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Volume XV	The Market and Other Orders
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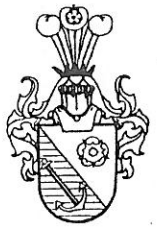

THE COLLECTED WORKS OF

F. A. Hayek

VOLUME XIII

STUDIES ON THE ABUSE AND DECLINE OF REASON

Text and Documents

EDITED BY

BRUCE CALDWELL

The University of Chicago Press

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The University of Chicago Press, Chicago 60637
The University of Chicago Press, Ltd., London

Printed in the United States of America
19 18 17 16 15 14 13 12 11 10 1 2 3 4 5

ISBN-13: 978-0-226-32109-7 (cloth)
ISBN-10: 0-226-32109-6 (cloth)

Library of Congress Cataloging-in-Publication Data

Hayek, Friedrich A. von (Friedrich August), 1899–1992.
[Counter-revolution of science]
Studies on the abuse and decline of reason : text and documents / edited by Bruce Caldwell.
p. cm. — (Collected works of F. A. Hayek ; vol. 13)
Includes index.
ISBN-13: 978-0-226-32109-7 (alk. paper)
ISBN-10: 0-226-32109-6 (alk. paper)
1. Social sciences—Methodology. 2. Saint-Simon, Henri, comte de, 1760–1825—Influence. 3. Saint-Simonianism. 4. Comte, Auguste, 1798–1857—Influence. 5. Hayek, Friedrich A. von (Friedrich August), 1899–1992—Correspondence. I. Title. II. Series: Hayek, Friedrich A. von (Friedrich August), 1899–1992. Works. 1989 ; vol. 13.
HB171 .H426 1989 vol. 13
[H61.H33]
300.1—dc22

2009024932

♾ The paper used in this publication meets the minimum requirements of the American National Standard for Information Sciences—Permanence of Paper for Printed Library Materials, ANSI z39.48-1992.

THE COLLECTED WORKS OF F. A. HAYEK

Founding Editor: W. W. Bartley III
General Editor: Bruce Caldwell

Published with the support of

The Hoover Institution on War, Revolution, and Peace
Stanford University

The Cato Institute

The Earhart Foundation

The Pierre F. and Enid Goodrich Foundation

The Heritage Foundation

The Morris Foundation, Little Rock

CONTENTS

EDITORIAL FOREWORD

It is with considerable pleasure, pride, and relief that I present to the reader volume 13 of *The Collected Works of F. A. Hayek.* For reasons explained in the editor's introduction, *Studies on the Abuse and Decline of Reason* pairs the essays found in Hayek's 1952 book, *The Counter-Revolution of Science*, with his famous piece "Individualism: True and False". That one should feel both pride and pleasure in bringing out a new edition of these important texts is self-evident. The relief comes from the knowledge that no more footnotes need be checked!

The "Scientism and the Study of Society" and "The Counter-Revolution of Science" essays originally appeared in the journal *Economica* during World War II. Hayek frequently quoted from French and German sources, sometimes providing translations, and sometimes not. Typographical errors occasionally occurred, particularly in the spelling of foreign words. When the texts were reset for the Free Press edition of 1952, more errors crept in. Finally, quite apart from the question of French and German passages, Hayek himself was not always accurate in his citation practices. When he quoted others, sometimes the quotation he provided was different from what was found in the original. And sometimes the reference that accompanied the quotation was wrong in some way: for example, the author's name was misspelled, or the volume number of a journal or a page number was incorrect.

Given these multiple possible sources of errors, the following guidelines were followed in correcting the text. All typographical errors in the text proper were silently corrected. All misspellings in the French and German passages were similarly corrected silently, and when not provided by Hayek, translations for the passages were given.

When Hayek quoted others, any errors in a quotation were usually silently corrected. The exception was when Hayek made a small change to allow the quotation to fit better into his own surrounding prose. If there was any possibility that a correction of the text might introduce a meaning change, this was noted. Direct quotations by Hayek of others were indicated by the use of double quotation marks. Single quotation marks were used by Hayek for emphasis, and they have been retained.

Finally, in Hayek's citations, errors in the title of a book or journal were

structure. If one policeman succeeds another at a particular post, this does not mean that the new man will in all respects be identical with his predecessor, but merely that he succeeds him in certain attitudes towards his fellow man and as the object of certain attitudes of his fellow men which are relevant to his function as policeman. But this is sufficient to preserve a constant structural element which can be separated and studied in isolation.

While we can recognise these elements of human relationships only because they are known to us from the working of our own minds, this does not mean that the significance of their combination in a particular pattern relating different individuals must be immediately obvious to us. It is only by the systematic and patient following up of the implications of many people holding certain views that we can understand, and often even only learn to see, the unintended and often uncomprehended results of the separate and yet interrelated actions of men in society. That in this effort to reconstruct these different patterns of social relations we must relate the individual's action not the objective qualities of the persons and things towards which he acts, but that our data must be man and the physical world as they appear to the men whose actions we try to explain, follows from the fact that only what people know or believe can enter as a motive into their conscious action.

FOUR

THE INDIVIDUALIST AND 'COMPOSITIVE' METHOD OF THE SOCIAL SCIENCES

At this point it becomes necessary briefly to interrupt the main argument in order to safeguard ourselves against a misconception which might arise from what has just been said. The stress which we have laid on the fact that in the social sciences our data or 'facts' are themselves ideas or concepts must, of course, not be understood to mean that *all* the concepts with which we have to deal in the social sciences are of this character. There would be no room for any scientific work if this were so; and the social sciences no less than the natural sciences aim at revising the popular concepts which men have formed about the objects of their study, and at replacing them by more appropriate ones. The special difficulties of the social sciences, and much confusion about their character, derive precisely from the fact that in them ideas appear in two capacities, as it were, as part of their object and as ideas about that object. While in the natural sciences the contrast between the object of our study and our explanation of it coincides with the distinction between ideas and objective facts, in the social sciences it is necessary to draw a distinction between those ideas which are *constitutive* of the phenomena we want to explain and the ideas which either we ourselves or the very people whose actions we have to explain may have formed *about* these phenomena and which are not the cause of, but theories about, the social structures.

This special difficulty of the social sciences is a result, not merely of the fact that we have to distinguish between the views held by the people which are the object of our study and our views about them, but also of the fact that the people who are our object themselves not only are motivated by ideas but also form ideas about the undesigned results of their actions—popular theories about the various social structures or formations which we share with them and which our study has to revise and improve. The danger of substituting 'concepts' (or 'theories') for the 'facts' is by no means absent in the social sciences and failure to avoid it has exercised as detrimental an effect here as in the natural sciences;[1] but it appears on a different plane and is very inad-

[1] See the excellent discussions of the effects of conceptual realism (*Begriffsrealismus*) on economics in Walter Eucken, *The Foundations of Economics: History and Theory in the Analysis of Economic Reality*, translated by T. W. Hutchison (London: W. Hodge, 1950), pp. 51 et seq.

equately expressed by the contrast between ideas and facts. The real contrast is between ideas which by being held by the people become the causes of a social phenomenon and the ideas which people form about that phenomenon. That these two classes of ideas are distinct (although in different contexts the distinction may have to be drawn differently)[2] can easily be shown. The changes in the opinions which people hold about a particular commodity and which we recognise as the cause of a change in the price of that commodity stand clearly in a different class from the ideas which the same people may have formed about the causes of the change in price or about the 'nature of value' in general. Similarly, the beliefs and opinions which lead a number of people regularly to repeat certain acts, for example, to produce, sell, or buy certain quantities of commodities, are entirely different from the ideas they may have formed about the whole of the 'society', or the 'economic system', to which they belong and which the aggregate of all their actions constitutes. The first kind of opinions and beliefs is a condition of the existence of the 'wholes' which would not exist without them; they are, as we have said, 'constitutive', essential for the existence of the phenomenon which the people refer to as 'society' or the 'economic system', but which will exist irrespectively of the concepts which the people have formed about these wholes.

It is very important that we should carefully distinguish between the motivating or constitutive opinions on the one hand and the speculative or explanatory views which people have formed about the wholes; confusion between the two is a source of constant danger. Is it the ideas which the popular mind has formed about such collectives as society or the economic system, capitalism or imperialism, and other such collective entities, which the social scientist must regard as no more than provisional theories, popular abstractions, and which he must not mistake for facts? That he consistently refrains from treating these pseudo-entities as facts, and that he systematically starts from the concepts which guide individuals in their actions and not from the results of their theorising about their actions, is the characteristic feature of that methodological individualism which is closely connected with the subjectivism of the social sciences. The scientistic approach, on the other hand, because it is afraid of starting from the subjective concepts determining indi-

[2] In some contexts concepts which by another social science are treated as mere theories to be revised and improved upon may have to be treated as data. One could, for example, conceive of a 'science of politics' showing what kind of political action follows from the people holding certain views on the nature of society and for which these views would have to be treated as data. But while in man's actions towards social phenomena, that is, in explaining his political actions, we have to take his views about the constitution of society as given, we can on a different level of analysis investigate their truth or untruth. The fact that a particular society may believe that its institutions have been created by divine intervention we would have to accept as a fact in explaining the politics of that society; but it need not prevent us from showing that this view is probably false.

vidual actions, is, as we shall presently see, regularly led into the very mistake it attempts to avoid, namely of treating as facts those collectives which are no more than popular generalisations. Trying to avoid using as data the concepts held by individuals where they are clearly recognisable and explicitly introduced as what they are, people brought up in scientistic views frequently and naïvely accept the speculative concepts of popular usage as definite facts of the kind they are familiar with.

We shall have to discuss the nature of this collectivist prejudice inherent in the scientistic approach more fully in a later section.

A few more remarks must be added about the specific theoretical method which corresponds to the systematic subjectivism and individualism of the social sciences. From the fact that it is the concepts and views held by individuals which are directly known to us and which form the elements from which we must build up, as it were, the more complex phenomena, follows another important difference between the method of the social disciplines and the natural sciences. While in the former it is the attitudes of individuals which are the familiar elements and by the combination of which we try to reproduce the complex phenomena, the results of individual actions, which are much less known—a procedure which often leads to the *discovery* of principles of structural coherence of the complex phenomena which had not been (and perhaps could not be) established by direct observation—the physical sciences necessarily begin with the complex phenomena of nature and work backwards to infer the elements from which they are composed. The place where the human individual stands in the order of things brings it about that in one direction what he perceives are the comparatively complex phenomena which he analyses, while in the other direction what are given to him are elements from which those more complex phenomena are composed that he cannot observe as wholes.[3] While the method of the natural sciences is in this

[3] See Lionel Robbins, *An Essay on the Nature and Significance of Economic Science*, 2nd ed. (London: Macmillan, 1935), p. 105: "In economics . . . the ultimate constituents of our fundamental generalisations are known to us by immediate acquaintance. In the natural sciences they are known only inferentially". Perhaps the following quotation from an earlier essay of my own, in *Collectivist Economic Planning* (London: Routledge and Sons, 1935 [reprinted, Clifton, NJ: Kelley, 1975]), p. 11, may help further to explain the statement in the text: "The position of man, midway between natural and social phenomena—of the one of which he is an effect and of the other a cause—brings it about that the essential basic facts which we need for the explanation of social phenomena are part of common experience, part of the stuff of our thinking. In the social sciences it is the elements of the complex phenomena which are known to us beyond the possibility of dispute. In the natural sciences they can only be at best surmised". [Hayek's essay, titled "The Nature and History of the Problem" and which introduced the other essays in the edited volume, is reprinted as chapter 1 of *Socialism and War*, vol. 10 (1997) of *The Collected Works of F.A. Hayek*.—Ed.] See also Menger, *Untersuchungen über die Methode der Socialwissenschaften*, p. 157 [pp. 157–58], note 51: "Die letzten Elemente, auf welche die exacte theoretische Interpretation der Naturphänomene zurückgehen muß, sind 'Atome' und 'Kräfte'. Beide

sense, analytic, the method of the social sciences is better described as compositive[4] or synthetic. It is the so-called wholes, the groups of elements which are structurally connected, which we learn to single out from the totality of

sind unempirischer Natur. Wir vermögen uns 'Atome' überhaupt nicht, und die Naturkräfte nur unter einem Bilde vorzustellen, und verstehen wir in Wahrheit unter den letzteren lediglich die uns unbekannten Ursachen realer Bewegungen. Hieraus ergeben sich für die exacte Interpretation der Naturphänomene in letzter Linie ganz außerordentliche Schwierigkeiten. Anders in den exacten Socialwissenschaften. Hier sind die menschlichen *Individuen* und ihre *Bestrebungen*, die letzten Elemente unserer Analyse, empirischer Natur und die exacten theoretischen Socialwissenschaften somit in großem Vortheil gegenüber den exacten Naturwissenschaften. Die 'Grenzen des Naturerkennens' und die hieraus für das theoretische Verständniss der Naturphänomene sich ergebenden Schwierigkeiten bestehen in Wahrheit nicht für die exacte Forschung auf dem Gebiete der Socialerscheinungen. Wenn A. Comte die 'Gesellschaften' als reale Organismen und zwar als Organismen complicirterer Art, denn die natürlichen, auffaßt und ihre theoretische Interpretation als das unvergleichlich complicirtere und schwierigere wissenschaftliche Problem bezeichnet, so befindet er sich somit in einem schweren Irrthume. Seine Theorie wäre nur gegenüber Socialforschern richtig, welche den, mit Rücksicht auf den heutigen Zustand der theoretischen Naturwissenschaften, geradezu wahnwitzigen Gedanken fassen würden, die Gesellschaftsphänomene nicht in specifisch socialwissenschaftlich-, sondern in naturwissenschaftlich-atomistischer Weise interpretiren zu wollen". [In Menger, *Investigations into the Method of the Social Sciences*, p. 142, note 51, this passage is rendered as follows: "The ultimate elements to which the exact theoretical interpretation of natural phenomena must be reduced are 'atoms' and 'forces'. Neither is of empirical nature. We cannot imagine 'atoms' at all, and natural forces only by a representation, and by these we really understand merely unknown causes of real motions. From this there arise ultimately quite extraordinary difficulties for the exact interpretation of natural phenomena. It is otherwise in the exact social sciences. Here the human *individuals* and their *efforts*, the final elements of our analysis, are of empirical nature, and thus the exact theoretical social sciences have a great advantage over the exact natural sciences. The 'limits of knowledge of nature' and the difficulties resulting from this for the theoretical understanding of natural phenomena do not really exist for exact research in the realm of social phenomena. When A. Comte conceives of 'societies' as real organisms and to be sure as organisms of a more complicated nature than the natural ones and designates their theoretical interpretation as the incomparably more complicated and more difficult scientific problem, he exposes himself forthwith to a serious error. His theory would be correct only as against sociologists who might get the idea, which is really insane in the light of the present state of the theoretical natural sciences, of wanting to interpret social phenomena not in a specifically sociological way, but in the atomistic way of the natural sciences".—Ed.]

[4] I have borrowed the term 'compositive' from a manuscript note of Carl Menger, who, in his personal annotated copy of Schmoller's review of his *Methode der Socialwissenschaften* ("Zur Methodologie der Staats- und Sozial-Wissenschaften", *Jahrbuch für Gesetzgebung, Verwaltung und Volkswirtschaft im Deutschen Reich*, vol. 7, no. 3, 1883, p. 42 [242]), wrote it above the word 'deductive' used by Schmoller. Since writing this I have noticed that Ernst Cassirer in his *Philosophie der Aufklärung* (Tübingen: Mohr, 1932), pp. 12, 25, 341 uses the term 'compositive' in order to point out rightly that the procedure of the natural sciences pre-supposes the successive use of the 'resolutive' and the 'compositive' technique. This is useful and links up with the point that, since the elements are directly known to us in the social sciences, we can start here with the compositive procedure. [Gustav Schmoller (1838–1917) was the leader of the so-called younger German historical school of economics. His review prompted Menger to write a scathing reply, *Die Irrthümer*

observed phenomena only as a result to our systematic fitting together of the elements with familiar properties, and which we build up or reconstruct from the known properties of the elements.

It is important to observe that in all this the various types of individual beliefs or attitudes are not themselves the object of our explanation, but merely the elements from which we build up the structure of possible relationships between individuals. Insofar as we analyse individual thought in the social sciences the purpose is not to explain that thought but merely to distinguish the possible types of elements with which we shall have to reckon in the construction of different patterns of social relationships. It is a mistake, to which careless expressions by social scientists often give countenance, to believe that their aim is to *explain* conscious action. This, if it can be done at all, is a different task, the task of psychology. For the social sciences the types of conscious action are data[5] and all they have to do with regard to these data is to arrange them in such orderly fashion that they can be effectively used for their task.[6] The problems which they try to answer arise only insofar as the conscious actions of many men produce undesigned results, insofar as regularities are observed which are not the result of anybody's design. If social phenomena showed no order except insofar as they were consciously designed, there would indeed be no room for theoretical sciences of society and there would be, as is often argued, only problems of psychology. It is only insofar as some sort of order arises as a result of individual action but without being designed by any individual that a problem is raised which demands a theoretical explanation. But although people dominated by the scientistic prejudice are often inclined to deny the existence of any such order (and thereby the existence of an object for theoretical sciences of society), few if any would be prepared to do so consistently: that at least language shows a definite order which is not the result of any conscious design can scarcely be questioned.

The reason for the difficulty which the natural scientist experiences in

des Historismus in der deutschen Nationalökonomie (Vienna: Hölder, 1884), which initiated the *Methodenstreit*, or battle over methods, between the German and Austrian schools. For more on the conflict, see Caldwell, *Hayek's Challenge*, chapters 3 and 4. For a translation of Ernst Cassirer's book, see *The Philosophy of the Enlightenment* (Princeton: Princeton University Press, 1951).—Ed.]

[5] As Robbins, *Essay on the Nature and Significance*, p. 86, rightly says, economists in particular regard "the things which psychology studies as the data of their own deductions".

[6] That this task absorbs a great part of the economist's energies should not deceive us about the fact that by itself this 'pure logic of choice' (or 'economic calculus') does not explain any facts, or at least does no more so by itself than does mathematics. For the precise relationship between the pure theory of the economic calculus and its use in the explanation of social phenomena, I again refer to my article "Economics and Knowledge". It should perhaps be added that while economic theory might be very useful to the director of a completely planned system in helping him to see what he ought to do to achieve his ends, it would not help us to explain his actions—except insofar as he was actually guided by it.

admitting the existence of such an order in social phenomena is that these orders cannot be stated in physical terms, that if we define the elements in physical terms no such order is visible, and that the units which show an orderly arrangement do not (or at least need not) have any physical properties in common (except that men react to them in the 'same' way—although the 'sameness' of different people's reaction will again, as a rule, not be definable in physical terms). It is an order in which things behave in the same way because they mean the same thing to man. If, instead of regarding as alike and unlike what appears so to the acting man, we were to take for our units only what Science shows to be alike or unlike, we should probably find no recognisable order whatever in social phenomena—at least not till the natural sciences had completed their task of analysing all natural phenomena into their ultimate constituents and psychology had also fully achieved the reverse task of explaining in all detail how the ultimate units of physical science come to appear to man just as they do, that is, how that apparatus of classification operates which our senses constitute.

It is only in the very simplest instances that it can be shown briefly and without any technical apparatus how the independent actions of individuals will produce an order which is no part of their intentions; and in those instances the explanation is usually so obvious that we never stop to examine the type of argument which leads us to it. The way in which footpaths are formed in a wild broken country is such an instance. At first everyone will seek for himself what seems to him the best path. But the fact that such a path has been used once is likely to make it easier to traverse and therefore more likely to be used again; and thus gradually more and more clearly defined tracks arise and come to be used to the exclusion of other possible ways. Human movements through the region come to conform to a definite pattern which, although the result of deliberate decisions of many people, has yet not been consciously designed by anyone. This explanation of how this happens is an elementary 'theory' applicable to hundreds of particular historical instances; and it is not the observation of the actual growth of any particular track, and still less of many, from which this explanation derives its cogency, but from our general knowledge of how we and other people behave in the kind of situation in which the successive people find themselves who have to seek their way and who by the cumulative effect of their action create the path. It is the elements of the complex of events which are familiar to us from everyday experience, but it is only by a deliberate effort of directed thought that we come to see the necessary effects of the combination of such actions by many people. We 'understand' the way in which the result we observe can be produced, although we may never be in a position to watch the whole process or to predict its precise course and result.

It makes no difference for our present purpose whether the process extends

over a long period of time, as it does in such cases as the evolution of money or the formation of language, or whether it is a process which is constantly repeated anew, as in the case of the formation of prices or the direction of production under competition. The former instances raise theoretical (that is, generic) problems (as distinguished from the specifically historical problems in the precise sense which we shall have to define later) which are fundamentally similar to the problems raised by such recurring phenomena as the determination of prices. Although in the study of any particular instance of the evolution of an 'institution' like money or language the theoretical problem will frequently be so overlaid by the consideration of the particular circumstances involved (the properly historical task), this does not alter the fact that any explanation of a historical process involves assumptions about the kind of circumstances that can produce certain kinds of effects—assumptions which, where we have to deal with results which were not directly willed by somebody, can only be stated in the form of a generic scheme, in other words a theory.

The physicist who wishes to understand the problems of the social sciences with the help of an analogy from his own field would have to imagine a world in which he knew by direct observation the inside of the atoms and had neither the possibility of making experiments with lumps of matter nor the opportunity to observe more than the interactions of a comparatively few atoms during a limited period. From his knowledge of the different kinds of atoms he could build up models of all the various ways in which they could combine into larger units and make these models more and more closely reproduce all the features of the few instances in which he was able to observe more complex phenomena. But the laws of the macrocosm which he could derive from his knowledge of the microcosm would always remain 'deductive'; they would, because of his limited knowledge of the data of the complex situation, scarcely ever enable him to predict the precise outcome of a particular situation; and he could never confirm them by controlled experiment—although they might be disproved by the observation of events which according to his theory are impossible.

In a sense some problems of theoretical astronomy are more similar to those of the social sciences than those of any of the experimental sciences. Yet there remain important differences. While the astronomer aims at knowing all the elements of which his universe is composed, the student of social phenomena cannot hope to know more than the types of elements from which his universe is made up. He will scarcely ever know even of all the elements of which it consists and he will certainly never know all the relevant properties of each of them. The inevitable imperfection of the human mind becomes here not only a basic datum about the object of explanation but, since it applies no less to the observer, also a limitation on what he can hope to accomplish

in his attempt to explain the observed facts. The number of separate variables which in any particular social phenomenon will determine the result of a given change will as a rule be far too large for any human mind to master and manipulate them effectively.[7] In consequence our knowledge of the principle by which these phenomena are produced will rarely if ever enable us to predict the precise result of any concrete situation. While we can explain the principle on which certain phenomena are produced and can from this knowledge exclude the possibility of certain results, for example, of certain events occurring together, our knowledge will in a sense be only negative; that is, it will merely enable us to preclude certain results but not enable us to narrow the range of possibilities sufficiently so that only one remains.

The distinction between an explanation merely of the principle on which a phenomenon is produced and an explanation which enables us to predict the precise result is of great importance for the understanding of the theoretical methods of the social sciences. It arises, I believe, also elsewhere, for example, in biology and certainly in psychology. It is, however, somewhat unfamiliar and I know no place where it is adequately explained. The best illustration in the field of the social sciences is probably the general theory of prices as represented, for example, by the Walrasian or Paretian systems of equations.[8] These systems show merely the principle of coherence between the prices of the various types of commodities of which the system is composed; but without knowledge of the numerical values of all the constants which occur in it and which we never do know, this does not enable us to predict the precise

[7] Cf. M. R. Cohen, *Reason and Nature* (New York: Harcourt, Brace and Co., 1931), p. 356: "If, then, social phenomena depend upon more factors than we readily manipulate, even the doctrine of universal determinism will not guarantee an attainable expression of laws governing the specific phenomena of social life. Social phenomena, though determined, might not to a finite mind in limited time display any laws at all".

[8] [Hayek refers here to the general equilibrium approach associated with Léon Walras (1834–1910), a founder of the Lausanne School (and who, with Carl Menger in Austria and William Stanley Jevons in England, was a co-founder of the marginal revolution), and with Walras's greatest disciple, the Italian economist and sociologist Vilfredo Pareto (1848–1923). Hayek's opinion of the system of equations approach of the Lausanne School may best be described as ambivalent. While he and Robbins were instrumental in introducing the writings of Walras and Pareto to British economists in the 1930s, and endorsed the approach for stressing the interdependence of consumption, production and distribution decisions, Hayek always emphasised (as in the note that follows) that one could not provide numerical estimates for the variables in the system so as to arrive at accurate predictions of economic activity. Market socialists used the Paretian analysis to argue that a planned economic system and a free market system are structurally equivalent, the only difference being that socialist managers made decisions in one, and entrepreneurs in the other, thereby disputing Ludwig von Mises's claim that rational decision making under socialism is impossible. For more on the debate, see the "Editor's Introduction" and chapters 1–3 of Hayek, *Socialism and War*.—Ed.]

results which any particular change will have.[9] Apart from this particular case, a set of equations which shows merely the form of a system of relationships but does not give the values of the constants contained in it, is perhaps the best general illustration of an explanation merely of the principle on which any phenomenon is produced.

This must suffice as a positive description of the characteristic problems of the social sciences. It will become clearer as we contrast in the following sections the specific procedure of the social sciences with the most characteristic aspects of the attempts to treat their object after the fashion of the natural sciences.

[9] Pareto himself has clearly seen this. After stating the nature of the factors determining the prices in his system of equations, he adds (*Manuel d'économie politique*, translated by Alfred Bonnet, 2nd ed. (Paris: Marcel Giard, 1927), pp. 233–34): "It may be mentioned here that this determination has by no means the purpose of arriving at a numerical calculation of prices. Let us make the most favourable assumptions for such a calculation; let us assume that we have triumphed over all the difficulties of finding the data of the problem and that we know the *ophélimités* of all the different commodities for each individual, and all the conditions of production of all the commodities, etc. This is already an absurd hypothesis to make. Yet it is not sufficient to make the solution of the problem possible. We have seen that in the case of 100 persons and 700 commodities there will be 70,699 conditions (actually a great number of circumstances which we have so far neglected will still increase that number); we shall, therefore, have to solve a system of 70,699 equations. This exceeds practically the power of algebraic analysis, and this is even more true if one contemplates the fabulous number of equations which one obtains for a population of forty million and several thousand commodities. In this case the rôles would be changed: It would be not mathematics which would assist political economy, but political economy which would assist mathematics. In other words, if one really could know all these equations, the only means to solve them which is available to human powers is to observe the practical solution given by the market". Cf. also Augustin Cournot, *Researches into the Mathematical Principles of the Theory of Wealth* [1838], translated by Nathaniel T. Bacon (New York: Macmillan, 1927 [reprinted, New York: Kelley, 1971]), p. 127, where he says that if in our equations we took the entire economic system into consideration, "this would surpass the powers of mathematical analysis and of our practical methods of calculation, even if the values of all the constants could be assigned to them numerically". [The 1927 French edition of Pareto's *Manuel* served as the basis both for Hayek's own translation into English of the passage above, and for the following English translation of the book: Vilfredo Pareto, *Manual of Political Economy*, Ann S. Schwier and Alfred N. Page, eds, translated by Ann S. Schwier (New York: Kelley, 1971). The passage Hayek translated appears on p. 171.—Ed.]