider, in our sociological predictions, the predictors together with their predictions – predictions influencing their fulfilment. But still other phenomena impress themselves. We can predict without an internal contradiction how three stars will be positioned relative to each other in 100 years, but we would incur an internal contradiction if we were to predict that a certain short novel, a certain formula, a certain architectural idea will first appear only in 100 years, for by formulating all the details of the prediction, we would have to bring the novel, the formula, the idea into existence already now. Inasmuch as novels, formulae, architectural ideas, etc., are counted within the realm of the ‘spirit’, as ‘manifestations’ of the spirit, metaphysicians are easily led to consider our thesis that this prediction is self-contradictory as a confirmation of the view that spirit has its special secrets after all, which in turn may lead to further speculations.

Those who formulate sociological predictions which feature the names of human and animal groups and other names will concede even more easily than physicists that one cannot [conclusively] decide on the ‘verification’ or ‘falsification’ of hypotheses by the comparative evaluation of the successes and failures of predictions. When physicists debate a certain problem with each other, they often are in agreement about certain fundamental questions to such an extent that they do not always realise that in the end the totality of their hypotheses is at issue and not just the small part which they currently emphasise. There are moments in the history of science when what matters is knowing that the totality of hypotheses can always be called into doubt.

Careful sociologists are thus enjoined to modesty in a variety of ways: by stressing the ‘cosmological reservations’, by replacing ‘verification’ by ‘support’ or by making qualifications that contradict absolutism in any of its varieties. When they plead their case for the inclusion of sociological predictions, like those of all the other sciences, into the unified science of physicalism, they will be less inclined to claim that sociology achieves as much as the most successful sciences. Rather, they will point out that certain limitations, to which sociology most obviously is subject, also hold for all the other sciences to some degree and that sociological predictions are scientific predictions like all the others.[1]

NOTES

* Lecture at the 2nd International Congress for the Unity of Science, Copenhagen, June 21–26, 1936. First published as "Soziologische Prognosen" in *Erkenntnis* 6 (1936) 398–405, reprinted in O. Neurath, *Gesammelte philosophische und methodologische Schriften*, ed. by R. Haller, u. H. Rutte, Hölder-Pichler-Tempsky, Vienna, 1981, 771–776. Translated by Thomas E. Uebel.

1. [Under the heading "Literature" Neurath listed the following of his writings: *Empirische Soziologie*, Springer, Vienna, 1931 [excerpts trans. "Empirical Sociology", in Neurath, *Empiricism and Sociology*, ed. by M. Neurath and R.S. Cohen, Reidel, Dordrecht, 1973, 319–421]; "Einzelwissenschaften, Einheitswissenschaft, Pseudorationalismus", *Actes du Congres International de Philosophie Scientifique, Sorbonne, Paris, 1935, Fasc. I, Philosophie Scientifique et Empirisme Logique*, Hermann & Cie., Paris, 1935, 57–64 [trans. "Individual Sciences, Unified Science, Pseudo-Rationalism", in Neurath, *Philosophical Papers 1913–46*, ed. and transl. by R. S. Cohen and M. Neurath, Reidel, Dordrecht, 1983, 132–138]; "Mensch und Gesellschaft in der Wissenschaft", *Actes du Congres International de Philosophie Scientifique, Sorbonne, Paris, 1935, Fasc. II, Unité de la Science*, Hermann & Cie., Paris, 1935, 32–44 [repr. in Neurath, *Gesammelte methodologische und philosophische Schriften*, ed. R. Haller and H. Rutte, Hölder-Pichler-Tempsky, Vienna, 1981, 711–717.]

OTTO NEURATH

17. INVENTORY OF THE STANDARD OF LIVING*

1. Standard of Living (*Lebenslage*). Certain comprehensive systematic studies of economics state that their subject is really concerned, in the last analysis, with the ‘wealth of the nation’, the general welfare, the good of the people, and similar concepts. After according such high honour to these concepts, however, they proceed to make little or no use of them. Would it not be better to avoid such ideas in the first place, as has often been suggested, or to develop them in such a way that they can constantly be applied? The latter approach is proposed in this paper.

In everyday speech one might say that the standard of living [condition of life][1] of a group has been reduced, and mean thereby not only that their income is lower, so that they are able to buy less food and clothing, but also that, for example, their working hours have been lengthened, that their leisure time has thus been shortened and also that there are thus more conflicts within this group and that the incidence of disease and mortality has increased.

This colloquial usage can be made more precise and fruitful through scientific procedure. We refer to the ‘standard of living’ of a group, to the variations in kind, in scale, and in distribution of these standards. Insofar as this term is not merely used ‘decoratively’, as above, it is usually narrowed considerably. Ordinarily, the point of departure is the monetary income and the goods that can be bought with this income; other things which are obtained without purchase are then taken into account in order to include the monetary value for them in the computation. This procedure, however, does not touch upon working hours, leisure time, morbidity and other factors which cannot be included in the concept of ‘consumption’, but which we wish to consider when we speak of standards of living.

A theory of the standard of living can only be established and developed within the framework of an analysis of society if one defines the concept ‘standard of living’ very broadly. Previously, scientists in delimiting this concept have been drawn too much in the direction of the theory of income and prices, principally because in that field the ‘unit of money’ could be used as the the basis for all calculations. We shall treat the problem as concretely and directly as possible, in order to see how methods may be established which will enable one to study standards of living as the result of social processes.

We wish, for example, to be able to answer the following question: how do various institutions operate within a given social order and how do different social systems affect the scale and distribution of standards of living? We must be able to study the way in which the human standard of living is influenced by a market economy based on money, as well as by primitive or complicated non-monetary systems. One can also study such problems as the way in which the distribution of standards of living affects human relationships, particularly their market relationships. In short, standards of living can in every way be fitted into social diagnoses and prognoses. We can regard them as the effects as well as the prerequisites of social processes.

If ‘consumption’, in the traditional sense indicated above, is taken as the point of departure, so many elements which characterise living conditions are missing, that some authors have introduced the broader term ‘satisfaction of needs’. This enables them to include attendance at the theatre, household services and housing in addition to the consumption of bread, meat, etc. But even this extension fails to take into consideration sickness, leisure time, labour fatigue, etc., as elements of the standard of living.

The customary approach tends to consider only those elements which raise the standard of living, but not those which lower it. This is understandable, for ‘demand’ exists only for that which benefits us, and attention has usually been centered on ‘demand’, even when the formulation of the problem seemed to aim toward something else.

Of those elements which we mentioned as not taken into consideration, labour is accounted for insofar as it is paid for. This is due to the fact that wages are entered as ‘costs’, that is, as negative quantities in commercial accounting which is generally the point of departure for economics. In the definition of ‘standard of living’ suggested here, food, housing, clothing, theatre, sickness, occupational fatigue and leisure time are all to be included. The living conditions of a person are improved or lowered as these elements change.

The atomistic, utilitarian approach (which we do not accept) would express the matter thus: ‘positive’ and ‘negative’, as well as ‘indifferent’ elements exist side by side. The ‘feeling’ of a person would then be regarded as constituted of ‘pleasure’ and ‘pain’. These individual ‘feeling’ quantities would be correlated with certain causes, namely, the pleasure quantities with ‘commodities’ and the pain-quantities with ‘discommodities’. The quality of an object, functioning under certain circumstances as a ‘commodity’, admits of various degrees of utility. In the same way, degrees of ‘disutility’ can be distinguished within the framework of this approach.

Although this analysis appeared in the history of the theory of value, it did not lead to the formulation of an atomistic theory of the standard of living which would, in a certain sense, be a parallel construction to the standard of living theory we propose. Not even those authors who consider negative elements in the basic discussions of value make any permanent use of them later. Generally, only the positive elements, the ‘commodities’ are employed in the theory because only the ‘commodities’ are the objects of purchase. By and large, the tendency was to ascribe certain values to certain prices, so that, in general, the atomistic point of view also fails to employ the negative quantities of the theory of value.

2. States of Felicity (*Lebensstimmung*). Whereas this atomistic approach coordinates positive and negative ‘feeling’ quantities with positive and negative conditions, we shall coordinate the totality of a person’s feeling, or that of a group, with his or its entire living condition and investigate the extent to which changes in the ‘state of felicity’ [quality of life][2] in a positive or negative direction depend upon changes in these conditions. We, therefore, do not begin with single pleasure or pain quantities and then construct the totality of feeling. Instead we investigate only the conditions under which the totality of feeling becomes more or less pleasurable. Only these elements are significant for our approach to standards of living. We call that standard of living higher which produces a more pleasurable state of felicity characterised by a certain attitude or behaviour.

In the language of the ‘subjective theories of value’ – this is not the place to point out the differences between the various doctrines – the problem could be expressed as follows. We regard the total standard of living as the bearer of 'value' in any given case. We shall only deal with the fact that the total standard of living, but not its various parts, can have different values for the same person. Even the subjective theory of value has not always ascribed a specific value to a specific object; it recognises the concept of 'complementary commodities'. If we introduce the negative quantities into the subjective theory of value, then we must also define 'complementary discommodities'. Oxygen, hydrogen and a burning match in combination would be a 'discommodity', but not one of the three elements alone or any two of them together. It is also possible that the objects in one combination of 'commodities' would be 'discommodities' in another combination; for example, a stove combined with coal would be a 'commodity', but with dynamite a 'discommodity'. We should be able to speak of 'complementary parts of a standard of living' which together would determine the value of the total standard of living. Then the subjective theory of value would lose an important part of its field of action. Essentially it requires the atomistic point of view which always leads to logically inadequate 'allocations'.

We, therefore, do not construct the state of felicity out of single pleasure and pain qualities and do not coordinate specific parts of the standard of living to them. We do, however, arrange the states of felicity in a scale in that we say that one is higher, equal to or lower than another. We then classify standards of living according to the states of felicity conditioned by them. How we classify states of felicity is a special problem. We could, for example, use certain persons as test cases and consider their answers to questions, as well as other kinds of behaviour which have to be defined previously.

This excursus shows how the study of standards of living can be fitted into the theoretical viewpoint and approximately what position it occupies. The main task, however, is to define the elements which are characteristic for the standard of living. We cannot regard it as a weight made up of the sum of the weights of the various parts. We cannot even specifically enumerate all the things which might be counted in the standard of living. Nevertheless, it can be shown that this concept suffices for both our theory and practice.

3. The Silhouette of the Standard of Living (*Lebenslagenphysiognomie*). If we wish to characterise the increase or decrease of the standard of living, we can select certain important determining elements. It is important to measure these elements with the help of units or at least to grade them. We can speak about trebling the mortality rate, but perhaps not about trebling the beauty of an ocean view. Complexes which are thus composed of various quantities, each of which would have to be measured by specific units, we shall call 'standard of living silhouettes' ['silhouettes of the condition of life'].[3] They are the crude tools of our discipline. This terminology was chosen with a view to graphic demonstration. For the sake of simplicity let us take as an example a standard of living silhouette characterised only by food, housing and health. All three are measurable quantities. Two human groups A and B are given; 'f' signifies a unit of food, 'd' a dwelling unit, and 'h' a unit of health. (We assume we can measure these three quantities by means of specific units.) The standard of living A is composed of 3f + d + 3h, B of 2f + 3d + h:

Person A	**Person B**
fff	ff
d	ddd
hhh	h

The standard of living A is characterised by more food, a smaller coefficient with respect to dwelling and a greater degree of health (to all this might be added leisure time, working time, etc.) The form of the silhouette depends upon the choice of units. In the case given here the A silhouette is 'concave', the B silhouette 'convex'.[4]

We have defined that concept 'standard of living' so broadly that we can include more or fewer elements, according to the formulation of the problem. The standard of living silhouettes can be applied in the most varying ways, for the analysis of society as well as of the market. If, for example, a market analysis were to follow sales potentialities, it would be concerned, not only with age groups in the population (sales of tobacco, etc.) but also with the morbidity rate (sale of certain medicines, etc.)

If one wishes to characterise the standards of living [conditions of life] in specific regions, it may be important to do this precisely with the aid of the fewest possible elements. Silhouettes making such precise differentiation would be especially useful if the elements were selected in such a way that one could derive other elements from them. A characterisation of the standards of living of different countries and eras by means of a few data should make it possible to grade these standards in such a way that an increase in the data would not change the order in its rough outline.

It is not advisable to tie standard of living calculations to data derived from money calculations, although one may of course use such data if they are sufficiently controlled. If one wishes to characterise the mode of life of a labouring group on the basis of 'money wages', one would pass, by considering 'purchasing power', to 'real wages'. We do not intend to enter into the problem of index numbers here, nor into the difficulties which arise when price differences exist, that is, when the same amount of money has a different purchasing power in different groups for some or all purchases. Neither shall we consider the fact that money may have a different 'purchasing breadth' in different regions, that is to say, that articles which can be bought in one place can only be obtained in another by official assignment. However one establishes the 'real income', one considers only the 'positive' elements of the atomistic subjective theory of value, never the 'negative'.

The objects of consumption directly assigned to a worker, whether by a factory or by a public institution, could be added to his 'real wages' as 'wages paid in kind'. In budgeting one would give them their usual money value in order to make them comparable. But even so, one has omitted some of the elements of the standard of living – those which cannot be bought, as, for example, the use of public parks. Thus, besides the 'negative' elements, there are also missing certain 'positive' elements, which a broader atomistic theory of value would have to introduce.

We cannot go into the question of the degree to which one can establish what might be called momentary standards of living or the degree to which one can seek to comprehend the standard of living of one life, anticipating future possibilities to a certain extent. Within the framework of social analysis, the problem of the possible significance of the waste of natural resources for a future decline in the standard of living plays an important role. The question then arises as to how far one can take these future possibilities into account in setting up the silhouette without becoming vague. The standard of living of a society at this moment and in the future appears as the function of a specific given condition, including certain potential changes. But these are special questions which are not directly related to the main problem.

4. Selection and Grading. In our scientific work it is necessary, on the one hand, to present the various possible relationships schematically, but also, on the other hand, to combine the available data fruitfully. Systematic analysis of standards of living has really just begun. In general sociology, in sociographic studies, and also in many practical compilations, there has as yet been no sufficiently precise terminology based on a consistent theory of the standard of living. In economics, too, no proper place has yet been found for the standard of living problem. It is highly instructive to look through the large general and sociological encyclopedias on this point. Just as in the systematic presentations, 'consumption' and 'standard of living' are treated incidentally without closer connection with other subjects. When 'measurement' is discussed, it pertains in general only to the problems of accounting and index numbers.

The selection of problems and terminology is determined above all by the fact that one is not so much interested in the way in which certain institutions and measures influence the standard of living as in the way in which specific phenomena, and above all, market phenomena, can be derived from the 'economic aims' of individuals or whole groups. The idea of the 'homo economicus' which explicitly or tacitly lies at the basis of many economic theories easily leads one to construct, besides the 'actual' trend, a so-called 'correct' trend as a standard of comparison for the real one. If special care is not taken, this could easily lead to an absolutistic metaphysics.

The derivation of attitudes from 'motives' can be accomplished empirically with certain precautionary measures. But the tendency to look for the derivation of trends from motives instead of looking for specific trends also leads economists who follow an empirical procedure to the neglect of the negative elements discussed above. Without concerning ourselves with the form of organisation which is more or less explicitly based upon the homo economicus, we can investigate the influence of various forms of organisation upon the distribution of the standard of living.

In analyses of social order it is customary to use greater formal precision where money values can in some way be applied, while the operation of the social order on personal life, which one may really wish to consider no less forcefully, is presented with less logical rigour. This disproportion between the separate parts of the analysis can be overcome by giving greater emphasis to research on the standard of living, practically as well as theoretically. Just as production curves, rate of exchange curves, stock price curves and so on, are considered in market research[5], so in the study of standards of living one could include curves of leisure time, mortality, morbidity, etc. The problem of the extent to which use would be made of momentary quantities and certain derived quantities which might apply to the entire life of a specific individual (such as the amount of leisure time a person can expect at a given time) will not be discussed further here.

As soon as one describes the changes in standards of living systematically and precisely, and particularly their dependence upon other quantities, among which can be included some that are not customarily dealt with in economic research, quantities which characterise social life and the environment insofar as they are significant for our problem, the question arises as to how one can grade, or measure with the help of certain units, the separate quantities under consideration. So long as no specific scientific research furnishes the possibility of finding a general unit – and thus far there is a complete lack of one – we must seek to establish special units for every element of our silhouette of standard of living and, where this is impossible, to attempt gradings.

The attempts to characterise the standard of living are like those which try to characterise the 'state of health'. Both are mutidimensional structures. But, even when we limit ourselves to one of the quantities of the state of health or the standard of living, it is still not easy to compare the state of health of one person or group with that of another person or group. To give one example: when the age grouping of two groups is different, then the same total mortality and morbidity rates take on a different significance and one must somehow combine the age structure with mortality and morbidity in order to obtain comparable data. Here, as in the study of the standard of living, there is always the temptation to take a specific 'standard' as a basis for comparison. For instance, one can take a 'standard population' which can be combined with a 'standard consumption' in order to arrive at a fruitful classification. It is obvious that the selection of such a 'basis' is admissable only if the selection of another 'basis' does not change the order of the quantities in question.

We know from the comparison of living standards in different countries what difficulties arise when one takes a specific standard of living as the point of departure in order to relate all other standards to it. These difficulties recur with each of the individual elements of our silhouettes of standard of living. For certain special purposes, however, they have been partially overcome, so that it is only a matter of introducing considerations which are as yet lacking and, above all, of indicating how one can fruitfully construct silhouettes of standard of living out of individual elements.

5. Inventories of Standard of Living (*Lebenslagenkataster*). The previous discussion shows in what way one can develop a consistent method of dealing with standards of living, one which will make it possible to fit such studies into general sociological, as well as economic research. We can regard the standards of living as defining the market relationships. This corresponds, in a certain sense, to existing tendencies in market theory. But the schematic characterisation of our problem, the demonstration of the possibility of treating special concrete problems, is insufficient to make continuous practical work possible. For that a technique is needed comparable to those used in following the movements of certain quantities, namely, barometers of production, sales, etc. Statistics and descriptions of certain relationships must be developed in such a way that one could set up and compare inventories of standard of living [inventories of conditions of life] for particular districts, whole countries and or the world at various periods.

The theoretical analysis of the standard of living, briefly sketched above, is linked by the compilation of inventories of standard of living with those significant works, repeatedly undertaken since the middle of the 19th century for the special purpose of defining the living conditions of labouring groups in particular towns. Since these painstaking studies do not rest upon a common theoretical basis, they are difficult to compare and they have, in a sense, an insular character. The restriction of the studies to labouring groups sometimes prevents the establishment of concepts which would be suitable for considering the standards of living of all population groups in the same way.

In planning inventories of standard of living it is clear that only families or other groups are considered. The life of an average man in a specific group can be construed from the given data, assuming that the existing condition is characteristic. The delimitation of specific spatial areas or specific groups leads to difficulties which have been encountered in other studies and need not be dealt with here.

It is perhaps not unimportant to point out that the customary approach to ‘consumption’ and ‘use’ requires certain modifications.

It is not sufficient to determine how much garden land is available in the vicinity of the town or how many books per person. These quantities must be related in some way to the time during which they can be used. It means more to a worker to be able to use his plot of ground for ten hours a week than for two, and it means less than if he had thirty hours. In order to put these factors in their correct position, one might multiply the amount of garden land by the leisure time available. Similar problems arise constantly. They have as yet been dealt with only in exceptional cases, but never systematically, even though they are extremely significant for practical considerations.

The inventory of standard of living also shows what individuals have 'made' of given possibilities. The figures on real income indicate what can be bought with money income. The sum of real incomes is, therefore, a fictitious quantity which may be of value for certain considerations, but the inventory of standard of living gives us a view of the actual life of men. It can easily happen that some persons with the same income have a higher standard of living than others; they use their money in a different way. One can, then, compare the effective use with possible uses, but one must guard against the assumption that there is only one optimum mode of use, an assumption which repeatedly plays a role in economic theory.

The inventory of standard of living can also be set up in cases in which one is not in a position to compare different standards of living. One could, for example, set up an inventory of standard of living for a district in China without having to know how to rank the different standards of living within that district or without knowing how to compare that standard of living with those shown by the inventories of a district in the USA or the Soviet Union. To be sure, the systematic treatment of such inventories of standard of living presupposes that, in broad outline, one has certain assumptions as to which data might be essential for purposes of comparison. Scientists making such inventories of standard of living are comparable to research workers who make geographical surveys and note the quality of the soil, vegetation, etc. Without a specific theoretical orientation the investigator will overlook or omit much that may later prove to be important. On the other hand, it is possible today to note down much that can only be profitably evaluated later, in order to set up new hypotheses or to test old ones in a new way.

The analysis of standards of living becomes a sector of broader sociographic analysis, just as a study in social hygiene is a sector of the broader biological analysis of a specific region. Not all the important sociological elements need be of interest from the point of view of the standard of living, just as not all the biological characteristics of specific groups are of interest in the study of health conditions. On the other hand, we know that good research into health problems does not stop with an inquiry into the cases of sickness and death, but includes all data directly connected with the state of health. Similarly research into the standard of living should include those data which experience has shown to be characteristic or important for the standard of living, such as social life, family conditions, and school relationships. One could conceivably include the appearance of certain conflicts, restrictions, etc., in order to obtain a good basis for establishing the 'state of felicity'. The very precision in formulating the problem itself prevents us from slipping into unbounded activity and from gathering too much 'accidental' material. For just as theoretical work suffers from the lack of opportunity to work up sufficient concrete material, so the amassing of observational material without a strict definition of concepts and a strict formulation of the problem can lead to a dissipation of the assembling of material.

6. Social Analysis and Research into Standard of Living. The inventory of standard of living presents, to a certain extent, the result of a specific social condition; the trend of the totality of living conditions presents the result of a social development. Large historical surveys indicate roughly in what way the stratification of standards of living within societies have changed the 'standard of living reliefs' ['relief maps of conditions of life'].[6] Societies having bold 'relief' may succeed societies having low 'relief'. One can compare the levels of these peaks of standards of living with one another by a casual glance, just as one compares the height of various mountain ranges, without necessarily being able to show exactly what definition was used for 'average height' of the mountain range. But we know that a more precise statement of all such estimates is possible, even if it has not yet been done.

Inventories of standard of living for characteristic areas of the United States, England, Italy, the Soviet Union and China, compared for the past few centuries, would be a valuable contribution to the analysis of the social development of these countries. It will not always be so simple, as has sometimes been assumed, to separate the influence of forms of social organisation (assuming that this concept has been sufficiently defined) from the influence of other circumstances. It is just when one thinks that one has analysed theoretically the total effect of a society upon the standard of living that such a control by means of concrete studies becomes particularly important. How far one can thereby progress toward prognosis depends, on the one hand, on the extent to which the elements of our description can be tied together by hypotheses. Where this is possible only to a slight degree, prognosis depends on the extent to which one can count upon a constant relationship between the complexes which cannot be analysed more closely. We see the results actually produced by market analysis, but also that market analysis cannot prognosticate new social changes nor the conditions which might be conditioned by such changes. Prognosis in market analysis is based, above all, on the assumption that the total complex with which it deals will not change essentially. A more comprehensive social analysis would have to transgress the bounds of pure market research[7], as well as pure research into the standard of living in order to arrive at a general theory of society, for which so many preliminary studies are already at hand. Social analysis has so far been carried on in the most heterogeneous fashion. Whereas certain groups of concepts – sometimes very narrow in their application – have enjoyed the most scrupulous attention, others which we at once recognised to be important have been utterly neglected. Among the latter are the concepts of research into the standard of living. The reason for this neglect have been briefly pointed out here. They depend on the domination of that world of concepts which is linked with accounting. Accounting even becomes significantly noticeable ‘where non-monetary’ concepts are used.

With the establishment of the inventory of standard of living the theory of standards of living automatically fits into the system of ‘measurements in kind’, which basically proceeds from the view that *society produces the standard of living*. ‘Measurement in kind’ characterises the point of departure in furnishing the data for further deduction. These fundamental data we shall designate collectively as the ‘basis of life’, environment in the broadest sense: supplies of raw material, all sorts of sources of energy, inventions, human abilities, existing towns, streets, trains, canals, etc., all things which, taken together and determined by means of specific measurements of quantity, are united into a structure. This always produces the standard of living which can be similarly characterised by means of complexes of specific measurements of quantity.

If certain problems of social analysis are treated by means of accounting (for example, the characterisation of standards of living by money income), then only 'measurement in kind' (that is, calculations of standard of living in the sense used here) can show whether the results actually exhibit the gradation of given standards of living. In these standards we would especially include working time, leisure time, rate of accidents, morbidity and mortality rates, as well as housing, food, clothing, education, recreation, etc. Accounting does not show us whether a surplus production of iron was not obtained at the cost of a higher rate of accidents. We could conceive of an approach which would not only aim at calculating the amount of human labour time per ton of iron, as has been customary, but also the corresponding number of accidents and amount of leisure time. It follows that a computation which is concerned primarily with the profits of an industry and the sale of a product is primarily interested in the amount of work which goes into a ton of iron, assuming this can be defined with any degree of exactness. From this point of view, whether a ton of iron is extracted by a process which requires 12 working hours daily or only 6 is of no interest, assuming that the work pays the same. If we calculate that 8 hours are required for sleep, then, in the first case, there would remain 4, in the second 10 hours of leisure time. Social analysis, from the point of view of the standard of living theory would automatically combine production with leisure time, accident rates etc. At present this is done only occasionally, when, for example, certain accident problems or questions of insurance, which add to the cost of the production of iron, are discussed. Naturally, the leisure time, working time, accidents, etc., can also be distributed over the life span of the worker.

The standard of living approach provides the opportunity for constantly keeping in mind the relationship of each social element with the standard of living and it avoids the calculation of accidents apart from production. If a hospital having 500 tuberculosis patients cures 50, while 10 out of 50 nurses contract tuberculosis, it has accomplished less than another hospital which cures only 45 out of 500 but which sees to it that no nurse contracts the disease. If one makes two separate computations, the first hospital appears to be more effective, but not when one makes a combined computation. The standard of living approach compels us to keep the social process as a whole constantly in mind and to avoid the atomistic approach unwillingly forced upon us by accounting. All attempts to permit the general approach to work itself out by a detour through concepts such as 'national income' and similar quantities only lead to unsatisfactory results, as this paper has shown.

Since there has as yet been no complete theory of research in the standard of living the numerous isolated theoretical remarks have not been discussed. That would require a separate analysis. Many fruitful suggestions are found in studies which have no bearing upon our method, while, on the other hand, some formulations in studies which are close to the approach suggested here are insufficient from a theoretical point of view. An analysis of all these efforts would require a study of the historical development of various ideas and cannot be included in an approach which seeks to operate in a direct constructive way.

Research into the standard of living can be used in many ways; above all, the whole set of social institutions can be compared within its framework. At any rate, whether or not one has in mind such comprehensive social problems, research into the standard of living, in the sense of developing a theory of measurement in kind, should gradually become an important scientific activity.

NOTES

* First published in *Zeitschrift für Sozialforschung* 6 (1937), pp. 140–151. (The paper was written in German; the anonymous translation was commissioned by Max Horkheimer, the editor of the *Zeitschrift*. Here obvious typographical errors are silently corrected.)

1. ['Standard of living' is the anonymous translator's rendition of Neurath's '*Lebenslage*' which in the papers translated above is rendered as 'condition of life'. Readers may substitute the latter for the former throughout. Eds.]
2. ['State of felicity' is the anonymous translator's rendition of Neurath's '*Lebensstimmung*' which in the papers translated above is rendered as 'quality of life'. Readers may substitute the latter for the former throughout. Eds.]
3. ['Silhouettes of the standard of living' are the equivalents, as regards conditions of life, of what are called 'relief maps of qualities of life' in *Economic Plan and Calculation in Kind* above. Eds.]
4. [There follows a sentence the text of which appears to be corrupted; it is omitted here. Eds.]
5. [The context would suggest that it is 'analyses characteristic of market economics' that Neurath meant. Eds.]
6. ['Relief' is the anonymous translator's rendition of Neurath's '*Relief*' which in *Economic Plan and Calculation in Kind* above was rendered as 'relief map'. Readers may substitute the latter for the former throughout. Eds.]
7. [The context would suggest that it is 'analyses characteristic of market economics' that Neurath meant. Eds.]

OTTO NEURATH

18. LATE REFLECTIONS ON THE THEORY OF PLANNING

(I) PLANNING OR MANAGERIAL REVOLUTION?*

Social Engineering and the History of the Future. Many people are today discussing the future type of society, some of them try to analyse possible social patterns – ‘social engineering’ as it were—others try to predict what type of pattern will be applied to our social life – ‘history of the future’ as it were.

In the attempt to perform these tasks scientifically, we as empiricists collect what data we can from historians, from experts in human behaviour, from scientists who deal with human and animal sociology; but one should avoid the frequent misunderstanding: ‘empiricism declares that only patterns we know from experience may be expected in the future’. This misunderstanding is the less excusable as we expressly assume that human beings are particularly inventive not only in technical engineering, but also in social engineering. He who wants to predict a new invention in social life or in engineering has to anticipate this invention. But even such an anticipation is determined, since, as most of us agree, such inventions cannot be made in a vacuum, but in relation to some environment. Therefore we have to admit that as empiricists we cannot predict changes in our social structure as we might predict changes in the astronomical constellation, of which we think that all its future possibilities are predictable, though even that may be doubted by someone.

How may we, as scientists, arrange our attitude towards our wishes to be the vanguard of those who form a future that is based on knowledge? All arguing implies ‘selecting’ and we cannot deny that such selecting is very often related to our fears and hopes. But let us make a distinction: ‘Wishful thinking’ may be characterized as arguments deformed by our attitude, it is refused by scientific sincerity and I myself try to suppress this kind of attitude in myself, but let us speak of ' "thinkful" wishing', which may be characterized as a selection from scientifically confirmed arguments, which remain non-deformed. Let us wish 'thinkfully'.

Oswald Spengler's *Decline of the West* was widely read and fitted into theoretical and practical enterprise; even today there are serious people who take this book and its arguments seriously. I tried long ago to demonstrate in my *Anti-Spengler* not what his attitude implied or with what political aspects it might be connected, but to show that the way in which he supported his predictions was lacking in scientific seriousness, that insufficiently proved material and deformed arguments played a deciding role in his work.[1] The book, written during the first World War, predicted the victory of Germany-Rome and the defeat of Britain-Carthage within the framework of Spengler's historical analogies. If one showed the historical and sociological remarks to be unfounded, then not a few people answered with a certain shiver: 'Sure – but what vision!' A similar attitude of writers and readers is not rare today, therefore, as a scientist, I want to make some remarks on the technique of arguing about the future of our society, of which we know so little.

These reflections came to me, when I found out that not a few people read Burnham's book on the future of our society and took his arguments very seriously.[2]

Will the Managers Form a Ruling Group? The essence of Burnham's book is the thesis that the new society will be characterized by the managers being the rulers just as the preceding period was characterized by the capitalists being the rulers, and the Middle Ages by the feudal lords (71).

Burnham sees this type of society simultaneously growing up in Germany, Soviet Russia, Italy, and also in the United States, where the New Deal prepares the new society to a certain extent, and in other countries. He stresses the point that we should not distinguish between a capitalist or a socialist future only, as he thinks is usually done, but we should add as the third possibility the managerial society with the managers as rulers: therefore, he maintains, the discussion whether socialists have to fight for the New Deal as a socialist success or to fight against it as a capitalistic effort in disguise is just as senseless as the discussion whether the traditional groups have to fight against the New

Deal as a socialist invention or to fight for it as a suitable bar against the greed of the masses. A new type of society is in question, he maintains, the managerial society. The managers will run the whole show and the capitalists will try to transform themselves, if time is given them, into managers, as happened in Germany, or new individuals from the rank and file will become dictatorial managers, as happened in the Soviet Union, which, according to Burnham, is farther away from socialism (as he defines it) than any other society.

Burnham thinks that these changes may be brought about in various ways and that with the consolidation of the structure of managerial society its dictatorial phase (totalitarianism) will change into a democratic phase.

The historical analogies he quotes and the analysis of the social structure he gives are weak. One cannot deny that one of the possibilities one may also take account of is that dictatorial groups will be in power. But, assuming we agree with the hypothesis that the free market will not prevail in the traditional way, just that social pattern which is in the making gives an opportunity for more varieties than our capitalist society did; that means far more freedom of single groups should such freedom be wanted.

I do not think that the alternative capitalism-socialism is as generally accepted as Burnham maintains; on the contrary we have noted, during the last century, a bewildering variety of predictions and proposals that cannot be caught by this primitive dichotomy; one might think only of people like Henry George or Franz Oppenheimer who characterize a certain trend in social reform. A man such as Josef Popper-Lynkeus, who made the first well-elaborated plan for a minimum standard of living of a society, could hardly be called a socialist.

I think by asking the question ‘who will rule the future society?’ Burnham bars many analyses from the start, since it could just as well be a quality of this future society that the ‘localization of sovereignty’ (as Burnham styles it) would be somewhat more diffuse than today. Let us not forget that the picking order of hens teaches us a good lesson in ‘unpyramidism’: a hen once victorious in a fight remains the superior of the defeated hen, who will never again try opposition and will wait patiently until the superior has finished picking up grains. A may be the superior of B, B the superior of C, but – that is the point – in the hen world C may nevertheless become the superior of A, whereas A remains the superior of B. If we want to cover more possibilities we should avoid a phraseology (such as 'localization of power') which anticipates a certain kind of hypothesis.

I think one could start today with a phraseology and a classification which leaves future answers as undecided as possible. Even before the First World War one discussed the question what the 'war economy' would look like. The expression 'war economy' was coined for giving a phraseological start to this comparative discussion, not anticipating that it would be a capitalist one with some unessential changes. From historical examples (particularly the wars of the French revolution and of Napoleon I yielded much material) one could learn, that a transformation of the traditional 'market economy' into a kind of 'administration economy' (*Verwaltungswirtschaft* in German, and less comprehensively *économie dirigée* in French) seemed to be not unlikely. As long as thirty years ago, one could distinguish following types of societies for the discussion of future societies:

Societies of type:	Productive capacity used	Distribution of condition of living
(1)	In (1) and (2) no destruction of produced material	without privileges
(2)	and no unemployment.	with privileges
(3)	In (3) and (4) destruction of produced material	without privileges
(4)	and unemployment.	with privileges

This first rough classification is already sufficient for our task. Society (1) may be represented by an 'administration society' based on planning without particular privileges; the conditions of living may be distributed according to some scheme which may be applied equally to all persons. Such a society would usually be called a socialist one. Society (2) would be represented by any kind of modern 'war economy', also by a Nazi economy and other types of 'administration economy'; all these characterized by planning and by the avoidance of unemployment and destruction of already produced material. The social structure is not mentioned in this classification, which should be done in a subclassification. Society (3) is represented by no society under discussion. Why should a society, which afterwards distributes the conditions of living equally, destroy produced material or know unemployment? Society (4) would be represented by a capitalist society where certain privileges and the accounting in money, with profits, etc., is indirectly related to slumps, unemployment, and the restriction of production. Some of the sub-classes I have previously mentioned.[3]

During the first world war a discussion started whether the 'administration economy' would or would not survive, in one way or another. As we know in the Soviet Union a certain type of 'administration society' evolved from the war economy – only a multidimensional classification would enable us to characterize this type in a way sufficiently clear for a detailed discussion. In the other parts of the world the market economy remained in power. Perhaps this time just the fear of unemployment, as Burnham also maintains, may lead even privileged groups to think of a far-reaching reorganization of society. Such a reorganization may be related sometimes to a reduction (in some countries to a far-reaching reduction) of privileges, sometimes to an increase of privileges; the 'power' of single groups of the population may be affected in many various ways. Burnham predicts on one type of society, the managerial society.

I think that this rigidity is closely connected with his phraseology and classification. I suggested starting in all such cases with 'silhouettes'.[4] We select a multiplicity of qualifications, each of which may be present in different degrees. We so get a rich field of colour with many hues and shades.

Burnham, for example, in making his classification does not show the maximal combinations of power and wealth; sometimes very powerful groups are not very wealthy and vice versa; he wants to characterize the managers as 'the rulers' who have the maximum of power and the maximum of wealth, skimming the cream off all for themselves (120). Usually there are other combinations, too; not even the powerful Junkers in Prussia were the wealthiest group in their country.

It seems as if he regards the managers as a type of Carolingians who transformed their mayoralty of the palace into a kingship with pomp and power. Burnham maintains that the power of the managers has already been extended, both private enterprise and through the growth of governmental enterprise; but the managers are never secure, and can be discharged by someone, particularly by shareholders and other groups who have the ownership rights.

Burnham stresses the point, and I think we can agree with him in this, that a few managers feel themselves handicapped by 'the need of a capitalist-predominated market' when they want to improve organization and technical efficiency. Such managers, he explains, very often look on society as a gigantic factory and think they could make it more efficient, as they can make any factory more efficient. He thinks that even managers who today fight state ownership would benefit from the state ownership in their position as managers. 'We have the irony that is often repeated in history'.

Proofs from History and from Social Analysis. I characterized Spengler by his lack of historical background and I think that this is a very serious defect in a thinker who does not bring forward new inventions of potential value for social engineers. I cannot be but suspicious of Burnham's historical analogies, when I read, e.g., that according to his opinion the majority of the population in the Middle Ages hardly knew money (12). How would he explain that just in the Middle Ages hundreds of feudal lords were particularly interested in coining and deteriorating money, or that in the 14th century Oresmius wrote his famous book on money, discussing problems which have been analyzed in the following centuries?

The rigidity of his classification and his overstatements evolving from this attitude are so characteristic that a central part of Burnham's book would lose much of its vigour without these peculiarities. The question is not whether somebody likes the Soviet Union or not, but how to give a description of the Soviet Union that enables everybody to come to a judgment on the very complex pattern of this country. We may be led in our feelings by disillusionment, but as scientists we will try to give clear descriptions. In his explanation that the Soviet Union is wholly unsocialist, Burnham points out (43) that in the Soviet Union 10% of the population get about one-half of the income, whereas in the United States 10% of the population get about one-third of the income. Without entering into a discussion about the correctness of this statement and other details of the discussion, let us say only this: from experience we know that workmen and other people interested in the living conditions of the masses, think two things to be important in a socialist society:

(1) that nobody gets less than a certain minimum, let us assume it to be 3 units in the example which follows;

(2) that nobody gets more than a determined multiple of the lowest paid income, let us assume ten times the minimum in our example. The following two societies present a distribution of incomes as Burnham explains it:

Society (1)	Persons		Income		Group income
	5	x	40	=	200
	5	x	32	=	160
	90	x	4	=	360

10% of the society get one-half of the income, the lowest income is over the minimum, the highest ten times the lowest.

Society (2)	Persons		Income		Group income
	1	x	240	=	240
	9	x	40	=	360
	50	x	20	=	1000
	20	x	8	=	160
	20	x	2	=	40

10% of the society get one-third of the income, the lowest income (20% of the population) is under the minimum, the highest income is 120 times the lowest income.

It is everybody's right to create his own phraseology, but Burnham uses here the expression 'socialist' in a very unusual way. I think most people would agree that society (1) shows more signs of socialism than society (2) as far as distribution is concerned, in spite of the fact that in society (1) 10% of the society gets half of the income and in society (2) only one-third. These and similar examples teach us to be careful in accepting arguments brought forward by Burnham.

I explained in the [section] on managerial society, how 'war economy' may be regarded as a particular kind of economy beside the peace economy of capitalist countries. Burnham rejects this argument wholly by maintaining that a capitalist nation fights its capitalist wars 'capitalistically' (227) and he anticipated therefore that even in this war the capitalist nations will not end unemployment (31). Experience has taught us already that unemployment even in this war has ceased to play any role after a certain time, as it ceased to play any role during the first world war. The war itself shows us how a capitalist country may continue the payment of traditional sums of money to shareholders and not to a new group of ruling managers, but simultaneously eliminating all unemployment and all important restrictions of production. Whether or not we call this a society with capitalist privileges, but without profit as a determining principle, does not matter; it is one of the many possible 'administration-societies' and neither a traditional capitalist society, nor a managerial society, nor a socialist society. A well-evolved classification would provide us with proper names for this and many other types of society, which we venture to call 'administration-societies', based on planning, but not 'managerial societies', that term being used in harmony with Burnham.

Arguing is a hard job, and I always feel that even we scientists often say more than we can justify, therefore we have to learn to be cautious. Burnham like many others argues that the capitalist countries cannot bring forward any 'ideology' comparable with the 'ideologies' promoted by the managerial societies. He infers the attractiveness of the German new order from the fact that there are so many fifth columnists in the United States of America (252). In England we find a minimum of fifth columnists as far as I can see, whereas countries into which the new order is being introduced are full of fifth columnists who are fighting the Nazis and even in Germany, I think, [there] are more fifth columnists than in the United States of America. I do not deny that people who are fighting for some particular conviction are often particularly brave; I like to use this argument occasionally, but we should be careful not to use it too much, since we know even of slaves who fought very bravely for their masters and of mercenaries who sometimes fought like lions. The *'homo sapiens, nosce te ipsum'* is a strange being and we do not know much about his behaviour.

What shall we think of Burnham's arguments, when we read (135) that the majority of the members of parliaments from the beginning 'probably' (*sic*) have been lawyers. And I do not think we understand the functioning of parliaments better than before when Burnham explains that a law comes out of a parliament in a way not at all unlike that in which a price comes out of a market. Until now I thought just the reverse would more or less cover the happenings.

A good deal is known about the history of management and bureaucracy; one gets the impression that Burnham did not use the material, collected e.g., by Max Weber and others, the ideas of whom might have influenced Burnham to a certain extent. We know something about the 'administration-economy' of the state of the 18th century with its 'universal statistics' on population, cattle, crops and manufacture, which making of statistics was fought afterwards by the liberal movement for the sake of the secrecy of private property conditions. Comprehensive information, essential for all kinds of planning, has been withheld by a society based on competition. I should like myself to know more about this point than Burnham tells us.

The book is full of a distorting metaphorical language. It makes no difference that Burnham tells us he is using a metaphorical language, when the language in question just destroys the relations we want to discuss. It is full of vague analogies, full of general remarks on 'historical laws' of which we have not heard before, e.g., that unemployment is a sign that a given type of organization is just about finished (30).

World System of the Future. Burnham predicts the division of the new world among three super-states, the nuclei of which are, whatever may be their future names, the previously existing nations, Japan, Germany and the United States (169). According to Burnham there seems to be good reason to believe that Russia will be split into a European and a Far Eastern half (212) during the course of the next years. That is clear cut prediction and we may test it in good time. Why should not this be one of the many combinations possible, but why has just this selection been chosen as 'the' future? Burnham states that German technicians and managers moved into the Russian industrial enterprise much more than any publicist has yet imagined (ibid.). I think that investigations after this war will show that this infiltration of German managers into the Soviet Union in later years did not go very far and can hardly support Burnham's thesis that the fusion of European Russia with the European centre was going on. He deduces that and much more from the 'whole course of contemporary history' (213).

In a very old-fashioned way Burnham bases these predictions on a hypothesis of the world imperia as it was discussed at the end of the 19th century, of course with a different outlook. Why should just Burnham's tripartition come true? And not another multi-partition based on the principle of autarky? Then the Soviet Union would have some chance, at least, of forming a fine specimen of autarky. But why should the old type of hypothesis remain satisfactory?

We may, for example, imagine a future order based not on state-pyramidism, if this term may be accepted, but on 'overlapping institutions', which do not coincide with any 'hierarchic' world pattern. The area of national education need not coincide with the area of railroad administration and this area may overlap a wide area of international fuel-administration. The various world-wide plans may be correlated in various ways and some international comities may provide as much of a centralized direction as seems desirable. Burnham barricades his way to such imaginings, by maintaining that such world wide planning would be beyond the technical ability of any human group (166). This is an old commodity which will not sell and was used before in the fight against national planning. This argument is based on the assumption that the bigger the area the more difficult is also the task. I cannot see any logic in this argument, sometimes it is less difficult to manage a bigger enterprise as a whole than the smaller units which are its parts. One may be able to organize human beings in some factory without being in a position to understand the functioning of a human body in detail. I should think that the management of a world plan dealing with food or raw material, water power or man power would not be more difficult than the management of any big chemical plant with all its hardly accountable details.

I think we have to re-adjust all our phraseology and hypothesis for such comprehensive arguments on world planning. Accounting in kind instead of the accounting in money only needs hard theoretical work, which has to be done before we can analyse successfully the new types of institutions and the behaviour of single groups, which take part in building up a new society. Our whole vision will be changed when we start going through these details, through the arrangement of workmen and managers, of experts in knowledge and of experts in organization, and of people with privileges. I think our traditional phraseology, our classification and our argument will not suffice, even if we added Burnham's 'managerial society'.

Decision and Action. The importance of social scientists for the public is, I think, mainly based on the transfer of the results of scientific research made by sociologists, of the results reached by history, to social engineering. Social scientists cannot say anything unambiguous on future events, not even on the "probability" of such events (261). They can only demonstrate that certain hypotheses are in harmony with certain accepted hypotheses. The scientists cannot substitute the results of calculations for decision on these possibilities.

Social sciences, according to Burnham, can predict the actions of social groups much better than one can predict some actions of individuals, the predictability of which he thinks is accepted at least by means of a "probability calculus" (269). He and others who are of the same opinion neglect the circumstances that all our predictions as to the behaviour of individuals depend upon precedents and upon our hypotheses in question. There is not the slightest reason for expecting that we have a greater number of precedents as far as human communities in history are concerned than we have of single individuals. Who, for instance, could predict the future of the Roman Catholic Church at the end of the Roman Empire by using the material accumulated throughout the preceding centuries, where nothing of this type had appeared?

Burnham declares he has no personal wish to prove the theory of the managerial revolution (259). One asks how he reaches his extreme decisiveness in making predictions which he does not even like? This decisiveness would even be unscientific in a case in which somebody fights for something and tries to get a justification for his doing so.

Let us take into account the following consideration which is overlooked by those who handle probability arguments and present decisive results: they may show that something is much more 'probable' as they style it, than something else, but a great many people, greatly admired by us, by all and sundry, take great risks in action though they know the desired results are not regarded as 'probable' outcomes. It is not a scientist's business to find out definite rules according to which somebody should be called a heroic leader of millions, another a gambler with the fate of millions.

I can understand very well that someone should find few indications that mankind will reach peace, plenty and freedom in the near future (270), but on the other hand as a social scientist I cannot see any reasonable argument which could demonstrate that a fight for these three sweet things is in contrast to the scientific hypothesis dealing with the possible future of mankind. If somebody wants to fight for these three things, [for] 'Democratic Planning' and 'Socialism', he will find arguments which are not contradictory to any usually accepted scientific hypotheses.

Burnham criticises from an etymological point of view the fight for freedom remarking that freedom to do something means also to be prevented from doing something else. That depends entirely on how we are using this expression. I should suggest using it for many kinds of multiplicity and toleration within a society. Then it can mean that some types of societies give more freedom, more multiplicity, more toleration than others. A 'new commonwealth' based on peace, plenty and freedom may not seem very likely, but on the other hand I should not say, as Burnham does, that "evidence dictates" not to try such things. There is no such evidence or, speaking more cautiously, I do not know of such evidence.

That is what scientific analysis of the sciences teaches us: if we may present one consistent hypothesis of the future of society then we may present an indefinite number of such consistent hypotheses, also in harmony with our observation statements within a given realm of our discussion.

That is no sophisticated whimsicality of some highbrows, it is the reasonable basis of free people who want to create their future. Therefore just this 'scepticism' in argument is essential for a certain kind of freedom in our decisions and action even if we want to remain in harmony with our scientific attitude.

I see no reason why I should leave this glorious privilege of freedom of action and accept some rigid fixation of my activities by some predictions made by means of unscientific application of probability statements. As scientists we may spread knowledge, and use this spreading of knowledge for social actions, but we cannot spread a theory the unambiguity of which may determine decisions and actions as based on so-called 'laws of history'.

NOTES

* First published in *New Commenwealth Quarterly*, 1943, pp. 148–154.

1. [O. Neurath, *Anti-Spengler*, Callwey, Munich, 1921, excerpts trans. in Neurath, *Empiricism and Sociology*, ed. by M. Neurath and R.S. Cohen, Reidel, 1973, 158–214. Eds.]

2. J. Burnham, 1942, *The Managerial Revolution, or What is Happening in the World Now*, Putnam, London. (American Edition 1941.) [Page references in the text are to this work.]

3. O. Neurath, "International Planning for Freedom", *The New Commonwealth Quarterly*, April 1942.

4. O. Neurath, *Modern Man in the Making*, Secker and Warburg, London/Knopf, New York, 1939, 61 and 145.

(II) WAYS OF LIFE IN A WORLD COMMUNITY*

How a Social Scientist May Look at the Future. Let us suppose somebody wanted to discuss future means of transport. By restricting himself to the collection and comparison of the known ways of transportation, he would limit his enterprise too much. His chances would improve if he could command his imagination properly and concentrate on the analysis of plausible inventions. Similarly, any collection of historically given material would be advantageous, if we were discussing the future of social structures; but, the conception of new ways of life would be of some importance – a kind of creative 'social engineering' or 'scientific utopianism'.[1] We may invent new possibilities, but we shall not be able to invent all of them, because even invention is correlated to certain other social elements, which do not form part of our environment today. Unpredictability plays its part. As we are interested in the discussion of practical questions concerning a future world community, we should stick to this point and avoid dissertations on so called 'historical necessity' or 'historical forces which determine the fate of mankind' and similar phrases which indicate that some of our interlocutors pretend to a knowledge of a 'film' which is as yet in the making. This 'unpredictability' and 'making decisions concerning our future way of life' are closely connected.

Modern Humanism Enters a World Community. Let us imagine various types of world communities and think of their different daily routines, their different kinds of administration and their differences in arguments and decisions. If a world community were based on one comprehensive world empire, a totalitarian outlook would not be out of the question: but in the present situation, some governments, based on military power, may perhaps try to create permanent peace and may support a kind of international tolerance and neutrality of arguing.

We may learn from the history of toleration and persecution, that toleration has seldom been presented as a gift by one victorious and powerful authority; it appeared rather where various groups, which were in a position to fight, resolved to abstain from struggle and to create some modus vivendi. What many people tend to regard as the incompleteness of the world community, the diversity of power centres, may be connected with toleration. It may be the soil in which a kind of modern humanism may grow up; later on, nationality may become a matter of voluntary groups, as religion (is more or less) today, even if, at the beginning, the multiplicity of big and small states forms a rather incoherent community.

Let us imagine what kind of arguments may be brought forward in a serious discussion concerning post-war reconstruction. If the participants mean business, and do not aim at the production of some speech or manifesto for home consumption, they will abstain from their peculiarities in religious faiths, philosophical views or party lines. A debater will hardly impress a colleague who is a violent atheist, but who is fully prepared to co-operate with the others in providing help for distressed areas, with what he calls the Christian point of view. An Indian will hardly hope to convince a Bolivian that something must be done, because it is in harmony with the Hindu way of life, whereas he himself will remain unshaken, if another member of this body presents his general remarks as valid, because they are in harmony with what he calls 'dialectical materialism'.

The interlocutors will hardly discuss the world plan in terms of 'investment of capital', 'profit' and so on, but start with a reckoning in kind, which will be common to all. The lend-lease attitude forms a bridge from the traditional money reckoning to the plausible future reckoning in kind. Without any propaganda for 'humanism', the daily routine of world-wide planning by some international body will lead to it, by the practice of the day. One can learn something from the debates within and around the League of Nations, and from the behaviour of the executives of international bodies, who have gradually acquired a kind of new loyalty and humanity. Louis Fischer and Gandhi have quite a different outlook and way of life, nevertheless a question brought forward by Fischer, in the well-known conversation, instigated a new declaration by Gandhi on the British-Indian tension.

Ways of Life and Ways of Arguing. Any world-wide actions which are to some extent permanent will lead to serious alternations in our outlook. Within the central bodies a kind of modern humanism seems very plausible, as connected with the daily business routine, but one has to think of the spread of these habits and attitudes, views and arguments. Of course that depends partly upon the extent to which freedom of speech is permitted in the member states of the future world community, but, even where this freedom is restricted, something of this world humanism will filter through the usual barriers. It will perhaps become manifest that there is a possibility of discussing actions in a common language and with common arguments, which may afterwards be translated into phrases which sound familiar to people accustomed to the language of some creed or party. Such a world community, with its social lingua franca and its modern humanism, will sharpen the analysis of scientists who deal with various social orders and ways of life. Whereas the anthropologists are concerned with this matter as far as ways of life are historically given, others may think of possible ways of life, of suggestions made, which have not been executed up to now or executed only insufficiently. Comparative studies in 'social engineering' will try to classify the various ways of life, presenting, as it were, kinds of silhouettes, composed of the various qualities of such ways of life.

The willingness to leave other people alone as long as they do not interfere with their neighbours may form one of the important qualities of a way of life. Willingness to think of other people's happiness as one thinks of one's own happiness may form another quality. It will perhaps be useful to distinguish between ways of life in which 'self-sacrifice' has no limits, as far as the 'state' or some 'deity' is concerned, and those in which the 'personal conscience' plays an important role and no order from the outside forces a person to think it a 'duty' to persecute and torment his neighbour.

Of course, certain ways of life look as if they were parts expressly written for certain characters, and these characters will perhaps excel when acting within a certain environment. But on the average people of very different character types co-operate together, thus describing a certain pattern of life. Charles Morris, who tries to discuss a kind of future international way of life, correlates, I think, too many ways of life with character types. That does not alter the importance of his *Paths of Life*, where he gives a kind of modern humanism its position in the history of mankind besides Christianity or Mohammedanism.[2]

Permanency in Social Structures. Social scientists are people with few resources when they try to predict historical changes. Who could have predicted, for instance, the extent of the religious and national persecutions carried out by the Nazis? Even today we can hardly analyse a sufficient number of parallels, such as the inquisition in Spain and its persecution of the Moors and the Jews. Nevertheless, one sometimes succeeds in practice, in predictions, if one assumes that politicians and other men of action will not be very inventive. A century ago

Joseph Lowe maintained that politicians of a period have to apply what they learn in their youth, because they hardly find time to acquaint themselves sufficiently with the results of modern research and modern ways of arguing. That makes traditional ways of arguing so important.

Self-preservation may teach politicians and administrators to support a certain permanency even within so-called progressive movements. If politicians were as modern as possible, they would have the fear that they might be outmoded by other people the day after who wanted to outstrip their predecessors. Therefore, one should try to find out what kinds of old traditions in literature and life can be found in the ways of life of our future world administrators. Many new attempts will hardly be made. That is one of the reasons why historical research helps us somewhat in imagining possibilities connected with traditions.

Moreover, social collaboration is based on the expectation that at least certain patterns of behaviour, if not certain institutions, remain unaltered to a considerable extent; that promises will be kept and agreements held relatively often. Any convention aiming at a planned world society will think in terms of trust, faithfulness and loyalty. Preserving these elements of social permanency is of particular importance because once destroyed they are difficult to restore. Nations with long traditions in this field will perhaps appear particularly able in world-wide collaboration. The predictability of man's behaviour plays a great part on social collaboration, and that is valid also where human groups are concerned. Planning introduces a certain kind of predictability insofar as certain alterations will be executed according to plan. But let us not overlook the fact that one cannot predict in a similar way the continuation of a plan and the growth of a future plan. A kind of predictability vanishes within a planned society, i.e. the wealth predictions, possible to a certain extent, on the ups and downs of market automatism and its business cycles. The tools of higher mathematics could be applied to that, but even these could not provide predictions about the continuation or the vanishing of the automatism and the application of this mathematical scheme.

Educational Support for World Community. There are few hypotheses concerning the relations between education and social behaviour. One cannot expect that where humanitarian doctrines are prevalent, people always behave in a more friendly way than in countries where aggression and rigidity are taught. The Chinese behaved cruelly to criminals in periods in which their literature preached kindness. We do not know to what extent a more cruel literature and other cruel presentations have to be regarded as a kind of harmless substitute. In former times people enjoyed the torture of criminals and animals very much in our countries; perhaps cruelties shown in films are a substitute and instead of stimulating cruel actions they prevent them. But on the other hand one assumes that teaching some way of life is a kind of exercise; reading of kind and human actions may be regarded as a procedure connected with 'conditional reactions'. The imagined performance of an action may be a substitute for the actual deed. I think it useful to look comparatively at the literature of various nations and various authors and at the contents of single books, well known to many people. The wording of the American constitution may be regarded as a subject of our investigation, but also the Arabian Nights, or novels, and of course any kind of bestseller dealing with political matters. From such a point of view one may look at Dante's Hell and ask whether it may be 'dangerous' to 'susceptible' people because it is full of cruelties partly based on Dante's personal resentment. In countries where kindness is traditional, a book may be regarded as not 'dangerous', which elsewhere might form an element of anti-human propaganda. Let us take Plato's Republic as an example. In Germany a sequence of authors exists, who, through generations, preached a kind of expansive nationalism, e.g. Lagarde. He explained that should the small un-German nations perish, it would be not only an advantage for the Germans, who would get their soil, but also for themselves, the poor wretches. Schoolmen and other people, who would object to Nazism proper, praised Lagarde and other authors as leading educationalists, sometimes pretending to be the keepers of an acknowledged philosophy. A German student with a relatively liberal outlook may learn that Plato has to be regarded as an authority in ethical questions. Then, hearing of certain hard and rigid teachings by nationalists on the suppression of the weak, he may not think them too bad, since Plato's Republic maintains: Purity of the race is the highest ideal; marriage is a state institution for breeding purposes, military efficiency has to rule education; children have to learn blood lust like young hounds, by looking at battles; all nations of the same blood should be united and fight the barbarians as natural enemies. Would it be unreasonable to think of reducing the authority of Plato's Republic in circles of German intellectuals by telling of other ways of life taught in antiquity and of authors who analysed the Republic as a promoter of merciless anti-democratic state totalitarianism (e.g., Wieland, Fichte, Crossman, Kelsen)? That does not imply the necessity of saying that Republic 'is the whole Plato'. It would perhaps be useful to analyse books from this educational point of view comparatively in various countries.

World Community Habit in the Making. Literature and education form relatively small elements in the social fabric. As long as the social pattern in Germany remains unshaken, e.g., the position of the 'Junkers' and of the military caste an altered education would be of a rather ornamental nature. Perhaps planning – now a fashion in many countries where it is not already in action – may be supporting a peaceful world community scheme even when local planning is not indispensable within this scheme. International or national planning as a measure against unhappiness deals at least with the main sources of raw materials and energy, with world tonnage and other elements of production and distribution. World schemes or national schemes, based on reckoning in kind, seem to be the appropriate tools for social security. We can, however, imagine planning in the following way, which is not connected with planning of lower levels of production. It is imaginable that a great variety of public authorities, co-operative societies, certain private groups and even individuals could act as they liked within a certain grand framework. The planning of it may just tend to increase the variety of possibilities compared with the variety today, restricted by petition and monopolies. The social security reached by means of planning may lack regional and city planning which is today so much welcomed. On the other hand, regional and city planning, which are able to increase human happiness by co-operation may succeed in their local tasks, in clearing slums, improving street arrangements, creating playgrounds and community centres, and social insecurity may remain, unemployment and restriction of production. Some of the leading nations may fail to use the productive capacity of the world. Nevertheless, the new way of life, which is connected with planning, may accustom people to the planning argument. People who now prefer planning, where it does not support social security, may be educated by this kind of organisation for planning in spheres where it creates social security for all and sundry. This example may show how we can analyse not only educational, but also organisational habits, which may be essentially correlated to the making of a world community. How the masses will behave, what they will accept or reject, will be of importance, even when the first steps are made by governments under the pressure of war co-operation.

The present situation will perhaps lead to a permanent world community; today one can analyse what elements of aggressiveness may be found in capitalist competition, in Nazi and fascist expansiveness, and what elements of peaceful collaboration are to be found in planning. One can analyse the educational and organisational conditions under which a world community may grow up. Of course, one cannot reach very convincing and comprehensive results, but as long as one remains within a scientifically sound field, one may help to spread world community habits and world community arguments.

NOTES

* First published in *The London Quarterly of World Affairs*, July 1944, 29–32.

1. O. Neurath, "International Planning for Freedom", *The New Commonwealth Quarterly*, April 1942, 281–292, at 284, and July 1942, 23–28 [reprinted in Neurath, *Empiricism and Sociology*, ed. by M. Neurath and R.S. Cohen, Reidel, Dordrecht, 1973, 422–440].

2. [C. Morris, *Paths of Life. Preface to a World Religion*, University of Chicago Press, Chicago, 1942. Eds.]

(III) ALTERNATIVES TO MARKET COMPETITION*

Let us be grateful to authors who show up concealed fascism. Professor Hayek's arguments are in line with those of Warner Fite (*Platonic Legend*) and R. H. S. Crossman (*Plato To-day*) who unmasked teachings in the *Republic*. In addition, he maintains that the planning slogans of today are not less totalitarian than those of Plato's *Republic*. We agree with Hayek that there are people who like planning as a new means of obtaining totalitarian leadership and there are others who unwittingly support fascism by promoting certain principles of planning. But we cannot go all the way with Hayek in his relegation of all planning to this category.

In order to discuss these problems seriously, one should analyse not only historically given examples, but also possible social patterns. One should consider, in particular, studies in the 'orchestration of ways of living'. One can imagine a society which provides, through some representative body, for the acquisition of raw materials and foodstuffs, the distribution of which could be based on an orchestration of the various wishes of its members. There could be safeguards of the rights of smaller groups in matters which vitally affect their happiness; groups of a certain size could have the right to their own particular periodicals, types of settlement or even types of work. Majority decisions would only be obtained where unavoidable, as in the case of the central organisation of certain items of production and distribution or the fixing of the width of a railroad gauge for the whole country. Thus unification for its own sake, as a principle of social action, would be avoided.

Of course, the discussion of such a possibility must start with 'reckoning in kind' by avoiding the traditional 'cost' and 'profit' calculus, which is in itself one of the peculiarities of our market society.

Professor Hayek seems to exaggerate his case by giving only one choice, between what he calls the freedom of market competition and *"the planner's"* unlimited totalitarianism. He never thinks of planning as a co-operative effort, based on compromise. Moreover, in fighting totalitarianism he thinks it one's duty to fight planning as well, and to support market competition.

Just now, when democracy is at stake, one should not identify it with the dictatorial majority rule which suppresses minorities. We should prefer to regard democracy as the acknowledgement of 'nonconformism within a freely accepted social order'.

Hayek attacks particularly those who discuss planning for freedom. He does not analyze it seriously and declares dogmatically, without quoting instances, that the more comprehensive an enterprise is, the more difficult it will be to plan it and that therefore world planning is beyond human ability.

He underestimates the amount of restriction of production and of the destruction of produced goods. He does not even think it possible to eliminate poverty and accordingly he paints a very gloomy picture of the post-war situation. He complains that no detailed account of a planned society has ever been drawn up. But in addition to the material provided by modern American and other writers, one should not forget the classical account elaborated by Popper-Lynkeus, which was published at the beginning of this century; he explained that a few years of work would secure an adequate standard of living for all and that more work would secure luxury.

It is a pity that Professor Hayek calls to his aid Burnham, who also speaks of only two possibilities without proving his case.[1] Professor Hayek thinks that if in Central Europe the free market were to be replaced by any kind of planning, nothing but the "naked rule of force" would result. He does not think of any compromise which could bring an increase of happiness to these peoples.

Of course, there are difficulties, where "Haves" and "Have-nots" are concerned.[2] But why should the Norwegian fishermen have to lower their standard of living in order to raise the level of existence in Portugal? Perhaps both could rise together, with that of Portugal doing so more rapidly.

World planning based on co-operation would perhaps give rise to a world-wide feeling of responsibility for other people's happiness. Professor Hayek praises market competition because it does not call for this feeling of responsibility and conceals so many problems.

Today it is fashionable to shift the blame for unpleasant social happenings on to others' shoulders. Professor Hayek assumes that all supporters of planning, socialists and non-socialists alike, are unscientific and support totalitarianism, often unintentionally. He even thinks that the tendency towards more careful argumentative analysis supports totalitarian absolutism. But just this tendency shows that empiricists who argue scientifically, are rather sceptical and envisage several possibilities, fighting any 'pseudo-rationalism' which regards one solution as the only and best.

What would Professor Hayek answer if the tables were turned on him? Is it so unlikely that some people, seeing only Hayek's or Burnham's alternative of totalitarianism with full employment to a free market with the usual booms and slumps, will choose the former with tears in their eyes? Is it so unlikely that people who think of planning for freedom will be in a better position, when stating their case against the painful market society of the past and against dictatorial planning, based on totalitarian fascism?

NOTES

* Review of F.A. Hayek, *The Road to Serfdom*, Routledge and Sons, London, 1944. First published in *The London Quarterly of World Affairs*, January 1945, 121–122.

1. O. Neurath, "Planning or Managerial Revolution", *The New Commonwealth Quarterly*, April 1943, 148–154 [reprinted in this volume].

2. O. Neurath, "International Planning for Freedom", *The New Commonwealth Quarterly*, April 1942, 281–292, and July 1942, 23–28 [repr. in Neurath, *Empiricism and Sociology*, ed. by M. Neurath and R.S. Cohen, Reidel, Dordrecht, 1973, 422–440].

OTTO NEURATH

19. AFTER SIX YEARS*

A period of terrible war and persecution has shaken not only Europe but the whole of mankind. And even the present situation looks very gloomy. But many people who survived this hell are able to carry on in various fields of private and social life. Most of them continue what they did before and often during the disturbances of war and persecution.

Some look at this war as some extraordinary disaster of mankind and think life now less worth living in a world in which such cruelties are possible. I think this attitude is partly based on an insufficient realisation of what happened in history before. Some centuries ago Europeans destroyed an American civilisation entirely; we know of the persecution of Jews, Arabs, heretics and other groups within Europe, we know of millions of Armenians who perished in the 19th century massacres and of many other terrible events all over the world.

I should rather think our present civilisation with all its customs and costumes, with its art and science, shows resilience to any kind of upheaval. But many people take a different view of history, whether a catastrophe befalls themselves, their kith and kin, whether it befalls people in far away countries, or people in the past. I even think that many people did not resist the gradual growth of modern horror, because they did not feel much abhorrence of past terrors and of terrors in countries far away, on the contrary, they had learned to call terrible periods, terrible politicians and the writers of terrible books 'great'. That is the reason why I think that social studies connected with the fostering of a sense of social responsibility might be of some importance.

The fact that human history is, by tradition, so much made of war and persecution has a comforting element in it – it helps us perhaps to bear better all these depressing happenings and to create happiness even within such surroundings, just as other people did before. In all countries, even in those which have been heavily punished by the war, scholarly activities are developing. There is an increasing number of people who look at scientific research as a means of a comprehensive planning of social life, which will be more secure and more happy than before, assuming that one will succeed in overcoming slumps and booms with unemployment and restriction of production. In fact one meets today even sometimes more hopefulness than some decades ago and one thinks sometimes that people believe too much in a kind of automatic increase of happiness after some changes in organisation have been effected.

But however one may look at history and present happenings, it is a fact that intellectual life is continuing its traditions all over the world. Our Dutch friends, interested in intellectual coordination and 'synthesis' throughout the nations, want to see the Unity of Science movement playing a part within such a framework of possible international cooperation, as it tried to do before. They have encouraged us to continue the publication of the "Unity of Science Forum". We appreciate this tenacity and are now publishing that issue of the "Unity of Science Forum" whose publication the Nazis suppressed, exactly as it has been preserved throughout the occupation period. Here it is.

It would need some comprehensive research to give an adequate picture of the Unity of Science movement during the war. Perhaps it may be of interest to some of our readers when I tell something of a more personal character. This short introduction does not even pretend to anticipate a real survey, which will be given by various collaborators in subsequent issues.

Just as the Second World War started, the Fifth International Congress for the Unity of Science took place at Harvard, Cambridge, Mass., U.S.A., from 3rd to 9th September 1939. We listened to Roosevelt's radio speech on the evening of the opening of the congress. Some of the European members of the congress found shelter in the U.S.A., e.g. Kraft (Netherlands), Oppenheim (Belgium), Tarski (Poland). Kelsen returned first to Europe and came back later on. I myself returned to The Hague, the seat of the International Institute for the Unity of Science. In May 1940 I, together with others, reached the British shores after travelling in a motor life boat, picked up by a British destroyer. We thus joined scholars who either belonged to the Unity of Science movement in the narrower sense or have been connected with it. Of the former Vienna Circle the following had already been working in the U.S.A.: G. Bergmann; R. Carnap; H. Feigl; Ph. Frank;

K. Gödel; C. Hempel; K. Menger; R. v. Mises; in Great Britain there was F. Waismann. The following are either in the U.K. or in the U.S.A.: E. Brunswick; A. Herzberg; H. Geiringer; O. Helmer; F. Kaufmann; K. Korsch; K. R. Popper; H. Reichenbach; L. Rougier; M. Strauss; L. Wittgenstein. H. Gomperz and E. Zilsel, who reached the U.S.A. from Europe, died there. Hosiasson and her husband Lindenbaum died, as far as we know, in Poland; K. Grelling is missing, deported by the Gestapo. J. Joergensen and N. Bohr (Denmark); A. Ness (Norway); F. Enriques (Italy) and our Dutch Significs friends are alive, some of them after dangerous adventures. All of us, who reached the U.S.A. or Great Britain came in contact with our American and British friends who did so much for us. We have to deplore the loss of L. Susan Stebbing who died after a long illness. We shall speak of her in the Forum where we are now publishing two short reviews she wrote in 1939.

Of course during the war contacts between the U.S.A. and Great Britain were somewhat restricted but never interrupted and we all have been able to do something for our scientific purpose. The "International Encyclopedia of Unified Science" published in the meantime some further monographs: *The Development of Rationalism and Empiricism* by G. de Santillana and E. Zilsel, *Foundations of the Social Sciences* by O. Neurath and *Foundations of Physics* by Ph. Frank.[1] The Journal of Unified Science and the "Library of Unified Science" (monograph and book series) could not be continued during the war bit will continue now. *Kurzes Lehrbuch des Positivismus* by R. v. Mises came out just before the Nazis entered the Netherlands. A certain amount of the edition reached the U.S.A.[2]

I clearly realized the tendency within our movement to deal with actual life when I looked at Stebbing's *Ideas and Illusions*, the preface dated "Tintagel, April 1941", where the school she and her friends had organised had been evacuated from London. Here she continued her fight against muddled arguing, as started in *Philosophy and the Physicists* and in her *A Modern Elementary Logic*, which was intended to be a book for students, some of them in the army, without any guidance from a teacher.[3] I speak of these details, because they clearly show how persistent scientific life is. Charles Morris, usually dealing with the theory of signs, published his *Paths of Life. Preface to a World Religion* in which he tried to coordinate various 'ethical' approaches to with certain types of human behaviour.[4] He allows some space to the Maitreyan

Path of Generalised Detached Attachment, which, he thinks, could form the basis of a future international humanism. Of course, Bertrand Russell has continued the fight against distorted arguing. In 1943 he published in the U.S.A. *An Outline of Intellectual Rubbish. A Hilarious Catalogue of Organized and Individual Stupidity*, where he attacked many market slogans and catch phrases. He published a selection of his essays under the title *Let the People Think*. His comprehensive work *A History of Western Philosophy* which characterises Platonism as a kind of fascism and Rousseau together with some others as dangerous romantics, has just come out.[5]

I think these few examples show with what energy people of our movement worked during the war and how they tried to be in contact with topical questions which are of interest even to the man in the street. I should say that my *Foundations of the Social Sciences* is also an example of this attitude to treat our work within Logical Empiricism as something which serves everybody immediately by reducing the number of prejudices. I do not think that one can distinguish between the problems of scientists and the problems of the man in the street. In the end they are more interlinked than people sometimes realise. Any synthesis of our intellectual life, any orchestration of various attempts to handle life and arguments should never forget these far reaching social implications.

I started studying Mach, Avenarius, Duhem, Poincaré – as perhaps others did in the same way – mainly from a scientific point of view, feeling that the traditional self-confidence of ‘scientific absolutism’ did not harmonise with the ‘relativism of scientific practice’. Even before the First World War I realised that acknowledging a kind of primary ‘pluralism’ in our scientific approach has also its consequences for our daily life. If science enables us to make more than one sound prediction, how may we use science as a means of action? We can never avoid a ‘decision’, because no account would be able to show us one action as ‘the best’, no computation would present us with any ‘optimum’, wherever actions have to be discussed. Therefore ‘decision’ plays its part in any kind of scientific research as well as in our daily life.

That is the reason why I stressed the ‘unpredictability’ as an essential element of empiricism, thus repudiating all attempts to use univocal historical predictions as the basis of social actions. I try to stress the point that any kind of intellectual absolutism should be avoided as not being in harmony with our scientific practice, which is of the same type as our everyday life.

That is one of the reasons why I think that one should carefully analyse the works of our friends which deal with calculus under many aspects, sometimes, I think, introducing a kind of intellectual absolutism without knowing it. The technique of building up a scientific language which serves all of our scientific activities has been highly improved during the war. Carnap's *Studies in Semantics* deal with calculus problems, the importance of which I do not presume to judge.[6] In these papers which are more or less in harmony with Tarski's well-known investigations and with Charles Morris' studies on signs, I and also E. Nagel and M. Strauss discover a kind of Aristotelian absolutism. Even if one tries to distinguish between what Carnap calls the 'semantical concept of truth' on the one hand and the expression 'truth' on the other hand, as far as it belongs to the same family as 'verified', 'confirmed', etc., I think it is already dangerous if one tries to start, not from 'factual statements' as compared with other 'statements' on 'various levels' (as I suggest to do), but speaks of "designatum', i.e. of a 'fact' and its 'name', of the 'relation of signs to their objects', etc. All these discussions are going on, war or no war, and they will lead perhaps to some further fruitful analysis.

Clearly connected with these studies are papers dealing with 'confirmation' and its 'degrees', as published by Carnap, Hempel and others.[7] Here too I see a tendency away from the 'pluralism' of Logical Empiricism, which does not enable us to start from one given basis of judgement, as would be needed, when speaking of confirmation and its degrees. 'Pluralism' seems to lead to an orchestration of statements in any case, leaving many things open to 'choice' and 'decision', which even many of our scientific friends want to handle by means of a univocal calculus.

Perhaps the discussion concerning the probability calculus (see E. Nagel's monograph on this subject in the International Encyclopedia of Unified Science and now the "Symposium on Probability" in the American quarterly *Philosophy and Phenomenological Research*) is also [marked] with flavours of some absolutism of approach.[8] Even when Carnap suggests to speak of two types of probability, which only have the name in common, there remains the difficulty to apply a calculus with an infinite collective to empiricist groups of items to which the expressions 'finite' and 'infinite' can hardly be applied.[9] R. v. Mises and H. Reichenbach, who treated these problems at our congresses, have further evolved their explanations.[10] Since this field of arguments is linked up with so many sciences, the outcome of this debate will be of some importance for the Unity of Science movement, which is not directly interested in the details of a particular scientific discipline.

I think that all of us, who tried to do something for the creation of a kind of universal jargon as a *lingua franca* for the sciences support the intellectual synthesis by providing people with a proper means of a communication of argument. The cooperation based on Logical Empiricism does not substitute a kind of new empiricist dogmatism for the dogmatism of metaphysical speculation, as some of our critics think. Having a universal jargon in common does not imply that the same scientific 'laws' have to be valid in the various fields of scientific research. Even for the discussion of all the differences in our arguments we need a common language – that should be, we think, the universal jargon of Logical Empiricism.

'Terminological Empiricism', as I call it, tries to stress the fact that a selection of everyday expressions is suitable for building up the universal jargon and, more than that, that this selection of everyday expressions is sufficient not only to form the basis for mutual understanding, but also to be the basis of all our scientific enterprises which are finally rooted in the big mass of 'protocol statements'. Metaphysical speculation as such (with its 'isolated sentences') is dividing human beings and preventing them from creating such a *lingua franca* and, in our opinion, the basis of scientific cooperation.

The 'pluralist' approach of Logical Empiricism does not support any kind of totalitarian outlook. Of course, people may behave intolerantly even being empiricists, but they are not in a position to use the results of Logical Empiricism for creating the rule of one and only one 'ideal'. Logical Empiricism rather nourishes a kind of 'orchestration', as Horace Kallen calls it. Therefore, thinking in terms of comprehensive planning in the social field does not imply the exclusion of variety, on the contrary, one can imagine that people acknowledge pluralism as an element of life. Arguing along these lines, one realises a greater variety of ways of life within our society by means of comprehensive planning than people would have even thought of before.

But all that, I consider, forces us to think from the start that the 'system' of our knowledge is not, as some scholars believe, a good model of our scientific purpose, but a kind of 'encyclopedia' in which even contradictions may appear, which one tries to 'localise' so that they are not 'infecting' the whole body of our scientific fabric, as one should expect if the sciences together would be regarded as parts of a consistent system of statements. These fundamental problems of what one may call 'encyclopedism' are within the Unity of Science movement of some topical importance. I hope that the "Unity of Science Forum" will be in a position to create a kind of platform on which all kinds of discussions may take place which aim at dealing with these and similar problems, ranging from the analysis of language to the analysis of social organisation.

NOTES

* First published in *Synthese* 5 (1946) pp. 77–82. The notice "Oxford, December 19th, 1945" concludes the paper, making it the last piece of writing Neurath completed.

1. [G. de Santillana, "Aspects of Scientific Rationalism in the 19th Century" and E. Zilsel, "Problems of Empiricism", both in de Santillana and Zilsel, *The Development of Rationalism and Empiricism*, 1941; O. Neurath, *Foundatuions of the Social Sciences*, 1944; P. Frank, *Foundations of Physics*, 1946; all University of Chicago Press, Chicago. Eds.]

2. [R.v. Mises, *Kurzes Lehrbuch des Positivismus*, Stockum, The Hague, 1939, trans. *Positivism*, Harvard University Press, Cambridge, Mass., 1951. Eds.]

3. [S. Stebbing, *Ideas and Ilusions*, Watts, London, 1941; *Philosophy and the Physicists*, Methuen, London, 1937, *A Modern Elementary Logic*, Methuen, London, 1943, 5th ed. rev by C.W.K. Mundle, 1961. Eds.]

4. [C. Morris, *Paths of Life. Preface to a World Religion*, Harper & Bros., New York, 1942. Eds.]

5. [B. Russell, *Outline of Intellectual Rubbish. A Hilarious Catalogue of Organized and Individual Stupidity*, Haldeman-Julius, Girard, Kansas, 1943, repr. in *Unpopular Essays*, Simon and Schuster, New York, 1950, 71–111; *Let the People Think*, Watts, London, 1941; *A History of Western Philosophy*, Simon and Schuster, New York/Allen & Unwin, London, 1945/1946. Eds.]

6. [R. Carnap, *Introduction to Semantics*, Harvard University Press, Cambridge, Mass., 1942, and *Formalization of Logic*, Harvard University Press, Cambridge, Mass., 1943. Eds.]

7. [R. Carnap, "On Inductive Logic", Philosophy of Science 12 (1945) 72–97; ; C.G. Hempel, "Studies in the Logic of Confirmation", *Mind* 54 (1945) 1–26, 97–121; C.G. Hempel and P. Oppenheim, "A Definition of 'Degree of Confirmation' ", *Philosophy of Science* 12 (1945) 98–115. Eds.]

8. [E. Nagel, *Principles of the Theory of Probability*, University of Chicago Press, Chicago, 1939; see also "Symposium on Probability" in *Philosophy and Phenomenological Research* 5 (1945) for Nagel, "Probability and Non-demonstrative Inference", and Carnap, "The Two Concepts of Probability". Eds.]

9. [R. Carnap, "Two Concepts of Probability", *Philosophy and Phenomenological Research* 5 (1945) 513–532. Eds.]

10. [R. v. Mises, "On the Foundations of Probability and Statistics", *Annals of Mathematical Statistics* 12 (1941) 191–205; H.. Reichenbach, "Reply to D.C. William's Criticism of the Frequency Theory of Probability",*Philosophy and Phenomenological Research* 5 (1945) 508–12. Eds.]

NAME INDEX

The editors and translators of this volume are listed only when occurring in another capacity.

Abbe, E. 256, 261
Adler, F. 288
Aristotle 2, 3–5, 80, 111, 125, 154, 311, 341, 400
Albert, M. 89, 91
Aldenhoff, R. 77, 91
Alexander 508
Allen, R. 80, 96
Amann, A. 77, 81, 91
Ambrosius 147
Ammon, A. 88
Appian 141, 155, 195,
Archenholtz 428
Ardant, G. 89, 91
Arrow, K. 90–1
Atlanticus (*see* Ballod, K.)
Augustine 147–8
Augustus 141
Aurelius, M. 137
Avenarius, R. 553
Ay, E. 75, 91

Bacon, F. 288
Ballod, K. 41, 44, 54, 69–70, 81–3, 85, 91, 243, 302, 311, 373–4, 404, 442, 445
Bardan, P. 89, 104
Barone, E. 67–8, 88, 91
Bauer, H. 56, 83, 85, 91
Bauer, O. 10, 42–3, 81–2, 91, 374, 404
Baumgarten, E. 89, 91
Bebel, A. 44
Becher, J.J. 34, 271, 289, 341
Beer, A. 116, 120
Beloch, J. 78, 117, 121, 151, 195
Benhabib, S. 87, 91
Bentham, J. 289, 460
Bergmann, G. 551
Bergson, A. 73–4, 88, 90, 91
Bergström, L. 80, 91
Bernoulli, D. 279, 291
Bernstein, E. 25, 42, 53
Beveridge, W. 69
Bews, J.N. 509
Beyer, H. 81–2, 91
Billetter, G. 117
Bismarck, O.v. 53, 183, 198
Blaug, M. 76, 91
Boeckh, A. 21, 91, 111, 117, 119,
Böhm-Bawerk, E.v. 10, 28–9, 34, 52–3, 79, 85, 92
Böhmert, V. 78
Boese, F. 31, 79–80, 92
Boettke, P. 83, 84, 88, 92
Bohr, N. 552
Bonss, W. 87, 91
Bortkiewicz, L.v. 53, 85, 92, 288–9
Bottomore, T. 89, 92
Brentano, L. 34, 75, 92, 289
Breysig, K. 20, 92, 114, 374
Bruch, R.v. 77, 92, 96
Brugsch, H.K. 116
Bruni, L. 80, 92
Brunswick, E. 552
Brus, W. 85, 92
Brutzkus, B. 84
Buckle, H.T. 13
Bücher, K. 22, 78, 92
Büsch, J.G. 302, 312
Bukharin, N.I. 75, 82–3, 92
Burkhardt, H. 267, 288
Burnham, J. 69, 528–9, 531–8, 548–9

Cabet, E. 243
Caldwell, B. 75, 92
Cambyses 129
Carey, H. 34

Carnap, R. 4–5, 57, 59–60, 65, 86, 92, 551, 554, 556
Carr, E.H. 81–2, 92
Cartright, N. 75, 76, 93
Cassell, G. 34, 80, 289
Cassirer, E. 4
Cat, J. 75–6, 89, 93
Cato 119, 144
Cicero 22
Chaloupek, G.K. 77, 84–5, 93
Chang, R. 76, 93
Chase 186, 191
Charlemagne 123
Chuangtsu 458
Cockshott, P. 89, 93
Cohen, R.S. 76, 90, 370, 404, 512, 538, 546, 549
Cohn, A.W. 84, 93, 446, 465
Cole, G.D.H. 87
Colquhoun, P. 197, 243, 302–3, 312
Comte, A. 13
Constantine, I. 141
Constantine XI 230
Constantine XII 230
Cooter, R. 38, 80, 90, 93
Cottrell, A. 89, 93
Cournot, A. 270
Cramer 280
Crossman, R.H.S. 545, 547
Cunow, H. 79, 81, 93
Cyrus 129

Dahms, H.J. 64, 87, 89, 93
Dante 544
Darius 129–30
Darwin, C. 289
Davis, J.B. 76, 93
Deblonde, M.K. 76, 93
Delitsch, F. 120
Desai, M. 77, 93
Devine, P. 89, 93
Dilthey, W. 14, 20,
Dio Cassius 135, 137, 142, 146
Dio of Prusa 141, 144, 146
Diocletian 140–1, 145, 397
Diodorus 134, 195
Dionysius of Halicarnassus 195
Dobb, M. 77, 93
Dolman, A.J. 89–90, 106
Droysen, H. 13
Dubiel, H. 87, 93
Dühring, E. 439–40, 443
Duhem, P. 7, 80, 269, 288, 553

Ebert, F. 39, 81
Eisner, K. 40, 42, 81, 93, 443
Elliot, J. 89, 93
Ellman, M. 83, 93
Elster, J. 74, 76, 94
Endres, A. 76, 94
Engels, F. 407–8, 410–12, 414, 420, 430, 439–41, 443
Enriques, F. 80, 288, 291, 552
Epicurus 415
Estrin, S. 76, 97
Ettinger, J.v. 89–90, 106
Eulenburg, F. 79, 94
Eusebius 142

Factor, R. 77, 106
Fechner, G. 37
Federn, W. 198–9
Feigl, H. 551
Ferguson, A. 158
Fichte, J.G. 545
Finlay, M.I. 78, 94
Fischer, A. 487
Fischer, L. 540
Fisher, I. 80
Fite, W. 547
Fleck, C. 77
Fleck, L. 7–6, 79, 81–2, 94
Fledderus, M.L. 86, 94, 505
Fourier, C. 243
Frank, R.I. 151
Frank, P. 5, 57, 73, 76, 87, 94, 509, 551–2, 556
Francke 81
Frenkel, E. 81, 94
Freudenthal, G. 76, 94
Friedel, H. 81, 94
Friedländer, L. 116
Fröhlich, P. 83, 109
Fuchs 306

Gaius 142–3,
Galiani, F. 34
Gassendi, P. 415
Gehrig, 75, 81, 94
Geiringer, H. 552
George, H. 34, 162–3, 165, 173, 196–7, 304, 349, 529
Geras, N. 90
Gesell, S. 75, 94
Ghandi 541
Gibbard, A. 90, 94
Gittermann, M. 81, 95
Gödel, K. 552
Goethe, J.W. 122, 151
Goldscheid, R. 304
Gomperz, H. 552
Gorges, I. 77, 95
Gossen, H.H. 34, 279, 291, 341
Gothein, E. 19
Graf, F.W. 77, 92, 96
Grassl, W. 77, 95
Gray, A. 432
Greiling, W. 81, 86, 95
Grelling, K. 77, 552
Grossman, G. 82, 95
Grotius, H. 195
Grünberg, C. 78, 80, 86
Grunberger, R. 75, 95
Guala, F. 80, 92
Gülich, G.v. 194
Günther, E. 79, 95

Hadrian 137
Hahn, H. 57, 65, 92
Hahnel, R. 89, 91
Haller, R. 75, 76, 95, 150–1, 234, 288, 296, 298, 311, 512
Halm, G. 67
Hammurabi 127–8,
Hands, D.W. 75–6, 93, 95
Hansen, R. 77, 95
Hanslick, E. 374
Hartmann, L.M. 78
Hausman, D. 80, 95
Hayek, F.A. 8, 10–11, 46, 49, 51–2, 58, 66–71, 76, 80, 84, 87–9, 547–9

Heichelheim, F.M. 78, 95
Helffrich, K. 196–8
Helmer, O. 552
Helmot 287
Hempel, C.G. 65, 76, 552, 554, 556
Hennis, W. 77, 96
Herodian 137
Herodotus 126–7, 133,
Hertzka, T. 243, 303
Hicks, J. 73–4, 80, 96
Hilferding, R. 26, 43, 79, 81, 96, 425
Hinneberg 287
Hock, C.v. 196–9, 311
Höfer, U. 150–1, 234, 296, 311
Höffding, H. 288, 508
Hoffmann, J. 81, 96
Hofmeister, A. 117
Hosiasson, J. 552
Home, H. 197
Homer 130
Horkheimer, M. 64–5, 86–7, 96, 526
Howard, M.C. 83, 85, 96
Hué, O. 81
Hübinger, G. 77, 92, 96
Hume, D. 34
Hutchison, T.W. 84, 96

Iggers, G. 77, 96
Ihering 113

Jaffé, E. 40, 81, 83, 306
Jaurés, J. 166
Jehu 128
Jevons, W. 34, 277, 288, 290–1
Jodl, F. 78, 96
Joergensen, J. 552
Jöhrs, A. 312
Jolink, A. 76, 96

Käsler, D. 77, 96
Kaldor, N. 73–4
Kallen, H. 555
Kampffmeyer, P. 81, 96
Kanitz, H.W.A.v. 166
Kant, I. 453
Kaufmann, F. 77, 96, 552
Kautsky, B. 56, 86, 96

Kautsky, K. 25, 42–3, 53–6, 67, 81, 85–6, 96, 373, 442
Kelsen, H. 545, 551
Kenner, F. 116
King, J.E. 83, 85
Klee, P. 40
Klocki, C. 195
Kluge, U. 81–2, 96
Knapp, G.F. 34, 197, 285
Knies, K.G.A. 34
Köhler, E. 80, 90, 96
Kohler, J. 113
Kolb, E. 81, 96
Komorzynski, J.v. 341
Korsch, K. 42–3, 56, 81–2, 86, 96, 552
Kowalik, T. 82, 85, 96–7
Kraft, J. 551
Kramar, K. 198
Kranold, H. 40, 43–4, 83, 373
Kraus, O. 289
Kripke, S. 89, 97
Kropotkin, P. 352, 369, 374
Krüger, D. 77, 79, 81, 97
Kubin, A. 81
Kuda, R. 83, 104
Kurz, H.D. 85, 97
Kusch, M. 77, 97

Lactanius 141
Lagarde, P. de 544
Laibman, D. 89, 97
Lamprecht, K. 13, 19, 77–8, 97
Landauer, G. 41, 97
Landauer, C. 82–3, 97
Lang, L. 196
Lange, O. 11, 52, 68, 76, 88, 97
Langen, A. 195
Laotse 458
Lavoie, D. 77, 88–9, 97
Lederer, E. 43, 81, 83,
Le Grand, J. 76, 89, 97
Lehmann, M. 116
Leibniz, G.W. 266
Leichter, K. 56, 86, 97
Leichter, O. 56, 85, 97
Lenin, V.I. 82–3, 97
Leonard, R. 76, 97
Lepenies, W. 77, 97
Le Play, F. 357, 420
Lepsius, K.R. 116
Lerner, A.P. 88
Lessmann, O. 77, 90, 97
Lewis, L.W. 196
Lexis, W. 196
Liebknecht, K. 42
Lindenbaum, A. 552
Lindenlaub, D. 77, 97
List, F. 153, 159–60, 195–6, 273, 341, 374
Little, I. 73, 88–90, 97
Livy 195
Love, J.R. 78, 151, 97
Lowe. J. 243, 542
Lukacs, G. 56
Lukes, S. 82, 98
Lullus, R. 266

Luxemburg, R. 42, 81
Mach, E. 5, 7, 21, 507, 553
Mäki, U. 76–7, 93, 98
Malthus, T. 34, 475
Mannheim, K. 77
Marcuse, H. 64
Marshall, A. 34, 80, 279–80, 291
Martinez–Alier, J. 8, 76, 84, 98
Marx, K. 14, 34, 52–3, 55–7, 76, 85, 89–90, 151, 303, 341, 349, 374, 404, 407–8, 410–15, 422–3, 430, 432, 435–43, 446–7, 463–6, 472, 483
Mataja, V. 28
Mayet, P. 196
Mayr, G.v. 312
McCole, J. 87, 91
Meister Eckart 458
Meja, V. 77, 98
Menger, A. 41, 98, 404
Menger, C. 7, 10, 13, 28, 34–5, 89, 341
Menger, K. 10, 552
Merton, R. 63, 98
Meyer, E. 6, 16, 19, 22–3, 78, 98, 113, 121, 151–2, 374
Migdal, U. 86, 98
Mill, J.S. 34, 162, 341, 460
Miller, D. 76, 98

Mises, L.v. 8, 10–11, 34, 45–6, 48–51, 53–5, 67–8, 76, 80–9, 98, 428–30, 463–4
Mises, R.v. 552, 554, 556
Mitchell, A. 81, 98
Moellendorff, W.v. 40, 43, 45, 81–2, 84, 109, 374, 404, 443
Mohammed 133
Mohn, E. 75, 98
Mommsen, T. 116, 121, 151, 195
Morgenstern, O. 10
Morris, C. 87, 542, 546, 552, 554
Morus, T. 34
Mühsam, E. 79, 81, 98
Müller, D. 113
Müller, R. 81, 98
Müller, W.M. 151
Müller–Lyer, F. 374, 414
Munda, G. 76, 90, 98
Mussolini, B. 87

Naess, A. 552
Nagel, E. 554, 556
Napoleon, I. 302
Naumann, F. 194
Necho II 126
Nebuchadnezar 129
Nehemia 129, 132
Needham, J. 87
Neider, H. 76, 86, 99
Nelson, L. 77
Nemeth, E. 75–6, 81, 90, 99
Nero 139, 142
Neumann, M. 89
Neurath, M. 76, 86, 150, 370, 404, 512, 538, 546, 549
Neurath, O. *passim*
Neurath, P. 16, 76, 81, 90, 102
Neurath, W. 9, 26, 76, 79, 102, 196, 198, 243, 245, 261, 289–90, 303, 311, 341, 349, 356, 373, 404
Newmarch, W. 194, 196
Niebuhr, B.G. 114
Niekisch, E. 75, 102
Nielsen, C. 79, 81, 102
Nitzsch, K.W. 114
North, D. 158
Noske, G. 81
Nove, A. 85, 103
Nussbaum, M. 77, 103

Ollman, B. 89, 103
O'Neill, J. 8, 76–7, 84, 86–8, 90, 97, 103
Oppenheim, P. 551, 556
Oppenheimer, F. 195, 243, 302, 529
Oresmius 34, 532
Origin 146

Palyi, M. 76, 103
Pareto, V. 34–8, 80, 88, 103, 274, 277, 289–90, 341
Parsons, S.D. 84, 103
Pasion 117
Patroclus 146
Pearson, K. 80, 288, 291
Pericles 173
Peukert, H. 77, 103
Philippovich, E.v. 28, 30–2, 34, 79, 92, 103
Philostratus 141
Pierson, N.G. 55, 67, 103
Pigou, A.C. 38, 73, 80, 103
Pircher, W. 79, 103
Pitt, W. 177
Plato 34, 130, 509, 544–6
Plenge, J. 79
Pliny 135–8, 142–4
Plutarch 155, 195
Poincaré, H. 7, 80, 266, 269, 288, 353
Polanyi, K. 83, 89, 103
Pollock, F. 82, 86–7, 103
Polybius 116, 195
Polycrates 129
Popper–Lynkeus, J. 41, 44, 69–70, 83, 89, 103, 243, 302, 311, 373–4, 404, 441–2, 445, 468, 529, 547
Popper, K. 64, 86–7, 103, 552
Preisigke, F. 258, 261, 312
Preobrazhensky, E. 82, 92
Propper, C. 89, 97
Psamtik 126
Ptolemy II 129

Quesnay, F. 34, 340, 483–4
Quine, W.V.O. 4, 58

Raffel, F. 195
Rammstett, O. 77, 103
Rappoport, P. 38, 80, 90, 93
Rathenau, W. 82, 84, 350, 356, 373–4, 404
Ratzel, F. 374
Raupach, H. 79, 82, 103
Reichenbach, H. 552, 554, 556
Renauld, J.v. 197–9
Renner, K. 75
Ricardo, D. 14, 34, 341, 483
Rickert, H. 19, 78, 508
Riesser, J. 197–9
Riha, T. 77, 104
Ringer, F. 77, 104
Revillout, E.C. 112–13
Robbins, L. 38, 71, 73–4, 80, 84, 104
Robinson, R. 89, 97
Rodbertus, J.K. 22, 198
Roemer, J. 76, 89, 104
Roosevelt, T. 551
Roscher, W.G.F. 34, 195, 270, 289, 341
Rougier, L. 552
Rousseau, J.J. 553
Russell, B. 553, 556
Rutte, H. 288, 298, 512

Salerno, J.T. 88
Salmanassar II 128
Samuelson, P. 73, 80, 90, 104
Santillana, G. de 552, 556
Saumaise, C. de 111
Sax, E. 28, 34, 289
Say, J.B. 282, 291
Schäffle, A. 47, 84, 104
Schapire(–Neurath), A. 6, 34
Schairer, E. 84
Scheidemann, P. 81
Schiller, H. 121, 151
Schippel, M. 75, 104
Schleier, H. 77, 78, 104
Schlesinger, R. 83, 104
Schlick, M. 4, 57,
Schmidt-Petri, C. 90
Schmoller, G. 6–7, 13, 27, 31, 77, 195, 291
Schneider, D. 83, 104
Schön, M. 77, 104
Schricker, R. 75, 104
Schumann, W. 40, 43–4, 81, 83–4, 370, 373–4, 404
Schumpeter, J.A. 10, 29, 34–5, 43, 76–7, 80, 83, 88, 92, 104, 279, 288–9, 291
Schurtz 374
Schweickart, D. 76, 104
Sen, A. 8, 74–5, 76–7, 90, 103–5
Shearmur, J. 88, 105
Siemens, C.F.v. 81
Siemeon II 230
Simon, H. 7, 90, 105
Sismondi, J.C.L.S. 34, 304, 341, 349, 483
Smith, A. 14, 34, 158–9, 195–6, 282, 287, 291, 302, 341
Smith, B. 70, 77, 94, 105
Smuts, J. 509
Sombart, W. 13, 30, 80, 83
Soros, G. 89, 105
Spann, O. 34, 80, 288, 509
Spencer, H. 288
Spengler, O. 4, 69, 89, 374, 528, 532
Spulber, N. 83, 105
Sraffa, P. 53
Stadler, F. 75, 86, 90, 105
Stalin, J. 85
Stark, G.D. 84, 105
Stebbing, S. 552–556
Steedman, I. 77, 85, 105
Steele, D. 77, 84, 88, 105
Steinmetz, R. 195
Stengel, P. 151
Stigler, G.J. 80, 105
Stehr, N. 77, 98
Steuart, J. 34, 197–8, 341
Stölting, E. 77, 105
Strauss, M. 552, 554
Streissler, E. 10, 76, 105
Ströbel, H. 81–2, 105
Ströll, M. 198
Struensee, K.G.v. 182–3, 187, 194, 197–8
Suetonius 136, 138, 142–5,
Sydow, S. 197

Tacitus 136–9, 142–3
Tarski, A. 551, 554
Taylor, F.M. 11, 76, 105
Tenbruck, F. 78, 106

Thomas, W.I. 63, 106
Thucydides 131
Thünen, J.H.v. 28, 34, 341
Tiberius 139
Tinbergen, J. 8, 66, 73, 76, 89–90, 106
Tintner, G. 90, 106
Trajan 142
Tribe, K. 63, 77, 79, 106
Trotsky, L. 79, 106, 450
Tönnies, F. 16, 19, 78, 106, 350, 352, 374, 404
Tooke, T. 194, 272
Turnau, F.O. 374
Turner, S. 77, 106
Turgot, de 34

Uebel, T.E. 75–6, 79, 81, 84, 86–7, 102–3, 106–7
Umbreit, P. 81

Varga, E. 82, 107
Varro 143
Vaughan, K. 77, 88, 107
Veblen, T. 80, 107
Viner, J. 90, 107
Vocke 196
Völcker, H. 196–7
Vogelsang, K.v. 34
Vogelstein, T. 81
Vohra, R. 88, 107

Wagner, A. 28, 34, 194–5, 197–8
Waisman, F. 552
Walras, L. 34, 35, 270, 289
Watt, S. 90
Weal, A. 88, 107
Weber, A. 76, 83
Weber, M. 6–8, 11, 13–14, 19, 22–4, 29–32, 34, 46–8, 50–1, 76–84, 89, 107–8, 114, 119, 151, 291, 535
Weil, F. 57, 81, 86–7, 109
Weisbach, F.H. 113, 119
Weiss, F. 57, 86, 109
Weissel, E. 81, 109
Weisser, G. 77, 109
Wellhausen, J. 195
Werner, P. (*see* Fröhlich, P.)
Wessely, C. 151
Whateley, R. 289
Whimster, S. 77, 109
Wieland, C.M. 545
Wieser, F.v. 10, 28, 34–5, 52, 432–3
Wilbrandt, R. 43, 81
Wissell, R. 40, 43, 45, 81–2, 84, 109, 374, 404, 443
Wittgenstein, L. 89, 552
Wundt, W. 18, 27, 31, 266–9, 271, 273–6, 278–9, 281–2, 285, 288

Xenophon 197

Yeager, L.B. 88
Yi, S. 90

Zapf, W. 77, 109
Zeleny, M. 90, 109
Zilsel, E. 552, 556
Zolo, D. 75–6, 109
Zuckerkandl, R. 28

Vienna Circle Collection

1. Otto Neurath: *Empiricism and Sociology*. With a Selection of Biographical and Autobiographical Sketches. Translated from German by Paul Foulkes and Marie Neurath. Edited by M. Neurath and R.S. Cohen. 1973
ISBN 90-277-0258-6; Pb 90-277-0259-4
2. Josef Schächter: *Prolegomena to a Critical Grammar*. Translated from German by Paul Foulkes. With a Foreword by J.F. Staal and the Introduction to the Original Edition by M. Schlick. 1973 ISBN 90-277-0296-9; Pb 90-277-0301-9
3. Ernst Mach: *Knowledge and Error. Sketches on the Psychology of Enquiry*. Translated from German by Thomas J. McCormack and Paul Foulkes. With an Introduction by Erwin N. Hiebert. 1976
ISBN 90-277-0281-0; Pb 90-277-0282-9
4. Hans Reichenbach: *Selected Writings, 1909-1953*. With a Selection of Biographical and Autobiographical Sketches. Translated from German by Elizabeth Hughes Schneewind and others. Edited by M. Reichenbach and R.S. Cohen. 1978, 2 vols.
Set ISBN 90-277-0892-4; Pb 90-277-0893-2
5. Ludwig Boltzmann: *Theoretical Physics and Philosophical Problems. Selected Writings*. Translated by Paul Foulkes. Edited by B. McGuinness. With a Foreword by S.R. de Groot. 1974 ISBN 90-277-0249-7; Pb 90-277-0250-0
6. Karl Menger: *Morality, Decision and Social Organization. Toward a Logic of Ethics*. Translated from German by Eric van der Schalie. 1974
ISBN 90-277-0318-3; Pb 90-277-0319-1
7. Béla Juhos: *Selected Papers on Epistemology and Physics*. Translated from German by Paul Foulkes. Edited and with an Introduction by Gerhard Frey. 1976
ISBN 90-277-0686-7; Pb 90-277-0687-5
8. Friedrich Waismann: *Philosophical Papers*. Translated from German and Dutch by Hans Kaal, Arnold Burms and Philippe van Parys. Edited by B. McGuinness. With an Introduction by Anthony Quinton. 1977
ISBN 90-277-0712-X; Pb 90-277-0713-8
9. Felix Kaufmann: *The Infinite in Mathematics. Logico-mathematical Writings*. Translated from German by Paul Foulkes. Edited by B. McGuinness. With an Introduction by Ernest Nagel. 1978 ISBN 90-277-0847-9; Pb 90-277-0848-7
10. Karl Menger: *Selected Papers in Logic and Foundations, Didactics, Economics*. Translated from German. 1979 ISBN 90-277-0320-5; Pb 90-277-0321-3
11. Moritz Schlick: *Philosophical Papers*.
Vol. I: *1909-1922*. Translated from German by Peter Heath, Henry L. Brose and Albert E. Blumberg. With a Memoir by Herbert Feigl (1938).
Vol. II: *1925-1936*. Translated from German and French by Peter Heath, Wilfred Sellars, Herbert Feigl and May Brodbeck.
Edited by Henk L. Mulder and Barbara F.B. van de Velde-Schlick. 1979
Vol. I: ISBN 90-277-0314-0; Pb 90-277-0315-9
Vol. II: ISBN 90-277-0941-6; Pb 90-277-0942-4

Vienna Circle Collection

12. Eino Kaila: *Reality and Experience. Four Philosophical Essays*. Translated from German by Ann and Peter Kirschenmann. Edited by R.S. Cohen. With an Introduction by G.H. von Wright. 1979
    ISBN 90-277-0915-7; Pb 90-277-0919-X
13. Hans Hahn: *Empiricism, Logic, and Mathematics. Philosophical Papers*. Translated from German by Hans Kaal. Edited by B. McGuinness. With an Introduction by Karl Menger. 1980 ISBN 90-277-1 065-1; Pb 90-277-1066-X
14. Herbert Feigl: *Inquiries and Provocations. Selected Writings, 1929-1974*. Translated from German by Gisela Lincoln and R.S. Cohen. Edited by R.S. Cohen. 1981 ISBN 90-277-1101-1; Pb 90-277-1102-X
15. Victor Kraft: *Foundations for a Scientific Analysis of Value*. Translated from German by Elizabeth Hughes Schneewind. Edited by Henk L. Mulder. With an Introduction by Ernst Topitsch. 1981 ISBN 90-277-1211-5; Pb 90-277-1212-3
16. Otto Neurath: *Philosophical Papers, 1913-1946*. With a Bibliography of Otto Neurath in English. Translated from German and edited by Robert S. Cohen and Marie Neurath, with the Assistance of Carolyn R. Fawcett. 1983
    ISBN 90-277-1483-5
17. Ernst Mach: *Principles of the Theory of Heat. Historically and Critically Elucidated*. English Edition based on the Translation from German by Thomas J. McCormack (1900-1904). Edited by B. McGuinness. With an Introduction by Martin J. Klein. 1986 ISBN 90-277-2206-4
18. Moritz Schlick: *The Problems of Philosophy in Their Interconnection. Winter Semester Lectures, 1933-1934*. Translated from German by Peter Heath. Edited by Henk L. Mulder, A.J. Kox and R. Hegselmann. 1987 ISBN 90-277-2465-2
19. Otto Neurath (ed.): *Unified Science*. The Vienna Circle Monograph Series originally edited by Otto Neurath, now in an English Edition. Translated from German by Hans Kaal. Edited by B. McGuinness. With an Introduction by Rainer Hegselmann. 1987 ISBN 90-277-2484-9
20. Karl Menger: *Reminiscences of the Vienna Circle and the Mathematical Colloquium*. Edited by Louise Golland, Brian McGuinness and Abe Sklar. 1994
    ISBN 0-7923-2711-X; Pb 0-7923-2873-6
21. Friedrich Waismann, Josef Schächter and Moritz Schlick: *Ethics and the Will*. Essays. Translated from German by Hans Kaal. Edited and with an Introduction by B. McGuinness and J. Schulte. 1994 ISBN 0-7923-2674-1
22. P. Frank and R.S. Cohen (ed.): *The Law of Causality and its Limits*. 1997
    ISBN 0-7923-4551-7
23. Otto Neurath: *Economic Writings. Selections 1904-1945*. Edited by T.E. Uebel and R.S. Cohen, with an Introduction by T.E. Uebel. 2004 ISBN 1-4020-2273-5

KLUWER ACADEMIC PUBLISHERS – DORDRECHT / BOSTON / LONDON