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WICKSELL

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**LECTURES ON  
POLITICAL ECONOMY  
VOLUME I: GENERAL THEORY**

# LECTURES ON POLITICAL ECONOMY

KNUT WICKSELL

TRANSLATED	THE SWEDISH BY
AND EDITED	ASSEN
BY	AN INTRODUCTION BY
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VOLUME ONE  
GENERAL THEORY

*(Second Impression)*



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## CONTENTS OF VOLUME I

	PAGE
INTRODUCTION BY PROFESSOR LIONEL ROBBINS . . . . .	vii
AUTHOR'S PREFACE TO SECOND EDITION . . . . .	xxi
INTRODUCTION . . . . .	1
<b>I. THE THEORY OF VALUE . . . . .</b>	<b>13</b>
1. EXCHANGE VALUE AND ITS CAUSES. EARLIER EXPLANATIONS . . . . .	15
2. THE CONCEPT OF MARGINAL UTILITY . . . . .	29
3. FREE EXCHANGE AND MARKET VALUE . . . . .	35
(a) The different uses of a single commodity . . . . .	35
(b) Exchange at given prices . . . . .	43
(c) Isolated exchange . . . . .	49
(d) Price formation in the open market. Exchange of two commodities . . . . .	52
(e) Continuation. Exchange of three or more commodities . . . . .	63
4. OBJECTIONS AGAINST THE THEORY OF MARGINAL UTILITY. EXCEPTIONS TO THE THEORY . . . . .	68
5. THE GAIN FROM FREE EXCHANGE . . . . .	72
6. PRICING UNDER LIMITED COMPETITION . . . . .	83
(a) Joint Supply and Joint Demand . . . . .	83
(b) Pricing in Retail Trade . . . . .	86
(c) Monopoly Prices . . . . .	88
7. PRICING UNDER THE INFLUENCE OF PRODUCTION . . . . .	97
<b>II. THE THEORY OF PRODUCTION AND DISTRIBUTION</b>	<b>101</b>
1. PRODUCTION WITHOUT CAPITAL . . . . .	108
(a) Landowners as entrepreneurs . . . . .	110
(b) The labourer (or a third party) as entrepreneur. The profits of the entrepreneur . . . . .	124
(c) The influence of technical inventions on rent and wages . . . . .	133

	PAGE
2. CAPITALISTIC PRODUCTION . . . . .	144
(a) The concept of capital . . . . .	144
(b) The marginal productivity of capital. Capital investment for a single year . . . . .	147
(c) Capital investment over a period of years . . . . .	158
✓ <i>Note on Böhm-Bawerk's Theory of Interest</i> . . . . .	167
(d) Alternative treatment of the problems of interest and distribution . . . . .	172
(e) Controversies concerning the theory of capital . . . . .	185
3. THE INTERDEPENDENCE OF PRODUCTION AND EXCHANGE. THE THEORY OF EXCHANGE-VALUE IN ITS FINAL FORM . . . . .	196
III. CAPITAL ACCUMULATION . . . . .	207
APPENDICES . . . . .	219
1. PROFESSOR CASSEL'S SYSTEM OF ECONOMICS . . . . .	219
2. REAL CAPITAL AND INTEREST . . . . .	258
(a) Dr. Gustaf Åkerman's <i>Realkapital und Kapitalzins</i> . . . . .	258
(b) A mathematical analysis of Dr. Åkerman's problem . . . . .	274

## INTRODUCTION

Johan Gustaf Knut Wicksell, the author of these lectures, is an economist of outstanding achievement whose work has not yet received in English-speaking countries the attention it deserves. In Scandinavia where he taught, and in Central Europe and Italy where he has long been read, his influence has already been extensive and important. But, in other parts, even at the time of his death in 1926, he was probably less known than any other economist of commensurate rank. In recent years, however, largely as a result of the writings of Professor Hayek and Mr. J. M. Keynes, his theories concerning the rate of interest and the price level have become more widely known and his reputation is on the increase. It is safe to say that as the main body of his work becomes available this process is likely to continue.

Wicksell was born in 1851. He was thus nine years younger than Marshall, three years younger than Pareto, and the exact contemporary of Böhm-Bawerk and Wieser. His interest in Economics developed comparatively late: his first important work, *Über Wert, Kapital und Rente*, was not published until 1893. He graduated in philosophy and mathematics, and it was not until after taking his second degree in 1885 that he turned his attention seriously to the subject which became his life-work. After ten years' further study in France, Germany, Austria, and England he took his doctorate in economics. In 1900 he was appointed assistant professor of Political Economy at Lund. From 1904 to 1916 he held the chair in the same university. He died in 1926.

<sup>1</sup> In preparing this introduction I have been greatly helped by articles dealing with Wicksell and his work by Professors Ohlin and Somarin, which appeared in the *Economic Journal*, vol. xxxvi, p. 503 seq., and the *Zeitschrift für Nationalökonomie*, Bd. ii, S. 221 seq., respectively. A succinct and well-documented account of Wicksell's work on the theory of Money and Capital and its influence on certain contemporary writers is to be found in an as yet unpublished thesis submitted by Mr. Solomon Adler to the University of London for the degree of M.Sc. (Econ.) in 1932, and a useful discussion of parts of this theory is to be found in Kirchmann, *Studien zur Grenzprodukttheorie des Kapitalismus*.



Wicksell's central contributions to theoretical economics are all outlined, if not fully developed, in three books, all in German, which appeared in rapid succession at the commencement of his career in the nineties: *Über Wert, Kapital und Rente*, which appeared in 1893<sup>1</sup>; *Finanztheoretische Untersuchungen*, which appeared in 1896; and *Geldzins und Güterpreise*, which appeared in 1898. In the first he developed an outline solution of the main problems of the pure theory of value and distribution. In the second he applied certain elements in this solution to the special problems of the theory of public finance and the incidence of taxation. In the third he developed his now celebrated theory concerning the relationship between the money rate of interest and the general level of prices. His *Vorlesungen über Nationalökonomie*, of which the present volumes are a translation, were published first in Sweden in two parts, General Theory, and Money and Credit, in 1901 and 1906 respectively, and contain, with much new material, a systematic restatement of the main theorems of the first and the third of these earlier treatises.

It would be a great mistake, however, to regard Wicksell's work as an economist as limited to these four major publications. He published much on the population problem, played an active part in the discussion of public affairs in Sweden, and throughout his career was a regular contributor to the scientific journals in Sweden and elsewhere. The files of the *Ekonomisk Tidskrift* are full of lengthy articles by Wicksell, tantalizingly inaccessible to those of us who have not the good fortune to possess a sufficient knowledge of Swedish.<sup>2</sup> The German periodicals contain a number of contributions, and the *Economic Journal* and the *Quarterly Journal of Economics*, once at least, each secured an important article from his pen.<sup>3</sup> Few economists

<sup>1</sup> Some of the matter included in this book had been published in *Conrad's Jahrbücher* in the preceding year.

<sup>2</sup> Some of these contributions are now available in one or other of the world languages. The article on Professor Bowley's Mathematical Economics, with its discussion of the theory of Bilateral Monopoly, appears in the *Archiv für Sozialwissenschaft*, Bd. 58, pp. 252-281. Professor Hayek has included a celebrated article on Prices and the Exchanges in his *Beiträge zur Geldtheorie*, and two others on Dr. Gustav Åkermann's *Realkapital und Kapitalzins* and Prof. Cassel's "Theory of Social Economy" appear in English as appendices to the present volume. But an English translation of a comprehensive selection of these papers is still urgently to be desired.

<sup>3</sup> A short list of Wicksell's principal contributions to foreign periodicals is given by Professor Ohlin, *op. cit.*, p. 512.

of his generation were more productive or—if those articles which are accessible in one or other of the world languages are any criterion—maintained so consistently high a level.

It is not easy in a few paragraphs to give a just view of the place in the history of modern economic theory of Wicksell's main achievements. As we have seen, he was the contemporary of men like Böhm-Bawerk and Pareto, whose work falls naturally under the headings appropriate to the so-called Schools—the School of Vienna, the School of Lausanne, the School of Marshall. But Wicksell fits into no such classification. No economist of similar rank has been more open to outside influences. But the influences were not all from one quarter. From the outset of his work in the nineties, he stands apart from the disputes of the Schools, deriving equally from the good elements in each of them—a pioneer of a generation which stands beyond these early factions and can perceive both the common denominator and the particular contribution in their respective systems. There is no economist whose work more strongly exemplifies both the element of continuity and the element of progress in the central tradition of theoretical Economics. Few have known better the works of the English classics or used them to greater advantage. To those brought up in the English tradition of post-classical Ricardian criticism his lucid reformulations of their doctrines must come as something of a revelation. But his debt to the later schools is no less evident. In the broad outlines of his value theory, the Austrian influence is strong; and in his capital theory the influence of Böhm-Bawerk is obvious. But the whole is set in a framework which derives essentially from Walras, and the detail owes not a little to Wicksteed and to Edgeworth. In short, in spite of his dates, Wicksell is of the present generation.

In all this, of course, he bears a strong resemblance to Edgeworth, our own great eclectic. There are indeed many elements in common in their work. Many of the problems which interested them were the same—distribution, public finance, the theory of monopoly—and they both brought to their solution that essential seriousness characteristic of those who are conscious of working with the instruments of an established scientific technique. But there was this important difference. Whereas Edgeworth's eclecticism showed itself mainly in the analysis

of particular problems, Wicksell's showed itself even more strongly in a tendency to synthesis. His particular investigations are important. But even more important are his reconstructions of general theory. He had the feeling for broad effects, the capacity for wide abstraction of the great system-makers. But being a scientist and not a mere system-maker, the system he constructed was not specifically his own but the system common to the best work of the past hundred years of economic theory.

In this respect, perhaps, he is more to be compared with Marshall, and more than one critic has made the comparison.<sup>1</sup> But here, too, there are important differences. There can be little doubt that in general knowledge of the details of economic relationships in the modern world, Marshall was greatly Wicksell's superior, as indeed he was the superior of most others of his generation. But as a systematizer of pure theory he had the defects of his qualities. The peculiar blend of realistic knowledge and theoretical insight which enabled him to present with such ingenuity the world as he saw it, was not necessarily conducive to clear presentation of abstract theoretical issues. He was so anxious to explain the reality he knew, to make his theory appear *plausible*, that he was apt to be impatient with refinements which, though useless for this purpose, might be fruitful in other connections. Moreover, as Mr. Keynes has pointed out, he lacked that æsthetic feeling for order and proportion which is essential to a theoretical synthesis on the grandest scale. It was just here that Wicksell excelled. There is no work in the whole range of modern economic literature which presents a clearer general view of the main significance and interrelations of the central propositions of economic analysis than these lectures. The arrangement is exemplary. The successive propositions are presented in a setting which emphasizes both their implications and—what is just as important—their limitations: and the whole is built up in such a way that at each successive point in the argument attention is always focused upon the new elements in the problem, the rest having been satisfactorily disposed of at an earlier stage. In this no doubt Wicksell learnt much from Walras. But no one would contend that the exposition of the *Éléments d'Économie Politique Pure*, littered

<sup>1</sup> See, e.g., Schumpeter, "Knut Wicksell," *Archiv für Sozialwissenschaft*, Bd. 58, pp. 238-257.

up as it is with so much superfluous and somewhat crude mathematics, is a model of expository clarity.

In certain respects, the closest comparison is with Wicksteed. For Wicksteed had the architectonic instinct, and he, too, had derived both from Lausanne and Vienna. He had not, however, Wicksell's feeling for the English classics, and the development of his thought was on different lines. Strongly influenced by Pareto's modifications of utility theory, in later years he became more and more interested in the philosophical and methodological implications of the general theory of value. Wicksell, on the other hand, who was a bit old fashioned on pure utility theory, turned his attention more and more to the development of that part of the Jevonian-Böhm-Bawerkian theory of capital, which, just because he rejected the classical writers so completely, in certain respects Wicksteed failed to comprehend<sup>1</sup>; and as time went on his interests became more technical and practical. But the two supplement each other in admirable fashion. The subjective side of modern theory is at its best in Wicksteed, the objective in Wicksell; a combination of the two covers much of the essential ground.<sup>2</sup> I am not clear that Wicksteed was acquainted with Wicksell.<sup>3</sup> But there is ample evidence that Wicksell knew Wicksteed's work and appreciated it long before much was thought of it in England.

Any enumeration of Wicksell's more outstanding contributions to the detail of Economic Science must commence, if it is to do justice to his own wishes, with his contributions to the theory of population. It was the reproach that his knowledge of the economics of the population problem was insufficient, which first directed his attention to scientific economics; and throughout his life, the population problem in all its aspects retained the

<sup>1</sup> In this connection a comparison between Wicksteed's article on Jevons' "Theory of Political Economy" (*Works*, vol. ii, pp. 734-754) and the sections on Capital Theory in *Über Wert, Kapital und Rente* is very instructive.

<sup>2</sup> But not all. I should be very sorry to be thought to lend any countenance to the view, now apparently gaining ground in somewhat unexpected quarters, that in undergraduate teaching or in advanced studies we are yet in a position to dispense with the most thorough study of Marshall's *Principles*. It would be a sad thing if the uncritical acceptance of this great work, which so long tended to stifle the development of other lines of thought in this country, were to be succeeded by an equally uncritical rejection of all the wisdom and the path-breaking intuitions that it contains.

<sup>3</sup> He must have been aware of *Über Wert, Kapital und Rente*, for it was reviewed together with his own *Co-ordination of the Laws of Distribution* in the *Economic Journal* for June, 1894.

strongest hold on his interest and emotions, so much so indeed that in 1909 he incurred the penalty of a short term of imprisonment on account of strong utterances on certain of its non-economic aspects—a period which he devoted to the preparation of a short book on this subject signed defiantly “Ystad Prison”. In the statistical field, he did much important work on the mechanics of population increase, and, in the field of economic theory, he was one of the first systematically to develop the concept of an optimum population. Whether it is so easy at any time to assign a specific magnitude to this elusive concept as Wicksell himself supposed, whether indeed we really yet know enough about the application of the laws of returns in this connection to be in a position to describe it in a way which is theoretically satisfactory, are questions on which differences of opinion between reasonable men may yet legitimately arise. But the emphatic pronouncements in the introduction to the *Lectures* on the place of population theory in a systematic treatment of economic problems are a sufficient indication of the importance Wicksell himself attached to this part of his work.

To the broad outlines of the theory of value Wicksell added little that was completely original. But he fused the main teachings of Walras and the early Austrians with great ingenuity and expository power, giving to the philosophical insight and profundity of Menger and his followers, the superior precision and elegance of the mathematical formulation. Seldom have the complications involved in the transition from pure utility theory to the theory of exchange and price been stated with greater clarity and exactitude. To more recent developments of the theory of value he was not very sympathetic, probably on account of the very strong utilitarian bias in his general view of the subject. The student of the theory of public finance, however, should not miss his discussion of the principle of justice in taxation.<sup>1</sup>

In the theory of production Wicksell displays much greater originality. His statement of the marginal productivity theory is one of the most satisfactory available. As Dr. Hicks has shown,<sup>2</sup> the exposition in the *Lectures*, with its express condition

<sup>1</sup> *Finanztheoretische Untersuchungen*, p. 176 seq. Wicksell's views in this respect have been developed with great ingenuity by his pupil, Professor E. Lindahl, in his *Die Gerechtigkeit der Besteuerung*.

<sup>2</sup> *Theory of Wages*, p. 233.

that the various firms concerned must be at a stage at which further economies of large scale production are absent, is immune from the strictures which have been passed by Pareto, Edgeworth and others on the version which is to be found in Wicksteed's *Co-ordination of the Laws of Distribution*. In this he may have been indebted to Walras. But in the light of the discussion of the theory of distribution in *Über Wert, Kapital und Rente*, Wicksell must himself be looked upon as one of the founders of the marginal productivity theory.

Most conspicuous, however, in the sphere of the theory of production is Wicksell's contribution to that part which deals with problems of capital and interest. Here his eclecticism rises to the point of pure genius. By a judicious selection from the best elements in earlier theories he achieved a reformulation of this part of the theory of production from which, it is safe to say, all future work in this field which aspires to be taken seriously must commence. It is worth examining the nature of this achievement in rather more detail.

The part played in the classical system by the ingredients of a substantially correct theory of capital and interest is by no means so negligible as post-classical criticism has often assumed. On the one hand in the wage fund theory, on the other in the Ricardian modifications of the labour theory of value, particularly in the letters to McCulloch, there exist the rudiments of a theory in many essential respects not dissimilar from that which is to be found in Jevons, Böhm-Bawerk and Wicksell. In a series of brilliant reconstructions in the *Finanztheoretische Untersuchungen* and elsewhere, Wicksell himself indicated the significance of certain aspects of the classical doctrines in this respect. More recently Mr. Edelberg has shown<sup>1</sup> how, if one is willing to give Ricardo the benefit of the doubt in one or two connections, a whole theory of capital and interest on Wicksellian lines can be reconstructed from actual Ricardian material. In any case it cannot be said that important theories of capital and interest played a negligible part in the classical system. Indeed, if a choice had to be made between the classical theories and those modern systems which ignore the Jevonian-Böhm-Bawerkian reconstruction and reject the classical elements,

<sup>1</sup> "The Ricardian Theory of Profits," *Economica*, February, 1933, pp. 51-74.

there is much to be said for the view that the classical theories would be much less likely to mislead.

But the classical system as a whole was very vulnerable. It was open to general attack on its theory of value. It was everywhere deficient on points of formulation. And these particular theories of capital and interest were liable to attack, not merely for their obvious deficiencies in this respect, but also for political reasons. As time went on, the wage fund doctrine in particular, instead of being reformulated in those minor respects in which it was defective, became the target of continuous and completely hostile criticism, some of it justified in points of detail, but most of it analytically erroneous and totally beside the point. Nothing could be more superficial—for instance—than the criticisms put forward by writers such as Walker and J. B. Clark of the incontrovertible proposition that wages are paid out of capital. But for political reasons the classical theories of capital were unpopular and men jumped at any pretext for rejecting them. The result was that, particularly in English circles, much of the Economics of the fifty years after 1870 was what Wicksell calls a *Kapitallose Wirtschaftstheorie*—an economic theory of a capitalistic production. Considerations of capital theory proper, save of a more or less terminological nature, simply disappear from the picture. Professor Taussig's *Wages and Capital* was a gallant attempt to stem the tide—which incidentally carried through most of the modifications necessary to make the classical theory logically acceptable and completely disposed of the ridiculous myth that it had originated in selfishness and reaction. But it was in vain. When, after the war, Mr. Dennis Robertson and Mr. J. M. Keynes turned their attention to problems of fluctuation which involved similar considerations, the tradition of a theory of capital had so completely disappeared in English Political Economy that they had to start completely from the beginning. Nor was the position any better in certain continental circles. The work of Pareto, valuable as it is in other respects, adds little to knowledge in this connection. It would perhaps be putting it too strongly to say that there is no capital in his equations of economic equilibrium. But it would certainly be correct to say that there is no *time*. Now time is the essence of capital theory.

There was another stream of thought, however, in which the theorems of the classical economists were by no means altogether abandoned. In spite of his antipathy for Mill and his celebrated denunciation of his "four fundamental propositions on capital"—"all wrong," as he said, Jevons had taken over into his capital theory important classical elements. And in Böhm-Bawerk's "Positive Theory of Capital" something very like the classical wage fund theory, shorn of its obvious defects of formulation, makes its appearance. But Jevons' chapter on capital was only an outline; and, for various reasons, the influence of Böhm-Bawerk was not altogether fortunate. In his critical work, he was undoubtedly unjust to many of his predecessors. This, where it did not create repulsion, created the impression of a much greater lack of continuity than actually existed. And in his positive solution, which in most important respects was substantially correct, the emphasis and arrangement was such as to make understanding of the main elements much more difficult than need have been the case. The sections dealing with the element of time discount are admirably clear and have made a permanent mark on the discussion of the subject elsewhere. But the sections relating to the "third ground" for the existence of interest—the "technical superiority of present goods"—are developed in a mode which definitely invites criticism. What, as Wicksell points out, is really the central and fundamentally unassailable core of the Böhm-Bawerkian theory—the discussion of the influence of the varying productivity of productive processes of different lengths on prices, the use of the subsistence fund, and the formation of the rate of interest—only appears as a sort of practical application of these more disputable propositions at the very end of the book. It is clear that many of Böhm's readers never reach that last section. The result has been that in those parts where the oral tradition of Böhm-Bawerk's seminar was not influential, it came to be thought that the theory of the relation of time discount to interest was Böhm-Bawerk's chief contribution. The propositions relating to the "third ground" were held to have been disposed of by the criticisms of Professors Fetter and Fisher; and the most valuable element in the solution, therefore, what is really a marginal productivity theory of interest, properly stated in regard to the time element, tended to escape attention.



But not with Wicksell. For Wicksell the productivity side of the question was obviously at once the more important and the more deserving of further elucidation. Steeped as he was in the literature of the classical system, he had no difficulty in detecting the underlying continuity between Böhm-Bawerk's theory of the subsistence fund and the classical wage fund theory, and with his mathematical insight he divined, in spite of all Böhm-Bawerk's disclaimers, the substantial identity between the general marginal productivity analysis and the propositions relating to the varying productivity of different investment periods. He was thus able to present an account of equilibrium of capitalistic production which combined all the best features of these apparently divergent theories, and, by invoking the methods of Walrasian analysis, he was able to present it in a much more general setting than was the case with either Jevons or Böhm-Bawerk. It is true that this theory itself is not complete. It was fully developed in the *Lectures* only for the case of circulating capital. And although later on, in his review of Dr. Åkerman's book (printed below as Appendix 2) Wicksell developed a solution for the case of capital of varying degrees of durability, it is obvious that this is one of the fields of pure analysis in which most yet remains to be done. But the fundamental ideas of his theory—the place of the varying productivity of variations in the investment period, the idea of interest as the difference between the marginal productivity of direct and indirect uses of factors of production—these are notions which are not likely to be superseded and which are fundamental as a basis for future work.

I come finally to what is probably the best known of Wicksell's contributions—his celebrated theory concerning the relations between money and natural rates of interest and movements in the general level of prices. This is probably Wicksell's most original contribution. The main propositions are certainly not new. As Professor Hayek has shown<sup>1</sup> there is a very considerable body of passages in the classical literature, in which, in one form or another, they make their appearance. But, apart from one isolated passage in Ricardo, which Wicksell

<sup>1</sup> *Prices and Production*, chapter i, *passim*. "A Note on the Development of the Doctrine of 'Forced Saving,'" *Quarterly Journal of Economics*, vol. xlvii, pp. 123-133.

says explicitly was only brought to his notice after the publication of his own theory, these passages are not in the most conspicuous or most easily accessible works, and there seems little reason to question that, in so far as any idea implicit in the fundamental notions of Economics can be so described, his main idea was original.

Its influence has been far reaching. It is clear that in Wicksell's own treatment, in certain respects—not unimportant in regard to practical applications—it is not correctly developed. It can be shown that the proposition that the money rate of interest which keeps prices stable is also the rate which clears the market of voluntarily accumulated capital, breaks down when the conditions of capital supply are either progressive or retrogressive.<sup>1</sup> It is clear that it stands in much need of refinement before it can be applied to the interpretation of actual conditions—still more as a guide to practice. The notion of a single rate, either natural or monetary, needs to be replaced by the idea of a *structure* of rates; and the interrelations of these rates, and their relation, not merely to the stream of saving, but also to the risk factor, need much more study. But when all is said by way of qualification, it remains true that the discovery, or rather the rediscovery, of the general relationship involved is one of the greatest single steps forward in monetary economics since the proper elaboration of the quantity theory. It is the key, not only to the more complex problems of fluctuations of monetary value, but also to much that is central in the general theory of capital and the theory of business cycles. Monetary theory and capital theory alike are at an *impasse* when the theory of money is limited to the simple quantity theory and the theory of capital is divorced from the theory of the money market. The value of money is said to depend on the quantity of money and the velocity of circulation, the rate of interest on the marginal productivity of extensions of the investment period, and the rate of time discount. The relations between the supply of capital and the supply of money, between the money rate of interest and the rates of real accumulation and investment, not to mention the relations between

<sup>1</sup> See Hayek, *Monetary Theory and the Trade Cycle*, chapter v, and *Prices and Production*, chapter i; also G. Myrdal, "Der Gleichgewichtsbegriff als Instrument der Geldtheoretischen Analyse," in *Beiträge zur Geldtheorie*, ed. Hayek.

relative prices at various stages of production and the rate of borrowing of the entrepreneurs—all these problems, whose solution is essential to any comprehensive theory of economic change, remain unexplained until this fundamental conjunction has been effected. No doubt in this field it has been left for others to develop the implications of the broad principles which Wicksell laid down and even now much work still remains to be done. But the main credit of rediscovering these principles and bringing them once more into the centre of discussion must rest permanently with the author of these lectures.

\* \* \* \* \*

The present translation is based upon the third edition, published in Sweden after the death of the author under the editorship of Professor Somarin. The two volumes into which it is divided, which deal with general theory and money and credit respectively, are to be published successively and will be sold separately. There have been added, as Appendices to Volume I, two of Wicksell's longer articles, one which adds to the capital theory of Book II further elucidations of the problem of durable capital not provided in the text, and another, which, in the form of a lengthy critique of Professor Cassel's *Theory of Social Economy*, underlines various details of Wicksell's general outlook. The inclusion of this latter must not be thought to imply any special endorsement by the editor of all the various criticisms it contains; there are, indeed, several not unimportant points, notably those relating to the measurability of utility, where Professor Cassel still seems to me to have the better of the argument. But it is always good to know exactly where important authorities differ, and it was thought that anything which should elucidate the relationship of the theoretical systems of the two most famous Scandinavian economists of our time would therefore be helpful.

Wicksell's aim in preparing the *Lectures* was to provide a work which would not only enlighten the professional economist but would also serve as a textbook for students. It is with this end in view that the present edition has been prepared. It is not perhaps suited as an introduction for very young students who have no preliminary acquaintance with economics or any of the natural sciences. For such, some such work as

Volume I of Wicksteed's *Commonsense of Political Economy* is to be preferred. But for more advanced students (i.e. students in the first year of preparation for the final examination, as distinct from students preparing for the intermediate) and for readers of maturity it is admirably fitted for use as a general textbook. I know no single work better suited to the needs of any natural scientist who wishes to get a general view of what theoretical economics is about, and to what extent it is scientifically respectable. In parts the exposition is mathematical. But here, as in the original, the more advanced sections and the sections involving calculus have been printed in smaller type and may be omitted on first reading. The main argument throughout is accessible to those who have no mathematical competence.

The task of editing the translation of a technical work of this sort is always somewhat arduous, and I am indebted to many friends at the London School of Economics who have lent assistance. The final version of the text owes much to Dr. J. R. Hicks, who generously gave much time to the checking and correction of the manuscript. In addition to providing the translation of the Appendices, Mr. Solomon Adler gave valuable assistance and advice concerning the rendering of technicalities, and Mr. E. S. Tucker has borne the main burden of the laborious task of seeing the book through the press.

LIONEL ROBBINS.

LONDON SCHOOL OF ECONOMICS.

April, 1934.

## FROM THE AUTHOR'S PREFACE TO THE SECOND EDITION

The first edition of this book was a very limited one, for I did not wish to deprive myself of the opportunity of publishing a new edition and of availing myself of the improvements which experience and expert criticism might suggest. Unfortunately, very little criticism, either public or private, has reached me ; but during the ten years or more in which I have been teaching I have naturally discovered various defects, which in this edition I have endeavoured to correct. By omitting the chapter on the theory of population, which was published a couple of years ago in a revised form as a "Verdandi" publication, it has been possible, without increasing the size of the work, to find space for certain additions, which, I hope, will increase its value and its usefulness. Thus the presentation of the theory of rent and the problem of distribution in a non-capitalistic economy has been expanded and, in connection with the theory of interest, some pages have been devoted to a résumé and criticism of Böhm-Bawerk's theory in its original form. Similarly, I have given a detailed alternative explanation<sup>1</sup> of the origin of interest and of the solution of the problem of distribution under capitalistic production, in which I assume that the whole of the available supply of current labour and land is either invested in production at once, at the same time, or possibly at different moments of time ; after which, the products mature spontaneously under the influence of free natural forces—as for instance in the laying down of wine for consumption, etc. Interest then appears in its purest form as the "marginal productivity of waiting" (or of time), and the problem, in all its phases, is easily susceptible of exact treatment in a mathematical form, without it being

<sup>1</sup> This expression is perhaps not entirely suitable, since, as will easily be seen, the essence of the argument is in both cases the same. It is therefore also possible that I ought to have endeavoured to combine sections II, 2, C and D in a single uniform presentation. I have found myself unable, however, for various reasons, to do this. As they now stand, these two collateral presentations may materially support and explain each other.

necessary to have recourse to calculation with so-called simple interest, as in Böhm-Bawerk's well-known exposition.

Finally, the original brief discussion of the phenomena of the accumulation of capital has been expanded, and now includes an examination of Professor Cassel's interesting contributions to the still very meagre literature of this subject.

As will appear from what has been said, the present edition has a more "mathematical" character than its predecessor. In every case, however, I have prefaced the mathematical analysis by an elementary treatment with definite—though usually arbitrary—figures. The passages in smaller type can, for the most part, be read and understood without any special knowledge of mathematics, and for the remainder, as I have said in the text, the standard reached nowadays in secondary schools should suffice.

Opinions may differ as to the value of this method. For my own part, I am convinced that a constant and logical argument from simple assumptions conveys more real knowledge than variegated but superficial talk upon everything under the sun: national character, racial differences, will to power, class interests, etc. Again, as regards the controversy concerning the so-called historical and theoretical treatment of economics (of which the latter must of necessity be more or less mathematical), this is a matter which can, in my opinion, be settled only by a *division of labour*. We must be deeply grateful to those persons who, by the discovery and investigation of documents relating to economic history—matters treated in a very step-motherly fashion by earlier historians—have succeeded in illuminating the present by the light of the past, and in showing to us some links on a chain of development of which we ourselves and our environment constitute another link. But, on the other hand, if economics is some day to become a real science and guide to practical business it must inevitably advance to certain positive results and principles of universal application. It will not do to treat questions relating to economic policy, to trade and industry, and especially to population, as if they were metaphysical speculations in which each person can adopt the point of view which appeals most to his temperament—and still more frequently, perhaps, to his private interests. We are here concerned with substantial quantities, measurable magnitudes,

FROM THE AUTHOR'S PREFACE xxiii

*a* and *b*, plus and minus. To secure an explanation of their relations which would be convincing to every thinking and unprejudiced person cannot be said to be outside the scope of economic inquiry, but must, on the contrary, be its ultimate goal.

I am, of course, far from regarding the following arguments, which are for the most part hypothetical, as an adequate foundation for a practical treatment of economic questions, though I have little doubt that they constitute a necessary preliminary—and, at the same time, provide a useful exercise for those concerned with such problems. In more than one case it may appear that a direct application of our principles to actual politico-economic problems would be quite natural. In such cases we must certainly be on our guard against over-hasty generalizations from results achieved by way of abstract deductions; and, unfortunately, the mathematical method affords no absolute guarantee against false deductions. But, in any case, that method has a great advantage over the merely descriptive method, in that errors committed cannot long be concealed, and false opinions cannot be defended long after they have been shown to be wrong.

KNUT WICKSELL.

LUND.

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