

Dhananjayrao Gadgil Library



GIPE-PUNE-041678

HARVARD ECONOMIC STUDIES

- I. The English Patents of Monopoly. By William H. Price.
- II. The Lodging House Problem in Boston. By Albert B. Wolfe.
- III. The Stannaries: A Study of the English Tin Miner. By George R. Lewis.
- IV. Railroad Reorganization. By S. Daggett.
- V. Wool-Growing and the Tariff. By Chester W. Wright.
- VI. Public Ownership of Telephones on the Continent of Europe. By A. N. Holcombe.
- VII. The History of the British Post Office. By J. C. Hemmeon.
- VIII. The Cotton Manufacturing Industry of the United States. By M. T. Copeland.
- IX. The History of the Grain Trade in France. By Abbott Payson Usher.
- X. Corporate Promotions and Reorganizations. By A. S. Dewing.
- XI. The Anthracite Coal Combination in the United States. By Eliot Jones.
- XII. Some Aspects of the Tariff Question. By F. W. Taussig.
- XIII. The Evolution of the English Corn Market from the Twelfth to the Eighteenth Century. By N. S. B. Gras.
- XIV. Social Adaptation: A Study in the Development of the Doctrine of Adaptation as a Theory of Social Progress. By L. M. Bristol.
- XV. The Financial History of Boston, from May 1, 1822, to January 31, 1909. By C. P. Huse.
- XVI. Essays in the Earlier History of American Corporations. By J. S. Davis. 2 vols.
- XVII. The State Tax Commission. By H. L. Lutz.
- XVIII. The Early English Customs System. By N. S. B. Gras.
- XIX. Trade and Navigation between Spain and the Indies in the Time of the Hapsburgs. By C. H. Haring.
- XX. The Italian Emigration of Our Times. By R. F. Foerster.
- XXI. The Mesta: A Study in Spanish Economic History, 1275-1836. By Julius Klein.
- XXII. Argentine International Trade under Inconvertible Paper Money: 1880-1900. By J. H. Williams.
- XXIII. The Organization of the Boot and Shoe Industry in Massachusetts before 1875. By Blanche E. Hazard.
- XXIV. Economic Motives. By Z. C. Dickinson.
- XXV. Monetary Theory before Adam Smith. By Arthur E. Monroe.
- XXVI. Canada's Balance of International Indebtedness, 1900-1913. By Jacob Viner.
- XXVII. The History of the United States Post Office to the Year 1820. By W. E. Rich.
- XXVIII. The Theory of International Prices. By James W. Angell.
- XXIX. Forests and Sea Power. By Robert G. Albion.
- XXX. Banking Theories in the United States before 1860. By Harry E. Miller.
- XXXI. Karl Marx's Interpretation of History. By Mandell Morton Bober.
- XXXII. Grain Growers' Cooperation in Western Canada. By Harald S. Patton.
- XXXIII. The Assignats. By S. E. Harris.
- XXXIV. The Economic and Social History of an English Village. By N. S. B. Gras and E. C. Gras.
- XXXV. Direct Taxation in Austria. By John V. Van Sickle.
- XXXVI. The Greenbacks and Resumption of Specie Payments, 1862-1879. By Don C. Barrett.
- XXXVII. The Street Railway in Massachusetts. By Edward S. Mason.
- XXXVIII. The Theory of Monopolistic Competition. By Edward Chamberlin.
- XXXIX. Interregional and International Trade. By Bertil Ohlin.
- XL. The French International Accounts, 1860-1913. By Harry D. White.
- XLI. Twenty Years of Federal Reserve Policy. By S. E. Harris. 2 vols.
- XLII. The Illinois Central Railroad and Its Colonization Work. By Paul W. Gates.
- XLIII. American Treasure and the Price Revolution in Spain, 1501-1650. By Earl J. Hamilton.
- XLIV. German Monetary Theory, 1905-1933. By Howard S. Ellis.
- XLV. Wages in Eighteenth Century England. By Elizabeth W. Gilboy.
- XLVI. The Theory of Economic Development. By J. A. Schumpeter.
- XLVII. The Supply and Control of Money in the United States. By L. Currie.
- XLVIII. British International Gold Movements and Banking Policy, 1881-1913. By W. Edwards Beach.
- XLIX. State Control of Local Finance in Massachusetts. By Royal S. Van de Wootsyne.
- L. Fluctuations in American Business, 1700-1860. By Walter B. Smith and Arthur H. Cole.
- LI. Money, Prices, and Wages in Valencia, Aragon, and Navarre, 1351-1500. By Earl J. Hamilton.
- LII. The Development of the Business Corporation in England, 1800-1867. By Bishop Carleton Hunt.
- LIII. Exchange Depreciation. By S. E. Harris.
- LIV. A Study of Fluid Milk Prices. By John M. Cassels.
- LV. Location Theory and the Shoe and Leather Industries. By Edgar M. Hoover, Jr.
- LVI. Federal Subsidies to the Provincial Governments in Canada. By J. A. Maxwell.
- LVII. Studies in Massachusetts Town Finance. By Eugene E. Oakes.

HARVARD UNIVERSITY PRESS
CAMBRIDGE, MASS., U. S. A.

HARVARD ECONOMIC STUDIES

VOLUME XLIV

AWARDED THE DAVID A. WELLS PRIZE FOR THE YEAR 1929-30 AND PUBLISHED FROM THE INCOME OF THE DAVID A. WELLS FUND. THIS PRIZE IS OFFERED ANNUALLY, IN A COMPETITION OPEN TO SENIORS OF HARVARD COLLEGE AND GRADUATES OF ANY DEPARTMENT OF HARVARD UNIVERSITY OF NOT MORE THAN THREE YEARS STANDING, FOR THE BEST ESSAY IN CERTAIN SPECIFIED FIELDS OF ECONOMICS

THE STUDIES IN THIS SERIES ARE PUBLISHED BY THE DEPARTMENT OF ECONOMICS OF HARVARD UNIVERSITY, WHICH, HOWEVER, ASSUMES NO RESPONSIBILITY FOR THE VIEWS EXPRESSED

LONDON : HUMPHREY MILFORD

OXFORD UNIVERSITY PRESS



X61.55

G4

41678

GERMAN MONETARY THEORY
1905-1933

BY

HOWARD S. ELLIS

ASSOCIATE PROFESSOR OF ECONOMICS, UNIVERSITY OF MICHIGAN



CAMBRIDGE, MASSACHUSETTS
HARVARD UNIVERSITY PRESS

1937

COPYRIGHT, 1934
BY THE PRESIDENT AND FELLOWS OF HARVARD COLLEGE

Second Printing

PRINTED AT THE HARVARD UNIVERSITY PRESS
CAMBRIDGE, MASS., U. S. A.

PREFACE

THE development of monetary theory in German literature during the past thirty years may profitably engage the attention of economists generally. In the first place, beginning with Knapp's challenging *State Theory of Money* in 1905, a spirited discussion arose as to the essential character of money and its value. Although the issues were not new, this preoccupation with metaphysical questions concerning money is without parallel in the history of economics. Portions of this literature are marred by polemics or vitiated by flagrant fallacies, but in the aggregate it yields definitely valuable results. The discussion of price level determinants, to which Part II of this book is devoted, presents some striking spectacles: the clash of quantity-theory, historical, institutional, and banking-school ideas; the rivalry of velocity and cash-balance approaches; the divergence of views upon the causal independence of velocity and upon the merits of general and special price indices. Because opinion upon these issues has been more evenly divided in Germany and Austria than elsewhere, we sometimes discover that the arguments are pressed farther, theoretical refinement being the gain and "logical conclusions" the drawback.

American and English students may be curious also as to the effects produced upon indigenous economic writing by the post-war inflation experiences. Here again a considerable part of the publication, particularly by lay pamphleteers, represents the pathological phases of theorizing, as might be expected from a period of popular excitement and confusion. I take account of this material briefly in Part III, but seek rather to compass fully the permanent results of serious discussion. It will be found that the purchasing power parity doctrine encountered a surprisingly vigorous opposition from the balance of payments school, but that the conflict contributed toward a synthesis. Finally, in Part IV, which treats the analysis of business cycles, there appear a number of ideas, widely accepted amongst monetary writers, which might almost be marked as "made in Germany"; or at least they were most widely propagated through the German literature. Such, for example, are the theories

of the "trailing bank rate," of "neutral money," and the emphasis upon economic innovations in cyclical variation.

The purposes of this book are two: to make available in summary form the content of a large literature from which many students are debarred by the obstacle of language or time, and to present critical comparisons and appraisals of its outcome in the light of monetary science generally. The term "German theory" indicates an organic whole characterized by a common language, but involving important writers outside the geographic area of Germany and Austria whose works belong to the German schools of thought. The nature of the subject matter and the magnitude of the undertaking have caused my critical observations to assume rather largely the deductive form, except in cases where empiric evidence is readily available in compact and unambiguous form. In the interest of fairness to the writers involved, I endeavor in most cases to hold the résumé of theories and the criticism separate. In each Part, I avoid, so far as possible, the introduction of my own judgment upon basic questions until a concluding summary chapter, leaving the issue unprejudiced until all the theorists can be reviewed. Criticism of each author takes on a rather too negative aspect in consequence of this method; but the advantage lies in clearing away difficulties peculiar to each author as the study progresses, so that the field may be clear at the end of each Part for a statement of positive results.

My greatest obligations as a student of economics belong to Professors F. H. Knight, F. M. Taylor, and F. W. Taussig. To the last I am indebted also for his benevolent and discerning guidance throughout the present undertaking; and to Professor A. P. Usher for his help during the process of publication. At Heidelberg, where the enquiry was begun during my tenure of a Sheldon Fellowship from Harvard University, I was aided by discussions with Professor Alfred Weber and Drs. Bergsträsser and Salin. I acknowledge with pleasure the suggestions made subsequently by European scholars elsewhere, Professor Gottfried Haberler, Dr. Oskar Morgenstern, and Dr. Melchior Palyi.

The greatest part of the reading and of the formulation of ideas has gone forward at Ann Arbor, where I have been encouraged and, at certain junctures, corrected by my associates in the University of Michigan: Professor R. G. Rodkey, Professor M. A. Copeland, and

PREFACE

ix

the late Dr. C. H. May. Professor I. L. Sharfman has liberally allowed me the maximum of free time and energy consistent with university teaching; to him I owe also the sincere respect of a student. More than anyone else, Professor Leonard L. Watkins has patiently considered with me the problems encountered in this study, indicating the way out of many a dilemma.

H. S. E.

ANN ARBOR, MICHIGAN
August, 1934

of the "trailing bank rate," of "neutral money," and the emphasis upon economic innovations in cyclical variation.

The purposes of this book are two: to make available in summary form the content of a large literature from which many students are debarred by the obstacle of language or time, and to present critical comparisons and appraisals of its outcome in the light of monetary science generally. The term "German theory" indicates an organic whole characterized by a common language, but involving important writers outside the geographic area of Germany and Austria whose works belong to the German schools of thought. The nature of the subject matter and the magnitude of the undertaking have caused my critical observations to assume rather largely the deductive form, except in cases where empiric evidence is readily available in compact and unambiguous form. In the interest of fairness to the writers involved, I endeavor in most cases to hold the résumé of theories and the criticism separate. In each Part, I avoid, so far as possible, the introduction of my own judgment upon basic questions until a concluding summary chapter, leaving the issue unprejudiced until all the theorists can be reviewed. Criticism of each author takes on a rather too negative aspect in consequence of this method; but the advantage lies in clearing away difficulties peculiar to each author as the study progresses, so that the field may be clear at the end of each Part for a statement of positive results.

My greatest obligations as a student of economics belong to Professors F. H. Knight, F. M. Taylor, and F. W. Taussig. To the last I am indebted also for his benevolent and discerning guidance throughout the present undertaking; and to Professor A. P. Usher for his help during the process of publication. At Heidelberg, where the enquiry was begun during my tenure of a Sheldon Fellowship from Harvard University, I was aided by discussions with Professor Alfred Weber and Drs. Bergsträsser and Salin. I acknowledge with pleasure the suggestions made subsequently by European scholars elsewhere, Professor Gottfried Haberler, Dr. Oskar Morgenstern, and Dr. Melchior Palyi.

The greatest part of the reading and of the formulation of ideas has gone forward at Ann Arbor, where I have been encouraged and, at certain junctures, corrected by my associates in the University of Michigan: Professor R. G. Rodkey, Professor M. A. Copeland, and

PREFACE

ix

the late Dr. C. H. May. Professor I. L. Sharfman has liberally allowed me the maximum of free time and energy consistent with university teaching; to him I owe also the sincere respect of a student. More than anyone else, Professor Leonard L. Watkins has patiently considered with me the problems encountered in this study, indicating the way out of many a dilemma.

H. S. E.

ANN ARBOR, MICHIGAN

August, 1934

41678

CONTENTS

PART I

THE NATURE OF MONEY AND ITS VALUE

I. TYPES OF THEORY AS TO THE NATURE OF MONEY	3
Importance of defining concepts, 3. — Two opposing theses, 3. — Their significance for monetary theory, 4. — Their historical evolution, 7. — Contemporary types of theory, 12.	
II. THE STATE THEORY OF MONEY	13
I. Knapp's Chartal Theory: Statement and Interpretation. Three major propositions, 13. — Other interpretations considered; — "validity" not indicative of a fiat theory, 16; nor, of a legalistic explanation, 18; nor of an inflationary bias, 19; nor, finally, of administrative rules, 20. — II. The Chartal Money Theory: Criticism. A. The State and Validity. The normal dominance of the state, 21. — Five qualifications: — primitive societies, 23; spontaneous money systems, 25; emergency issues, 25; rejection of depreciated paper, 26; the operation of Gresham's law, 27. — B. The Means of Securing Validity. Knapp's error concerning scarcity, 29; concerning the "back-reference" ratio, 31; concerning redemption and limited issue, 32. — Acceptable innovations, 33. — C. Chartalism and Nominalism, 34. — III. Knapp's Observations on the Value of Money, 35. — IV. Summary and Appraisal, 37. — V. Other Chartal Theories, 38.	
III. ORTHODOX NOMINALISM	42
I. The Idealistic Nominalists. Liefmann, 42; and Lansbrugh, 43. — II. The Materialistic Nominalists. Nussbaum, 44; Amonn, 46; Wagemann, 48; Schumpeter, 50; Hahn, 51; Cassel, 52; and Wick- sell, 54. — Summary, 56.	
IV. THE SUPPLY AND DEMAND THEORY	59
I. Karl Helfferich. A résumé of his doctrine, 60. — Four conceptions of demand and utility with reference to money; — utility of money income, 63; social utility of money, 63; the unitary demand schedule, 63, and objections to this concept, 65; utility of money reserves, 66. — Other doctrines of Helfferich, 68. — II. Other Exponents of the Supply and Demand Theory. Heyn, 71; Gruntzel, 72. — III. Positive Outcome of the "Supply and Demand" Theories, 73.	

V. THE MARGINAL UTILITY THEORY	77
I. Ludwig Mises. His answer to the charge of circularity, 77. — Objections to nominalism, 78. — His eclecticism, 79. — Failure to escape the Austrian circularity, 81. — II. Friedrich Wieser. Historical mutations of his doctrine, 81. — Difficulties inherent in marginal utility applied to money, 82; and in an exchange value of money separate from purchasing power, 84. — III. Other Marginal Utility Theories, 88. — IV. Appraisal of the Marginal Utility Approach. Its current attenuation, 88. — Its circularity, 89. — Rejection of an absolute value of money, 90.	
VI. METALLISM	91
I. Metallism with Orthodox Economists: Diehl, 91; Hildebrand, 93; Moll, 95; Stephinger, 97. — Evaluation, 98. — II. The Socialist Doctrine. Hilferding's theory, 99. — Its inherent difficulties, 101.	
VII. CONCLUSIONS AS TO THE NATURE OF MONEY AND ITS VALUE	104
The state and money, 106. — The value of money. Four senses, 108. — Are these values additive? 111. — Causal relationships between different values, 111. — The absence of an absolute value of money, 113. — Practical applications of results, 113. — Purchasing power the objective of price level analysis, 113; Anderson's confusion, 114; no objection to quantity theory from the philosophy of money, 116; nor to index numbers, 117; no <i>per se</i> "neutral" value of money, 118. — Final appraisal of the monetary schools, 118.	

PART II

THE DETERMINATION OF PRICE LEVELS

VIII. THE QUANTITY THEORY: TRANSACTIONS APPROACH . . .	125
I. Schumpeter's Income Theory. Limitation to consumers' incomes, 126. — Description of M, 127. — Monetary "efficiency," 130. — Criticism of the concept, 131. — Causation in the equation, 137. — Schumpeter's contributions, 138. — II. Cassel's Analysis of <i>Ceteris Paribus</i> . His objections to the device in the quantity theory, 139. — The dependence of quantity of money upon prices, 142. — Point of time equation, 145. — Dependence of costs of gold production on prices, 146. — Statistical price study, 147. — III. Marschak's Treatment of Velocity. His concept of relative elasticities, 148. — The "order index of production," 148. — The "coefficient of differentiation," 150. — Duration of production and velocity, 151; and Marschak's error, 152.	
IX. THE QUANTITY THEORY: CASH BALANCE APPROACH . . .	154
I. Wicksell's Interest-Differential Theory, 154. — II. Helfferich and the Unitary Demand for Money, 160. — III. Mises' Cash Balance Analysis, 162. — IV. Contrasts between Money and Credit drawn by Hahn, 165. — V. Neisser's Innovations in Velocity Theory, 169.	

X. THE OPPOSITION TO THE QUANTITY THEORY 176

Wieser's income theory, 176; and other adherents, 180. — The banking school theory, 180. — The historical approach to price levels, 181. — The disjunctive view, 182. — Appraisal of anti-quantity-theory positions, 183.

XI. CONCLUSIONS REGARDING PRICE LEVEL DETERMINATION 186

I. Equations of Exchange: General Considerations. A. The Adequacy of Quantitative Representation, 186. — B. The Period and Field Included, 187. — C. The Number of Equations, 187. — II. Equations of Exchange: Specific Magnitudes. A. Quantity of Money, 187. — B. Velocity, 188. — C. Trade, 188. — III. The Cash Balance Equation. A. Mode of Statement, 189. — B. The Determination of Size of Balances, 190. — C. Special Balances, 194. — IV. Cause and Effect. A. General Observations, 195. — B. True Functional Dependence of Quantity of Money upon Prices, 196. — C. A Spurious Case of Reversed Causation, 197. — V. The Two Approaches to the Quantity Theory, 200.

PART III

PRICE LEVELS AND FOREIGN EXCHANGE UNDER
INFLATION

XII. TYPES OF THEORY AS TO PRICE LEVELS AND EXCHANGES . 203

The Inflation Theory. Purchasing power parity and exchange equilibrium, 203. — The Balance of Payments Theory. Truistic, independent, and causal variants, 204. — Subdivisions of the causal variant, 204. — Synthesizing theories, 206.

XIII. THE INFLATION THEORY 207

Evolution of the purchasing power parity doctrine with Cassel, 207. — Narrowness of the theory, 208. — Cassel on the exportation of marks, 209. — Mises' parity theory, 215. — Lansburgh, 217. — Pohle, 218. — Hahn, 220; and a criticism of his doctrines, 221. — Eucken, 224. — Other adherents to the parity theory, 230. — Recent reinterpretation of purchasing power parity, 232. — Velocity in inflation, 234.

XIV. BALANCE OF PAYMENTS THEORIES 237

I. Truistic Theories, 237. — II. The Balance of Payments as an Independent Phenomenon. Knapp, 239. — Wieser, 243; and Mises' criticism of his position, 243. — Eulenburg, 245. — Diehl, 245. — Beckerath, 247. — Appraisal, 248. — III. Veritable Balance of Payments Theories. Bonn, 248; and a criticism of his position, 250. — Helfferich, 253.

XV. SYNTHESIZING VIEWS OF CAUSATION UNDER INFLATION . . 257

"Confidence" as controlling both price levels and exchanges, 257. — Genuine bilateral theories, 260.

XVI. CONCLUSIONS AS TO CAUSE AND EFFECT UNDER INFLATION 264

I. The Character of the Equilibrium Rate of Exchange. A. The Merits and Defects of the Parity Doctrine in General, 264. — B. The Balance of Payments Theory, 268. — C. The Equilibrium Rate of Exchange under Inflation. Character of exchange equilibrium, 269. — Theoretical advantages of the concept, 271. — Difficulties of practical utilization, 273. — Purchasing power parity as an approximation, rejected, 276. — II. The Inflation in Germany. A. Its Chief Characteristics. Variations in volume of money and internal prices, 276. — The shortage of money, 279. — Variations in the external and internal values of the mark, 282. — The behavior of total gold value of mark circulation, 287. — B. Lines of Causation in the German inflation, 289.

PART IV

BUSINESS CYCLES

XVII. ORIGINS AND DIVISIONS OF THE MONETARY EXPLANATION 299

I. Introduction, 299. — II. Wicksell's Doctrine of the "Trailing Bank Rate." Statement, 300. — Interpretations, 301. — The applicability of the doctrine of natural rate to cyclical phenomena, 305. — III. Cassel's Theory: Variations in the Production of Fixed Capital. Résumé of his explanation, 308. — Various criticisms, 311. — What is the central theorem? 313. — IV. Classification of Monetary Cycle Theories, 315.

XVIII. THE SCHUMPETER-HAHN TYPE OF CYCLE THEORY . . . 317

I. Schumpeter's Explanation: Waves of Enterprise and Credit Creation. A statement of the theory, 317. — General appraisal, 320. — The limits to credit expansion, 321. — Correlation of cycles and periods of production, 325. — II. Hahn's Theory of Productive Credit. His original doctrines, 327. — Its errors and exaggerations, 329. — Later modifications of his theory, 333.

XIX. THE MISES-HAYEK ANALYSIS OF CYCLES 335

I. Mises' Individualistic Philosophy of Credit. Its essential features, 335. — Criticisms, 338. — II. Hayek's Doctrine of Neutral Money. His appraisal of non-monetary theories, 339. — "Intertemporal equilibrium," 342. — Description of cyclical disequilibrium, 343. — The automatic transfer of savings to investment with a constant effective quantity of money, 348. — Criticisms. A constant effective volume of money inconsistent with real cost movements, 350. — The error of arguing from the particular to the general, 351. — Errors in the scheme of automatic transfer of savings to investment, 353. — Lack of realism, 355.

XX. OTHER EXPONENTS OF CREDIT THEORIES 357

I. Theories Related to the Mises-Hayek Position: Reisch, 357; Strigl, 358; Haberler, 359; Neisser, 362; and Budge, 366. — II. Theories Favoring Commodity Price Stabilization: Röpke, 367; Lampe,

CONTENTS

XV

369; Herzfelder, 371. — III. Theories Opposed to the "Trailing Bank Rate" Doctrine. Eucken, 372; Stucken, 373. — Can variations in the rate of saving engender cycles? 373.

XXI. QUALITY OF CREDIT AND THE BUSINESS CYCLE 375

I. Stock Exchange Credit, Industrial Credit, and Bank Liquidity. Machlup's theories, 375. — An examination of the problem of credit absorption through security speculation, 377. — Bank liquidity, 378. — II. Foreign Credit. The views of Rosch and others concerning inflation and deflation imposed from abroad, 391.

XXII. OUTCOME OF THE CREDIT THEORIES OF CYCLES 395

I. On the Specifically Monetary Explanation. A. The Discovery by German Theorists of Credit Creation as a Factor in Price Formation, 395. — B. The Hayek-Budge Criterion of Causation, 397. — II. Conclusions from Recent German Discussions. A. The Role of Economic Progress in Cycles, 402. — B. The Role of Investment and Savings. Distributional overcapitalization, 402. — Technical overcapitalization, 404. — C. The Desirability of Reducing Cyclical Variations to a Minimum, 412. — III. Unsettled Issues, 414. A. Three Aspects of Bank Rate, 415. — B. The "Productivity" of Bank Credit, 425. — C. The Standard of Prices, 431.

BIBLIOGRAPHY 435

INDEX 453

PART I

THE NATURE OF MONEY AND ITS VALUE

CHAPTER I

TYPES OF THEORY AS TO THE NATURE OF MONEY

EVERY science must define its terms. Nevertheless, it is contended that monetary theory is an exception to the rule, that enquiry into basic concepts is "patently fruitless," and that the subject may be dismissed with the epithet of "metaphysics." Physics is today being revolutionized by the discovery that some of its ideas, accepted for generations as "common sense" categories, are fallacious; that the scientific validity of its whole structure depends upon a correct metaphysics of time, space, mass, and force. If the philosophical foundation absolutely conditions the laws of so empiric a science as modern physics, it can scarcely be lacking in significance for economics. No doubt metaphysical enquiries threaten to run off into controversy and scholasticism, — the German literature of economics during the past generation has not escaped these detracting characteristics, — but the economist can ill afford being disdainful of any honest effort to clarify the concepts with which he operates. The writer on money and banking inevitably gives his theory a certain flavor by his assumptions as to the nature and origin of money and its value, and he would do well to recognize the issues involved in these postulates.

"There are only two theories of money which deserve the name," says Schumpeter, "... the commodity theory and the claim theory. From their very nature they are incompatible."¹ On the one hand Roscher, for example, writes: "The false definitions of money are divisible into two groups: those which regard it as something more, and those which regard it as something less, than an economic commodity."² On the other hand Wicksell declares:

The commodity character of money and its concrete characteristics retire more and more into the background during its employment as money; these may reappear again, but only when it has ceased to be money, and has changed itself into a commodity again. Money sublimates into an abstract quantity, into a mere quantity of value.³

¹ Joseph Schumpeter, "Das Sozialprodukt und die Rechenpfennige," *Archiv* 44, p. 649.

² Quoted by Karl Helfferich, *Money* (New York, 1927), p. 494, and Schumpeter, *op. cit.*, p. 641.

³ Knut Wicksell, *Vorlesungen über Nationalökonomie auf Grundlage des Marginalprinzips, Theoretischer Teil*, vol. II, "Geld und Kredit" (Jena, 1922), p. 20.

The first type of theory, the commodity theory, traces money to a purely commodity origin and discovers the principle regulating purchasing power in supply and demand, in marginal utility, or in the costs of production of the money-stuff. A distinctive branch of this theory is metallism, which lays especial emphasis upon the bullion content of coins, a branch including the socialists and their labor cost of production theory of money value. To the second type of theory German usage has come to attach the term "nominalism." Nominalism embraces two branches: "chartalism," which represents money as the creature of the state, and another which discovers the origin of money in trade practice, in spontaneous agreement as to the unit of account. The latter goes by the name of *Anrechttheorie*, *Anweisungtheorie* or *Zeichentheorie*, and quite commonly *Nominalismus*¹ without qualifying phrase; but to distinguish this particular kind of nominalism from the genus which includes both chartalism and the *Zeichentheorie*, I shall designate the latter "orthodox nominalism." Under "nominalism" in the lists on page 5 are set down the tenets which seem to be fairly common to all sorts of nominalists, but two specific divergences between the chartalists and other nominalists are noted. The items under "commodity theory" *sans phrase* would be subscribed to quite generally by all commodity theorists, including the metallists. But the articles of belief under "metallism" are generally, though not without occasional exception, peculiar to this particular coterie of commodity theorists. Quite naturally there exist no absolutely invariable criteria, but the items set down here will serve as generally valid differentia for the various theory types.²

It would be surprising if such diametrically opposed ideas did not affect the theoretical superstructure erected upon them. (Nominal-

¹ In Georg Friedrich Knapp's *The State Theory of Money* (London, 1924) "nominality" and "chartality," applied to money, carry about the same connotation. But in the twenty-odd years which have elapsed since Knapp coined the term "chartal," the distinction given above has evolved. An identification of the two still occurs with those writers who would detract from ordinary nominalism by connecting it with the "state theory."

² René Gonnard uses the terms *nominalisme monétaire* and *réalisme monétaire*. These would be acceptable alternatives for nominalism and commodity theory. But he errs in saying further, "On peut également dire de l'étatisme ou du naturalisme monétaire. Tous ces termes marquent certains aspects de l'opposition des deux conceptions." — *Précis d'économie monétaire* (Paris, 1930), p. 27, note. *Naturalisme* may be fair enough for commodity theories, and *symbolisme* for nominalism; but *étatisme* is not one aspect of nominalism, but one peculiar variety, and the same may be said of "metallism" with reference to commodity theories.

CONTRASTING DOCTRINES ON THE NATURE OF MONEY AND ITS VALUE

Nominalism

1. (a) Money is a claim to goods (orthodox nominalism).
- (b) Money is a means of legally discharging debts (chartalism).
2. (a) Money originates in social usage (orthodox nominalism).
- (b) Money originates in the state's will (chartalism).
3. Definition of money involves its passing at unity or par.
4. Money value is relative.
5. Functions of money are envisaged as causes of its value only as they operate through the unique medium of exchange function.
6. The value of money is governed by special and unique causes.
7. The value of money is its purchasing power.
8. (a) Money circulates because it is generally acceptable in exchange (orthodox nominalism).
- (b) Money circulates because it is a legal tender (chartalism).
9. Paper money is pure money.
10. The value of money is determined by all monetary media.
11. All monetary media operate directly on the value of money.
12. The value of irredeemable paper needs no special theory.

The Commodity Theory

1. Money is one commodity amongst others.
2. Money originates in social usage.
3. Definition involves only physical medium of exchange, commonly accepted.
4. Money value is absolute.
5. Functions represent causes of money value as they operate plurally to give it utility.
6. The value of money is governed by the ordinary laws of supply and demand, marginal utility, etc.
7. Money has value in other senses besides purchasing power.

Metallism

1. Money circulates only because of the utility of the money-stuff.
2. Paper money is a money substitute.
3. The value of money substitutes comes from standard money.
4. Money substitutes operate on the value of money indirectly by reducing the demand for the money-stuff.
5. The value of irredeemable paper depends upon prospects of redemption.

ism, envisaging money as a claim or mere ticket, adjudges purchasing power as expressed in price indices to be the only admissible sense of its value, a value obviously controlled by the quantity of tickets in existence. Its natural predilection is toward the quantity theory of prices and a purchasing-power parity explanation of exchange rates. Not unnaturally also, theorists with a bias toward regarding money as something unique and divorced from the world

of goods see in it the possibility of a *causa movens* in the cyclical movements of economic life. If they favor a policy looking toward the elimination of these waves, they demand either an absolute fixing of the number of tickets or a stabilization of their purchasing power; a stabilized money value *per se*, while the changes initiated from the side of goods continue freely, they believe a nonentity. In normal intercourse they portray credit as the important determinant of prices, and standard money, because its quantity is less, as a secondary factor. The soaring prices attending dislocated currencies are similarly to be explained on the basis of purely quantitative determinants, and stabilization is to be accomplished by quantitative limitation. If the state controls the institution of money, as the chartalist branch maintains, then a natural step is toward a theory of controlled currencies, particularly of foreign exchanges.)

With the commodity theory's basic postulate of an inner or absolute value of money subject to commodity value laws, purchasing power appears only as an outward emanation, a ratio of the value of money and the value of goods. Index numbers cannot reveal what happens to the value of money *per se*, as they are affected also by what happens on the side of goods. Like other commodities, money has a plurality of functions, and these in conjunction explain its value. The quantity theory is a purely mechanical and superficial proposition because it fails to take account of the subjective movements at work in multifarious channels, now on the side of money, now on the side of the vast complex of separate commodity and service values. Money is only one commodity amongst many, and what happens to prices under dislocated standards is only explicable on the side of the preponderating number of ordinary goods, where we see diminished production and an adverse balance of trade. Business cycles cannot be explained in monetary terms, by the same token. But if measures for greater stability are desired, the most that can be recommended is an approximate fixing of the inner or absolute value of money, since the monetary institution cannot be held responsible for the altogether natural and therefore desirable changes proceeding from the side of goods. Bank deposits are nowadays an important element in the price situation, since they serve as substitutes for standard money and so affect the ratio of exchange between gold and goods. Where credit money has broken down, qualitative factors such as confidence in the ability of the treasury to resume redemption in specie may play a more significant rôle than

mere quantitative causes. In order to return to the sound basis of an open metallic standard, it is necessary that the state desist from its interference with money and allow the free operation of those economic laws which control commodities generally.

Not all of these propositions are unavoidable conclusions from either nominalistic or commodity premises, but the kinship of ideas is inescapable. The concept of money marks a parting of the ways. When we look back into the historical evolution of monetary theory we find the two opposing viewpoints represented in the earliest stages.

In the *Politics*, Aristotle adopted the view of money as something intrinsically useful and easily applicable to the purposes of life, for example, iron, silver, and the like. Of this the value was at first measured by size and weight, but in time they put a stamp upon it to save the trouble of weighing and to mark the value. . . . Others maintain that coined money is a mere sham, a thing not natural, but conventional only, which would have no value or use for any purposes of daily life if another commodity were substituted by the users.¹

But in the *Nicomachean Ethics* he expressed the belief that

money has been introduced by convention as a kind of substitute for a need or demand, and this is why we call it νόμισμα, because its value is derived, not from nature but from law [νόμος] and can be altered or abolished at will.²

Plato also seemed to adopt this conception of money in calling it a token.³

Does the difference between the two theories lie in the account of the origin of money, or in opposing beliefs as to the nature of its value? Is νόμος to be understood as "law" in the formal sense of legislative enactment, or merely as tradition or usage? Either is an admissible translation. These various constructions seem to have proven confusing to the medieval Schoolmen, whose conceptions of value were at best vague. When in the thirteenth century St. Thomas Aquinas commented upon the fifth book of the *Ethics*, he translated νόμος as *lex*.⁴ The prince thus became the determiner of the value of money. But the problem of justice in the repayment of

¹ *Politics*, tr. by Benjamin Jowett (Oxford, 1920), pp. 42, 43.

² *Nicomachean Ethics*, tr. by F. H. Peters, 15th ed. (London, 1893), p. 156.

³ *The Republic of Plato*, tr. by Benjamin Jowett, 3rd ed. (Oxford, 1908), vol. I, bk. II, 371 B.

⁴ A. E. Monroe, *Monetary Theory before Adam Smith* (Cambridge, Massachusetts, 1923), p. 27.

debts soon gave rise to the distinction between *valor impositus* and *bonitas intrinseca*, the former subject to the will of the prince, the latter not. While this distinction was a step toward clearing away confusion between the legal and the economic values of money, the very fact that it was long disputed as to which was more important shows that the early Schoolmen did not recognize the concepts to be categorically distinct. Buridan (1358), however, implicitly assumed, as Monroe says, "that the king's function is not to determine the purchasing power of money, but merely to set up legally binding standards as to the relation between the different coins"; and Molinaeus (1500-1566) "was clear as to the strictly legal significance of the *valor impositus*."¹

But the contemporary ruling houses displayed no great anxiety to have the difference made too explicit. "We cannot believe," said Philip V in his ordinance of January 16, 1346, "that anyone can doubt our absolute right over the moneys, to give them whatever rate we choose"; and John II expressed himself similarly in an ordinance of March 20, 1361.² Le Bret (1632) and Conring (1606-1681) maintained that the value of money depends on the will of the prince; and Nicholas Barbon, the English mercantilist, wrote: "Mony is a Value made by a Law. . . . It is not absolutely necessary Money should be made of Gold or Silver; for having its sole Value from the Law, it is not Material upon what Metal the Stamp be set."³ Under the influence of eighteenth-century absolutism, the jurisconsult Pothier declared:

Since the prince distributes money to people to serve them as a symbol of value, it belongs to the individuals only in this respect and consequently can be the object of a loan only so. . . . One may not, then, lend money itself, but only as a symbol of the sum which it pleases the prince to have it signify.⁴

So far there has prevailed more or less confusion between the economic and legal values of money, an inadequate separation between the value concepts and the agency which establishes money. On both the latter topics a great deal of emphasis has been laid upon the rôle of the state. This line of thought is continued with greater discrimination by certain writers in the early nineteenth century.

¹ *Ibid.*, p. 28.

² Gonnard, *op. cit.*, p. 28.

³ *A Discourse of Trade* (1690); reprinted by the Johns Hopkins Press (Baltimore, 1905), p. 16.

⁴ R. J. Pothier, *Oeuvres* (Paris, 1821), v, 405, quoted by Arthur Nussbaum, *Das Geld in Theorie und Praxis des deutschen und ausländischen Rechts* (Tübingen, 1925), p. 15.

According to James Steuart, "The authority given to a coin by its being everywhere received in the King's offices, is entirely confined to its currency, not its value."¹ J. G. Fichte, philosopher and economist of "romantic" type, thought that "the decisive factor is that money should be recognized as such; this depends solely upon the state."² In Fichte's disciple Adam Müller, Palyi discovers an advocate of a kind of state theory of money, this time of a rather mystical nature: "The most complete intermediary of trade is the state itself, the national word, national power, law, credit, . . . all expressions for the 'higher center' to which all powers tend, or for its substitute, money. . . ."³

Adam Smith seems to attribute to the state a modicum of power over the value of money:

A prince who should enact that a certain proportion of taxes should be paid in a paper money of a certain kind, might thereby give a certain value to this paper money, even though the time of its final discharge and redemption should depend altogether on the will of the prince. If the Bank which issues this paper were careful to keep the quantity of it always somewhat below what could easily be employed in this manner, the demand for it might be such as to make it even bear a premium, or sell for somewhat more in the market than the quantity of gold and silver for which it was issued.⁴

During the Bank Restriction period, certain ones of the anti-bullionist faction sought to capitalize upon this passage. Charles Bosanquet, for example, concluded some statistical evidence on the relation of revenue payments and note issue by remarking:

At the present the total amount of Bank-notes in circulation, throughout the kingdom, is cancelled between 3 and 4 times in each year, in payments to the revenue; and every reader must form his own opinion, whether, under such circumstances, the amount is greater than "can be easily employed in this manner," according to the idea of facility which Dr. Smith entertained when he used the expression.⁵

¹ *Works* (London, 1805), II, 372.

² Quoted from *Der Geschlossene Handelsstaat* by Melchior Palyi, *Romantische Geldtheorie* (Tübingen, 1916), p. 5.

³ Palyi, *op. cit.*, p. 20.

⁴ *The Wealth of Nations*, ed. by Cannan (London, 1904), I, 311.

⁵ *Practical Observations on the Report of the Bullion Committee* (London, 1810), pp. 86-89. In his "Reply to Mr. Bosanquet's Practical Observations on the Report of the Bullion Committee," published in 1811 (cf. E. C. K. Gonner, *Economic Essays by David Ricardo* [London, 1923]), Ricardo refers specifically to Smith's argument and Bosanquet's use of it. Ricardo remarks only that Bosanquet's theory is "chimerical" (ch. viii, sec. 42, p. 133); we do not learn how Adam Smith's meaning has been perverted, nor indeed how far Smith himself is right.

Fullarton went even farther in referring to the assignats as "those conventional instruments of exchange which derive their value from authority," though like Bosanquet he admitted the influence of quantity upon value.¹

While these theories carried forward an age-old emphasis upon the rôle of the state, an equally important line of thought as to the constitution and nature of money proceeded from a non-political basis. Since this school is much better known, a very few examples will serve to indicate its character. Oresme, Biel, and Hales referred to the inconveniences of barter and imputed the origination of money to the free action of trade.² Galiani scouted the supposedly Aristotelian notion of conventional origin, and sought the laws governing the value of the money metal in those factors determining values generally.³ With Cantillon, again, money was only certified precious metal with its value determined by cost of production.⁴ And Turgot believed that "gold and silver are constituted by the nature of things, money and universal money; independently of all convention and of all law." The same causes govern the values of money and commodities.⁵

Midway between the political and the pure commodity accounts of the origin of money lies a group of writers more or less imbued with the notion of agreement or convention. In 1588 Davanzati, and in 1680 Montanari, stated that money arose when men agreed to consider as of equal value all commodities on the market and all coin in circulation.⁶ Since in essence this idea is none other than a primitive equation of exchange, it also serves to explain the value of money. The early progenitors of the quantity theory commonly conceived of the value of money as uniquely determined. Locke, as another example, thought that mankind put upon the precious metals an "imaginary value; [they] have made them by general consent the

¹ John Fullarton, *On the Regulation of Currencies*, 2nd ed. (London, 1845), pp. 28-29.

² Nicole Oresme, *On the First Invention of Money*, ch. i, in A. E. Monroe, *Early Economic Thought* (Cambridge, Massachusetts, 1927), pp. 81-82; Gabriel Biel, *Treatise on the Power and Utility of Money*, reprinted by the University of Pennsylvania Press (Philadelphia, 1930), pp. 19-20; John Hales (W. S.), *A Discourse of the Common Weal of this Realm of England* (reprinted Cambridge, England, 1893), pp. 48, 71.

³ *Della Moneta*, in Monroe, *op. cit.*, p. 282.

⁴ *Essai sur le Commerce*, 1st ed. (reprinted, Boston, 1892), pp. 134-136.

⁵ *The Formation and Distribution of Riches* (1770), ed. by W. J. Ashley (New York, 1898), secs. xliii, xlvi.

⁶ Monroe, *op. cit.*, pp. 49, 109.

common pledges whereby men are assured, in exchange for them, to receive equally valuable things. . . ."¹

These sparse examples, drawn from a period of more than two millenniums, show that the lines of cleavage amongst theorists today are very old. Furthermore, they afford a convenient point of departure for classifying monetary theories in general. Analysis of the views held by representative writers down to the first part of last century suggests the following divisions:

I. Theories as to the nature and origin of money.

A. Formalistic

1. That money exists because of enactments of the state, legal tender laws, the will of the prince.
2. That money has been created by a convention as to the measure of values.

B. Naturalistic

That money is not absolutely differentiated from goods; that it originates in the more frequent employment of one exchange commodity than of others.

II. Theories as to the determinants of purchasing power.

A. Authoritarian

1. That the state arbitrarily sets the exchange value of money.
2. That the state may lend a certain value to money by accepting it in payment for taxes.

B. Economic

1. That the value of money is similar in character and determinants to any commodity value.
2. That the value of money is unique.

Since the beginning of the nineteenth century no one, I apprehend, has held an outright fiat theory of money value, and the tax-foundation theory has sunk into almost complete desuetude.² The notion of convention also has disappeared along with the political philosophy which engendered it for monetary theory. In recasting

¹ Quoted by Hannah R. Sewell, *The Theory of Value before Adam Smith*, Publications of the Am. Ec. Ass., 3rd ser., vol. 11, no. 3, p. 64.

² Amongst recent German theorists the idea has been revived by Kaulla. Cf. p. 38, below.

the outline to fit the present situation we may omit these three subdivisions entirely. Explanations of both the nature and value of money are manifold, but they still fall into two major groups. Because of a natural kinship of ideas, those writers who attribute the existence of money to the adoption by trade usage of a certain *unit of value* also believe that the value of money is not to be assimilated to that of goods; and those who trace the origin of money to the gradual growth in importance of one *exchange commodity* are precisely those who would give to money the character of a commodity in its value. Putting these facts together, we discover two main theories of money, each with a double aspect.

- I. The theory which regards money *both*
 - A. As originating in the adoption of a certain exchange medium as the unit of value, by *either*
 1. The formal enactment of the state, *or*
 2. Trade usage,
 - B. *And* as having value in a unique sense.

- II. The theory which regards money *both*
 - A. As originating in the frequent employment of that commodity best suited to be a medium of exchange,
 - B. *And* as having commodity value simply.

The following chapters examine these two main schools of thought: first, nominalism with its two wings, chartalism and orthodox nominalism; and second, the commodity theory with its three branches: the supply and demand theory, the marginal utility explanation, and metallism. It is universally recognized that "the appearance of *The State Theory of Money* in the year 1905 represented a mile-stone in the history of German monetary theory."¹ Much of the writing in the period under consideration is devoted to defense or adverse criticism of Knapp, and would be unintelligible without an examination of the *State Theory* as a necessary prelude. Thereafter the present Part proceeds upon logical and not upon chronological lines.

¹ Herbert Döring, *Die Geldtheorien seit Knapp*, 2nd ed. (Greifswald, 1922), p. 1.

CHAPTER II

THE STATE THEORY OF MONEY

I. KNAPP'S CHARTAL THEORY: STATEMENT AND INTERPRETATION

"MONEY is a creature of law."¹) This thesis Knapp sets up in bold relief as the initial sentence of a work directed against the universal casuistry that money is nothing but coined metal. Whereas the metallist regards paper money as anomalous or leaves it out of his theory entirely because he hates it, Knapp would formulate a universal theory, admitting no exceptions, in which paper money is the very touchstone of the problem.

Like Karl Marx's great work *Capital*, *The State Theory of Money* is written in a dogmatic and didactic manner, and this easily provokes violent opposition or indiscriminating adherence. Both works treat of subjects which arouse animosities — the class struggle, and paper money; in both the reader is carried along by a cold, hard dialectic, superficially invulnerable, toward conclusions he may resent. Knapp's diametrical opposition to ideas fairly commonly accepted at the original appearance of his work, and his challenging mode of expression, have combined to induce a protracted controversy in Germany as to the essential nature of money. It is not surprising therefore that the voluminous Knapp literature which has grown up in the course of the last quarter century should be characterized chiefly by hot partisanship, by mere polemic, and that Knapp has been the victim of a good deal of misinterpretation. To appraise his writings it is therefore necessary to undertake first a painstaking enquiry into the real gist of his argument. Once *The State Theory of Money* is understood it is not difficult to judge its value. The really severe task is one of interpretation.

(1) Knapp has been construed, in saying that the state secures the *validity* (*Geltung*) of money, as maintaining that the state can

¹ G. F. Knapp, *The State Theory of Money*, tr. by H. M. Lucas and J. Bonar (London, 1924), p. 1. The English translation, designated hereafter as *State Theory*, is an abridgment of the fourth German edition of *Staatliche Theorie des Geldes* (Munich, 1923), referred to in these pages as *Staatliche Theorie*.

determine the purchasing power of money by mere fiat. J. S. Lawrence, for example, believes that Knapp held that within its own borders the state completely controls the value of money;¹ and with this interpretation several German writers agree.² What is meant by *validity*? This is the *pons asinorum* of the whole *State Theory*. If it means economic value or purchasing power, we are dealing with a crude fiat theory such as Barbon's. If it means only "face value," then the theory is much ado about nothing; naturally the government as the money-issuing authority sets the face value by merely *naming* the coin or note, giving it a denomination.

Apparently conclusive evidence as to the correctness of the purchasing-power interpretation inheres in Knapp's description of "recurrent linking," "historical definition," or "historic back-reference." (To initiate a monetary system or to introduce a new money, Knapp assures us over and over again, all that is requisite is that the state select the means of payment, give it a name, and proclaim its validity in terms of the previous means of payment.³ All these are free acts of the state's authority.) But of course if the new money does actually pass in trade at the ratio to the old laid down in the historical definition of back-reference, then the state has, merely by its authority, established its purchasing power.

Simple and straightforward as this conclusion may be, Knapp would not have accepted it. In the first place, though such pronouncements are rare, he expresses himself unambiguously on the point: "Validity as a juristic concept is wholly independent of what one can buy with money."⁴ Secondly, he invariably uses *Geltung*, not *Wert* nor *Kaufkraft*, the usual terms in economic discussions for value of money.⁵ Again, even if we supposed that so astute a person as Knapp could not in the course of a whole book express the simple

¹ *Stabilization of Prices* (New York, 1928), p. 174.

² E. g. Rudolph Kaulla, *Die Grundlagen des Geldwerts* (Stuttgart, 1920), p. 55 ff.; Robert Liefmann, *Die Geldvermehrung im Weltkrieg und die Beseitigung ihrer Folgen* (Stuttgart, 1918), p. 60 ff.; Andreas Voigt, "Die Staatliche Theorie des Geldes," *Ztsch. für d. ges. Staats.* 62, p. 320. Against this charge Knapp has been defended by Friedrich Bendixen, *Das Inflationsproblem* (Stuttgart, 1917), p. 9; L. von Bortkiewicz, "Die geldtheoretischen und währungspolitischen Konsequenzen des Nominalismus," *Schw. Jhrb.* 30, p. 1314; and Karl Elster, "Die Staatliche Theorie des Geldes," *Jhrb. für N. & S.* 111, p. 83.

³ *State Theory*, pp. 15, 22, 39.

⁴ *Staatliche Theorie*, p. 441.

⁵ Lawrence says: "He sometimes uses the words value and validity interchangeably" (*op. cit.*, p. 170). Numerous readings of the *State Theory* have failed to bring to my attention a single instance of confusing *Geltung* with *Wert*.

idea that the state establishes purchasing power by fiat, his followers would certainly have made the idea explicit, but none of them has. Finally, the argument of the *State Theory* is unintelligible on the basis of the fiat notion; another interpretation of validity makes it not only intelligible, but more right than wrong.

Nor is "face value" correct. One would scarcely credit Knapp with the stupidity of writing a *magnum opus* to prove that the state has the power of naming the means of payment or the unit of account, its multiples and fractions. (Knapp indicates this to be too shallow a view when he says: "Validity by proclamation is commonly called the 'face value,' in contrast with the 'intrinsic value' of the pieces, which is supposed to depend on their metallic content. This is the habit of the metallists, who are always autometallists at heart.")¹ Moreover, if validity signified face value, he would not have said that the state must *accept* all its money at face value at its pay offices, an action which guarantees something more important than a name.

(To describe what Knapp means by validity we must distinguish sharply between money's having value and the value which it has; between capacity to have value, and the specific exchange value or purchasing power.) When Knapp imputes to the state the power of establishing validity for money, (he means that the state creates money's "valuableness," not that the state determines purchasing power. To avoid misunderstanding one might say (that the state secures the acceptability of money in exchange,) but "acceptable" is after all only a milder term for "valuable": Knapp believes that *the state makes money valuable*. Even the synonym "valuableness" falls short of exhausting the idea. Money differs from goods in being conventionally the measuring rod, not the thing measured; money value, amongst all the values we experience, is unique, because we commonly think of its value as *one*. "Oneness," not in the sense of coherence, but in the sense of equivalence with the unit of account, necessarily permeates our conception of the value of a piece of money. Adding this further component psychological element to the concept makes it complete. (*The validity of money is its valuableness as one*.) To say that the state creates the validity of money is not to ascribe to government edict a capacity to determine purchasing power, nor is it to voice the platitude that governments name their

¹ *State Theory*, p. 30. "Autometallism views metal only as material and gives no juristic consideration to the form of the pieces." *Ibid.*, pp. 4-5.

moneys. Chartalism is a serious theory as to the origin of the social institution money: the state causes money to be; it endows it with the characteristic of having value, and of actually circulating at its nominal value.

Knapp's is not a fiat theory of purchasing power, nor does it rely upon fiat even to secure valuableness and parity circulation. To bring this to pass the state must supplement its proclamation by receiving all money at face value at its fiscal offices, and usually also by lending it legal tender power in private transactions. Occasionally Knapp speaks of "validity established by proclamation" as if proclamation alone sufficed. But "acceptation" characterizes all money, and private legal tender is given to most money sorts to a greater or less degree.¹

Even the bank-notes and treasury bills would continue to be used at their face value, though their convertibility had been abolished, but, of course, only if the pieces will be received at public pay offices at their face value.² . . . The state itself receives the pieces at their validity, in payments to it; that is the *primary, most indispensable and fundamental doctrine*.³ . . . (First and foremost, money frees us from our debts toward the state; for the state when emitting it, acknowledges that, in receiving, it will accept this means of payment.⁴

When Knapp speaks of validity as "established by proclamation," he is using an ellipsis for economy in diction, as we do, for example, in explaining the price of gold by the legal definition of the gold dollar. We assume free coinage and melting, which are essential to the coincidence of the market and mint prices. Similarly with validity: the real factor insuring parity circulation is "acceptation." Knapp cannot be thought to have promulgated a fiat theory even in the sense that the passing of money in trade at nominal value depends upon mere proclamation.

The foregoing interpretation of validity seems to be the only one possible; but it does not dispose of a difficulty inhering in the "historic definition" concept. If the state were able to establish in trade the new money at proclaimed validity, chosen arbitrarily and stated in terms of a "back-reference ratio," it would be setting the purchasing power of money, even if in the last analysis legal tender

¹ *State Theory*, pp. 52, 95, 96.

² *Ibid.*, pp. 176-177.

³ G. F. Knapp, "Staatliche Geldtheorie," *Hörsb. der Staats.*, 4th ed., vol. IV (Jena, 1927), p. 753.

⁴ *State Theory*, p. 52. (All italics mine.)

power to the state and to private traders really accomplishes the purpose. How can Knapp avoid this deduction? I venture the following, not as the *mot d'énigme*, but as a plausible explanation.

In the first place, Knapp seems to have had very little notion of general levels of prices. This appears in his scepticism of index numbers; what commodities shall be included is an insoluble problem.¹ Nowhere does he use the term "price level" (*Preisniveau*), but only "prices." Furthermore, in his foreign exchange rate theory, price levels are not even mentioned, and *pro tanto* given no causal significance.² Lacking any clear concept of general levels of prices, Knapp may even have ignored the effect of a change in the monetary standard on prices generally. Some such error must underlie the whole "amphitropic" argument, which emphasizes the fact that everyone is both creditor and debtor and implies that price changes thereby lose their economic significance.³ "For internal trade excluding the bullion business, the choice of the standard hardly matters at all, since it only produces secondary effects which vanish in the general welter of continuous price changes."⁴ Knapp's discursive remarks on the rise of prices during the War make it appear that each and every price change was to be explained only by what happened to the particular commodity involved.⁵ Finally, we have the startling statement that there can be a change in general purchasing power "just as little" as there can be a change of all prices.⁶

Throughout his works, Knapp's chief historical references are drawn from experiences under bimetallism. From 1687 until 1873, when the chief commercial countries of the world had gone over to the gold standard,⁷ the ratio of silver to gold generally fluctuated around 15:1 within fairly narrow limits.⁸ No revolution in prices occurred because of silver's supplanting gold or conversely. Such general price changes as frequently attend a disloca-

¹ *Staatliche Theorie*, pp. 439-440, 443.

² Except perhaps implicitly in the contention that the rate of exchange determines the value of the monetary metal. Cf. p. 240, below.

³ *State Theory*, pp. 46-48; cf. p. 36, below.

⁴ *Ibid.*, pp. 209-210.

⁵ *Staatliche Theorie*, p. 448.

⁶ G. F. Knapp, "Erläuterungen zur Staatlichen Theorie des Geldes," *Schm. Jhrb.* 30, p. 1696.

⁷ Karl Helfferich, *Money* (New York, 1927), Pt. I, ch. vi, sec. 2.

⁸ In 1812 the ratio was 16:12 to 1, and in 1813 16:25 to 1. With these exceptions it never went above 15:96 to 1, nor below 14:14 to 1. United States Director of the Mint, *Annual Report* (Washington, 1914), p. 213.

tion of the standard did not come especially to Knapp's attention. We may therefore suppose that he conceived the power of the state to extend over what *shall be* the money of the country, without however drawing the conclusion that the "back-reference ratio," if it really succeeded, would extend the power of the state over purchasing power.

(2) At the opposite pole from those commentators who have erroneously believed chartalism to be a fiat theory of purchasing power stands a group which maintains that Knapp's theory is purely legalistic, that it simply lies outside the field of economics. Two of his closest disciples, Bendixen and Elster, take this view,¹ and many writers quite unsympathetic with the thesis of the *State Theory* put upon it the same construction.² Mises calls it *acatalactic*, "not belonging to a systematic theory of political economy";³ and Knapp himself occasionally seems to conceive of his work in this way. The idea that value of money means purchasing power he dismisses summarily, remarking, "This view does not belong in the state theory of money";⁴ and with regard to the effects of price changes upon various social groups, he says:

The conditions of interested classes is a matter of great importance, but it has nothing to do with the description of money which is espoused by the state theory.⁵ . . . (Index numbers are not able to tell us anything as to the juristic characteristics of money and therefore do not belong in the state theory of money: they belong to economics.⁶ \

What Knapp means, in such passages as these, is not that the state theory is non-economic, but only that the specific purchasing power of money and the *character* of money are distinct problems.) While chartalism offers an account of historical genesis or the logical origin of the modern monetary institution, it does not treat the de-

¹ Friedrich Bendixen, *Das Wesen des Geldes*, 4th ed. (Munich, 1926), p. 12; Karl Elster, "Die Staatliche Theorie des Geldes," *Jhrb. für N. & S.* 111, p. 84; and *idem*, "'Kaufkraft' und 'Geltung' des Geldes," *Jhrb. für N. & S.* 115, p. 245.

² Bortkiewicz, *loc. cit.*; Werner Genzmer, *Kritische Betrachtungen zur Nominalistischen Geldtheorie* (Dresden, 1917), pp. 36-40; Richard Kerschagl, "Universalismus und Individualismus in der Methodik der Geldtheorie," *Jhrb. für N. & S.* 117, p. 214; Helfferich, *op. cit.*, p. 493 and note; Wilhelm Lexis, "Die Knapp'sche Geldtheorie," *Jhrb. für N. & S.* 87, pp. 544-545; Kiichiro Soda, "Die neue Knapp'sche Geldtheorie und das Wesen des Geldes," *Jhrb. für N. & S.* 89, pp. 340-349.

³ Ludwig Mises, *Theorie des Geldes und der Umlaufsmittel*, 2nd ed. (Munich, 1924), pp. 244-250.

⁴ *Staatliche Theorie*, p. 439.

⁵ *Ibid.*, p. 444.

⁶ *Ibid.*, p. 441.

termination of exchange value.) While Mises correctly designates the work *acatalactic*, because it lies outside the sphere of any system of value theory, validity is nevertheless an economic phenomenon. The metallists would account for it upon the basis of metallic content; Knapp finds that it emanates from state action. Had the *State Theory* been a juristic treatise, it would have studied monetary statistics, legislation on pecuniary contracts, court decisions, and administrative practices; it would have appraised their interpretation, constitutionality, consistency, and justice.¹ Instead it is concerned primarily with the forces which give "valuableness" to money and cause it to circulate, and with how this "valuableness" compares with ordinary commodity value.

(3) Knapp has sometimes been accused of being an inflationist, or at least of formulating a theory which by implication justifies this political abuse. Some years before the German catastrophe, B. M. Anderson wrote:

Recent German literature on money . . . has been a good deal influenced by Knapp, and there is a fair chance that American students may have to read this book if they wish to understand the next decade of German monetary history. It will be well for Germany if this is not the case!²

After the German inflation experience Knapp was taxed with being "one of the main intellectual factors making for the catastrophe," by Professor Gregory³ and by Mises.⁴ Certain of Knapp's followers did indeed advance inflationary measures,⁵ and Knapp's apparent indifference to questions of practical policy may easily mislead his readers.⁶ But it is rank error to charge him with inflationism; and he has been justly exonerated by Bortkiewicz,⁷ Hawtrey,⁸ and Schacht.⁹ What Knapp really favored was domestic circulation of

¹ Examples of really juristic works on money are Arthur Nussbaum's *Das Geld in Theorie und Praxis des deutschen und ausländischen Rechts* (Tübingen, 1925), a very excellent treatise, and Hans Gerber's *Geld und Staat* (Jena, 1926), which bears the subtitle: "A Study in the Organic Law of Money as a Problem of National Law within a Universal Legal System."

² *The Value of Money* (New York, 1917), p. 435, note.

³ T. E. Gregory in the introduction to Helfferich's *Money*, p. vii.

⁴ *Op. cit.*, 2nd ed., p. 33; *Verein für Sozialpolitik*, 170, p. 276.

⁵ Particularly Bendixen, Dalberg, and Elster.

⁶ *State Theory*, pp. 53, 144-145.

⁷ Ludwig Bortkiewicz, "Neue Schriften über die Natur und die Zukunft des Geldes," *Schm. Jhrb.* 45, p. 999.

⁸ R. G. Hawtrey, "The State Theory of Money," *Ec. Jour.* 35, p. 251.

⁹ In response to a question which I asked him during his recent visit to this country.

paper money) — no more inflationistic in itself than Ricardo's "Proposals for an Economical and Secure Currency" — based upon a gold exchange standard. (The chartal theory, as he repeatedly assures us, "does not dispute the historical and practical significance of metal," particularly as it serves to support the foreign exchanges;¹ and it unqualifiedly opposes the balancing of budgets by the "artificial creation" of money.²)

(4) Melchior Palyi and Herbert Döring challenge the use of "state theory" to describe Knapp's analysis, and maintain that it is really an "administrative theory." Palyi believes that by its emphasis on actual practice "the state theory puts itself beyond all jurisprudence and eludes juristic criticism."³ Knapp does indeed form an administrative, as opposed to a legal or juristic, "theory" of money, not to "elude juristic criticism," but to take account of all government action bearing upon the constitution of money. In this he is quite right: from the economic angle, all such acts are relevant, whether they be statutory, juridical, judicial, or merely administrative. Again and again Knapp cautions us that it is actual practice, not the written code, that counts.⁴ "Administrative theory" is a gratuitous suggestion, inasmuch as the word "state" connotes authoritarian action as much as it does mere legislation; and besides it reveals, as "administrative" does not, that government and not some other administration is the authority.⁵

My conclusions as to the content of the chartal theory of money are as follows. Knapp proposes to formulate a universally valid theory of the nature or origin of the economic instrument money. He is particularly anxious that it explain paper money, but he holds

¹ *State Theory*, pp. 1, 302-303.

² G. F. Knapp, "Staatliche Geldtheorie," *Hdwb. der Staats.*, 4th ed., vol. IV (Jena, 1927), p. 754. While Knapp made no statements legitimately interpreted as inflationistic, he formulated no plan for the control of the general price level other than that modicum of interference which central banks traditionally exercise in maintaining the gold standard by measures to prevent excessive gold exports. Lawrence (*op. cit.*, ch. xvi) makes the absurd mistake of including Knapp's remarks on "exodromic control" in his book as the "Knapp Plan."

³ Melchior Palyi, "Der Streit um die Staatliche Theorie des Geldes," *Schm. Jhrb.* 45, p. 664; Herbert Döring, *Die Geldtheorien seit Knapp*, 2nd ed. (Greifswald, 1922), p. 15.

⁴ *Staatliche Theorie*, p. 97; cf. also *State Theory*, pp. 39, 40, 51, 94, 106, 107, 111, 117, 157, 173.

⁵ J. Bonar likewise approves the term in "Knapp's Theory of Money," *Ec. Jour.* 32, p. 39. Hawtrey's suggestion of "central bank theory" (*op. cit.*, p. 253) is not without point for Knapp's theory of the *value of money*, but that constitutes a quantitatively minor part of the work, quite lacking in originality.

no brief for fiat standards, nor is he an inflationist. The state is the creator of money, its *raison d'être*. When Knapp says that the state creates money when it proclaims validity in terms of a previously existing means of payment, he does not intend to be understood as meaning that a governmental fiat establishes purchasing power. Validity means first, not value, but valuableness, the capacity of money to *have value*; and second, the passing of the money piece *at par in trade*. Both these ideas are economic, and the state theory therefore does not fall within jurisprudence. By "state" we should understand all the organs of the sovereign power so far as they impinge in any way upon money. All these facts have to be borne in mind when we essay criticism of chartalism. Three propositions reproduce its argument in essence:

1. Money comes into being when the state selects a certain unit of value, describes its physical bearer carefully, gives it a name, and proclaims its validity in terms of the historically preceding unit.
2. Proclaimed validity is secured in trade by the state's accepting all its money at face value; legal tender in private trade is a complementary measure, not a universal one. The state causes a money to be standard by forcing it out in payments to private persons.
3. For all money, proclaimed validity is independent of substance value. One consequence of this is that limited coinage and redemption are unnecessary for accessory money.

II. THE CHARTAL MONEY THEORY: CRITICISM

A. *The State and Validity*

To be a medium of exchange money must possess value, for exchange involves a *quid pro quo*, and to serve as a measure of value money must again possess value, since value is measured as against value. Furthermore, for the discharge of its first function, money must circulate at par, since coins or notes bearing a premium or discount are too inconvenient to persist for very long in exchange; and for the discharge of its second function, measuring value, it must obviously be at par to be the unit of value. Valuableness and passing at par are therefore the prerequisites for anything to be money. Both qualities are included in the Knappian "validity," which he says the state creates. Is he right?

Generally speaking, I think the answer is certainly yes, under modern conditions. It is government action which maintains the

valuableness of our money and secures its par circulation. Let us examine the first quality. Valuableness results from utility and limitation of supply. Pure fiat issues — which Knapp calls “the touchstone of the theory”¹ — reveal most strikingly the hand of government. The state may almost be said to create the valuableness of such money, since it absolutely determines supply, and the legal tender quality of the notes is generally the basis of their utility. Doubtless public opinion is final arbiter, but as Cannan says,

The power of the holder of a note to make his creditor accept it in payment is not exactly the same thing as the note being generally acceptable, but it goes far to create general acceptability, since a person's reluctance to accept is largely overcome by the feeling that he can “pass the thing on.”²

With redeemable paper or other sorts of subordinate moneys the same is true; the state determines the supply, and substance value alone cannot account for purchasing power. The *devices* by which valuableness is insured should not at present divert our attention from the fact that whether by redeeming or by itself accepting these moneys, the *state* prevents them from losing their value altogether, or in large part. This leaves for consideration only full-bodied standard money. Here the function of government in guaranteeing valuableness is least conspicuous. The metallist would describe freely coined standard money as a simple commodity. To say that the state *creates* the value would be hyperbole. But it has a great deal to do with it: the mere definition of the ultimate monetary standard sets broad limits to the value of money. Indeed the adoption of the gold standard, for example, may be envisaged as a political device for limiting supply throughout the whole structure of monetary media. On the side of utility, the narrow metallist would go back to the aesthetic and industrial values of the glittering yellow metal. But gold is jointly demanded, and the monetary employment depends upon government authorization.³

¹ *State Theory*, p. 303.

² Edwin Cannan, *Money*, 5th ed. (London, 1926), p. 45. Professor Fred M. Taylor, *Chapters on Money* (Ann Arbor, Michigan, 1906), p. 83, says: “At this point, voluntary acceptability is created by compulsory acceptability. The fact that a given money is a valid tender makes people *willing* to receive it, since they can use it to pay debts at least.” (Italics his.)

³ “Under modern conditions in most civilized countries the full and continuous circulation of *any kind* of money in a particular country commonly requires a measure of legal authorization from the government of that country.” — Taylor, *op. cit.*, p. 87. (Italics mine.)

All in all, some exaggeration is involved in saying that the state creates the valuableness of money. We must remember that value cannot be forced; human beings are free to ascribe value to an object or not. Manifestly, however, government controls the *essential conditions* of the valuation set upon fiat and low intrinsic value moneys, so far as that depends on money and not upon the goods side of the equation. For full weight standard money it still plays an important rôle. The exaggeration is not disastrous.

The modern sovereign state dominates the other element of validity almost entirely, if it so chooses. The creation of money is completed with the establishment of par circulation. By designating but one definitive means of paying debts, the law forces the acceptance of that means of payment in trade at face value. Built up so largely upon credit, our modern economic system cannot easily employ one money for debts and another for ordinary transactions. "Some one money will become the standard money of debts and then take for itself also the place of standard money in prices. This follows because the standard money of prices is free to move, while that of debts is not."¹ Arthur Nussbaum concludes: "It cannot be denied that in normal times the state decisively determines the creation and supplanting of money, . . . because the state is the actual arbiter in money transactions."² Anything valuable circulating at par is *eo ipso* money. Ordinarily the state secures both the valuableness and parity of the circulating media; it creates validity and thereby creates money. This is the substantial truth of the chartal theory.

Knapp's great mistakes are two: refusing to recognize that the state does not *always* create money, and secondly, misapprehending the process by which validity is established. We turn first to the ill-conceived universality of the chartal theory. Perhaps the cases where trade practice takes the bit in its own teeth are abnormalities, but from the angle of monetary policy they are very significant. Money puts in its appearance without the authority of the state frequently enough; only the most striking cases can command our attention.

(1) An abundance of examples of true moneys amongst primitive societies is to be found in numismatical and ethnological works. Instances bearing directly upon Knapp's reliance solely on political

¹ Taylor, *op. cit.*, p. 158.

² *Das Geld*, pp. 16-17.

government have been assembled by Voigt;¹ and Helfferich has recently reviewed the subject.² Not every casual example of "primitive money," however, is legitimate: it has to be determined whether the exchange medium actually passes *by tale*. "Thus tobacco, cattle, corn, powder, bullets, skins, all served this purpose medium of exchange. But none of these can quite properly be called money."³ They were mere exchange commodities, the relative values of which were determined by weighing or measuring. This appears to be the case with the famous stone money of the Yap Islands.⁴ The only *fei* which is real money is, paradoxically enough, the one said to be lying at the bottom of the sea, where it performs a function quite similar to that of our Gold Settlement Fund. On the other hand, the wampum of the American Indian was real money; a fathom of 360 pieces passed in trade as the equivalent of 60 English pence.⁵ Even with the elimination of mere exchange commodities, there remain numerous examples of true money amongst peoples to whom it would be absurd to impute a political "state." Knapp recognizes the existence of "means of payment" before the state takes any action toward introducing a new unit for debt payments.⁶ But his dichotomizing means of payment into "pensatory" and "chartal"⁷ leaves no place for exchange media passing not by weight but by tale, and still sanctioned by no political state. When amongst primitive peoples tradition attaches a symbolic meaning to certain objects so that they are merely counted out in payments, money exists.

(2) But even under sovereign political states money cannot appear, according to the chartal theory, until the state has set validity by means of the back-reference ratio and acceptance.

This action of the state as maintainer of law does not appear with the manufacture of money pieces, e. g. with the coining of lyric metal or the introduction of independent paper money, but at the first time of *alteration* in the means of payment. Before that there were no grounds for deciding the question of "nominality" or "reality."⁸

¹ *Ztsch. für d. ges. Staats.* 62, p. 328 ff.

² *Op. cit.*, Pt. I, ch. i.

³ Taylor, *op. cit.*, p. 12.

⁴ W. H. Furness, *The Island of the Stone Money* (Philadelphia and London, 1910), pp. 96, 98.

⁵ J. Menandier, "Knapps Staatliche Theorie des Geldes," *Zeitschrift für Numismatik* 26, p. 677, note.

⁶ *State Theory*, pp. 5, 6.

⁷ *Ibid.*, p. 73.

⁸ *Staatliche Theorie*, p. 17. The italics are mine. The translation "manufacture of money pieces" for *Schaffung des Geldes* obviously conveys Knapp's meaning, whereas the more literal rendering "creation of money" by Lucas and Bonar is misleading (*State Theory*, p. 21).

In saying so Knapp not only does violence to the facts, but he is inconsistent with a previous admission:

The nominality of debts does not lie in the fact that the State alters the means of payment more or less often, but in the fact that such an alteration is possible in principle, *whether it is made or not*. The nominality of debts and of the unit of value is a necessary premise before money can come into being.¹

What is significant here is not that money exists before any actual change if the state is able to alter the means of payment when it so chooses, — an admission quite inconsistent with Knapp's invariable emphasis on the *fact* of a change, — but that it leaves unexplained the reason for the nominality of debts and the unit of value before the state chooses to evince its powers. We are perfectly free to suspect that before the state displays openly its sovereign power, it does not possess it. Indeed, there is plenty of evidence that the nominality of debts and the unit of value often prevails before the state has mastered the monetary situation.

In the Italy of the later Middle Ages we find three groups of money of account — gold, silver and small silver coins — each with its own system of accounting. In Florence toward the end of the thirteenth century we find three different accounting systems, which existed side by side and each of which formed a separate monetary system. . . . There was no single system within which the differences in the types of currency were of little account; it was rather a case of independent types of coin, and groups of types of coin, selected at will or by custom for use in any particular contract of payment.²

The rate at which these coins were accepted on the market depended on the metallic content of the type to which they belonged. But they passed individually by tale and not by weight, else they could not have served for systems of accounting. Dependence of a money upon its bullion content for its exchange value is perfectly consistent with a nominalist concept of money, and Knapp repeatedly reassures us upon that question.³ These Italian coins were true money; each type circulated at par — there were three systems of debt payments, of accounting, and of prices. The state was powerless to prevent it. Trade created money.

(3) (Even today, after the state has for centuries dominated the economic instrument money, private associations on occasion create

¹ *State Theory*, p. 19. (Italics mine.)

² Helfferich, *Money*, p. 47.

³ Cf. *State Theory*, pp. 16, 17, 37, 45.

money.¹ In our own history, certified checks, clearing house loan certificates, and all manner of makeshifts circulated at par, when national currency bore a premium in the panics of 1873, 1893, and 1907.² According to Schacht, at the end of 1923 there circulated in Germany something of the order of 400-500 quintillion marks in *Notgeld* or privately issued emergency money, the gold equivalent of the contemporary Reichsbank note circulation.³ Since these unauthorized issues of *Notgeld* passed in trade at par, they cannot, says Nussbaum, be denied the character of money.⁴

(4) In extremity not only may private associations create their own money, but the market may reject completely any or all of the state's issues. Throughout the Middle Ages, if the sovereigns too greatly debased the coinage, foreign moneys usurped the par position, forcing the state to recognize them *de facto*. Californians successfully resisted the Legal Tender Act and the United States Notes

¹ I do not refer to bank notes and deposits. With regard especially to bank notes it must at once be conceded that historically they did not put in their appearance under state initiative or regulation. "From this viewpoint Knapp should have regarded the foundation of the Hamburg state" says Voigt (*Ztsch. für d. ges. Staats.* 62, p. 331). This is a just observation; but the periods during which unregulated bank notes circulated at par with state money and so partook fully of the nature of money are so rare as to constitute no very serious qualification of the chartal theory. Bank notes retain their character as money permanently only because of government regulation, even where, as in the case of the Bank of England, the institution superficially appears to be private. Knapp's error is not his regarding bank notes as fundamentally secured in circulation at par by state regulation, but his description of what those regulations are. This question we will consider subsequently (cf. pp. 29-34, below).

With respect to bank deposits substantially the same may be said of their extralegal origin and their present subordination to government prescription. Curiously enough, Knapp treats Giro-payments as quite another category than bank notes. From many angles it is desirable to separate notes and deposits sharply, calling the first "money" and the latter "credit." But from the angle of their relation to central state banks as well as of economic function they are the same. Knapp, however, distinguishes the "chartal means of payment" and the "giral," and applies the word money only to the former. By adhering strictly to this formal distinction he can legitimately call his work "The State Theory of Money," even though he maintains that bank *deposits* are a creation of private pay societies (*State Theory*, pp. 95, 134, 148, 151-157). Knapp could have made his case stronger by regarding bank notes and deposits as alike in nature and function, calling them both money, and establishing the fact that both normally exist as creatures of the state, i. e. that they form a permanent part of the national monetary system only by virtue of government regulation. This I believe a sounder view on the whole than regarding either one or the other as anomalous in a chartal theory.

² O. M. W. Sprague, *History of Crises under the National Bank System, National Monetary Commission Reports* (Washington, 1911), v, 56-58, 186-191, 280-282.

³ Hjalmar Schacht, *The Stabilisation of the Mark* (London, 1927), p. 106. Here and hereinafter the American notation is employed for note issue figures.

⁴ *Das Geld*, p. 21. Cf. Helfferich, *Money*, pp. 508-511, for specific illustrations.

of 1862 until the constitutionality of the act was finally upheld in May, 1871.¹ More dramatic is the absolute repudiation of extremely depreciated fiat moneys — the assignats, for example, and the mark recently² — despite all efforts of the state to the contrary.

(5) The most conspicuous cases in which free economic forces supplant the state occur under bimetallism and irredeemable paper. In both instances the state gives two kinds of money the same "proclaimed validity"; in neither do the two moneys have the same validity in trade. This comes about, of course, in consequence of the operation of "Gresham's" law.³ Realizing perhaps that this law means a severe limitation upon the significance of his main thesis, Knapp depreciates it as a "half truth."⁴ It indicates merely that private traders will use in exchange only that accessory money which has a commodity value not greater than its face value; if a positive agio appears on accessory money it disappears from circulation. In this emasculated form Gresham's law says nothing about what money becomes *standard* where there are two valid tenders. But that is precisely the situation to which it is pertinent. "If amongst those moneys in any system which are valid tenders in payment of debts, differences of exchange value arise, the cheapest of such valid tenders establishes itself as the standard, and the rest go to a premium."⁵ The "moneys" quoted at a premium lose the validity proclaimed for them by the state; they are demonetized by the market. In the crucial instances of standards dislocated through bimetallism and irredeemable paper, the chartal theory collapses.⁶

¹ J. S. Bassett, *A Short History of the United States* (New York, 1918), pp. 663-664; A. B. Hepburn, *A History of the Currency in the United States* (New York, 1915), ch. xiv; Taylor, *Chapters on Money*, p. 161.

² Cf. Voigt, *Ztsch. für d. ges. Staats.* 62, p. 334, on the assignats, and Helfferich, *Money*, p. 509, on the disappearance of the old mark.

³ Because this term is thoroughly imbedded in monetary jargon I retain it, despite F. W. Fetter's proof that Sir Thomas Gresham, far from originating the idea, as has long been recognized, did not even enunciate it. Cf. "Some Neglected Aspects of Gresham's Law," *Q. J. E.*, 46, 480-495. I employ the term as does Professor Taylor in the third of Fetter's senses, but deny that his first case is real. *Ibid.*, p. 433.

⁴ *State Theory*, p. 162.

⁵ Fred M. Taylor, *Principles of Economics*, 9th ed. (New York, 1925), p. 396. "Valid" has of course nothing to do with Knapp's "validity." It is used in preference to "legal" tender to include such extra-state moneys as are cited above in paragraph 3.

⁶ Knapp is severely criticized on this score by Bortkiewicz, *Schm. Jhrb.* 30, pp. 1326-1327; Bonar, *Ec. Jour.* 32, p. 43; Helfferich, *Money*, pp. 396-399; Mises, *Theorie*, 2nd ed., Pt. I, ch. iv, sec. 3; Walter Lotz, "G. F. Knapps neue Geldtheorie," *Schm. Jhrb.* 30, pp. 1215-1217; and Nussbaum, *Das Geld*, p. 16.

Knapp would, of course, be glad to save the day for his theory even here. In any moot case, he says, what the state "forces out" *must* become the standard.¹ The unsuspecting lay reader, recognizing that it was the government which forced out the fiat issue in the first place and now makes its payments only in these cheap notes, or in the case of bimetallism, in the overvalued metal, thinks that Knapp is right. *Post hoc ergo propter hoc*: because the government pays out the standard money, therefore it is standard. Even Palyi does not avoid this error in contending that because the public chooses to pay its obligations to the treasury only in the cheaper money and because the state thereby of necessity has to make its payments in the cheaper money, the public controls the standard.² But the standard still remains as the money which the state pays out, by his interpretation.

In some cases, no doubt, the state succeeds in bringing into the standard position the money it chooses to disburse upon the market. When under bimetallism the market ratio is brought into conformity with the mint ratio, part of the adjustment may be ascribed to the flow into the market of such amounts of the undervalued metal as the government elects to pay out. When under a fiat standard the state resumes redemption, the reestablishment of parity with gold, if it actually transpires, is conditioned upon the treasury's paying in gold. Parenthetically, although the standard in these cases is what the government pays out, it is not, as Palyi says, determined by what the public pays in. But the point is that even here paying or forcing out does not settle the question of the standard. The universal rule is that the cheapest legal tender becomes the standard. No doubt the state controlled the standard before it relinquished its prerogative by creating fiat money or admitting two freely coined metals as full legal tender. No doubt the state might resume control by demonetizing all by one full legal tender. But where two legal tenders exist, either freely coined or issued in great abundance, the *market* decides which shall be standard by deciding which is cheaper. Where bimetallism actually succeeds by the operation of the compensatory action, the ultimate parity of the two moneys depends much more upon the melting down of the under-

¹ Bonar erroneously thinks Knapp makes the criterion of what is money sometimes acceptance, and sometimes "forced out" (*Ec. Jour.* 32, p. 39). In reality the criterion of money is always acceptance. "Forced out" is an added quality of standard money.

² *Schm. Jkrb.* 45, pp. 546-548.

valued coin and the increased production and importation of the dearer metal than upon treasury disbursements in that sort.¹ The market has been so influenced that neither money is cheaper, and hence both are standard. When a gold standard is reëstablished after a paper money regime, success does not automatically attend the paying out of gold. It depends on the *public's* being persuaded that notes are "as good as gold," on its being content with the offer to redeem and a modest amount of actual redemption.

But what the state pays out does not inevitably become the standard. The compensatory action under bimetallism does not always work. Redemption of depreciated paper sometimes breaks down because the public continues to demand it. Whenever medieval sovereigns attempted to reform the coinage by putting into circulation coins of greater fine content than the old debased, worn, or sweated coins, the better money commanded a premium and disappeared from circulation.² It is astonishing that Knapp should have ignored a phenomenon observed by Aristophanes, Henry of Ghent, Oresme, Copernicus, and John Hales, even before the time of the unjustly reputed Sir Thomas.³ And it is peculiarly ironical that autogenic paper money — the very sort of money which Knapp regarded as the vindication of his theory⁴ — should be, instead, its most serious stumblingblock. Pure paper money, because historically it has so often established itself as standard in defiance of the will of the state, constitutes a most important limitation upon a state theory which would be universal.

B. *The Means of Securing Validity*

Validity embraces the qualities of having value and circulating at par. In the cases reviewed, not the state but non-political agents establish validity for money. But where an organ of government controls the monetary system — and this is the normal state of affairs — it does not exercise that control in the fashion Knapp describes.

¹ The process is so described by N. W. Senior, *Three Lectures on the Value of Money* (Privately printed, London, 1840), pp. 82-83.

² Cf. R. G. Hawtrey's description of "The Silver Recoinages in England," *Currency and Credit*, 3rd ed. (London, 1930), ch. xvi.

³ Cf. A. E. Monroe, *op. cit.*, pp. 37, 65, 66.

⁴ *State Theory*, p. 303.

(1) State acceptance of 'money at its nominal value and legal tender power in ordinary commercial transactions will guarantee valuableness to the circulating medium only *if* there is quantitative limitation of supply. From the angle of practical politics, and in view of casuistry on the subject from the time of John Law's "System" to Henry Ford's Muscle Shoals proposal, it would seem that Knapp's omission of scarcity is not only poor theory but also bad strategy. The hiatus gives the whole work an inflationary savor which the author would have been glad to avoid.

(2) Knapp falls into downright error on the subject of parity circulation both for standard and for subordinate moneys. He argues that the standard position is secured to a given money by making it "obligatory," "definitive," and by "forcing it out."¹ That standard money must possess the first two characteristics cannot be questioned: it must be a full legal tender and have its value determined independently of redemption.² But forcing out is incapable of controlling which of two moneys, both equipped with these two characteristics, actually becomes the standard. If the state in any imaginable situation proposes to control the monetary standard, it must create *a unique position for one money*. This may be done simply and finally by designating one money as the *only* full legal tender, or as the *only* definitive money, or both together.³ The operation of Gresham's law is thereby precluded, and the state's mandate as to what shall be standard money prevails.

Knapp's contention about the standard position would be disposed of by the foregoing remarks if it did not appear that what he is really concerned with in his discussion of *historical definition* is *standard* money. Ostensibly the argument pertains to money in general,

¹ *Ibid.*, p. 105.

² Cf. Taylor, *Chapters on Money*, Principle 2, p. 153, and Corollary 1, p. 153; and Principle 5, pp. 159-160.

³ In the United States today, where the gold dollar is only one of five legal tenders, it is standard by virtue of the fact that all the others are not definitive — their value is not independently determined. Legal redeemability and limited coinage cause the values of all our non-standard moneys to be derived from the gold dollar, except for the silver dollar, for which limited coinage and the practice of redemption effect the same end. It is not necessary that standard money be freely coined to be definitive (e. g. the Swedish krone for a time during the War), nor, if limited, that there should be no freely coined money (the trade dollar of 1873 was freely coined, though not a legal tender, and the United States notes continued to be standard to 1879). But the standard must be either the only full legal tender, or else *a* full legal tender with its value determined independently of redemption on other moneys. Except for France and the United States with their "limping" standards, most countries have made one money both full legal tender and definitive.

and no reference is made to it in Knapp's description of forcing out as settling the standard where the issue arises under bimetallism and inconvertible conditions. But obviously establishing a new unit of value and a new means of payment pertains to the monetary standard, else no real significance would attend it. Does Knapp forget the back-reference ratio entirely when he comes to treat forcing out as determining the standard in moot cases? Or does he omit to mention historic definition because it would be conspicuously unreal?

In any event no extended argument is necessary to show that the back-reference ratio is one of Knapp's worst mistakes. When, for example, silver supplants gold, or irredeemable bank notes take the place of gold by the operation of Gresham's law, the ratios of the new units to the old have nothing to do with any norm laid down by the state. The only meaning which can be attached to a ratio of the new to the old unit is a purchasing-power relationship. We have seen that Knapp does not propose to ascribe the determination of purchasing power to the state.¹ That seems to explain his abandonment of the historic definition device in the very cases which would reveal its operation most clearly, had it been real. And it should not be forgotten that Knapp stoutly maintains the power of the state over the standard in these very instances.

Knapp clearly convicts himself by this conspicuous omission. Let us, however, meet him upon his own grounds by examining historic definition in the cases where Knapp does apply it — where it is really the state which introduces the new money. In the first place historic definition would seem to be precluded altogether for a new country, and for an old country where the former currency has been completely repudiated. Secondly, in the matter of *defining* a new standard the back-reference ratio has not the least significance. New metallic money is defined by describing its bullion content, naming it, and stating its legal tender power and the conditions which regulate its issue. New fiat money is defined noncommittally and simply as dollar, pound, or mark. Finally, such a ratio of new to old money might be set up as a redemption rate, or as a legal norm for interpreting upon what terms contracts in the old money are to be discharged in the new. Neither of these, in and of itself, will secure the par circulation of the new money, nor establish its circulation with certainty at the rate named. Of course if the state makes the new money the only legal tender by repudiating and demonetizing the old

¹ Cf. pp. 14-18, above.

standard, the new money will necessarily be at par. If, on the other hand, the state retains the old money as legal tender at a specified rate in relation to the new, whether the two circulate side by side at par, or whether one drives out the other by the operation of Gresham's law, depends upon the relation of their exchange values. Perhaps the state, by a proper limitation upon the issue of the new money, by an offer of redemption, and by maintaining a certain legal ratio in the settlement of old contracts, is able to establish upon the market a ratio of purchasing powers identical with its legal tender norm. That precisely is the great problem of stabilization. But the back-reference ratio is only a pious wish, and does not define the new unit, establish its par circulation, nor determine its value relation to the old.¹

The mark stabilization affords a recent illustration of a back-reference ratio in the sense that, upon the recommendation of the Finance Ministry and the Commissioner of Currency, the Reichsbank adopted simply as a matter of practice a redemption ratio of one trillion paper marks to one *Rentenmark*. But the stabilization at this rate was wholly informal, and cannot be called a legal change of standard such as Knapp was describing. The old paper mark continued to be legal tender, whereas the new *Rentenmark* was not. Moreover, trade had from July, 1923, practically repudiated the old legal tender marks. From that month until the stabilization in December, Germany really had no standard money, except perhaps foreign moneys *de facto*. From December, 1923, with the introduction of the *Rentenmark* until the new *Reichsmark* was issued under the Dawes Plan bank law of October, 1924, the *Rentenmark* was in practice, though not legally, the standard money. So neither before nor immediately after the stabilization did the state's sovereign will as expressed in the legal tender laws affect the standard. *The State Theory of Money* has nothing to offer in explanation of such phenomena.²

¹ Cf. Mises, *Theorie*, 2nd ed., Pt. I, ch. iv, sec. 3. Hawtrey maintains the idea of historic definition in a somewhat different and quite acceptable sense. "If at any time the standard coin is changed, the same debts that were legally enforceable immediately before the change remain legally enforceable immediately after it. They and the unit in which they are reckoned continue, even if their value in terms of wealth be changed. . . . The pound sterling can only be defined as the English unit for the calculation of debts. A pound is a pound. It has preserved a continuity hardly surpassed by any human institution except the days of the week." — *Currency and Credit*, pp. 212-213.

² Cf. Schacht, *op. cit.*, pp. 76, 83, 114. On the legal side of the matter a good analysis is to be found in Nussbaum, *op. cit.*, p. 112.

(3) Knapp's argument that accessory money can maintain its validity without redeemability and limited issue is, as Cannan says, "almost charming in its naïveté."¹ The statement just precedes Knapp's attempt to prove the state's supremacy over the standard even with bimetallism and inconvertible notes; and it appears probable, as Palyi suggests,² that Knapp was led into such a position in order to pave the way for this revolutionary idea. If it can be made to appear that the state's acceptance of accessory money even without redemption and limited issue secures its par circulation, then certainly the state should attain that end for standard money by the more drastic act of forcing out. In other connections, when Knapp can judge without bias, he wholeheartedly admits the necessity of redemption, at first for bank notes, and subsequently for all accessory money;³ and he himself maintains that limited issue is indispensable, especially where an overvalued money threatens to "pile up" in the treasury.⁴

(4) In general Knapp's analysis of the devices by which the state insures validity to its moneys is thoroughly unsatisfactory. There are several minor suggestions, however, touching upon par circulation, which may be worth noting. For one thing Knapp emphasizes acceptance by state fiscal offices as important in securing parity to a money. It would be difficult to decide whether this or legal tender in private trade is the more essential. The latter without the former was sufficient for United States notes during the Civil War, when they were actually not receivable for duties on imports. But for a country with a paternalistic government having not only heavy tax receipts but a large income from state industries, the "indirect redemption" afforded by state acceptance may alone and without the aid of a legal tender provision for private obligations adequately support parity. This was true of the *Rentenmark* and the *Reichskassenscheins*.⁵ State acceptance has been slighted in current discussions outside Germany.

Allied to the maintenance of validity is the matter of securing a constant nominal value of the money metal. Free coinage and convertibility are almost universally named as the two requisite measures. Knapp, on the contrary, gives "hylelepsy" and "hylephant-

¹ Edwin Cannan, "State Theory of Money," *Economica* 14, p. 213.

² *Schm. Jhrb.* 45, p. 548.

³ *State Theory*, pp. 139, 158, 191.

⁴ *Ibid.*, pp. 180, 192.

⁵ Karl Diehl, *Theoretische Nationalökonomie* (Jena, 1927), III, 364-365.

ism," i. e. free coinage and maintaining coins at full weight.¹ Since governments cannot prevent the melting down of coins, the really effective upper limit to the price of gold is secured by maintaining full weight. Knapp also draws an admissible correlate to his nominalist position when he decries the practice of demonetizing worn coins: not merely that the procedure is unjust to the luckless last holder of the coin, — a purely fortuitous incidence of what should be a social cost, — but that it involves a sudden and unreasonable abandonment of the concept money, the state's validation of the piece as so much debt-paying power.² Or, as we might say, the state withdraws its recognition from certain purchasing-power units which are as much earned as any other by the economic individual, and reduces their value arbitrarily to commodity content. It thereby does violence to the nature of money.

Aside from these minor points, Knapp's treatment of devices for guaranteeing validity would reduce the sum total of our information on the subject.

C. Chartalism and Nominalism

The State Theory of Money identifies "chartality" with the nominal character of the means of payment.³ Is it necessary, in order to prove that money is a symbol and not a mere commodity, to establish that the state creates the value unit? Even some of Knapp's closest followers admit these two ideas to be *wesensverschieden*. Bendixen "does not see the nominality of the value unit in the will of the state, but in the value judgments of the masses."⁴ Karl Elster says that where a change in the standard comes about purely through custom, the nominality of money is recognized, and has nothing to do with debt payments.⁵ Liefmann and Genzmer, representatives of that extreme nominalism which regards money as abstract, as only the unit of computation, naturally deny any connection between state action and the existence of the ideal money of account.⁶

¹ *State Theory*, pp. 83-86.

² *Ibid.*, p. 74.

³ *Ibid.*, p. 34 *et passim*.

⁴ Friedrich Bendixen, *Währungspolitik und Geldtheorie im Lichte des Weltkrieges*, 2nd ed. (Munich, 1919), p. 123.

⁵ *Die Seele des Geldes* (Jena, 1920), ch. iii, sec. 3.

⁶ Robert Liefmann, *Geld und Gold* (Stuttgart, 1916), p. 109; Genzmer, *Kritische Betrachtungen*, pp. 59-62.

Amongst nominalists still further removed from the *State Theory*, similar agreement prevails. Altmann, for example, says:

Between *state* nominalism, which allows only for a legal historical theory of money, and metallism, there is an *economic* nominalism, recognizing money value as functional and not proceeding from debt paying power but from historically evolved *purchasing power*, which cannot be created at will by the state.¹

The point involved here is not that chartalism errs in saying that as a normal proposition the state creates money. What is to be regretted is that Knapp, by using the terms "chartality" and "nominality" synonymously, should have blurred the outline of two separate concepts. (In connotation, chartality means the quality given to money by the state, of being a symbol of so much *debt-paying* power; whereas nominality means the quality given to money by the state *or by trade*, of being a symbol — passing at its face value — in *all* the monetary functions. Umbrage has been cast upon nominalism by making it stand in apposition with chartalism and by imputing to it all the doctrines of the *State Theory*. For this confusion Knapp is partly responsible.

III. KNAPP'S OBSERVATIONS ON THE VALUE OF MONEY

Throughout his works Knapp sedulously avoids the term "value of money." The reason for this apparently lies in an absolute identification of value and price; value signifies nothing more than "value in the universally recognized means of exchange," or what he calls "lytric value."² Obviously upon this definition money cannot possess lytric value, but Knapp proceeds upon the assumption that he has shown the concept of value in money to be a nonentity.³ But occasionally he reveals an apprehension of the ordinary purchasing power idea.⁴ This strange medley of conflicting strains

¹ S. P. Altmann, "Zur deutschen Geldlehre des XIX Jahrhunderts," *Die Entwicklung der deutschen Volkswirtschaftslehre im XIX Jahrhundert, Festgabe für Schmoller* (Leipzig, 1908), I, 33-34. (Italics his.) Perhaps the implication of the last phrase is unfair to Knapp, but otherwise the distinction is well drawn. Cf. also Palyi, "Ungelöste Fragen der Geldtheorie," *Festgabe für Lujo Brentano*, vol. II, "Der Stand der Forschung" (Munich, 1925), p. 475.

² *State Theory*, p. 9.

³ *Ibid.*, p. 92; *Staatliche Theorie*, pp. 438, 440-442; *Schn. Jhrb.* 30, p. 1696.

⁴ In one instance Knapp says quite simply, "The 'purchasing power' of money within a state is nothing other than the reciprocal of prices" (*Schn. Jhrb.* 30, p. 1696). From this he should have concluded: Lytric value is the reciprocal of prices; therefore lytric value and purchasing power are identical. He does not draw this conclusion, how-

may be accounted for by the apology offered by his disciple Karl Elster.

When the nominalist of the sort of Knapp denies value to money; when he speaks of the "so-called money value" and thus implies that money has no value; when he puts this negative sentence nearly at the very head of his system, "Money has no value," . . . he is probably contending that in a theoretical light the psychic relations of the economic man to money are significantly different from his relations to goods.¹

Knapp's emphasis upon the contrast of the real and circulatory satisfactions lends color to Elster's interpretation: the use of money *qua* money falls outside the category of ordinary economic value.

Implicit reference to the value of money occurs with Knapp most frequently in connection with his notorious "amphitropic" argument, that because the same money is both received and paid out by the individual "the effects of a change in standard are quite negligible."² This astonishing idea cannot be extenuated on the grounds that it represents a momentary lapse, for it is deliberately formulated and permeates all of Knapp's writings. More than anything else it has brought him into disrepute with "respectable" economists.³

The nearest approach to a theory of the value of money appears in a chapter devoted to "Monetary Relations with Foreign Countries." The burden of the argument is that foreign trade is not governed by the automatically operative checks to a one-sided balance presented by orthodox economists, but by "exodromic measures" instituted by the central bank. Only conscious intervention — bank rate manipulations and the purchase and sale of foreign bills — can maintain parity.⁴ This suggests a "controlled currency" explanation of

ever; and in the very next breath he even objects to the concept of purchasing power altogether (*ibid.*, p. 1697). This inconclusive evidence, together with the data previously presented to show that Knapp had scarcely any conception of a general price level, makes it impossible to affirm that he thought of money value precisely as purchasing power. The chief difference is that he does not conceive the exchange value of money as a unitary phenomenon: there are a thousand purchasing powers of money, — one for each good, — and the singular of the noun has no meaning.

¹ "Vom Werte, den das Geld nicht hat," *Jhrb. für N. & S.* 116, p. 507 (italics his). Cf. also Jacob Buraway, *Der Knappsche Nominalismus und seine Rechtfertigung* (Leipzig, 1929), p. 182.

² *State Theory*, pp. 17-19, 48, 118, 210-211; *Hdwb. der Staats.*, 4th ed., IV, 752-760.

³ For example, with Bortkiewicz, *Schm. Jhrb.* 30, pp. 1220-1221; Lotz, *Schm. Jhrb.* 30, pp. 1343 ff.; Palyi, *Schm. Jhrb.* 45, p. 651, note. Even Elster repudiates the doctrine (*Die Seele des Geldes*, ch. iii, sec. 2).

⁴ *State Theory*, pp. 252-261.

price levels. But it is not. For Knapp the foreign exchange rate moves in complete isolation from prices. He categorically denies any line of causation from the domestic monetary situation to exchanges.¹ Central banks figure in his theory of the whole domestic money and credit structure only as they accept or force out certain types of currency.

IV. SUMMARY AND APPRAISAL

Knapp's thesis is invulnerable as a generalization: Money is a creature of the state. To the sovereign national power money normally owes its being — its having value and its par circulation. Those critics err who see in chartalism either a fiat theory of purchasing power or, at the opposite extreme, a purely legal theory. Validity of money is an economic quality, and it is secured not only by law but also by the entire monetary administration of the state. Again, those critics almost willfully misinterpret Knapp who mistake his enthusiasm over paper money as the "touchstone of the theory" for advocacy of fiat standards or inflation.

Unfortunately, Knapp jeopardizes the recognition of his thesis by setting it forth far too absolutely, by failing to give any indication that money often arises in primitive pre-political societies, in political states before the central authority has mastered the monetary situation, and today when emergency issues arise from private sources. We should never be led to suspect from the *State Theory* that Gresham's law sometimes directly thwarts the will of the state, or that trade rejects state money altogether if it becomes hopelessly depreciated.

If the state normally creates money, it accomplishes this end by devices which Knapp for the most part misapprehends. Acceptance by state's pay offices and legal tender in trade do, it is true, chiefly account for the acceptance of money, especially those sorts having a low intrinsic value. But limitation of supply — equally essential to the quality of money value — Knapp utterly ignores. Par circulation, moreover, results from the unique position of standard money as legal tender or as definitive payment, and not from "forcing out"; and subordinate moneys must be redeemable and limited in coinage to retain their parity.

Had Knapp discovered a new and vital truth which helped to

¹ Cf. pp. 240-242, below.

clarify monetary theory or helped solve some perplexing problem of monetary policy, he could be forgiven the absolutism of his argument and many errors concerning the technique of money. But the work is sterile. It denies that money has value as people understand the term; it denies that changes in prices have any real significance to the economic man, merely because he is at once debtor and creditor; it denies the bearing of domestic prices upon foreign exchanges. As Palyi observes, the only practical implications of the *State Theory* are that a state will probably do well to maintain parity for its foreign exchange, and that the national monetary system must be unified and so constructed as to carry out what the state intends.¹ Throughout his work, it is true, Knapp disclaims offering any solution of economic problems,² and no one can legitimately derogate the writing of a treatise in pure theory. But when neither the author of a theory nor anyone else can draw useful practical inferences from it, there arises the suspicion that it ignores important facts. When we weigh against the kernel of valid theory in the chartal doctrine Knapp's exaggeration of the idea, his forbidding and unwieldy terminology, the errors of the amphitropic argument, of historic definition, of forcing out, of the "pantopolic" explanation of exchange rates,³ the danger of an inflationistic interpretation — the balance turns heavily against a remarkably powerful but distorted work.

At the time when the *State Theory* first appeared economists assimilated money too much to commodities in general; they inclined too far toward the view that, subject to the same competitive laws which govern ordinary goods on free markets, money cared for itself in quasi-automatic fashion. Knapp performed a signal service in emphasizing that extensive powers are necessarily exercised by political governments in the constitution of monetary systems. But the state is not an inscrutable Rhadamanthus. A really profitable state theory of money must reveal how human intelligence can utilize the power of the state for social well-being.

V. OTHER CHARTAL THEORIES

Somewhat akin to Knapp's "validity" is the idea of "compensibility" put forward by his disciple Kaulla. Money comes into being when the mint stamp ceases to be "declaratory" of metallic content

¹ *Schm. Jhrb.* 45, pp. 686-687.

² *State Theory*, pp. 1, 49, 53, 109, 144, 193, 215, 291, 301.

³ Yet to be considered. Cf. pp. 239-243, below.

and becomes instead "constitutive" of a demand claim on the state.¹ Some money carries with it commodity value as a sort of collateral or pledge that the state's obligation will not become worthless.² Whether this is the case or not, the real cause of the circulation and value of money is its being received for taxes. "Compensibility exists only when the note debt of the state stands against a corresponding quantity of demands by the state which can be unconditionally satisfied by the notes."³ Back of the tax stands a *quid pro quo* delivered to the economic individual by the state, so that ultimately the purchasing power of money rests upon "a service of the state, the precise nature of which is undefined, but which has a definite value."⁴

With "compensibility," therefore, we have claimed for the state a power which Knapp does not imply with "validity"; the former includes the idea of a definite quantity of purchasing power, the latter does not. If the state actually stood ready to "redeem" money in a *certain amount* of goods or services, it would control the purchasing power of money, for this would be tantamount to a multiple standard. By subtly identifying such "redemption" with the state's receiving money at its face value for taxes, Kaulla secures a show of plausibility. The difference, however, completely vitiates his theory. When government accepts money it does not receive it for a *certain* value or purchasing power, but only for a *nominal* worth. It says merely, "Your dollar is worth a dollar in paying taxes." In extremely depreciated currencies, a military quantity of value might still attach to the money simply because no matter what its value is, the currency still pays taxes. This is the military truth in Kaulla's argument. But before we had pursued for long the asymptote of infinitesimal values, the entire issue would be entirely repudiated by trade, and along with it Kaulla's vaunting "compensation" theory.⁵

¹ Rudolph Kaulla, *Die Grundlagen des Geldwerts*, p. 36.

² Aristotle says in the *Nicomachean Ethics*: "But even if we happen to want nothing at the moment, money is a sort of guarantee that we shall be able to make our exchange at any future time when we happen to be in need" (F. H. Peters, 15th ed. [London, 1893], p. 157). The pledge concept has also been used by Menger, Roscher, Schäffle, and Zuckerhandl.

³ *Grundlagen*, p. 55.

⁴ *Ibid.*, p. 62.

⁵ The more orthodox chartalism of the *State Theory* is of course espoused by the members of Knapp's seminar at Strassburg (cf. *Staatliche Theorie*, p. 452), and in addition by such scattered representatives as Hans Gerber, *Geld und Staat*; Paul Gerngross

Certain other writers have aspired to "supplement Knapp's work on the economic side." Amongst these are Rudolph Dalberg, Karl Elster, and, most notably, Friedrich Bendixen, director of the Hamburg Hypothekenbank until his death in 1920. The pamphlet literature¹ emanating from this group enjoyed an unparalleled popularity during the excited years of war and post war inflation. Bendixen, less academic but more versatile than his fellows, presents a variety of introspective and empiric arguments against the metallists' tracing value causation to gold; he may fairly be said to have advanced the case over Knapp's dogmatism. Furthermore, Bendixen brings under the rubric of the chartal theory not only money in the narrow sense but also deposit media, and it must be admitted that state control is even more necessary for the latter than for hand-to-hand money.

Bendixen, Dalberg, and Elster are fond of arguing that money has no value, because money is *abstract*. This notion cannot for a moment be upheld in a serious treatment of the problem. (1) To command goods, money must be scarce; and to be scarce, it must be more than an abstraction.² As Cassel says, "the economic significance of the unit of reckoning depends wholly upon the scarcity of the media of payment to which a definite purchasing power is attached in the price scale."³ The abstract unit of account cannot itself be attributed purchasing power, and in identifying money with it the Bendixen school "throws out the child with the bath"; purchasing power, which the school accepts, must go by the boards with value in any of those other senses which it rejects. (2) Ordinary and scientific usage sanctions differentiation and not identification of money and the accounting unit. "If we are merely estimating values in terms of money, we are using, not the actual money, but merely the idea of value associated in our minds with money."⁴ That is all that

Beiträge zu einer wirtschaftlichen Theorie des Geldes (Vienna, 1913); and Kurt Singer, *Das Geld als Zeichen* (Jena, 1920). May future students of monetary problems be spared my pains in examining the writings of these persons and the Bendixen and Liefmann following.

¹ A list of works consulted will be found in the general bibliography.

² One does not fall afoul of ontological difficulties in laying down the proposition that only physical things can be scarce. Businesses are said to pay high rewards for "ideas," but they are not what the metaphysicist would call ideas. The economist agrees in referring to the same phenomenon as a sale of services, not of thought processes or concepts.

³ Gustav Cassel, *The Theory of Social Economy*, 1st ed. (New York, 1924), p. 359.

⁴ Taylor, *Chapters on Money*, pp. 19-20.

need be said concerning the dreary verbiage of those who pile Pelion on Ossa trying to prove money to be something abstract. (3) The Bendixen group cannot maintain the chartal theory unless it abandons this peculiar idea, for it must not be forgotten that whatever influence the state exercises over the unit of account comes from action directed toward the physical circulating medium.

The aspiration of these writers, to complement Knapp upon the economic side, laudable enough in itself, has not been realized. Except for the inclusion of bank media under the chartal theorem, none of their innovations are implied in a state theory,¹ and none are tenable. Bendixen's naïveté both in theory and in practical programs, Dalberg's championing of what he unhappily calls the "state money system" of the War, and Elster's nebulous treatment of value have served only to bring opprobrium upon Knapp's work. They represent the pathological phases of a legitimate theory.

¹ Cf. Palyi, "Ungelöste Fragen," p. 474.

CHAPTER III

ORTHODOX NOMINALISM

I. THE IDEALISTIC NOMINALISTS

PROFESSOR LIEFMANN of Freiburg affords a convenient transition from the chartal doctrine, particularly as represented by the Bendixen group, to the larger body of nominalists who do not conceive of money as primarily a political institution. In common with all nominalists Liefmann protests against the metallist overemphasis upon gold.) He resembles Bendixen particularly in extending the idea of money over bank credit, in believing money to be an abstract entity, and finally in desiring to lay a foundation for nominalism in economics, particularly in the Austrian subjective-value theory. All value determination has its inception in the consumer's economy, in the effort of each individual so to distribute his income amongst competing lines of expenditure as to obtain at the margins the same excess of utility over costs.¹ In this calculus, money, figuring always as outlay, becomes a sort of generalized cost for each individual, a cost of exactly the same character as the disutility of labor. "Income, not money, buys goods"; the real cost of commodities is the sacrifice involved in earning income.

Since Liefmann regards all economic activity finally *sub aspice* psychic income, money becomes "an idea, an abstract entity, a universal unit of computation."² Indeed he maintains that "all the previous errors of economic theory are connected with the false, too concrete, purely materialistic conception of money."³ But occasionally he himself falls into this rankest of heresies, calling money "the eternal commodity," "the preëminent exchange commodity," and

¹ Robert Liefmann, "Die Entstehung des Preises aus subjektiven Wertschätzungen," *Archiv* 34, pp. 1-54, 406-469; *Die Geldvermehrung im Weltkriege und die Beseitigung ihrer Folgen* (Stuttgart, 1918), pp. 48 ff.; and *Geld und Gold* (Stuttgart, 1916), ch. iv.

² In the discussion of the Bullion Report in the House of Commons, May 6, 1811, Canning referred ironically to the doctrine of the opposition, as represented by Lord Castlereagh, that "the pound sterling was nothing tangible; it was a creature of the imagination which had no real existence, and might vary with the weather." A. Andréades, *History of the Bank of England* (London, 1909), p. 233.

³ *Ibid.*, p. 100.

the "most desired of all goods."¹ Perhaps Liefmann's view is formulated best in the *Grundsätze*:

Money in the narrower and more rare sense is the real representative means of payment, the money-signs. Money in the broader sense indispensable to the explanation of economic processes is the . . . abstract unit of computation. . . . The concept of money in the "real" sense is of lesser importance.²

Liefmann's theorizings and substantially all his adverse criticism of Knapp appear in the writings of Werner Genzmer and Erich Eppich. With his master Genzmer rejects the idea that prices express the value of money either to the individual or to society.³ In a small handbook bearing the pretentious title of *Geld: eine sozial-psychologische Studie*, Eppich supports the conception of money as an abstract mathematical magnitude having in itself no value.⁴

Although Alfred Lansburgh, editor of *Die Bank*, has been called a metallist by Wagemann and Liefmann, he betrays more than a superficial kinship with the foregoing writers. (Lansburgh's ardent defense of the gold standard and his implacable hostility to Knapp have misled his critics. Money is for him abstract in character; it has no "concrete" value.⁵ Like Liefmann, he maintains that the power of the state extends only to the physical money signs, not to money itself. But Lansburgh's reasoning is unique; no matter what the state does to the number of the money symbols, the quantity of money, the aggregate of all rights to receive goods, remains the same.⁶ What pretty clearly underlies this notion is an equation of exchange. If so, Lansburgh will be forced to abandon his concept of money as abstract, since the scarcity which gives money its value attaches to the physical media and not to our ideas about money.) He will also be forced to admit that in so far as the state controls the quantity of these physical media, it controls the magnitude of the *abstraktes Recht* represented by each piece. With these corrections, he might still adhere to his right to define the value of money as the *aggregate* of goods and services purchasable by money, which of course would not then be affected by the number of pieces. But in fact he aban-

¹ *Geld und Geld*, p. 37.

² *Idem*, *Grundsätze der Volkswirtschaftslehre* (Stuttgart, 1919), II, 130.

³ *Kritische Betrachtungen zur Nominalistischen Geldtheorie* (Dresden, 1917), pp. 42-43.

⁴ Munich, 1921, pp. 83-92.

⁵ Alfred Lansburgh, *Vom Gelde: Briefe eines Bankdirektors an seinen Sohn* (Berlin, 1921), pp. 44-45.

⁶ *Ibid.*, p. 62.

dons this unnatural attitude, and goes to the opposite extreme, equally at variance with common usage. When the state multiplies the money signs out of measure, the *Recht* becomes an *Unrecht*, real money disappears, and we have only an imitation.¹ The practical banker's zeal for stabile money leads, in Lansburgh's case, to bizarre conclusions worthy of the money "crank."

II. THE MATERIALISTIC NOMINALISTS

The ablest spokesmen of the nominalist theory avoid both the exaggerations of the chartalist group and the esoteric tenets of Liefmann and his kind. Money is attributed the qualities of economic value and measuring value; its origin is social, its character concrete. All materialistic nominalists are quantity theorists; and conversely, all quantity theorists, with occasional exceptions, adopt the present nominalist position. Just what this position signifies will appear best in the hands of its expositors.

Professor Arthur Nussbaum of the Berlin Faculty of Law develops a remarkably clear and consistent ontology of money.² Common usage and the laws of all peoples at all times have meant by money the money *things*.³ "We may define money as those *objects* which are given and received in exchange, not for what they physically represent, but for a fraction, the integer, or a multiple of an ideal unit."⁴ Though money is physical, it is expressed in pure number rather than in mass or weight units because the recipient or giver of money in exchange thinks only of the number of pieces involved. Consequently the metallists err in representing it only as bars certified by the state as to weight and fineness,⁵ and the attempt to differentiate between "real money" possessing intrinsic value, either in itself or by virtue of redemption, and mere "paper money" miscarries.

It is alone decisive if custom gives and receives the paper money according to its nominal value. The ground for this may be that the value of the *claim* [to a redemption agent] is equivalent to its nominal value. But this connection is no necessary one.⁶

¹ *Ibid.*, pp. 65-67.

² *Das Geld in Theorie und Praxis des deutschen und ausländischen Rechts* (Tübingen, 1925).

³ *Ibid.*, pp. 7, 92.

⁵ *Ibid.*, pp. 9, 35, 52.

⁴ *Ibid.*, p. 6. (*Italics mine.*)

⁶ *Ibid.*, pp. 29-30.

(If, indeed, the presence of such a claim gives rise to an evaluation varying from nominal value, the coin or note ceases to be money. This is precisely the way in which gold was demonetized in Germany on August 4, 1913, when gold coins came to be subject to a commodity evaluation.¹ The *Notgeld* issues in the Ruhr during the occupation were true money despite their token character, and the full-bodied American trade dollar and the Austrian *Maria-Theresientaler* not, because they "were given and received according to their current 'real' value."² What differentiates money from goods is circulation at equivalence with the unit of account,³ says Nussbaum; but he does not with Bendixen and Liefmann regard the ideal unit as itself money.⁴

It is otherwise with the *Währung*, the system of money signs resting upon the same ideal unit. "That which gives a *Währung* uniqueness and continuity is solely the basic unit. The elements [the money signs] of *Währung* can change without the *Währung* as such being affected."⁵ Obviously the continuing entity in the *Währung* is an abstraction. When there is a change in *Währung* the psychological substratum remains — the new unit takes on meaning by being interpreted in terms of the old.

If a new basic unit is introduced, the economic individuals can only understand it by bringing it into a conceptual relation to the old unit. . . . I would subscribe completely to the doctrine that the ideal unit can only be explained historically through the recurrent connection.⁶

Tracing back the *Währung* historically, we arrive ultimately at its inception at a point of time when "the ideal unit liberated itself from the real, i.e. the coin."⁷ The reinterpretation of each new ideal unit in terms of the old is a matter of mass psychology, the conception of the commercial world (*Verkehrsauffassung*): but the existence

¹ *Ibid.*, p. 101.

² *Ibid.*, pp. 21, 96, 97.

³ In some money systems, Nussbaum observes, there is no money piece corresponding to the monetary unit or main denomination. In eighteenth-century England twenty shillings made up the pound sterling, but until 1817 no coin represented this unit. He might have referred also to the American gold dollar and Shanghai tael.

⁴ Nor does he choose to call bank deposits money along with the two writers mentioned, preferring to restrict the term to circulating media which are not payable to a certain person's order and are fundamentally designed to pass from hand to hand without formality. *Ibid.*, pp. 95-96.

⁵ *Ibid.*, p. 46.

⁶ *Ibid.*, p. 49. Nussbaum uses Knapp's phrase, *rekurrenter Anschluss*.

⁷ *Ibid.*, p. 50.

of a new unit depends upon a new name and a new coin, for "without an external symbol, the conception of the individuality of money cannot in practice subsist."¹

With reference to the function of the state, Nussbaum presents a view almost identical with that formulated in this book in the criticism of Knapp. While it is quite wrong to say that "the state alone can establish or disestablish money, . . . it is therewith not to be denied that *in normal times* the state does decide concerning the creation and removal of money because and inasmuch as the state is the actual source of authority in money exchange."² Nussbaum cites cases of extra-government money, and calls attention to the demonetizing of notes and coins through the operation of Gresham's law.³ The appearance of a premium of discount ends the career of a coin as money, for parity circulation is the hallmark which distinguishes it from goods.⁴

If on the one hand Nussbaum takes issue with the sense of the *State Theory* that the state is the only pay society, he objects on the other hand to a categoric separation of the economic and legal characteristics of money.

The money concept of our legal and economic order is a unified one, . . . perhaps primarily legalistic, not because of any logical priority of the legalistic viewpoint, but because law serves the economic order as a technical instrument, and consequently fulfills an economic function.⁵

Money is imaginable without a state, but money systems can scarcely be conceived as anything but a rational institution of government.⁶ Knapp errs, however, in attributing the persistence of the *Währung's* substratum — the ideal unit — to the state's proclamation of a certain conversion norm. The substratum is psychological; it rests on commercial practice.⁷

Professor Alfred Amonn of Prag believes that it is necessary to separate two entities categorically if we are to apprehend the basic character of money: the ideal price measure or ideal medium of

¹ *Loc. cit.*

² *Ibid.*, pp. 18, 19.

³ *Ibid.*, p. 13.

⁴ *Ibid.*, p. 13.

⁵ *Ibid.*, pp. 16-17. (Italics author's.)

⁶ *Ibid.*, p. 34.

⁷ *Ibid.*, p. 44.

⁸ The juristic character of Nussbaum's work precludes his giving much attention to the nature of money value. He observes only that his sharp twofold division of material economic things into goods and money "ought not to be understood to imply that money is withdrawn from the general economic laws of commodity exchange." *Ibid.*, p. 34. (Italics author's.)

exchange, and the concrete medium of exchange.¹ Those persons who begin by presupposing "a commodity for practical purposes indefinitely divisible and unlimited in acceptability,"² and who imagine that prices are a mere quantity of money pieces which will be given in exchange for a good, only confuse fundamentally separate ideas. Normally, perhaps, the terms coincide — the price unit and the unit of the exchange medium. But this coincidence does not impugn the distinctness of the conceptual entities. In reality, prices are *no quantity of money pieces, but sums of money units.*³ The ultimate foundation of the whole price structure is the "purely ideal unit apprehended in the same way by all the persons mutually connected by exchange, a unit which may be called social from the very fact that it is generally comprehensible in the same sense."⁴ This ideal unit is likewise an "ideal medium of exchange . . . because it makes possible every exchange leading to the price problem in political economy. Without such an ideal medium isolated exchanges are, it is true, imaginable, but not a universal and . . . objective price equally understandable for everyone in the same way."⁵ Such a characterization of the ideal unit, it should be noted, represents the antipode to Liefmann's *Rechnungseinheit*, which at bottom is wholly a phenomenon in the individual consciousness. Beside the abstract unit, the second entity involved is the "technical unit of money as a medium of exchange," the money pieces, which serve as the "material vehicle of the objective price measuring and price expressing unit."⁶ To this Amonn chooses to attach the term "money," for, maintaining the entire defensibility of the alternative procedure, he prefers conformity to popular usage, which has always meant by money, not the abstract unit, but material media.⁷

Normally, it is true, the unit of prices and the technical or material money unit coincide — in fact that coincidence is the practical goal of all *Währungspolitik*.⁸ "The socially established unit recognized universally as the means of expressing prices appears as reified or embodied in money; it coincides with the money unit, and price in this case is actually a sum of such *money units.*"⁹ That this coincidence is, however, only "generally the case in a certain stage of

¹ *Objekt und Grundbegriffe der theoretischen Nationalökonomie*, 2nd ed. (Leipzig, 1927), Pt. IV, ch. ii, sec. c: *Wert und Preis*, pp. 298-340.

² *Ibid.*, p. 320.

³ *Ibid.*, p. 321.

⁴ *Ibid.*, p. 379.

⁵ *Ibid.*, p. 333.

⁶ *Ibid.*, p. 319.

⁷ *Loc. cit.*

⁸ *Ibid.*, pp. 380-381, note.

⁹ *Ibid.*, p. 319. (Italics author's.)

historical evolution”¹ and does not represent a logical *identity* of the price unit and the money unit, is the crux of Amonn’s contention. One may easily believe that at one time wheat served as the unit of prices, whereas money circulated as a medium of exchange, and prices had to be recomputed to be expressed in money. But this condition, in which prices were expressed in the validity (*Geltung*) of wheat, gradually gave way to one in which people accustomed themselves to attribute to the money unit itself a “definite and universal validity in the individualistic social system.”² This employment of “validity” by Amonn reminds us immediately of Knapp. But whereas Knapp depicted money as arising *only* with its coming to pass at a certain validity regardless of intrinsic value, Amonn defines money after all as a mere exchange commodity, which may in certain instances, indeed normally does, pass at a certain validity, i. e. at the same value as the price unit represents.

The most complete development of materialistic nominalism to be found in German monetary literature appears in a book by Professor Ernst Wagemann, director of the Institute for Business Cycle Research at Berlin.³ According to his view, the symbolism of the mercantilists, who made money something of a fetish, and the metallism of the classical and Austrian theorists, who identified money and the precious metals, are synthesized by nominalism, which regards the metals as commodities and money as a value symbol.⁴ Under the impetus given to the nominalist movement by Knapp, economists are coming to realize the capital error of the commodity theories in assuming an “inner” or absolute value. The labor theory, for example, is at best an explanation of *relative* values, and the use theory fails to establish an absolute value for money by its reference to a supposed “universal utility.”⁵ Again, the theory of functional value postulates an independent value governed by supply and demand, but “supply” cannot be the available stock of money, and “demand” cannot come from functions which presuppose the value as given.⁶ At the hands of the marginal utility school, inner value, so far as money is concerned, undergoes a strange metamorphosis: it becomes the subjective value of goods purchasable for money! It is no longer an “inner” value at all.⁷

¹ *Loc. cit.*

² *Allgemeine Geldlehre* (Berlin, 1923).

³ *Ibid.*, pp. 3, 11-30, 193-194.

⁴ *Ibid.*, pp. 32, 128-129, 141.

⁵ *Ibid.*, p. 322.

⁶ *Ibid.*, p. 65.

⁷ *Ibid.*, pp. 68-69, 76.

Money has value, Wagemann maintains, but the word has another connotation from that appropriate to commodities. Of course the only way in which money is connected at all with economic goods is through its value.¹ Exchange value for commodities and for money alike depends on the conjunction of desire and scarcity. But desire for money in one individual is unique in that it is finally explained solely by a like desire in other individuals. Here is a case of true mutual interdependence of real circularity in causation, and we are involved in no vicious circle of logic.

Do not all sovereignties depend upon this, that the one obeys because others participate, and others participate because the one obeys? How many customs and usages are based exclusively on the instinct of imitation without people's being aware of the original occasion.²

Originally the source of desirability in money may have been actual use value as a commodity or the state's proclamation of legal tender power, but now it is simply the common agreement in a pay society. One person accepts money because others do — a phenomenon of mass psychology.³ The contrast between the sort of value attaching to money and that which inheres in economic goods Wagemann represents by drawing up a social balance sheet in which the totality of goods and services, capital and land, constitute asset values; and money, stocks and bonds, mortgages, book entry claims, and the like, the liability values.⁴ In this way money becomes one sort of claim, if we strip the word of legal meaning ("For nominalism money is nothing more than a value symbol, having only a borrowed or reflected value."⁵ Just as the private person cannot add together the values on the asset and liability sides of his ledger, so for society money and the other value claims cannot be included in the totality of wealth. Inner or absolute money value is a nonentity for the *Bilanztheorie des Preises*.

We are now in a position to appreciate Wagemann's carefully articulated definition: "Money is the bearer of value units with general and unqualified paying power."⁶ Two elements combine to form this nominalistic definition, the abstract unit of value and its physical embodiment. Although Knapp first developed the dogma of the abstract unit of value, says Wagemann, he erred in making it

¹ *Ibid.*, p. 92.

² *Ibid.*, pp. 86-88, 202, 221.

³ *Ibid.*, p. 32.

⁴ *Ibid.*, p. 86.

⁵ *Ibid.*, pp. 93-95.

⁶ *Ibid.*, p. 95.

depend merely on the nominality of debts. Its nature is not juristic but economic: as the means of expressing values, and prices, this abstract unit is an economic-psychological concept. "As such it is the condensation of innumerable exchange relations, — the epitome of manifold value experiences."¹ Just as the abstract "hour" is reified by our many time experiences, so the abstract "mark" takes its substance from real exchanges of goods against marks. Formally perhaps the hour means the twenty-fourth part of the time for a complete rotation of the earth about its axis. But if by some miracle that physical operation should transpire twice as rapidly as hitherto, the time unit would probably continue in people's minds undisturbed and we should say that the earth requires only twelve hours for a complete rotation.²

Prices are expressed in the abstract unit of value, but payments are made in money. "It is no trifling mistake in logic to confuse money with the value unit, which may be thought of as often as one will, but which can never be paid out."³ To have value, money must be scarce. Since the abstract unit cannot be thought of as something economically scarce, it is necessary to attach the definition of money to the physical bearers of the value unit — coins, bank notes, and "even book entries in handwriting, since bank deposits may for good reasons be regarded as money."⁴ The distinguishing earmark of money in contrast with economic goods and services, the asset values, is the fact that it passes at its face value, as the equivalent of the value unit.

A good may, through special circumstances have attained a high degree of general acceptability on the markets (*Marktgängigkeit*), but it becomes money only when it embodies the value unit, and is given in payment as exactly corresponding to the value unit.⁵

An interesting and instructive evolution may be traced through the course of Professor Schumpeter's publications.⁶ The initial work upon equilibrium economics describes money as a good, and price as the value of a given commodity expressed in quantities of another good.⁷ Intrinsic value is not indispensable to money, and the

¹ *Ibid.*, p. 73.

² *Ibid.*, pp. 73-74.

³ *Ibid.*, p. 70.

⁴ *Ibid.*, p. 70; cf. p. 86.

⁵ *Ibid.*, p. 96.

⁶ Cf. Herbert Döring, *Die Geldtheorien seit Knapp*, 2nd ed. (Greifswald, 1922), pp. 88, 164, notes; J. W. Angell, *The Theory of International Prices* (Cambridge, Massachusetts, 1926), p. 328, note.

⁷ Joseph Schumpeter, *Das Wesen und der Hauptinhalt der theoretischen Nationalökonomie* (Leipzig, 1908), pp. 286-289.

marginal utility analysis is applicable, at least indirectly.) This belief persists in the first edition of his treatise on economic dynamics, although a germ of nominalism appears in the reference to money as an *Anweisung* or claim.¹

By the time of publication of the article upon the quantity theory (1917), Schumpeter has come to the conviction that purchasing power is independent in its essence from commodity value.²

Money is by nature not a commodity, even when it accidentally consists of valuable material. . . . Therefore it would be a circle, even from the standpoint of the claim theory, if one wished to derive the purchasing power of money from the subjective value judgments of persons on markets. [Commodity theorists] presuppose definite exchange relations between money and goods . . . the very purchasing power which they wish to explain, which is and can be nothing else than the reciprocal value of the money prices of the several commodities.³

Marginal utility cannot be used to derive purchasing power, for that would mean "that one obtains goods for money because it has exchange value, whereas it only has exchange value because with it one commands goods."⁴ Resuming the chief differentia between money and goods, Schumpeter indicates (1) that money has only reflected value; (2) that, as Bernoulli and La Place observe, its utility necessarily falls with increasing quantity more slowly than any single commodity's; (3) that its marginal utility depends on the quantities of both money and goods; (4) that society has no definite "demand" for money, since more or less money does not mean more or less want-satisfaction;⁵ and (5) that a demand claim on money discharges money functions just as well as money itself, whereas "one cannot ride on a claim to a horse."⁶

While not systematically developed, the nominalist viewpoint is defended throughout by the progressive Frankfurt banker L. Albert Hahn, honorary professor in the University of that city.⁷ In his article "Zur Frage des sogenannten 'Vertrauens in die Wahrung'"⁸ he says, "Whoever is a quantity theorist must consistently join

¹ *Idem*, *Theorie der wirtschaftlichen Entwicklung*, 1st ed. (Leipzig, 1912), p. 70.

² *Idem*, "Das Sozialprodukt und die Rechenpfennige," *Archiv* 44, pp. 635, 644, note.

³ *Ibid.*, p. 646.

⁴ *Ibid.*, p. 647.

⁵ *Ibid.*, p. 649-650.

⁶ *Ibid.*, p. 654.

⁷ "The money and banking theory of Albert Hahn, coming chiefly from Schumpeter, still awaits a critic. It is far above the ordinary 'nominalist' literature in Germany, in acquaintance with fact and in acumen," says Melchior Palyi, "Der Streit um die Staatliche Theorie des Geldes," *Schm. Jhrb.* 45, p. 653, note.

⁸ *Archiv* 52, pp. 289-316; criticized pp. 167-168, below.

forces with those who deny the applicability of the subjective value theory to money. Whoever is a quantity theorist is also by implication a nominalist." ¹ He repeatedly objects to regarding bank notes as a claim to gold. As Wicksell says, all money is credit money, for the thing common to bank notes, fiat money, and metallic money is that they all represent a claim to the goods of the community.² To explain people's readiness to accept even gold money on the basis of the utility of the metal is absurd — the alternative use appeals to only a negligible portion of the population.³ "Even with metallic money, the fact that it is evaluated, and how it is evaluated in buying and selling, rest merely on the fact that it will be accepted by a third party, and the same for him in turn."⁴ If the foregoing argument moves in a circle, so does the phenomenon, just as the stones in an arch mutually depend on one another. Hahn's examination of "Die Goldpolitik der Bank von Schweden während des Krieges"⁵ leads him to believe the nominalists' position substantiated in two respects. (1) Chances of gold redemption do not set the value of paper notes. "Since the exchange value of the paper money is higher than that of the gold, the value of the gold — at least for the excess — cannot be relied upon as an explanation."⁶ (2) The nominalist holds that the value of gold partly depends on its monetary employment, a fact amply evidenced by the Swedish experience.⁷ Like Knapp and Cassel, Hahn contends that the German standard should not be regarded as a gold standard, for that viewpoint comes down from a time when the money unit was firmly rooted in people's minds, not as nominally, but as technically, defined.

The features of Professor Gustav Cassel's monetary doctrines which characterize him unmistakably as a nominalist are as follows: (1) his insistence on the unit of account as of paramount importance with the medium of exchange; (2) his doctrine of the historic continuity of price systems, closely allied to Knapp's *rekurrenter Anschluss*; (3) the representation of paper money as pure money; (4) purchasing power determined by scarcity of the material media.

The estimate of price is from the start a process of reckoning in abstract units, and the abstract unit has always an independent existence, detached in sense from the standard commodity. . . . When the use of general mediums of pay-

¹ *Ibid.*, p. 299.

² L. Albert Hahn, "Von der Kriegs- zur Friedenswährung," *Archiv, Ergänzungsheft* 14, p. 13, ff.

³ *Ibid.*, p. 15 ff.

⁴ *Ibid.*, p. 18.

⁵ *Schw. Jhrb.* 41, pp. 615-638.

⁶ *Ibid.*, p. 625.

⁷ *Loc. cit.*

ment is established, it is natural for the older price units to lose their connection with the standard goods and gradually become purely abstract units for estimating values . . . both elements are actually indispensable to our existing monetary system, and it is impossible to determine their relative importance.¹

The legal tender law is the instrument by which coins, varying slightly in weight, are made fungible. "This legal identity of coins is of far reaching importance. . . . By minting, a material medium of exchange is created of the same interchangeability as that of the unit of reckoning in the scale of prices."²

One is surprised to encounter in Cassel a very close parallel to Knapp's doctrine of price continuity as the result of the State's redefinition of the monetary unit in terms of the older and superseded money (*rekurrenter Anschluss*).

When a definite "legal tender value" is attached to a certain medium of payment — that is to say, when it is laid down that obligations to pay in the current price units may be discharged in a certain ratio by aid of a certain medium of payment — this must, obviously, in time, have an influence upon all prices, and thus give a new material significance to the price unit itself. Whenever a State reserves to itself the regulation of the currency, the economic significance of the price units becomes in time completely dependent upon the value that it ascribed to one or the other medium of payment.³

Like all nominalists in their endeavor to formulate a theory of money which shall be universal and not regard the free standards as anomalies, Cassel says:

Pure money, detached from any connection with any kind of material good, is only found in the form of paper notes which are recognized as legal tender. The paper standard, quite disconnected from metal currency, ought, theoretically, to be regarded as the simplest standard.⁴

Emphasis upon the nominality of money also leads him in conformity with other writers of this school to regard the standards of various countries as being properly designated mark, pound, or crown standards, in place of the metallistic description of the same as paper, gold, silver, or the like.

The unit of reckoning even here is a purely abstract unit, not a certain weight of gold. The primary in the English standard is the reckoning in pounds. . . . The gold standard may therefore be conceived as a free standard under which the price of gold is fixed within certain limits.⁵

¹ Gustav Cassel, *The Theory of Social Economy*, 1st ed. (New York, 1924), pp. 348, 353, 355.

² *Ibid.*, p. 358.

³ *Ibid.*, pp. 362, 378.

⁴ *Ibid.*, p. 353. (Italics mine.)

⁵ *Ibid.*, p. 476.

Cassel prefers not to give to the phrase "value of money" a connotation deeper than purchasing power. "We have, therefore, to define the value of money as the reciprocal value of the general level of prices." ¹ That value does not arise because of the commodity value of a metallic ultimate monetary standard necessarily, but "upon the scarcity of the media of payment to which a definite purchasing power is attached in the price scale." ²

Knut Wicksell, late professor of economics at Lund, represents a certain divergence from the ordinary nominalist doctrine in his account of the origin of money and in his elimination of the monetary function of measuring value. To nominalists generally money arises only when coins begin to pass in trade at a "face" or nominal value, that is, when they circulate as equivalents of the unit of account. But Wicksell accepts Bücher's account of the rise of gold and silver from the great array of primitive exchange media to their present unique position, without giving to coinage any further significance than the certification of bullion as to weight and fineness and without attempting to differentiate what Knapp called "pensatory payment" from real money. ³ While holding that "the concept money is embodied in its functions," ⁴ Wicksell summarily dismisses the idea of money as *the* measure of values because "any good whatsoever may be used as a measure of value; indeed this is no function . . . which involves the object itself or any of its objective physical powers." ⁵ Only one other function beside that of the medium of exchange is mentioned, — the storing of value, — and to this Wicksell allows but little importance. From the social angle not money but goods' store up value, and private persons do not commonly accumulate by hoarding. ⁶ Wicksell identifies money and media of exchange — the normal attitude of the commodity theorist.

But is money nothing more nor less than an economic good? To this question he replies with a decisive negative.

The commodity character of money and its concrete characteristics retire more and more into the background during its employment as money; these may reappear again, but only when it has ceased to be money and has changed itself into a commodity again. Money sublimates into an abstract quantity, into a mere quantity of value. ⁷

¹ *Ibid.*, p. 423.

² *Ibid.*, p. 359.

³ Knut Wicksell, *Vorlesungen über Nationalökonomie auf Grundlage des Marginalprinzips* (Jena, 1922), II, 31-34. Subsequent page references are to this volume.

⁴ *Ibid.*, p. 6.

⁵ *Loc. cit.*

⁶ *Ibid.*, pp. 8, 10-12.

⁷ *Ibid.*, p. 20, cf. also *idem*, *Geldsins und Güterpreise* (Jena, 1898), p. 30.

Laws governing the exchange relations of particular goods would be inapplicable to the problem of the general price level were there no further peculiarity in the latter than the capacity of a small quantity of money circulating rapidly to perform the same economic service as a larger but more slowly circulating mass.¹ Additional difficulties attend all of the commodity value principles. Marginal utility for money can only mean indirect marginal utility, as derived from the goods money commands. But "this marginal utility is on its part directly dependent on the exchange value or purchasing power of money, and cannot therefore regulate that purchasing power."² As for supply and demand, there is of course a loose sense in which the terms might be used: a seller always "demands" money to the extent of the sale price; the buyer "supplies" money. But "these demands and supplies, respectively, of individuals taken together, form an abstract value total but no total social demand for a *definite physical amount of money*, nor a total supply of the same."³

Wicksell thus espouses the central doctrine of nominalism — its *contrasting* money with goods, rather than assimilating it to them as do the commodity theorists. Money value is subject to unique laws.) But his agreement with the nominalists does not end here; with them he holds that "money value and the general price level are synonymous, or better, correlative concepts."⁴ The value of money is moreover not absolute; "in the proper sense of the term, there does not exist an *inner value* of money with which the value of goods in themselves may be compared and measured, as many persons have imagined."⁵ The subjective value of money depends on its purchasing power. Finally he opposes the commodity theory, or the bullionist wing in particular, rejecting "the hope of an ultimate redemption of notes in metal" as an explanation of the value of pure fiat issues, because that redemption belongs to an absolutely uncertain future.⁶ Indeed, even for normal times he would prefer with the nominalists to regard all money, including metallic money, as credit money, "since the direct value-forming force always lies in the belief of the recipient that he will be able to obtain for the exchange instrument in question a certain quantum of goods."⁷

¹ *Vorlesungen*, pp. 20-21.

² *Ibid.*, p. 21.

³ *Ibid.*, pp. 21, 22. (Italics author's); cf. also p. 163.

⁴ *Ibid.*, p. 146.

⁵ *Ibid.*, pp. 146-147. (Italics author's.)

⁶ *Ibid.*, pp. 172, 192.

⁷ *Geldkreis*, p. 44.

Except for his account of the origin of money and of monetary functions, Wicksell's alignment with the nominalists is complete.¹

The distinctive contribution of nominalism so far as the constitution of money is concerned is its demonstration that money exists in an accurate sense only when it represents the unit of account. Carried away by the importance of this idea, certain of Knapp's followers such as Bendixen and Liefmann go to the extreme of identifying money and the accounting unit. Materialistic nominalism strikes a common sense balance in recognizing that the monetary concept must attach to the material exchange media in order to possess scarcity and economic value; and that in order to preserve the integrity of the concept money as against goods, the physical pawns must circulate at a nominal value if they are to be called money.

Not only have the materialistic nominalists arrived at a correct delineation of the monetary category, but they have also isolated the real force which creates money and have rightly appraised the rôle of the state. Nussbaum states the matter most trenchantly: the really decisive factor is whether *custom* gives and receives money according to its nominal value. Ordinary circumstances reveal the state's proclamation of a legal tender dominating the phenomenon of the standard; but trade practice can on occasion thwart the intention of the money authority. Wagemann and Hahn, representing acceptability as *merely* a phenomenon of mass psychology, as depending *merely* on a like willingness in other individuals to receive money in payment, do less than justice to the state's coercive power over the solution of debts in normal times. But so far as a bare formula goes, custom *always* determines what shall be money, whether the custom rests on government's proclamation of legal tender or upon some other basis.

That the continuity of a monetary system comes from the persistence of the ideal unit and its meaning to economic individuals,

¹ The position taken by Professor Eugen Philippovich, *Grundriss der politischen Ökonomie*, 18th ed. (Tübingen, 1923), I, 271-275, is eclectic, but he favors the notion of the monetary unit or coinage as possessing nominal validity. Professor S. P. Altmann of Heidelberg favors an "economic nominalism," as against chartalism and metallism (*Die Entwicklung des deutschen Volkswirtschaftslehre* [Leipzig, 1908], vol. I, sec. 6, p. 34). In *Nationalökonomie als exakte Wissenschaft* (Leipzig, 1908), pp. 88-94, Professor Julius Wolf of the *Technische Hochschule* in Berlin gives a somewhat inconsistent account of the character of money, but he insists on the peculiarity of its value and the inapplicability of marginal utility and cost theories. Finally mention may be made of Hero Moeller, whose *Die Lehre vom Gelde* (Leipzig, 1925) inclines toward nominalism of the present variety.

and not from specific physical media which come and go through the course of time, has always been a favorite contention of all nominalists. Although Amonn limits the idea of money to exchange media, he believes that, despite changes of standards and price revolutions, the gulden continues intact as a psychological entity. The abstract notion of the mark, says Wagemann, is the "epitome of manifold value experiences," and as such it outlasts its current material bearer. Cassel, as we have remarked, verges off in the direction of chartalism, ascribing the continuity in prices to the state's redefinition of the monetary unit by laying down a legal tender ratio of the new to the old money. Perhaps the phrase "this must obviously, in time, *have an influence* upon all prices" saves Cassel from Knapp's preposterous implication that such a legal tender norm actually secures a similar purchasing-power relationship. It is that very factor which Cassel ordinarily emphasizes, quantitative limitation of supply, which actually determines the exchange value of the new money in terms of the old.¹ On the other hand, when we are concerned not with the historical relationships of money sorts but with the fungibility of the coins belonging to one money sort at a given time, Cassel is doubtless right in believing the *legal* identity of these coins to be the fact which secures for them the same interchangeability as that of the unit of reckoning on the abstract side.

In addition to these contributions to the positive theory of money, the materialistic nominalists have advanced some very astute criticism of the commodity analogy in approaching the problem of value. Wagemann, Schumpeter, Cassel, and Wicksell categorically oppose all attempts to carry over the value concept appropriate to economic goods to money, rejecting the imputation of an inner, absolute, or independent value. The value of money is relative or reflected; purchasing power is the mere inverse of prices. As such it cannot be subjected to the marginal utility analysis, which runs in a complete circle. Both Schumpeter and Wicksell object to the use of "demand" in this connection since society has no definite demand for a certain amount of money; and the "supply" analogy breaks

¹ Some slight influence may be exercised upon purchasing power by the legal tender ratio. Thus the quasi-official conversion rate of a trillion to one of paper marks for *Reichsmarks* gave the market something tangible to grasp upon, and possibly prevented the actual exchange ratio from diverging a few hundred thousand marks on either side of this figure. But even here the additional fact that the Reichsbank actually *redeemed* at this figure leaves doubt as to how much was accomplished merely by the reinterpretation of debts.

down because money substitutes and increased velocity of circulation serve as well as a greater quantity of money to increase prices. These are substantial difficulties, and the commodity theorists will have to attempt solutions if they are to meet the nominalists' case.

CHAPTER IV

THE SUPPLY AND DEMAND THEORY

WITH the quantity theory group of expositors which we have just examined, nominalism attains to its most convincing formulation. The commodity theories, with which we shall be concerned from now on, represent the direct antithesis to the nominalist construction on all major issues. A common element to all commodity theories is, of course, the treatment of money as simply one type of economic good subject to the ordinary laws of value determination — an exchange commodity which does not, merely by virtue of its function of the measure of values, cease to be subject to universal value principles. Money is ascribed value in its own right, absolute value; purchasing power is not the only legitimate significance of the term. In opposition to the nominalist belief that the objective market value of money rests upon its scarcity as a medium of exchange or payment, commodity theorists usually maintain that a variety of functions combine to explain the demand for and consequently the value of money.

Although these elements are common to all anti-nominalist writers, we shall be able to distinguish three shades of opinion in the present chapter and the two chapters succeeding. Under the first heading, "The Supply and Demand Theory," I include Helfferich, Heyn, and Gruntzel, who make use of that familiar law without, however, having recourse to marginal utility. This does not separate them categorically from the second group, the marginal utility theorists such as Mises and Wieser, but it does indicate a significant difference of viewpoint as to the application of the ordinary subjective value analysis to money. The third group stands in sharp contrast to both supply and demand and marginal utility treatments. Instead of using these ideas in connection with money, it attaches them to the money stuff. This practice justifies reserving the terms "supply and demand" and "marginal utility" to the two types of theory considered in the present chapter and employing the caption "metallists" for the third sort of commodity theory.

down because money substitutes and increased velocity of circulation serve as well as a greater quantity of money to increase prices. These are substantial difficulties, and the commodity theorists will have to attempt solutions if they are to meet the nominalists' case.

CHAPTER IV

THE SUPPLY AND DEMAND THEORY

WITH the quantity theory group of expositors which we have just examined, nominalism attains to its most convincing formulation. The commodity theories, with which we shall be concerned from now on, represent the direct antithesis to the nominalist construction on all major issues. A common element to all commodity theories is, of course, the treatment of money as simply one type of economic good subject to the ordinary laws of value determination — an exchange commodity which does not, merely by virtue of its function of the measure of values, cease to be subject to universal value principles. Money is ascribed value in its own right, absolute value; purchasing power is not the only legitimate significance of the term. In opposition to the nominalist belief that the objective market value of money rests upon its scarcity as a medium of exchange or payment, commodity theorists usually maintain that a variety of functions combine to explain the demand for and consequently the value of money.

Although these elements are common to all anti-nominalist writers, we shall be able to distinguish three shades of opinion in the present chapter and the two chapters succeeding. Under the first heading, "The Supply and Demand Theory," I include Helfferich, Heyn, and Gruntzel, who make use of that familiar law without, however, having recourse to marginal utility. This does not separate them categorically from the second group, the marginal utility theorists such as Mises and Wieser, but it does indicate a significant difference of viewpoint as to the application of the ordinary subjective value analysis to money. The third group stands in sharp contrast to both supply and demand and marginal utility treatments. Instead of using these ideas in connection with money, it attaches them to the money stuff. This practice justifies reserving the terms "supply and demand" and "marginal utility" to the two types of theory considered in the present chapter and employing the caption "metallists" for the third sort of commodity theory.

I. KARL HELFFERICH

The publication of six editions of Helfferich's treatise *Money* from its original appearance in 1903 to 1923 indicates the extent of its influence and popularity.¹ As a source of factual information on history and technique of the monetary institution, the work is monumental; but the theoretical groundwork betrays serious shortcomings. Helfferich adopts a chartal account of the genesis of money, carefully indicating the abnormal conditions under which the state may lose control of the standard.² The charge made by a number of critics³ that he overestimates the power of the state does not seem well founded. Inconsistently with the nominalist viewpoint, however, he reduces the unit of account to secondary importance⁴ and treats money as a commodity. The means of production in an inclusive sense may be divided into three classes: means of production in the narrow technical sense, means of transport, and money. To distinguish money from other productive instruments, we must refer to its basic function, "the facilitation of economic intercourse."⁵ Although this function does not include the measurement of value, but only mediating exchange, payment, and capital transfer, Helfferich insists that money is "an object of value whose worth is subject to the same law as that of all other economic objects."⁶ In a well-known treatise on the philosophical and sociological aspects of pecuniary values, Professor Simmel had argued that the process of valuation in money is an instance of *indirect* mensuration not requiring a common quality between the thing measured and the measuring unit.⁷ A twig bent by the wind does not itself possess velocity, though that is approximately measured; the hour hand

¹ Karl Helfferich, *Money*, 2 vols. (New York, 1927), from the 6th German edition.

² *Ibid.*, pp. 25, 30-31, 77-78 and Pt. II, ch. v. A fuller exposition appears in *Das Geld*, 4th ed. (Leipzig, 1919), bk. II, Pt. II, "Das Geld in der Rechtsordnung," omitted in the English version.

³ E. g. Rudolf Dalberg, *Die Entthronung des Goldes* (Stuttgart, 1916), p. 43 ff.; Robert Liefmann, *Geld und Gold* (Stuttgart, 1916), p. 95; Ludwig Mises, *Theorie des Geldes und der Umlaufsmittel*, 2nd ed. (Munich, 1924), Pt. I, ch. iv, sec. 3; Melchior Palvi, "Der Streit um die Staatliche Theorie des Geldes," *Schm. Jhrb.* 45, p. 543; Georg Römer, *Die Lehre vom Wesen des Geldes* (Giessen, 1925), p. 53.

⁴ *Money*, pp. 318, 322, 329. The unit of account, though not an integral part of the conception of money, assumes importance as the unifying basis of monetary systems. *Ibid.*, pp. 353, 364-365, 383-385.

⁵ *Ibid.*, pp. 277-284.

⁶ *Ibid.*, p. 284; cf. p. 511.

⁷ Georg Simmel, *Philosophie des Geldes*, 4th ed. (Leipzig, 1922), ch. iv.

measures time, but it does so spatially. Helfferich responds that these cases really involve a common third element, not apparent on the surface, such as force against force or motion through space.¹ Simmel really surrenders his argument that changes in purchasing power and in the value of goods are merely concomitant variations of unlike qualities, when he sets the total supply of money and the total supply of goods in equation. The only basis of this equation is value.

Enquiring for the basic principle governing the behavior of purchasing power, some economists have utilized the notion of marginal utility; but actually "a peculiar obstacle" prevents its application. Neither from the angle of the individual nor from the angle of society can the value of money be determined by marginal utility, for that is "conditioned by a definite exchange value of money, so that the latter cannot be deduced from the former."² With ordinary commodities market price separates demanders into a portion actually consuming and a portion excluded; nothing of the sort occurs with money.

Helfferich's explanation omits all reference to marginal utility. Demand rests on the social need for an object performing the basic monetary functions, for money "serves for the satisfaction of wants exactly in the same way as do all those other kinds of goods which are in the nature of intermediaries or agents."³ Supply or difficulty of attainment depends upon either cost of production of the monetary substance, in the case of open metallic standards, or upon artificial scarcity created by the state, in the case of paper money. In view of the latter possibility, money may have a definite value without intrinsic value. It is not implied that all values are not really functional; but the functions of money *qua* money are special and distinguishable from the commodity uses of bullion content.⁴

Only one of the various functions gives rise to a really definite and determinable *demand* for money, its acting as medium of payment.⁵ Measuring value in money, of course, makes no demand for any quantity of it; and only slight amounts are needed for transporting

¹ *Money*, pp. 496-500.

² *Ibid.*, p. 527. Schumpeter calls Helfferich's imputation of circular reasoning to the subjective value theory a *ditto* *Gewebe* ("Das Sozialprodukt und die Rechenpfennige," *Archiv* 44, p. 646, note); but Schumpeter's own criticism does not appear to differ materially from Helfferich's.

³ *Money*, p. 505.

⁴ *Ibid.*, pp. 505-505.

⁵ *Ibid.*, p. 450.

value spatially or temporally in the modern economy. Money is demanded, in fine, to make payment on obligations falling due or in prospect within a given period, and the size of balances and reserves indicates the magnitude of that demand. But we must bear in mind the fact that, for money,

the resistance of demand both to the restrictive and the stimulating influences in the value is almost non-existent. . . . The demand in an economic system for money does not call for a specific *quantity* of pieces of precious metal or paper notes, but for a specific volume of purchasing power. For that reason any money demand whatever can be brought into equilibrium with any supply of money by way of a corresponding alteration in the exchange relation between money and other goods.¹

Conditions governing supply fall naturally into two divisions: those pertaining to paper money (concerning which little is said, depending as it does upon the arbitrary power of the state) and those pertaining to metallic money. A large part of Helfferich's book is devoted to the latter subject, the factors regulating the supply of metallic money; they embrace (1) the rate of production of the precious metals, (2) industrial and monetary employments, (3) definitive consumption, and (4) international distribution through trade balances.²

Aside from the application of supply and demand to the value problem, Helfferich's theoretical peculiarities do not require especial comment. His attempt to assimilate money to the means of production encounters the difficulty, pointed out by Mises,³ that ordinarily capital goods take their value from product. It overstrains the analogy of money with goods to reduce Helfferich's "facilitation of economic goods" to sufficiently definite quantitative terms to allow the application of the productivity analysis. This problem will be weighed more carefully in a later chapter. In addition to this matter, his objection to the nominalist view of money as a claim, on the ground that *Anweisung* carries with it the legal connotation of an obligation to deliver certain specific goods or services, is disposed of by Wagemann.⁴ The nominalist uses the word metaphorically, not in a legal sense.

To proceed to the main issue concerning the eligibility of supply

¹ *Ibid.*, pp. 532-533. (Italics his.)

² Under (1) cf. *Money*, pp. 80-114, 469-471, 557-565; under (2) cf. pp. 115-146, 481-488; under (3) cf. pp. 488-490; and under (4) cf. pp. 208-218, 234-257, 471-481.

³ *Theorie*, 2nd ed., p. 62.

⁴ Ernst Wagemann, *Allgemeine Geldlehre* (Berlin, 1923), p. 31.

and demand in explaining purchasing power, it is necessary to establish first the absolute distinctness of four conceptions of demand for money or the utility of money.

(1) Utility may refer to the satisfaction derived by an individual from the last or marginal unit of his money income or wealth. For each individual this magnitude, so far as it is not merely a matter of habit, depends upon three things: the variety and intensity of his wants, the size of his money income or wealth, and the price level. In a graphic representation, the y axis signifies units of utility, the x axis units of money income, commodity prices being assumed as fixed. There is no representation of how much money will be "demanded" as the function of any variable, and hence this meaning of utility has no place in a supply and demand theory of purchasing power. Moreover, since the schedule of diminishing marginal satisfaction for increasing incomes cannot exist until commodity prices are fixed, it cannot be made the basis of *any* theory of purchasing power.¹

(2) From the angle of the state of society, money has utility because it facilitates exchange and thereby increases economic productivity. But within the broadest limits, exchange is as much facilitated by a small number of dollars as by a larger quantity; and consequently this utility does not give rise to a demand schedule representing specific numbers of dollars wanted as a function of the amount of facilitation of economic intercourse attributable to added increments of dollars. The attempt has indeed been made to base the general level of prices upon this utility of money, to my way of thinking unsuccessfully.² In any event, the present objection remains to such a concept of demand.

(3) When Helfferich says that there exists no demand for a specific number of dollars but rather for a specific volume of purchasing power, when furthermore he holds that demand offers almost "no resistance" to the rise or fall of the value of money and that any supply will be brought into equilibrium with demand by an appropriate change in purchasing power,³ he is apparently involved with the unitary elasticity concept of the demand for money.⁴ When put

¹ Wieser and B. M. Anderson seem sometimes to attempt to do so, however. Cf. pp. 85-86; 114-116, below.

² Cf. pp. 109-110, below.

³ Cf. p. 62, above.

⁴ As set forth by Alfred Marshall, *Money, Credit, and Commerce* (London, 1923), App. C, pp. 282-284, and F. W. Taussig, *Principles of Economics*, 3rd ed. (New York, 1922), I, 234.

into graphic form, this demand assumes the shape of a rectangular hyperbola, the ordinates of which signify quantities of commodities of all sorts offered for a dollar, the abscissas the quantities of dollars at which these offers are made. In other words the exchange value of money, represented by an index number of prices, appears on the y axis as a function of the quantity of money on the x axis, and x times y always equals a constant, k .

Whatever else may be said against this notion of the demand for money, it must be conceded that it does not involve the circle which Wagemann, Wicksell, Schumpeter, and Helfferich find in the marginal utility approach. Running altogether in terms of objective magnitudes — volume of trade, price level, and quantity of money — it does not pretend to reveal the subjective meaning of money nor indeed even to be derived as a social demand curve from the summation of individual demand or utility curves. It therefore escapes the devastating criticism levied against the marginal utility analysis applied to money, that the individual cannot know what the marginal utility of dollars may be until their purchasing power is already established.

In one particular connection, furthermore, the rectangular hyperbola appears to assume the characteristics of a true demand schedule. Taken in conjunction with a demand curve for gold in the arts it will reveal, volume of trade, quantity and velocity of money and credit being constants, the apportionment of gold between the arts and the monetary employment, and the derivation of total demand for gold from these joint demands. But what we have really arrived at in this is a demand schedule for *gold* and not for money *qua* money. A given volume of trade under an open metallic standard makes a demand for so much gold — credit and rapidity of circulation being “impounded in *ceteris paribus*” — and the employment of more of this valuable metal as money is then precluded as an extra-marginal use. With “pure money,” however, say irredeemable paper notes, the very valuelessness of the monetary material annihilates the meaning of “extra-marginal use.” No limitation upon the employment of dollars here emanates from the shortness of supply of the social *resources* used; no one goes without a medium of exchange by virtue of this limited supply. The concept of a demand schedule therefore loses much of its meaning from this very fact when applied to mere dollars. Applied to gold bullion *as a commodity*, however, the rectangular hyperbola for the monetary employment plus the

demand schedule in the arts stands against the supply schedule of gold to give a definite exchange value to the bullion. Society, and hence the individual, does have to "go without" *gold* minted up into dollars, past a certain point, and hence the demand can be assimilated to demand for commodities in general. Be it said again, as a precaution, that this application of demand is possible only because it concerns gold in money and not money itself.

In every significant respect, save for its merely coupling a series of exchange values with a parallel series of amounts "demanded," the rectangular hyperbola concept differs from a true demand schedule, such as we conceive of with economic goods and services.¹ The significant differences may be put under three heads.

(1) Curiously enough, the first difference is suggested by Helfferich himself: *marginal* utility has no definable meaning in connection with the unitary demand for money.² Whereas a given value or price upon coal divides the potential users into the intra-marginal portion who actually buy and whose wants are satisfied and the extra-marginal or excluded portion, with money no such separation is evident. There are no excluded or extra-marginal buyers — people who cannot afford to use money. Everyone already uses money, and should its value fall no one feels himself more felicitous because he has more coins jingling in his pocket. What Helfferich fails to deduce, however, is that if marginal utility loses its ordinary meaning, so does marginal demand by the same token. And if the margin disappears, the supposed demand schedule loses its *causative* significance, since marginal demand sets value. If, barring the "pains of transition," it is a matter of complete indifference to the economic individual how many pieces of money he has so long as their exchange value varies inversely as quantity; if it is true, as Helfferich says, that "the resistance of demand both to the restrictive and the stimulating influences in the value is almost non-existent," then marginal demand for dollars must be just as incapable of determining the price level as that marginal utility to which he so justly objects.

(2) But the real difficulty lies still deeper. Not only does *marginal* demand disappear as a causative force because *marginal* utility

¹ Here we speak of the "demand" for money *que* money, and the use of the unitary demand schedule for the monetary employment of the commodity gold has no relevancy.

² Cf. pp. 61-62, above. Taussig also says, "The principle of marginal utility is not applicable" (*op. cit.*, and ed. [New York, 1917], 1, 238). In the corresponding paragraph of the third edition this sentence does not appear.

evanesces, but the economic meaning of the *whole schedule* of supposed demand for money ceases to be, because it is not in any way derived from a utility schedule. In what senses has money utility? We have already pointed out three possible interpretations: the subjective significance of money income, the use of money as a liquid asset, and its social utility in obviating the inconveniences of barter. Helfferich correctly rejects the first as an explanation of prices, since it presupposes them. Moreover, there is no reason for supposing that a schedule of the diminishing marginal significance of money income for any particular person nor for any aggregate of persons would assume the configuration of a rectangular hyperbola. The curve depends partly on the variety and intensity of people's wants and might behave in the most whimsical fashion; its shape cannot be described. The remaining two senses of utility have not ordinarily been resorted to in explaining the social "demand" for money; to most writers it has seemed absurd to represent the current purchasing power of a dollar as depending on so and so much worth of "facilitation of economic intercourse" or "superior liquidity."¹

Furthermore, it is futile to search for a utility lying behind the unitary demand curve. In the place of being a true schedule of social demand, the rectangular hyperbola is nothing more than — a rectangular hyperbola. The magnitude y is purely objective, the market basket full of goods which a dollar buys; and this magnitude is the function of two equally objective variables: x , the physical quantum of money (multiplied by velocity), and k , the physical volume of trade.

(3) No analysis of objective exchange value which does not begin with utility or subjective value to the individual can really be adjudged an explanation. This generalization holds for money. Purchasing power is objective in the sense that it is a phenomenon apprehended by all individuals; but not in the sense that its existence and magnitude are independent of the evaluating individuals. To explain it therefore we must begin with the utility of money to the individual. Since unitary demand makes no pretence of beginning with the individual and his feeling toward money, it does not explain value.

(4) Finally we arrive at the utility of money held in unspent margins as a reserve against contingencies and inequalities of income and outgo, the conventional point of departure for English expositors of

¹ For a criticism of exceptions, cf. pp. 109-111, below.

the quantity theory. This mode of approach, which we consider in greater detail in a subsequent chapter,¹ begins with a utility calculus on the part of the economic individual and arrives at a satisfactory explanation of the objective value of money, its excellence lying in the very fact that it shows the connection between the actual valuations of individuals and market value, whereas the American treatment has always had a quasi-mechanical or abstractly mathematical flavor. In the present connection one feature of this theory assumes particular significance: the utility and demand schedules which it employs pertain to real income and *not to money*. The rational economic individual is represented as weighing the utility from successive increments of his real income devoted to cash and demand credit reserves against the utility of successive doses of income used up consumptively or productively invested. As the English theorists with one or two exceptions clearly understand,² these utility and demand curves could not be put in dollars without circularity in the argument. Obviously no one can tell what utility he derives from a dollar in his reserves, how much immunity it affords him from being "caught short" of fluid purchasing power, until he knows what the dollar will buy; and this is, of course, just what we are undertaking to explain. Definite numbers of dollars do not appear in the calculus, but rather definite amounts of real value or fractions of real income. Since all the money of a country with the exception of certain definitively sequestered treasury and bank reserves belongs to someone's reserve, the average *dollars-and-cents* content of individual unspent margins depends solely on the monetary stock of the country. What the decision of traders as to size of reserves does accomplish is the determination of the velocity of circulation of money. Numbers of dollars do not enter into the process until the size of unspent margins has already been determined in terms of real value. The pertinent fact to the present question is therefore that *this theory does not involve a utility or demand schedule for dollars, i. e. for money*. To speak, with Marshall,³ of "resources in the form of currency" instead merely of *money* may appear to be mere academic nicety. One might object that it would be equally pointless to insist that the consumer

¹ Cf. pp. 180-194, below.

² Marshall, Pigou, and Keynes clearly state that the schedules run in terms of real wealth or income. Hawtrey leaves something to be desired in the way of explicitness, while Cannan commits the error of making them run in terms of dollars. For specific references to these writers see pp. 189-190, below.

³ *Money, Credit, and Commerce*, p. 45.

demands, not a given quantity of potatoes, but a given quantity of nutrition "in the form of potatoes." But in the case of potatoes the two modes of expression come to the same thing; in the case of money they do not. With given tastes and real income, one does not demand a definite number of dollars in his reserve. The number of dollars is a matter of complete indifference so long as their aggregate value bears the desired relation to real payments. We are therefore compelled to conclude that the reserve approach to the value of money does not, any more than other interpretation of utility of or demand for money, emanate in a schedule running in terms of dollars. "Demand for money" is a nonentity.

Helfferrich's treatment of cash balances has several features of real excellence: the realization that we have here the *point d'appui* of purchasing power in personal feeling magnitudes, that causation passes from the subjective to the objective value of money through rapidity of circulation, and that what people desire to hold in their balance is not definite numbers of dollars but a certain quantity of real value.¹ Unfortunately he does not conclude that "demand" has so far lost its usual meanings that its employment with money proves rather more misleading than illuminating.²

Supply and demand theories of money collapse through the imperfections of the demand concept alone; but although a critical appraisal of "supply" is a work of supererogation, certain difficulties inhering in the application of this concept to money ought not to be passed over in silence.

As Wicksell points out,³ the supply of money increases just as much from more rapid circulation as from existing in greater abundance physically. In the equation of exchange, MV is the supply, not merely M . This alone makes the conception of supply significantly different for its ordinary employment. Potatoes and shoes cannot be said to constitute a greater supply if they change owners more rapidly than before.

Turning to specific kinds of currency we discover additional complications. For a fixed paper issue or for a metallic money when free

¹ Cf. pp. 160-161, below.

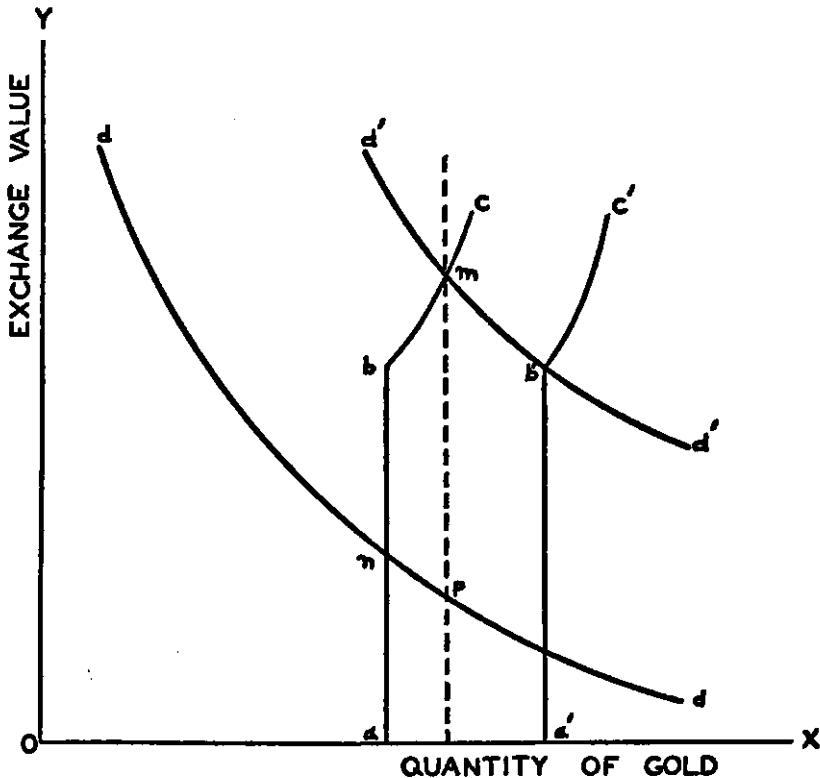
² He does indeed use *Geldbedarf* (need for money) in place of *Geldnachfrage* (demand for money) and *Geldversorgung* (provision of money) rather than *Geldangebot* (supply of money) (cf. Karl Helfferrich, *Das Geld*, 4th ed. [Leipzig, 1929], Pt. IV, chs. x, xi). But his insistence that the value of money is "subject to the same law as is that of all other economic objects" proves these distinctions to be verbal only.

³ Cf. p. 55, above.

coinage is suspended, "supply of money" may indeed be used with the same signification it has for a limited natural resource, but no additional information is conveyed which would not be given by "stock" or "quantity." Now take the case where the paper issue undergoes progressive inflation. What are we to understand by "supply"? To be set over against demand, either conceptually or graphically, amount supplied must be either a function of price or else absolutely fixed. Otherwise stated: to be fitted into a system of ordinates and abscissas along with a demand schedule, the supply schedule *must* represent the x or amount-supplied magnitudes as functions of the y or exchange-value magnitudes, or else represent x as fixed for all values of y . But the patent fact under inflation is that the "supply" of notes is neither fixed nor a function of the exchange value of the issue. One could indeed draw a curve showing "supplies" of notes at successive points of time as the inflation goes on; but this is an historical or time series and not a true supply schedule, which must be timeless. Here again "supply" loses all its usual meaning; all that it means is simply quantity.

Applied to a freely coined metal standard, say gold, "supply of money" involves the most extraordinary difficulties. Obviously supply is not fixed but variable. If it is variable, how represent its variations in schedule form? In the first place, to the degree that gold production still retains some of its aleatory nature, the supply schedule would depart in a whimsical fashion from any discoverable cost of production schedule. Passing over this obstacle by assuming for the time being a coincidence of the two schedules, let us try to discover the configuration of the curve. Because the annual increment of gold represents only 3 or 4 per cent of the gold stock, only a small portion of the curve can be represented as a cost of production schedule at all, the remainder being that of a fixed supply good. In the accompanying figure, ab represents the offer of the stock in existence (oa) at all exchange values up to b . At that point it becomes possible to produce new gold, and the curve from b to c , an increasing cost schedule typical for extractive industries, shows the amounts of gold which would be supplied in addition to the old stock, at a mounting series of exchange values. The demand curve dd is the rectangular hyperbola demand for monetary gold. The equation of demand and supply so construed sets the value of money at m ; or if the total money work were more, the demand $d'd'$ would set the value at m' , where new gold would actually be produced. But

this supply schedule has the peculiarity of being irreversible; for, once the increment represented by the horizontal distance from b to m has been produced, it forms a part of the world's permanent gold stock. Should demand decline to dd , the exchange value of gold would not go back to n , but to a lower point p , presumably. The same feature of supply is to a degree characteristic of railways, public



buildings, and other highly durable produced goods; but the much greater durability of gold makes its supply *sui generis* and particularly difficult to represent in schedule form. But there arises a third and still more puzzling complication. So far we have spoken as if gold were the only circulating medium. If bank notes and deposits are admitted, then the "supply schedule" of gold money ceases to be the "supply schedule" of money generally. Yet, if bank notes and deposits always bore a fixed relation to gold money, the schedule would still have the same configuration — it would only be moved

farther to the right, to $a'b'c'$. Any admission of variability of proportion between gold money and bank money, however, introduces an element which baffles the attempt to represent the supply of money as a function of its purchasing power. The total "supply" is neither fixed nor a function of its exchange value, because of the more or less arbitrary action of central banks. It thereby becomes absolutely impossible to represent the conditions governing the quantity of money on a system of ordinates and abscissas, i. e. as a supply schedule. Finally, the indeterminateness becomes complete in view of the fact that international money movements must certainly decisively change the schedule's position and possibly its configuration.

In all of the cases named, the one objective fact which can clearly be ascertained is the *quantity* of money. All other implications of the word "supply" lead into inextricable difficulty. "Quantity of money" as against "supply of goods" calls attention to the basic differences noted, in place of grossly ignoring them.

The supply and demand theory errs in suggesting that these terms mean the same as they do for economic goods. It errs further in implying thereby that the value-determination process for goods is the same as for money. That does not mean that all its conclusions are vitiated, but that we must seek for a better way of stating and describing the processes involved and the effects of these processes on the value of money.

II. OTHER EXPONENTS OF THE SUPPLY AND DEMAND THEORY

A survey of German literature must devote at least passing notice to Otto Heyn, if only because of the volume of his controversial writing and the equally extensive critical comment which it provoked.¹ Heyn is the only person to whom Knapp expressed indebtedness; but it is not clear that Heyn accepts a doctrinaire chartal theory, especially as he rejects the notion of money as simply a claim. To serve as an equivalent in exchange, he says, money must possess an inner or absolute value of the same order as that of economic

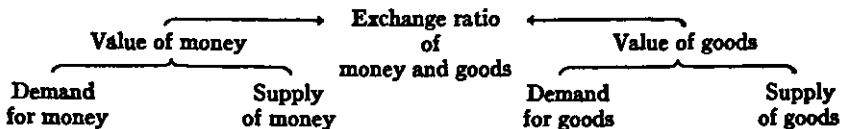
¹ For a list of Heyn's publications utilized here see the general bibliography. Critical appraisals of his work, mostly adverse, may be found at various points in the writings of Altmann, Bortkiewics, Dalberg, Diehl, Gensmer, Kerschagl, Liefmann, Moll, and Palyi.

goods. Most commonly this value is represented as the result of three forces — utility, costliness, and confidence. Utility rests upon debt-paying power or purchasing power; costliness comes (1) from the expense of bond issues underlying fiat money, and the costs of printing notes and of passing the law legalizing them, and (2) from the subjective sacrifice entailed upon anyone earning a money income; confidence proceeds from the conviction that the state will not allow depreciation through over-issue! Perhaps Heyn contributed something toward undermining dogmatic metallism in the early stages of the controversy, but the bulk of his writing is merely polemical and, from a theoretical angle, hopelessly chaotic.

Professor Josef Gruntzel of the Vienna *Hochschule für Welthandel* also attempts to deal with money under the concept of absolute value subject to supply and demand conditions. The exchange ratio between two goods may be altered by any one of four factors, by changes in the supply or demand of either commodity. When the value of money itself is involved, the situation is in no wise different, for money itself is a commodity.

Theory must therefore distinguish between the exchange value of goods which is expressed in money, that is, the money value of goods, and the exchange value of money which is expressed in goods, the commodity value of money. This latter is not a mere reciprocal of prices.¹

What we should expect, therefore, from Gruntzel is a proof of the causal independence of each of four separate forces, somewhat as follows.



In reality, however, Gruntzel's argument proves to be more nearly the direct opposite of what is requisite to support his thesis than otherwise. Instead of showing a parallel causal efficiency of these four factors, he develops a fairly protracted argument to the effect that the "demand for money" depends partly on the supply of goods,² and that the "supply of money" depends partly on the demand for goods.³ How the demand and supply of goods unite to

¹ *Wert und Preis* (Munich, 1916), p. 149.

² *Der Geldwert* (Stuttgart, 1919), pp. 42-47.

³ *Ibid.*, pp. 57-59.

establish the value of goods is not even treated. But to make the "demand for money" depend on the supply of goods¹ is to concede the whole case to the nominalists and quantity theorists. If the "demand for money" is merely a derived demand, the value of money is merely a derived value, and not independent or absolute. And if it were true that the "supply of money" depends on the demand for goods as Gruntzel says, his case would be still more inconclusive.

With regard to commodities and services I should be disposed to agree with Gruntzel that economic value is absolute, rather than relative as many theorists have maintained.² Values are of course always relative to human wants, and their magnitudes are affected the one by the other. But as has often been shown, the *existence* of one value does not depend upon the existence of others, as a general proposition.³ Money, on the other hand, is peculiar; the very existence of its value depends upon the ability it has to command other values. Gruntzel affords an illustration of the futility of the attempt to construct a demand and supply apparatus for money, and to make it independent of commodity price determination.

III. POSITIVE OUTCOME OF THE "SUPPLY AND DEMAND" THEORIES

In the present chapter, two questions of major importance have been raised: (1) Is the value of money subject to the general law of supply and demand? and (2) does money like goods have absolute value? Both questions are answered negatively. Approaching the first problem from the angle of the utility of money or the demand, we distinguish four interpretations: (1) the utility of a unit of money income, (2) the social utility of the monetary institution, (3) the

¹ In one passage, Gruntzel makes the quantity of goods "decisive" of the demand for money, not merely "partly" determinative. *Ibid.*, p. 43.

² For example, J. S. Mill, *Principles of Political Economy*, ed. by Ashley (London, 1909), vol. III, ch. ii, sec. 4, pp. 438-440; W. S. Jevons, *The Theory of Political Economy* (London, 1871), pp. 81-83; F. A. Walker, *Money, Trade and Industry* (New York, 1878), pp. 30-33; and F. H. Knight, *Risk, Uncertainty and Profit* (Boston, 1921), pp. 62-66. In *The Value of Money* (New York, 1917), notes on pp. 9 and 14, B. M. Anderson cites Böhm-Bawerk, Carver, Conrad, and Davenport.

³ F. M. Taylor, *Some Leading Problems in Economic Theory*, 3rd ed. (Printed privately, Ann Arbor, Michigan, 1921), p. 7. Anderson (*op. cit.*, pp. 12-14) defends the concept of absolute value and finds it also with Knies, Helfferich, Menger, Mises, and Wieser, with Smith, Ricardo, and Marx, and with T. S. Adams, J. B. Clark, David Kinley, L. S. Merriam, W. A. Scott, and W. G. L. Taylor.

“unitary demand” or rectangular hyperbola concept, and (4) the utility of money reserves against contingencies. Of this number, the first two are eliminated as not bearing on the determination of price levels. Helfferich’s description of demand, while occasionally suggesting the rectangular hyperbola concept, proves ultimately to rest upon the unspent margin, which he rightly apprehends as controlling velocity of circulation and thus bridging over from the individual’s appraisal of money to the price level. But the rectangular hyperbola lacks all the characteristics of a true demand schedule except representing purchasing power as varying inversely with quantity of money. In place of revealing how money can be treated under the commodity law of supply and demand, it only translates the quantity theory into the language of analytical geometry. The unspent margin approach, on the other hand, does employ a true schedule of demand — of real wealth or income held in the form of money, not a demand for money. Supply of money similarly defies comparison with ordinary usage and reduces finally to the bare idea of quantity. Helfferich, Heyn, and Gruntzel fail completely to vindicate the supply and demand apparatus.

The idea evolved here from a consideration of the second major issue, that whereas commodities have value in an absolute sense, money has only a relative value, may not be approved by either of two schools of opinion. Persons who uphold the concept of value as relative will insist upon its universal application; the opposition will resent limiting absolute value to commodities and services. Dr. B. M. Anderson, for example, defends the absolute quality of all values and treats the value of money under his general concept of “social value,” maintaining that “the value of money is to be distinguished from the ‘reciprocal of the price level,’ or the ‘purchasing power of money.’”¹ Professor F. M. Taylor, while not explicitly distinguishing between the relative and a supposed absolute value in money, differentiates variations in the price level resulting from factors at work on the money side from those resulting from factors on the goods side, as absolute and relative *changes*, respectively, in the value of money.² His usage is adopted also by Dr. F. A. Bradford.³ Anderson’s theory will require analysis at a later point;⁴ but Taylor and

¹ *The Value of Money*, p. 388.

² *Chapters on Money* (Ann Arbor, 1906), pp. 176-182.

³ *Money* (New York, 1928), pp. 178-180.

⁴ Cf. pp. 114-116, below.

Bradford support their implication that money has absolute value only by the metallist confusion of money and gold. Undoubtedly gold, like all other commodities, has value in its own right, i. e. absolute value, and furthermore the magnitude of its value is the joint product of both industrial and monetary employments. In a gold standard country the *magnitude* of absolute commodity value possessed by gold coincides exactly with the *magnitude* of relative value or purchasing power possessed by a dollar. Even here the conceptual distinctness of "dollar" and "lump of gold" appears clearly through our ability to separate the ideas of "standard gold money" from the "ultimate monetary standard gold" and through the fact that "dollar" does not always mean "lump of gold," but also cheque dollars, etc. This conceptual distinctness, already existing with an open gold standard, becomes amply evident when, under inconvertible conditions, the magnitude of values attaching to "dollar" and "lump of gold" become unequal. But if commodity value of gold and purchasing power of a dollar are conceptually distinct, there is nothing to prevent our attaching to the former an absolute sense and to the latter a relative sense. King Midas nearly starved to death because of a flaw in his monetary theory: he identified the absolute value of gold with the relative value of money, and discovered to his rue that though his aesthetic delight in the glittering yellow metal continued unabated, its purchasing power had vanished. Bradford virtually admits that absolute value attaches rather to gold than to money *per se* by imputing absolute value to money "so long as its value is tied to that of some economic commodity such as gold."¹ Gruntzel's attempt to reify the value of money as absolute makes a promising beginning in dealing with the supply and demand for money and for goods separately. But his failure to make the demand for money stand upon its own legs indicates the impossibility of the undertaking and signalizes the essentially unlike character of money and goods values.

The nominalist insists that money has only relative value because the demand, or more properly the utility attaching to it, is not absolute but merely derived. To this it would be altogether natural to object that many goods also have derived value, and that money is therefore nothing peculiar. For producers' goods demand springs from the value of products; for a relatively unimportant member of a joint demand congeries, demand seems to emanate from the im-

¹ *Money*, p. 179.

portant cost goods. But there is an essential difference between the derived character of the utility of money and that of a tract of wheat land, a bag of Portland cement, or lubricating oil used by an ocean liner. Although the *extent* of utilities of the latter sorts depends upon utilities of the respective products, the *existence* of these utilities does not. Even though, by some miracle, wheat land, cement, and lubricating oil came to be so abundant as to be free goods, they would still have the same utility schedule — conditions upon the demand side have not altered. Obviously, upon the other hand, none of the functions discharged by money could be done without its having value — its utility would disappear. Senior, indeed, said that money contrasts with all other things in that its utility, and hence the demand for it, depends upon its value;¹ or, one might say, the chief function of money is to be valuable. Such statements easily run into logomacy or paradox, but common sense affirms that money, of all things, is useful *only* because it purchases. Its value is purely relative.

While upon the two foregoing issues the doctrines of the "supply and demand" theorists do not seem tenable, their work is not without fruit. Gruntzel's chapters serve at least to join the issue squarely between nominalists and commodity theorists. Even Heyn's effuse writings have been useful in raising the question as to whether a purely quantitative theory of money does not sometimes prove inadequate because it omits the qualitative factor of confidence. Helfferich makes the most substantial contributions: a disproof of Simmel's argument that money, as a sort of epiphenomenon, can measure value without itself being valuable; the perception of certain peculiarities in the "demand" for money which prevent the direct application of marginal utility analysis; and the use of cash balances to connect the individual's subjective value judgments with price levels.

¹ Cf. Ernst Wagemann, *op. cit.*, p. 126.

CHAPTER V

THE MARGINAL UTILITY THEORY

I. LUDWIG MISES

ONE of the most substantial treatises upon monetary theory in the German literature today is Professor Ludwig Mises' *Theorie des Geldes und der Umlaufsmittel*.¹ Not only because he is one of the chief protagonists of the subjective or Austrian value theory, but also because of his efforts to secure a rational monetary policy during the inflation and stabilization periods, is Mises a significant figure. If he is an implacable foe of chartalism and generally hostile to nominalism he likewise rejects the metallist doctrines. His own theory rests upon a systematic application of marginal utility to money regarded as a commodity.

Mises recognizes the difficulty which has led Helfferich, Schumpeter, Taussig, Wagemann, and Wicksell to reject marginal utility in connection with the determination of price levels. In his own words, "The marginal utility of money for a given economic individual . . . has as a *presupposition* a definite exchange value of money. . . ." ² This difficulty is not, however, insurmountable.

But this presupposed value is not the same one as that which we have to explain; it is the exchange value of yesterday, whereas we are to explain that of today. The objective exchange value of money existing today on the market is formed from that of yesterday under the influence of the subjective valuations of persons in the market, just as that value arose through the play of subjective valuations from the exchange value of the day before yesterday. If we continue back in this fashion, we necessarily arrive finally at a point where we no longer find in the objective exchange value anything beside . . . the value of an object of *direct* utility.³

In his zeal to controvert some of the worst casuistry in Knapp's *State Theory*, Mises seems to incline toward too rigorous individualism. It is an exaggeration to say that the position of the state regarding money is no different from that of other parties to the market,

¹ References here are to the 1st ed. (Munich, 1912) except for such innovations as appear in the 2nd ed. (Munich, 1924).

² *Theorie*, 1st ed., p. 127. (Italics mine.)

³ *Ibid.*, p. 128. (Italics mine.)

and to represent the state as "merely influencing" the choice of what shall be money.¹ No doubt Knapp envisages the state as something very nearly omnipotent; Mises in turn makes of the "laws of the market" something very nearly immutable and sacrosanct. The truth plainly lies between these extremes: money is neither an institution of purely arbitrary government nor a "natural" phenomenon in the eighteenth-century meaning of the word. The monetary authority can never ignore and cannot always control the spontaneous forces of the market. But Mises' own fear of anything approaching a controlled currency and his demand during the stabilization discussion for a return to the rigorous principle of the Peel Act reveal his realization of the dominating position of the state. If, as he says, the whole process of distributing goods to consumers is a "legal-economic" matter,² he will have to admit the presence of the political factor in the chief instrument of distribution.

Mises categorically rejects the ordinary nominalist or quantity theory idea of money as a claim, the grounds being, for one thing, that he doubts whether pure paper money has ever existed. This reason becomes quite amusing when we reflect that he himself adopts the claim idea in its entirety for his *Zeichengeld*, and that if his doubt is well founded, the term becomes an "empty economic box." Of course it is not true, as Mises believes, that fiat money has always appeared as a consequence of suspension of redemption upon bank notes or of free coinage for metallic money, as other examples than the *Rentenmark* itself attest.³ But, admitting this to be the case more generally, the former existence of the alternative employment in no way detracts from the "purity" of fiat issues, once they become such. Perhaps Mises apprehends this, because he proceeds to add to the previous notion of derivation from alternative employment the further attribute of true *Zeichengeld* that it bears no promise to pay, even if the promise is temporarily meaningless. To do so, however, is merely to define pure fiat money (*Zeichengeld*) out of existence, for although something like Nicholson's "dodo-bone" money occurs frequently enough in primitive communities,⁴ inconvertible issues do commonly bear some pretty formulary about re-

¹ Mises once goes to the length of saying that the state "cannot in the least influence" the choice of the exchange medium. (*Ibid.*, p. 63.)

² *Ibid.*, p. 77.

³ Cf. p. 32, above.

⁴ As for example the *fei* in the Yap Islands; cf. p. 24, above, and J. S. Nicholson, *A Treatise on Money and Essays on Monetary Problems*, 3rd ed. (London, 1895), p. 63.

payment. Certainly it is the inconvertibility which constitutes fiat money, and not the mere absence of a promise. Finally the question of the historical existence of paper money is beside the point, inasmuch as the nominalist believes full-bodied metallic coins to be as truly "claims" as any other sort of currency.

Another difficulty about conceiving of money as a claim Mises finds to be the implication that an equality of value obtains between the stock of money and the goods represented,¹ or that money varies in value as the goods it buys. This may suggest the notion, to be found with Wieser and B. M. Anderson, that money has a real objective value other than its purchasing power. If it pertains to purchasing power, however, I know of no way of avoiding an assumption of equality in value of money and goods in some fashion or other, other than by recourse to a cost-of-gold-production theory, and this Mises himself refuses to countenance as adequate for money in general.

Mises' strictures against nominalism lose their significance in view of his own eclecticism. Not only does he employ the *Anweisung* characterization for fiat money, but he even goes to the length of making deposit currency a pure abstraction. "Here money still appears as a medium of exchange, but its employment becomes independent of its real existence."² This sort of statement, quite in the style of Bendixen and Liefmann, is strangely discordant with the description of standard metallic coin as "nothing other than bars."³ For certain purposes one may find it desirable to distinguish money and credit, or full-weight coin and the various kinds of money substitutes, but such a dual division does not warrant adherence to two theories of money simultaneously. Either it is true that all units of effective purchasing power, whether cash or credit, act equally upon the price level, and alike have their exchange value in what goods they command; or that gold alone acts directly upon prices, the influence of bank credit and other money substitutes being exerted only through the commodity gold, and their exchange value being explained through redemption in that commodity. From the first viewpoint all money and all credit is a claim; from the second angle all money is a commodity, either *per se* or vicariously. There is no middle ground. Perhaps as a mere matter of definition the ambiguity apparent in Mises' treatment would be inconsequential; but it has for him, just as for others, the inevitable consequence of incoherence on a practical

¹ *Theorie*, and ed., pp. 251-254. Cf. also 1st ed., p. 87.

² *Ibid.*, p. 324.

³ *Ibid.*, p. 55.

issue. Sometimes money figures as a commodity, sometimes not; the price level depends now upon the direct utility of gold, but again upon purely quantitative moments.¹

Nominalists may rightly question the reasoning underlying Mises' refusal to recognize the measure of value function, and his metallist conception of standard gold coin. Although Mises does not himself relate these two matters, they are natural counterparts to one another, since serving as the value unit or circulating at a nominal value is precisely the characteristic which elevates an exchange commodity such as gold into the monetary category. Mises argues that since all value is relative, money cannot measure but only serve as a "basis of comparison."² But economic goods possess value in their own right, and if the value of money is a derived quality, as I have argued, it nevertheless exists in perfectly *definite* magnitudes and nothing therefore precludes its use as a measure of absolute commodity values. The man on the street believes that money is worth what it buys, whereas the clothing he purchases has worth because he can wear it; and he constantly employs the measure of the dollar, because he knows what it means. For him, and therefore for the economist, money is the measure of value *par excellence*. When, moreover, the ordinary citizen uses money physically as an exchange medium, he certainly does *not* give "careful attention to weight and fineness,"³ even if, as rarely occurs, he may chance to have those gold coins which Mises regards as mere bars. For jewellers or exporting banks dealing with gold as a commodity, it is otherwise. But ordinary commercial intercourse deals with money quite simply by tale, for, as Cassel has pointed out, the legal tender law has secured to the individual pieces the same fungibility as the abstract

¹ Palyi accuses him of admitting the industrial demand as a determinant of the value of gold, but neglecting it entirely in his monetary theory (Melchior Palyi, "Ungelöste Fragen der Geldtheorie" [Munich, 1925], p. 490). Mises does indeed say, "The examination of the roots of money value must exclude those causal factors arising from the commodity character of the money stuff" (*Theorie*, 1st ed., p. 102). But he proceeds to qualify this by admitting these factors insofar as they enter into the monetary situation, and finally concludes, "Aside from this, monetary theory must regard as a datum the value of money stuff arising from the industrial utility" (*ibid.*, p. 103). The passage is nebulous at best. Elsewhere Palyi infers from Mises' tripartite division of economic goods that he believes money can be distinguished from producers' and consumers' goods in that its value is "functional" (Melchior Palyi, "Der Streit um die Staatliche Theorie des Geldes," *Schm. Jhrb.* 45, p. 655). Palyi's objection to such a ground of differentiation is warranted; but I discover no explicit statement in Mises confirming Palyi's inference with certainty.

² *Ibid.*, p. 30.

³ *Ibid.*, p. 51.

unit of account possesses. Full-bodied metallic coin is no less a claim or token in its monetary employment than any other money.

Finally we turn to Mises' attempt to cope with the circularity which he admits his predecessors in the Austrian value doctrine have not escaped. But Mises in turn fails to discover an Ariadne thread leading out of the maze. Referring back to a time when money value resolves itself into commodity value simply surrenders the attempt to explain the determinants of the present value of money.¹ Bortkiewicz not unjustly calls Mises' explanation *Prähistorie*.² Referring specifically to Mises, B. M. Anderson argues that

A historical regressus will not, of course, fit in in any logical manner with a synthetic theory which tries to construct an existing situation out of existing elements. . . . Existing social forces have their history. But, in a given moment, they are what they are, and what they *were* at a different time adds no ounce of weight to the power they now exert. If a quantitative account of value is called for — and price theory is essentially concerned with the measurement of values — we must bring measure and measured into contemporary balance. The historical account is one thing; the cross section analysis is another.³

The matter could not be more clearly stated; and Mises can only respond feebly by accusing Anderson himself of carrying back the value of money to an historic commodity value.⁴ When speaking of goods Mises abandons the historical regression. "No causal relation obtains between the prices of the past and of the present in so far as the mutual exchange relations of economic goods (with the exception of money) is concerned."⁵ If money and goods are both subject to the marginal utility analysis why does one involve *Prähistorie* and the other not? I do not believe Mises affords any answer.

II. FRIEDRICH WIESER

What Wieser has to offer on the subject of money naturally interests the economist "just because it is Wieser's."⁶ But it must be confessed that the results of his writing, extending over a period of thirty-five years, are in this field disappointing. On the whole

¹ Quite the same sort of argument as Mises' appears in W. A. Scott's *Money and Banking*, 6th ed. (New York, 1926), p. 55.

² Ludwig Bortkiewicz, "Der subjektive Geldwert," *Schm. Jhrb.* 44, pp. 179-180.

³ B. M. Anderson, *The Value of Money* (New York, 1927), p. 103, note, and p. 106. Davenport and Alvin S. Johnson are cited as opposing the historical derivation of value.

⁴ Mises, *op. cit.*, 2nd ed., pp. 101-102, note.

⁵ *Theorie*, 1st ed., p. 118.

⁶ Anderson, *op. cit.*, p. 84.

Wieser seems to agree with the nominalist definition of money, but he does not sympathize with the nominalist identification of value of money with purchasing power.

The bullionist theory, he says, is correct in pointing to the precious metals as significant in the historical evolution of money; but nowadays, notes, even without being redeemable, circulate and have their value determined in the very same way as bullion money.¹ Knapp performed an important service in broadening the concept of money and showing the historically derived value unit to be independent of the metallic basis, but he neglected the problem of price levels, and he would have done better to represent money as an institution of society, rather than the state.²

Regarding the meaning of money value and its connection with marginal utility, Wieser like Schumpeter seems to have departed farther and farther in each successive publication from the commodity analogy. In *Natural Value*, which appeared originally in 1889, he says:

The exchange value of money is the anticipated use value of the things which can be obtained for it. The law, therefore, which obtains for the latter obtains for the former; it is demand and supply, according as these express themselves in marginal utility, that decide the exchange value.³

Fifteen years later he is holding that although money and goods fall under the same basic value determinants, they none the less contrast in certain respects.⁴ By 1909 he is willing to say that "the concepts of supply and demand . . . belong to the world of goods . . . and cannot be carried over to money as a medium of exchange without the greatest violence."⁵ Money has a "personal exchange value" depending upon the volume of one's income, the intensity of one's wants, and the height of prices; and an "economic value," determined by the relation between the total social income in real and monetary terms.⁶ Apparently we must not identify "economic value" with mere purchasing power, however; it comes from the

¹ Friedrich Wieser, *Social Economics* (New York, 1927), p. 272; a translation by A. Ford Hinrichs of *Theorie der gesellschaftlichen Wirtschaft*, 2nd ed., 1924.

² *Ibid.*, pp. 276, 278, 244, 246, 251, 274-278. Cf. article "Geld: Theorie des Geldes," *Hdwb. der Staats*, IV, (Jena, 1927), 700-701.

³ Friedrich Wieser, *Natural Value* (London, 1893), p. 47, tr. by Smart.

⁴ *Idem*, *Der Geldwert und seine geschichtlichen Veränderungen* (1904) referred to by Anderson, *The Value of Money*, pp. 84-85.

⁵ "Der Geldwert und seine Veränderungen," *Verein* 132, p. 515.

⁶ *Ibid.*, pp. 516-518.

price level, to be sure, but is purged of all elements coming purely from the side of commodities.¹ Index numbers reveal only whether the price expression of goods in money has risen or fallen, but they tell nothing about the value of money,² which he conceives of as "the common subjective part of personal evaluations excluding the balance peculiar to the individual."³ In a paragraph which promises to show "the connection of changes in the economic value of money with marginal utility," we discover only that increased money incomes raise prices because "according to the marginal principle . . . people are forced to higher price concessions."⁴ Bids and offers can only be made on the basis of an assumed value of money, and exchange would be impossible without reference to the value which holds over from an earlier time.⁵

The *Social Economics* published in Germany in 1914 does not advance much over the doctrine of the *Verein* monographs. Again Wieser unqualifiedly rejects the apparatus of supply and demand for money,⁶ and distinguishes variations in the price level which emanate from changes in the value of money from those emanating from the value of goods.⁷ The historically derived price level appears as a necessary datum, for new facts affect only *individual* prices. In connection with price levels, Wieser mentions marginal utility but once and very vaguely as influential "in the final analysis."⁸ He still insists that

The value of money is not an objective value; it is the general cross section of the personal valuations of money; it is the value as to which all persons are agreed. . . . More is predicated in the value of money than the mere fact of a general level of prices. . . . All factors which contribute to the determination of the general price level influence the value of money. But there are other circumstances which determine the ratio in which units of money are equated to the price level of a unit of utility.⁹

What these "other circumstances" are, or what should be understood by the "price level of a unit of utility," remain enigmas.

But in the *Handwörterbuch* article, completed just before the author's death and published in 1927, the ambiguity disappears.

¹ *Ibid.*, p. 511.

² Friedrich Wieser, "Über die Messung der Veränderungen des Geldwertes," *Verein* 139, p. 544.

³ "Der Geldwert und seine Veränderungen," p. 50a.

⁴ *Ibid.*, p. 518.

⁵ *Ibid.*, p. 513.

⁶ *Social Economics*, pp. 265, 285.

⁷ *Ibid.*, pp. 279, 283, 286, 291.

⁸ *Ibid.*, p. 285.

⁹ *Ibid.*, p. 265.

Wieser describes individual-economic or personal-exchange value as the significance which a unit of money income has for the individual in view of the extent of his income, his wants, and the price level. But public-economic value (*volkswirtschaftlicher Tauschwert*) he now separates into two categories, the one subjective, the other objective, the former an average of marginal utilities of money to all the individuals making up society, the latter being the same for everyone, and having no direct connection with wants and income.¹ Changes in the former account for variations in the price level initiated from the side of goods, in the latter from the side of money; and therefore it is solely with *objective* public-economic value that monetary theory is concerned. Both sorts of public-economic value depend upon marginal utility, but the objective sort only *indirectly*, "in so far as prices, to which it gives expression, are determined by that law."² Wieser even goes so far as to make objective public-economic value subject to a "unique law," the relation between social real income and the flow of money income.³

The evolution of Wieser's ideas shows clearly how the metaphysics of money conditions the character of price level analysis. Had he been able to arrive earlier at a clear notion of objective public-economic value, he might have been able to push through to a successful issue his idea of relating prices to the social real income and the flow of money income to consumers. As it is, however, his energy spends itself in a sort of civil war between the nominalist *definition* of money, so admirably set forth throughout his writings, especially when he deals with Knapp or the bullionists, and the anti-theoretical viewpoint of the commodity theory, when he treats the *value problem*. In the second place — and this is the matter of our immediate interest — Wieser's history demonstrates that to the degree that the objective value of money comes to be apprehended, to the same degree does this value cease to be something absolute and something directly subject to the marginal utility explanation.

The earliest work, *Natural Value*, naively applies to money not only marginal utility but supply and demand, and presents besides that absolutely anomalous identification of the *exchange* value of money with the use value of the purchasable goods which persists down to the *Handwörterbuch* article. Then comes a realization in the 1904 address of the contrasting character of money and commodity

¹ *Hdwb. der Staats.*, IV, 697-698.

² *Ibid.*, p. 698.

³ *Ibid.*, pp. 699-700.

values and a few years later the final rejection of supply and demand for the monetary problem. With this stage, however, we reach a sort of plateau extending so far in Wieser's career that critics generally take it to be *the* theory. It interests us more than the final recantation, not only for this reason, but also because its contradictory elements are by no means limited to Wieser alone.

Like so many others, Wieser seems to feel the necessity of distinguishing the value of money from that of the goods it commands just because movements in price levels may be initiated either by something that happens to money or by something that happens to goods, services, or other things purchased by money. But these facts do not make an absolute value of money necessary; for if we conceive money value as wholly relative or derived, prices, being ratios, may still be altered by a change in either member. The light falling upon a cross-section slide under a microscope might increase because the sun comes out from behind a cloud or because the scientist substitutes a larger concentrating mirror. In either event, all the light comes from the sun. The purchasing power of money similarly responds to change initiated on either side of the equation, but it is a purely derived value. Not only is the postulate of an "inner" value unnecessary, but it leads to all sorts of confusion. Bound to find this elusive *Ding an sich*, the metallists seize upon the mere stuff of the monetary standard; Mises pursues monetary value back in history to an original commodity value; and Wieser, by what is a more obvious error, captures it in the things money buys. When he tells us that the economic (objective) exchange value of money is *not* objective, but a cross section of personal evaluations, we are tempted with Amonn to dismiss the whole construction as pure mysticism.¹ B. M. Anderson complains of Wieser that "he wishes to have a value of goods which can be set over against the value of money, the two, in combination, determining prices. And yet, he wishes somehow to get these out of the prices themselves."²

The solution of the riddle is the fact, emphasized by Keynes, that "we do not mean by Purchasing Power the command over quantities of utility."³ Either the economic exchange value must be objective, in which case it is purchasing power and purely relative; or

¹ Alfred Amonn, "Wiesers Theorie der gesellschaftlichen Wirtschaft," *Archiv* 53, pp. 657-659.

² *The Value of Money*, p. 87.

³ J. M. Keynes, *A Treatise on Money* (New York, 1930), I, 96.

else it is subjective, in which case, as Wieser later admits, it depends upon prices and hence falls outside the precinct of monetary theory.

Another anomaly in Wieser's theory as it has evolved thus far is the use of marginal utility concomitantly with the rejection of supply and demand. No marginal utility can be conceived independently of a complete schedule of such utilities, for the very notion of a margin is that of a dividing point in a continuous array between the higher utilities afforded by an existing supply, and those of lesser importance, excluded under the existing supply. Readiness to put such a utility schedule into effect upon the market, when coupled with the requisite purchasing power, constitutes demand. But a marginal utility schedule which does not eventuate in demand is without meaning and void. Consequently Wieser's objection to demand is also *implicite* a reason for discarding marginal utility. The reference to it in *Social Economics* is indeed casual, and this probably bespeaks a gradual attenuation in Wieser's mind of the commodity analogy.

At length in the *Handwörterbuch* article public-economic value is separated into its objective phase — purchasing power pure and simple — and the subjective aspect. Wieser's adherence to nominalist principles becomes almost, but not quite, complete. No longer does he venture as in *Social Economics* to make the law of satiety "influential in the last analysis"; it only "stands in connection" with price levels by way of the "totality of needs." This is sufficiently vague to defy criticism, but it pretty clearly indicates the surrender of marginal utility as the determinant of price levels. From the appearance of the two *Verein* articles on, Wieser seems to have become increasingly aware of the difficulty of applying the idea to money, and this may account for his frequent references to the emergence of prices today from those of yesterday. If this indicates only the fact that bids and offers do not proceed from a *tabula rasa*, it is quite valid for *all* prices, including the purchasing power of money. But if it is intended as an escape from the Austrian circularity, Wieser must be taxed with Mises' error of abandoning analysis for history in one particular department of a theory which pretends to be deductive and not institutional.

From Wieser's prolonged struggle with the value of money concept he finally arrives at a distinction which advances monetary theory by a step, at least in those quarters where the ideas have not already been clearly understood under different captions. In the

valedictory article in the *Handwörterbuch*, he shows that objective public-economic value is a mere arithmetical matter and does not stand in direct connection with human wants, whereas subjective public-economic value means the significance attached to a unit of money by society generally, the average of individual marginal utilities. To elucidate Wieser's distinction, let us assume an absolutely closed economy provisioned with a *fixed* complement of consumers' goods in the right proportions to care for the wants of a sound population. Perhaps we are speaking of a Greenland fishing village after the onset of winter. Now let dyspepsia overtake most of the villagers. Whiskey and beef decline precipitously in price, tea and zwieback advance enormously. There is every reason to suppose that the index of prices would not change, the quantities of goods and money being unaltered. But the change of tastes unaccompanied by a similar change in the available goods certainly means that on the average a dollar at the margin of each individual's expenditure buys less utility. Objective public-economic value remains the same; the subjective sort declines.

Unfortunately Wieser himself misconstrues the distinction he has drawn by attributing to changes on the money side all variations in subjective public-economic value, when it is apparent that variations in either sort can come from either side of the equation. But the distinction itself is of prime importance. Contrary to the nominalists' contention that purchasing power is *the* value of money, the subjective variety not only exists, but in a certain sense is the more important. Purchasing power may be thought of as merely the *price* of money (in goods), whereas the subjective public-economic value is its *value*, i. e. its real meaning when purchasing power is interpreted against the background of human wants. Quite clearly any attempt to express numerically the magnitude of this subjective value for all individuals taken together would be futile. But the idea is real enough, and it clarifies the concept of purchasing power by standing in sharp contrast with it. Monetary theory should recognize its chief concern to be the explanation of purchasing power and its behavior; general value theory may take up the task of interpreting the subjective public-economic value of money once the price level has been laid down as a datum.

III. OTHER MARGINAL UTILITY THEORISTS

Professor Bortkiewicz of Berlin elaborates Wieser's idea that marginal utility cannot be found in money itself, but in the goods it buys, income being divided so as to bring a maximum flow of utility.¹ But generally speaking, he reasons pretty much in terms of the conventional quantity theory;² and as Wagemann says, "Bortkiewicz himself points out the error of anyone's believing that price emanates from a comparison with the subjective value of money."³ What both he and Wieser have done is to apply marginal utility to real income. But the very question in dispute as between nominalists and commodity theorists is whether money values can themselves be subjected to the same laws as commodity values. To hold, therefore, that marginal utility applies to money only as it applies to goods is to concede the whole argument to the nominalists.

In Richard Kerschagl, legal counsellor for the Austrian National Bank, there appears a minor satellite of the Austrian analysis. The value of money depends upon scarcity and utility; the latter upon "the goods procurable for money . . . appearing through prices."⁴ The Austrian circularity could scarcely be made more obvious. Despite their utter inconsequentiality, Kerschagl's brochures have commanded considerable attention.⁵

IV. APPRAISAL OF THE MARGINAL UTILITY APPROACH

If the belief of the commodity theorists that money is evaluated similarly to goods and services is anywhere to be confirmed, it would seem chiefly incumbent upon the marginal utility theorists to advance the proof. But the chief contemporary representatives of the school in Germany and Austria sooner or later forsake the cause: Schumpeter comes out definitely for nominalism, Mises resorts to an historical regression, Wieser finally attenuates marginal utility to

¹ Ludwig Bortkiewicz, "Der subjektive Geldwert," *Schm. Jhrb.* 44, p. 161.

² *Idem*, "Die Ursachen einer potenzierten Wirkung des vermehrten Geldumlaufs auf das Preisniveau," *Verein* 170, pp. 256-274.

³ Ernst Wagemann, *Allgemeine Geldlehre* (Berlin, 1923), p. 69.

⁴ Richard Kerschagl, *Theorie des Geldes und der Geldwirtschaft* (Jena, 1923), pp. 9-14; cf. also *Die Lehre vom Gelde in der Wirtschaft* (Vienna, 1921) and *Die Geldprobleme von heute* (Munich, 1922).

⁵ Professor Othmar Spann of Vienna adopts a concept of the value of money distinct from the reciprocal of the general price level and still not purely subjective. Cf. his *Theorie der Preisverschiebung als Grundlage zur Erklärung der Teuerung* (Vienna, 1913).

a shadow. That shadow is the notion that the marginal utility of money somehow appears out of the marginal utility of goods, that it "indirectly" determines price levels by determining specific prices. But Fisher disposes of any such possibility by referring to the fact that in a system of simultaneous equations representing the working out of prices under competition, there is always "just one *too few equations* to determine the unknown quantities involved."¹ An equation of exchange has to be added to provide for the price level unknown. Wieser is trying to lift himself by his bootstraps in attempting to derive the price level from particular prices, when they certainly can only appear simultaneously.

The circularity of the direct application of the Austrian theory to money has been condemned by Hahn, Helfferich, Wagemann, and Wicksell amongst the writers whom we have already examined. Hirsch, who has devoted an entire monograph to the matter of purchasing power and marginal utility, concludes that the day cannot be saved for this line of analysis.² Other contemporaries sharing this conviction are Engländer, Holtrop, Lederer, and Marschak.³

Price levels being given, marginal utility of money has real meaning; indeed, a notion corresponding to Wieser's subjective public-economic value is indispensable to the literature of public finance and to critiques of distributive systems. Without some reference to the magnitudes of marginal utility derived typically or on the average from varying amounts of money income, it would be difficult to arrive at any definite conclusions regarding the social economy of progressive taxation, taxation of inheritance, equalitarian measures in public disbursements, and communistic and socialistic systems of distribution. No doubt social marginal utility is an elusive magnitude and assumptions as to its behavior lie beyond empiric verification. Nevertheless it is an instrument which cannot easily be dispensed with.

¹ Irving Fisher, *The Purchasing Power of Money*, 2nd. ed. (New York, 1922), p. 174. (Italics his.)

² Willy Hirsch, *Grenznutzentheorie und Geldwerttheorie unter besonderer Berücksichtigung der "österreichischen" Schule* (Jena, 1928).

³ Oskar Engländer, *Theorie der Volkswirtschaft* (Vienna, 1930), II, 21; M. W. Holtrop, *De omloopsnelheid van het geld* (Amsterdam, 1928), referred to by Jakob Marschak, "Volksvermögen und Kassenbedarf," *Archiv* 68, p. 387, note 3; Emil Lederer, "Der Zirkulationsprozess als zentrales Problem der ökonomischen Theorie," *Archiv* 56, pp. 22-23; Jakob Marschak, "Die Verkehrsgleichung," *Archiv* 52, p. 359 ff.

The contrary opinion appears with Hans Neisser, *Der Tauschwert des Geldes* (Jena, 1928), pp. 42-43.

Had Wieser fully apprehended his own concept of the subjective public-economic value of money, depending as it does for its meaning upon an already established price level, he would have abandoned the distinction between changes in prices ascribable to changes in the *value* of money in contrast with changes in the *value* of goods. Contemporary monetary theory betrays an increasing impatience with the notion of an absolute value of money. One of the foremost expositors of the quantity theory in Germany today, Dr. Hans Neisser of the Institute of World Economy at Kiel, calls the idea an *Unbegriff*;¹ and Keynes has recently repudiated as a "circle squaring expedition" the efforts of Cournot, Jevons, Edgeworth, and Bowley to construct a measure of the "value of money as such."² A recent example of such an undertaking is afforded by Behrens, who sets himself the task of discovering how we can secure a really "neutral" money, one with a stabile "inner objective exchange value," and who concludes at the end of three hundred pages that "for the fine variations in the inner objective exchange value of money we lack a sufficiently sensitive measuring instrument."³ As if the difficulty lay with index numbers!

The marginalists have presented no evidence to shake the conclusion arrived at in the preceding chapter, that the "distinction" between absolute and relative changes in the value of money does not exist. Like the supply and demand theorists, they make "the mistake of assuming that there is a meaning of price level, as a measure in some sense or another of the value of money, which retains its value unaltered when only *relative* prices have changed."⁴ Unless the metallists, to whom we now turn, are able to establish the case for commodity theories in general, we shall have to accept the nominalists' dictum that "the psychic relations of the economic man to money are significantly different from his relations to goods,"⁵ and that the contention of Knapp, Bendixen, Elster, and their followers that "money has no value" has a certain validity, despite the hyperbole.

¹ Neisser, *op. cit.*, p. 1.

² Keynes, *Treatise*, I, 79-88.

³ Walter G. Behrens, *Das Geldschöpfungsproblem* (Jena, 1923), pp. 228-229, 311.

⁴ Keynes, *op. cit.*, p. 87. (Italics his.)

⁵ Elster, cf. p. 36, above.

CHAPTER VI

METALLISM

LIKE any commodity theory of money, metallism or bullionism does not dichotomize economically valuable things into goods and money but completely assimilates the latter to the former. Metallism is unique in focusing its explanation of prices on a money stuff, whether the standard be metallic or free. Unlike other commodity theories which apply the principles of commodity valuation to *money*, bullionism applies these laws to the *money stuff*. And of course metallism is antithetical to nominalism in treating money in *any* way as a commodity. Consequently it is against the whole field that the metallists hold that money circulates only because of the commodity utility of its metallic content, and that paper money always takes its value from the precious metals, either by actually being redeemable or from the prospects of redemption in the case of fiat issues.

It is an amusing commentary upon human nature that, despite the paucity of real metallists in Germany or elsewhere, both Knapp, their arch-enemy, and Professor Diehl of Freiburg, their recognized leader, believe this to be the prevalent opinion. Even amongst the half dozen writers properly designated as metallists, there are evidences of heterodoxy. Diehl himself limits his doctrine to the modern capitalistic order; Hildebrand is at once a chartalist and a metallist; both Mill and Stephinger aspire to a synthesis of the nominalist and commodity viewpoints; and Hilferding surrenders his bullionism completely when he comes to fiat money. These aberrations tend to confirm the evidence of small numbers that doctrinaire metallism is a position increasingly difficult to maintain. It persists with a very few academic economists and with certain socialists.

I. METALLISM WITH ORTHODOX ECONOMISTS

Although Professor Karl Diehl is commonly regarded as the stock representative of the metallist doctrine,¹ he is noteworthy chiefly as

¹ Cf. Friedrich Bendixen, *Das Inflationsproblem* (Stuttgart, 1917), pp. 18-23; Rudolf Dalberg, *Die Entthronung des Goldes* (Stuttgart, 1916), pp. 43-45; Melchior Palyi, "Der Streit um die Staatliche Theorie des Geldes," *Schm. Jhrb.* 45, p. 657; Ernst Wagemann, *Allgemeine Geldlehre* (Berlin, 1923), p. 28.

an intransigent supporter of the gold standard. Or he may be said to have formulated a theory of *good* money, rather than of money generally. Chartalists and nominalists, he says, would recognize all sorts of money, but the metallist prefers not to run the danger of implying that "the state merely through its arbitrary power is able to create without cost a money which actually fulfills the functions which money must perform in a capitalistic system."¹ Pure paper money *ex origine* has never existed, and the supposed instances of a "paper standard" have appeared only transitorily in wars and panics where the express intention was an immediate return to gold.² In the socialist state an intrinsically valueless money would be possible;³ and indeed even in the present situation the state may give utility and costliness to paper issues by endowing them with legal tender power and endeavoring to pay them out only as against full value in goods. These measures secure only a nominal constancy of value, however, and the real value rests solely on an implied promise of the state not to multiply notes indefinitely.⁴ If people mistrust paper money a gold agio will appear and prices will rise despite anything the state can do. To prevent mistrust of the money substitutes and keep their issue within limits, a gold basis is absolutely necessary in a competitive order.⁵

In his recent four-volume *opus*, *The Theory of National Economy*, however, Diehl goes so far as to concede that Knapp is right in maintaining the state as the origin of money against Nussbaum's "vague concept" of mere trade as determinative,⁶ and that in a purely monetary economy money stands in direct *opposition* to all commodities.⁷ But despite certain reservations, its "inner exchange value" depends on the cost of production of the precious metals, and the necessity of substance value for money in a competitive order is reaffirmed.⁸

¹ Karl Diehl, "Wagemanns 'Allgemeine Geldlehre,'" *Welt. Arch.* 21, pp. 2-3.

² *Ibid.*, p. 7-8.

³ *Idem*, *Über Fragen des Geldwesens und der Valuta während des Krieges und nach dem Kriege* (Jena, 1918), pp. 72-73. A similar belief is expressed by the metallist G. H. Kämmerer in *Geld: Eine genetische Studie* (Berlin, 1921), pp. 35-40.

⁴ *Über Fragen des Geldwesens*, ch. vi, sec. 1; *idem*, "Unser Geldwesen nach dem Kriege," *Jhrb. für N. & S.* 107, pp. 721 ff.

⁵ *Über Fragen des Geldwesens*, p. 9; *idem*, "Bendixens 'Währungspolitik,'" *Bank-archiv* 16, pp. 6-13, sec. 3.

⁶ *Idem*, *Theoretische Nationalökonomie*, III (Jena, 1927), 260-262.

⁷ *Ibid.*, p. 267.

⁸ *Ibid.*, pp. 268-278.

One of the first persons to rally to the defense of metallism, so severely attacked by Knapp, was Professor Walter Lotz of Munich. For him money cannot be a "claim" because, as Helfferich said, that word implies a title to specific goods, whereas money carries undifferentiated purchasing power.¹ Lotz betrays no sympathy with the nominalist idea that in the modern economy money is evaluated quantitatively rather than qualitatively, i. e. that it passes chiefly by tale and not by weight.²

Only something which as a bearer of use value and exchange value can be a measure of value. . . . Gold, and not the nominal unit of value is today the national value measure. . . . We remain metallists in the cases of metallic freely coined standards, and we refrain from so defining money that, for the sake of abnormal cases we have to characterize the normal cases quite inadequately.³

Knapp errs in believing that the readiness of the state to accept its notes at face value accounts for their ability to circulate; money circulates only because of its commodity value, and even with a paper standard, the precious metal has not been displaced as the ultimate measure of value.⁴ Indeed, Lotz not only approves of a similar doctrine with Laughlin, but also believes with him that the value of fiat money varies directly with the prospects of ultimate and definite redemption.⁵ Lotz adheres to a notion of some sort of imminent or absolute value of money as distinguished from purchasing power.⁶

A peculiar crossing of breeds appears with Richard Hildebrand, who maintains that full *weight* belongs to the very idea of money, but that the state can designate whatever full-weight coin it wishes as standard money. Like other metallists, Hildebrand discovers the origin of money in coinage, and reduces the unit of computation to a mere weight unit.⁷ Unlike the other metallists, he will admit the existence of money only with *state* coinage, and he goes so far in his insistence upon the characteristic of full weight as to deny that coins

¹ Walter Lotz, *Das Papiergeld* (Berlin, 1920), p. 13, note; "G. F. Knapps neue Geldtheorie," *Schm. Jhrb.* 30, p. 1215.

² *Schm. Jhrb.* 30, p. 1228.

³ *Ibid.*, pp. 1228, 1251, 1241.

⁴ Cf. Wagemann, *Allgemeine Geldlehre*, referring to Lotz's article "Geld," in the *Wörterbuch der Volkswirtschaft*, pp. 990-993.

⁵ *Schm. Jhrb.* 30, pp. 1232, 1239.

⁶ Cf. S. P. Altmann, "Zur deutschen Geldlehre des XIX Jahrhunderts" in *Die Entwicklung der deutschen Volkswirtschaftslehre im XIX Jahrhundert, Festgabe für Schmoller* (Leipzig, 1908), vol. 1, sec. 6, pp. 28, 50.

⁷ Richard Hildebrand, *Über das Wesen des Geldes* (Jena, 1914), pp. 10, 13.

falling below least current weight are any longer money.¹ Subsidiary currency cannot, of course, be termed money, since it owes its ability to function as a means of payment (*Zahlungsmittel*) solely to its being legal tender up to a certain amount.² In the case of redeemable bank notes the kinship with money becomes even more remote; they are not even *Zahlungsmittel*, but something delivered in lieu of payment.³ And, finally, when people employ inconvertible paper money, they are really no longer using anything comparable to money, but only claims "upon a certain amount by weight of minted metal."⁴

Fullness of *weight* and not fullness of *value* is what distinguishes real money from money substitutes, says Hildebrand; and since every coin has a higher value than its bullion content — even freely coined money is worth more by reason of seigniorage, brassage, or at least interest loss during the minting process — there is no difference in principle between moneys with free and those with limited coinage.⁵ Consequently when the state defines the monetary unit by proclaiming the necessary minimum weight of a certain kind of coin and endowing it with legal tender power, the state makes it the monetary standard. In the case of France, for example, *silver* has been the standard ever since 1803, because the coinage act of that year defined the franc as a certain amount of that metal, even though gold sometimes displaced silver in circulation under the bimetallic system lasting until 1873, and even though after 1873 the coinage of silver was no longer free. Gold became the standard money of England only when in 1816 the unit of account was defined as so much gold, and it will only become standard in France when the franc is similarly redefined.⁶

Richard Kerschagl says of Hildebrand's doctrine that Knapp's state theory "represents in comparison an almost economic theory of money."⁷ In a bimetallic system Knapp at least made the real standard depend on what the treasury actually "forces out," but Hildebrand insists upon the letter of the law.⁸ In point of fact, of

¹ *Ibid.*, pp. 22-23.

² *Ibid.*, pp. 26-27.

³ *Ibid.*, p. 45.

⁴ *Ibid.*, p. 40.

⁵ *Ibid.*, pp. 33-34.

⁶ *Ibid.*, pp. 29-39. Hildebrand's book was published in 1914.

⁷ "Überblick über das Schrifttum des Geldwesens von 1914 bis 1920," *Ztsch. für Volksw. und Sozialp.* N. F., 1, p. 127.

⁸ Even upon this he is mistaken, since the French coinage act of 1803, although it named only silver explicitly, contained no provision which would preclude the use of gold in liquidating obligations. Cf. H. P. Willis, *A History of the Latin Monetary Union* (Chicago, 1901), p. 8, and W. A. Shaw, *History of Currency* (London, 1895), p. 276.

course, both gold and silver circulated at par in France through most of the period to 1873, with gold the standard thereafter; and in England gold was the standard during most of the eighteenth century, although the legal recognition of the fact did not come until 1816.

After outdoing the chartalists in the matter of legal definition, Hildebrand inconsistently flies to the opposite extreme by limiting the idea of money to full-weight coins. The error here is not so much the elimination of ninety per cent of the media which determine prices, as the purely captious interpretation of what constitutes full weight. It means only that the coin contains no less metal than its legal definition requires, not that the bullion content equals face value. On the basis of such a definition, Hildebrand can maintain that the limited coinage silver in France after 1873 is as much *full weight* as the freely coined gold; and that, by the phrasing of the coinage law of 1803, *silver* is the standard money! He has taken the common sense definition of standard money as the full-weight legal tender and exactly reversed the rôles of silver and gold, first by taking the criterion of legal tender from the wording of statutes instead of Knapp's "administrative practice," and secondly by abusing the notion of full weight. The theory embodies both chartalist and metallist elements only by virtue of a misconstruction of each.

Another member of the German metallist group is Professor Bruno Moll of the University of Leipzig, whose *Die Logik des Geldes* presents the opposing theories of the nature of money in terms of a Kantian antinomy. "'An intrinsically valueless money cannot circulate endlessly,' says the thesis; and 'an intrinsically valueless money must circulate endlessly,' says the antithesis."¹ This contradiction between the metallist thesis and the nominalist antithesis gives rise to what Moll calls the "problem of the end" which he hopes to solve by his own synthesizing theory.

The nominalist or claim theory really does not answer the "problem of the end" for it represents money circulating endlessly with no final settlement but only an infinite series of quasi-redemptions in the goods and services it buys — the "circulatory satisfaction" spoken of by Knapp. But according to Moll, "the certainty of the individual of being able to pass on money rests finally on confidence

¹ *Die Logik des Geldes*, 2nd ed. (Munich, 1922), p. 27. In the Kantian metaphysic an antinomy represents two alternative propositions contradicting one another and yet involving no logical fallacy. Cf. R. M. Wenley, *Kant and his Philosophical Revolution*, (Edinburgh, 1910), p. 203 ff.

— conscious, half-conscious or quite unconscious — that the final possessor of the money, who could not pass it further, will receive something of value.”¹ The metallists’ doctrine, aside from occasionally neglecting the effect of the monetary employment upon the value of precious metals, is more defensible, since “at the end of the logical catina stands metallic money or metal with the possibility of a direct satisfaction for the possessor.”² Metallists err, however, in holding that the concept of money demands a quantum of precious metals, because other economic goods or even services could serve for ultimate redemption.³

The metallists will have to revise their orthodox belief, in which redemption must always be in metal, and the nominalists will have to concede that there is requisite a final satisfaction for the possessor of money in “not-money. . . .” Thus the problem of the end leads to a reconciliation of nominalism and metallism.⁴

This resort to metaphysics with Moll is pure mysticism but little short of ludicrous. As Palyi observes, the thesis contains only the military truth that no one would accept money unless he could apply it to the satisfaction of his wants; and the antithesis, that money must circulate endlessly, “exists as a problem only in the fantasy of the author.”⁵ After all, despite the pretended synthesis, Moll arrays himself with the metallists, as all his critics agree.⁶ Merely by conceding the possibility of ultimate redemption in other economic goods besides gold or in services, he does not differentiate himself from other metallists. Paper money presumably derives its capacity to circulate and its value from prospects of redemption. Even when a government obviously cannot redeem its money, even then Moll would rely upon what he calls “an unconscious confidence” in ultimate redemption! This is bullionism at its worst. As Greidanus trenchantly observes with respect to Moll’s “ultimate satisfaction,” “The history of the last five thousand years gives me the firm and

¹ *Ibid.*, p. 62.

² *Ibid.*, pp. 33-34. Cf. also Moll’s *Die modernen Geldtheorien und die Politik der Reichsbank* (Stuttgart, 1917), pp. 24-27.

³ *Logik*, p. 43; *Moderne Geldtheorien*, p. 25.

⁴ *Logik*, p. 96.

⁵ Melchior Palyi, “Moll’s ‘Logik des Geldes,’” *Archiv* 42, p. 984.

⁶ Rudolf Dalberg, *Die Entthronung des Geldes*, 2nd ed. (Stuttgart, 1916), pp. 43-45; Herbert Döring, *Die Geldtheorien seit Knapp*, 2nd ed. (Greifswald, 1922), p. 32; L. Albert Hahn, “Von der Kriegs- zur Friedenswährung,” *Archiv, Ergänzungsheft* 14, p. 18; Robert Liefmann, *Geld und Gold* (Stuttgart, 1916), ch. v, sec. 3; and Melchior Palyi, “Der Streit um die Staatliche Theorie des Geldes,” *Schm. Jhrb.* 45, p. 657, note.

deliberate conviction that the money that I readily accept today will one day be valueless." ¹ The tendency of "bad" money to persist in circulation, particularly during advanced inflation, shows how little the acceptance of money depends upon a conviction as to a final "real" satisfaction.

Much of the same genre as Moll is Ludwig Stephinger, professor in the *Deutsche Technische Hochschule* at Brunn. His *Wert und Geld* also represents an attempt at effectuating a compromise between nominalism and metallism, an attempt which results again only in a very extreme sort of metallism. Like Moll's *Logik des Geldes*, this treatise is shot through with incomprehensible mysticism. What, for example, should one understand from the following passage? "As object and subject, only when taken together, give rise to a theory of money, so society and 'stuff', only when taken together, result in money . . . the common product of 'stuff' and actuality." ² The chartal doctrine, Stephinger believes, errs in thinking legal tender power necessary to the very existence of money, but it rightly holds that the state must insure the marketability of the monetary commodity or its "validity in society." On the other hand, if the metallist is mistaken in identifying money and gold, he correctly insists on the indispensability of some commodity or other (*irgend ein Stoff*) as the ultimate standard. As a matter of fact, money consists in a stuff which represents an equal potential value in use, and a certificate which tells how much of the stuff is actually and concretely present in the piece of money. ³ This notion leads Stephinger to three practical conclusions. In the first place, "If money is to be genuine, stuff and certificate must coincide." ⁴ Secondly, the degree of coincidence of stuff and certificate also indicates the degree of "goodness" of the money. ⁵ In this connection Stephinger attempts to use the marginal utility analysis to show a direct relation between *size* of redemption reserves and the value of partly covered issues. With every increase in the uncovered issue the fraction of reserves represented by each note declines; and since all the notes are fungible, "The value of all the moneys in a system sinks to that of the cheapest covering or of the cheapest money stuff." ⁶ As a third deduction, Stephinger believes that a paper standard is impossible. The mere

¹ Tjardus Greidanus, *The Value of Money* (London, 1932), p. 88.

² *Wert und Geld* (Tübingen, 1918), p. 169.

³ *Ibid.*, p. 178.

⁴ *Ibid.*, p. 194.

⁵ *Ibid.*, p. 192.

⁶ *Ibid.*, p. 211.

catalog of these cardinal points in Stephinger's chapters suffices to reduce to chimera his supposed synthesis of nominalism and metallism.

Amongst the bullionists are also to be numbered Edler von Braun and Franz Eulenburg, both of whom represent the view adopted by Stephinger that the value of paper money varies directly with the size of reserves for actual or eventual redemption. Braun demanded a reduction in the outstanding circulation of paper marks during the inflation so as to bring about a better ratio of notes to gold!¹ Early in the War Eulenburg, a professor at Leipzig, declared that "the higher the gold reserves are, just so much better is the quality of our notes."²

In positive results the outcome of these theories is almost nothing. Doubtless they exercise a salutary influence against such extremists among the nominalists as Liefmann and his followers, who altogether deny "value" to money and who, by identifying money with the abstract unit of account, disregard entirely the influence of commodity content upon the scarcity and hence the purchasing power of money. Metallism also counteracts the extreme sort of chartalism which implies that legal tender power in some way or other determines purchasing power. On the question of what forces control the value of inconvertible issues the metallists shed very little light. The hypothesis advanced by Stephinger, Braun, and Eulenburg, that irredeemable money paper takes its value from the relative size of the — inaccessible — gold reserves cannot be supported by the facts. After the suspension of specie payments in Germany in 1914, the average percentual covering for Reichsbank notes in gold was 51.8, as compared with 49.7 for 1911, and 49.4 for 1912; and yet the German exchange had in 1914 fallen below par by 11.6 per cent in Amsterdam, 10.1 per cent in Zurich, and 4.9 per cent in Stockholm.³ There seems to be no reason for supposing that a gold reserve which is totally divorced from the notes by suspension of specie payment should be able currently to communicate its value to them. Quite another question — a topic to which we shall turn in the chapter on the inflation literature — pertains to probability of redemption and its connection with price levels under a paper regime.

¹ *Wiedereinführung der Goldwährung* (Berlin, 1920), p. 14.

² *Das Geld im Kriege und Deutschlands finanzielle Rüstung* (Leipzig, 1915), pp. 26-27.

³ *Die Reichsbank, 1901-1925* (Berlin, 1926), Pt. I, pp. 89-90; Pt. II, p. 35.

Diehl's championing of gold-cost-of-production explanation of prices seems today fairly outmoded. Some tendency for a mutual adjustment of marginal cost of production and value of gold certainly exists; but even Cassel, who correlates the secular variations of prices over the years 1810-1910 with changes in the relative gold supply, maintains that causation passes preponderately from prices to costs. Probably consensus today would favor Birck when he says:

The contention that the cost of production of gold determines its value is quite as wrong as is the statement that it is the value of gold as a good which determines its market value, i. e. its purchasing power. The influence of both factors is only indirect, inasmuch as they may have influence upon the existing supply of gold, and through this again upon the supply of money, the total of which, in relation to the demands of the turnover, will again decide the level of prices.¹

II. THE SOCIALIST DOCTRINE

The admission on the part of several commodity theorists that a pure sign money would be possible under socialism² might lead one to expect a nominalist theory of money with socialist writers. But actually they have adhered traditionally to metallism, a fact which warrants inclusion in the present chapter of the most eminent neo-Marxian monetary theorist, despite his lack of conformity to the tradition in certain respects. Rudolph Hilferding, minister of finance in the first Stressemann cabinet in 1923, presents an exhaustive elaboration of the socialistic theory in *Das Finanzkapital*.

All true exchange values are determined by the relative amounts of socially necessary labor time involved in their production, says Hilferding.³ In the present economic order, however, the conditions for productive efficiency are quite unequal between individuals because of the expropriation of one part of society by another; and in consequence actual exchange ratios under competition represent, not an equation of values, but merely equality in costs of production. Because capital is the decisive matter, labor no longer equals labor in exchanges, but instead a certain amount of capital always earns the same rate.

¹ Laurits V. Birck, *The Theory of Marginal Value* (London, 1922), p. 243.

² Cf. Ludwig Mises, *Theorie des Geldes und der Umlaufsmittel*, 2nd ed. (Munich, 1924), pp. 251-254; Diehl, p. 92, above; and Georg Römer, *Die Lehre vom Wesen des Geldes nach Knapp und Bendixen* (Giessen, 1925), p. 48.

³ *Das Finanzkapital* (Vienna, 1927), pp. 5-7.

In the anarchistic conditions of competitive society where production is solely for exchanging on markets, money arises. "It is the peculiar regulation of this society through the price law which demands, as a means of exchanging commodity against commodity, precisely a commodity, since only that incorporates socially necessary labor time."¹ Society selects in the course of time a certain commodity which is better adapted to be money than any other. "Gold is not money by nature but only in consequence of a definite social structure; but money is by nature gold."² Far from originating money, the state only sanctions what is already a *fait accompli*; and coinage merely certifies the weight of pieces, so that payment is technically simplified from weighing to counting.

Since the *values* of goods and of gold are already determined by their respective quanta of socially necessary labor time, the monetary theorist can only establish a law governing the *amount* of money which will circulate in a given situation. This proposition may be stated in either of two ways: "that the quantity of circulating medium is determined by the price sum of circulating commodities and the average velocity of circulation of money," or "that with a given value sum of commodities and a given velocity of circulation of their metamorphoses (the circulation of commodities determines the turnover of money) the quantity of circulating money or money material depends upon its own value."³ Accordingly, a superabundant money, if we are concerned with freely coined gold, is automatically absorbed into private hoards or bank vaults.⁴ The price sum of goods or what may be called the "socially necessary circulation value" may change, but freely coined gold will always vary with it proportionally in amount.

Within the limit of socially necessary circulation value, the state may supplant gold with paper money possessing compulsory legal tender power, without causing any depreciation; indeed such a substitution is both economical and reasonable.⁵ But there must be a concurrent circulation of gold, or at least the possibility of an in-and-out-flow of gold to make the necessary adjustments to the socially necessary circulation value. In such a situation "paper money is not a representative of the value of goods, but of gold,—not a goods symbol, but a gold symbol."⁶

¹ *Ibid.*, p. 12.

² *Ibid.*, pp. 15-16.

³ *Ibid.*, pp. 17-18, p. 46, note.

⁴ *Ibid.*, p. 13.

⁵ *Ibid.*, p. 45.

⁶ *Ibid.*, p. 46.

In connection with pure paper and limited coinage metallic standards, Hilferding makes an entirely different use of socially necessary circulation value. For freely coined gold it determines quantity in circulation, but for free standards it determines value. Here the money is "wholly independent of the value of gold and reflects the value of goods directly, after the law that its total quantity represents the same value as the price sum of commodities divided by the circulating quantity of like money pieces."¹ Marx's device of referring the value of money to gold even with dislocated coinages seems to Hilferding an unnecessary indirection: these moneys take their values from goods directly, that is to say, directly from the socially necessary circulation value. As the histories of Austria, the Netherlands, and India demonstrate, the issue of a smaller quantity than the socially necessary circulation value causes an agio upon the notes or coins sufficient to make up that total value, whereas over-issue causes depreciation until the whole issue equals the socially necessary circulation value.²

So long as it is convertible, bank money takes its value from gold and "cannot be depreciated by its quantity (as inconvertible state paper) but only through a breakdown of convertibility."³ Furthermore, bank money, unlike fiat issues, does not have to be restricted within the socially necessary circulation value to avoid depreciation; it "occupies the space over and above this minimum," quantity adjusting itself automatically to need.⁴

Since the socialist takes labor as the sole source of value, to be consistent he must explain the value of money on the basis of socially necessary labor costs in producing gold. The refutation of the labor cost theory, which need not be reviewed here, has carried with it the ruin of the socialist explanation of price levels.

Even upon the assumption of a monetary system employing gold alone as a circulating medium, the best case possible for a labor cost theory, it appears that because of the small amount of annual gold production relatively to stock, quantity of gold rather than costs of production determine its value. This fact disposes not only of the labor cost theory of price levels (even if it were valid elsewhere), and the Marxian belief that the quantity of circulating gold depends on its value instead of the converse,⁵ but also the preposterous idea of a

¹ *Ibid.*, p. 19.

² *Ibid.*, p. 51.

³ *Ibid.*, pp. 20-30.

⁴ *Ibid.*, pp. 50, 54.

⁵ Karl Marx, *Capital*, tr. by Moore and Aveling (London, 1887), 1, 97-99.

socially necessary circulation value. For such a total to exist requires that the sum of the *prices* of goods be given *independently of the quantity of circulating gold*! Such an idea is, however, absolutely essential to the labor cost theory: the ratio of exchange between a unit of gold and a unit of goods is established once and for all by the ratio of their labor *costs*. The (gold) price of each commodity separately, and hence of all commodities in the aggregate, must not be affected by mere *quantities* of goods and gold produced. But how account for the value equation between *quantities* of commodities and gold appearing on the market? There is only one avenue of escape — to let the quantity of goods determine the volume of gold offered for commodities. Hoarding and dishoarding automatically secure the equation of quantity of circulating gold to the needs of trade. And so the gamut of error runs to its logical conclusion on the basis of a false premise: absolute and predetermined total value of gold in goods, predetermined number of monetary units necessary, and hoarding to take up the slack.

In departing from Marx on limited and fiat issues by referring their value directly to goods in place of indirectly through goods, Hilferding takes a step in the right direction, but it involves him in serious inconsistencies and does not house well with the dogmatic metallism involved in reducing full-weight money to mere minted bullion where the function of the state is nil. Furthermore, as Bloch correctly maintains in his treatise on *Marxian Monetary Theory*,¹ Hilferding's departure necessarily negates the labor theory of value, for which there can be no pure scarcity values. In apology for Hilferding it may be remarked that Marx's insistence that all paper money represents gold² no more escapes the unwelcome presence of a scarcity value in the paper money itself than does Hilferding's short circuiting of causation to goods directly. But even for free standards Hilferding's innovation does not result in a quantity theory pure and simple. While explicitly making these moneys "wholly independent of the value of gold," and while putting forward a principle coincident with the formula $M = \frac{PT}{V}$, he continually adheres to the old concept of a socially necessary circulation value. Free standards depreciate or appreciate according as the quantity of pieces rises above or falls below this norm as something already given.³

¹ Herbert Bloch, *Die Marxsche Geldtheorie* (Jena, 1926), pp. 107, 111, 114.

² *Capital*, I, p. 104.

³ *Finanzkapital*, pp. 18-19.

Aside from these difficulties are others scarcely less significant. Hilferding apparently adopts the viewpoint of the third volume of *Das Kapital* that competitive prices diverge from the "true" values established by relative labor time, as described in volume one.¹ And yet, even under capitalism, he would have money as a measure of values because of its embodied labor time. Hilferding falters upon the concept of velocity of circulation: sometimes it appears as an independent determinant of "socially necessary labor value"; sometimes it is passive, being determined by the rate at which goods are exchanged.² And finally, he adopts the naive idea of the automatic self-regulatory character of bank notes. In sum, the metallist doctrine has gained nothing by the adherence of socialists.³

¹ Cf. Mandell Bober's excellent treatise, *Karl Marx's Interpretation of History* (Cambridge, Massachusetts, 1927), p. 210.

² *Finanzkapital*, p. 15.

³ For comments on other socialist writers in Germany, consult Bloch, *op. cit.*, *passim*, and Döring, *op. cit.*, pp. 47-57. H. Langelütke's *Tauschbank und Schwundgeld als Wege zur sinnlosen Wirtschaft* (Jena, 1928), presents summaries and criticisms of recent socialist schemes for a "disappearing money" and the like.

CHAPTER VII

CONCLUSIONS AS TO THE NATURE OF MONEY AND ITS VALUE

WHAT is money? Notwithstanding the Socratic flavor of Walker's dictum "Money is that money does,"¹ it indicates how the question must be answered. What functions as money, is money. But what are the functions of money? Fortunately it is not necessary to enter into the intricacies of this threadbare theme, for we do not care how *many* functions money *may* perform, but rather how *few* it *must* perform and still be money. Many writers seem to delight in the indefinite proliferation of functions. By drawing distinctions on the basis of whether the transaction is settled immediately or after the lapse of time, or whether a *quid pro quo* is involved or not, one may call money the means of exchange, of transferring values in place and time, of hoarding, storing values, providing against contingencies, of lending, transferring capital, of paying debts and taxes, etc. All these can be brought under some such neutral phrase as embodying value, bearing options, or mediating exchange.² By stressing temporal sequence again, one may distinguish between the measure of values and the standard of debts or deferred payments, though the latter is only an instance of the former. By referring to any purpose to which money could possibly be put, one may protract the list to include the medium of making gifts, the means of displaying wealth, and so forth, regardless of whether these represent peculiarly monetary functions or not. The supposed function of money as a reserve for credit has significance technically, but disappears in a general theory of the genus money. Finally money as a medium for international payments is an instance of transferring value.

On the other hand commodity theorists, by describing money as merely the most widely accepted medium of exchange, deprive it of distinctiveness as the unit of value; and idealistic nominalists, by

¹ F. A. Walker, *Money, Trade and Industry* (New York, 1878), p. 1.

² Personally I should prefer B. M. Anderson's phrase "bearer of options" as the most neutral expression; but "medium of exchange" has the advantage of common acceptance, and if we think of exchange as covering the mere exchange of ownership of money, it does not involve the idea of a *quid pro quo*, which would limit its generality.

describing money as merely the abstract unit of value, deprive it of physical embodiment and scarcity. We arrive, therefore, at the concept of the materialistic nominalists who insist on the necessity of both elements.¹ The definition of money as exchange media circulating at a par or nominal value has the advantage of embodying the two irreducible functions,² and departing but little from common usage. When money is described as exchange media passing in trade generally, or possessing general and unqualified paying power, the acceptance of certain media as the unit of account is probably implied, even if it is not made explicit. While it is not true that "the unit of money is all money,"³ anything generally used as a medium of exchange "will not as a rule be widely acceptable for this purpose unless it is expressed as a multiple of some unit which is regarded as a measure or standard of the value of things in general."⁴

The German nominalist movement from its inception with Knapp and throughout all its variants has performed the signal service of guaranteeing the conceptual uniqueness of money, and this particular outcome is being taken up into the body of English monetary theory. Robertson's adherence to the idea appears in the passage just quoted; Lehfeldt says that "Money is essentially a measure and therefore involves the concept of a unit";⁵ Hawtrey expresses the same belief;⁶ and Keynes emphasizes the fact that "Money-Proper in the full sense can exist only in relation to a Money-of-Account."⁷ Goods and money are not the same thing; the dichotomy arises from the measure of value. The practical significance of this bit of metaphysics lies in its affording an objective criterion for separating the universe of valuable things into those belonging to the left and right members of the equation of exchange: to the monetary side belong those objects circulating at a par or nominal value, to the latter those with prices. Without this criterion the theory of money cannot begin.

¹ Cf. pp. 44-58, above.

² Cf., amongst others, Siegfried Budge, *Grundsätze der theoretischen Nationalökonomie* (Jena, 1915), p. 50, and F. M. Taylor, *Chapters on Money* (Ann Arbor, Michigan, 1906), p. 20. The only persons I have encountered who attempt to reduce the functions of exchange medium and value measure to one are Helfferich (cf. pp. 60, 62, above) and the Japanese Kiichiro Soda, *Geld und Wert* (Tübingen, 1909), ch. I.

³ Alexander Del Mar, *The Science of Money* (New York, 1896), p. 199.

⁴ D. H. Robertson, *Money*, 2nd ed. (New York, 1919), p. 4.

⁵ R. A. Lehfeldt, *Money* (London, 1926), p. 8.

⁶ R. G. Hawtrey, *Currency and Credit*, 3rd ed. (London, 1930), p. 5.

⁷ J. M. Keynes, *A Treatise on Money* (New York, 1930), I, 3.

But can the constitution of money be described without reference to the rôle of the state? The first and most extreme view, represented by Barbon and Pothier, that the state's fiat establishes purchasing power, can be relegated to the limbo of historical curiosities; and a second idea, peculiar to Kaulla, that the state's acceptance of money at face value gives it a certain exchange value, can be rejected as scarcely less fantastical. Knapp and his followers, Singer, Bendixen, Dalberg, and Elster, maintain the third or chartal theorem that money owes its existence to the state. Although less easy to substantiate from the historical angle, this proposition holds good as a generalization today, if the necessary qualifications are not neglected. Custom and not formal political action accounts for the money of contemporary primitive peoples. Even in capitalistic societies the public chooses its own standard when the state leaves the definition ambiguous, as under bimetallism or under suspended redemption on paper issues; in extreme inflation the public often repudiates the official money, creates its own or adopts that of another country or of a private agency. Ordinarily, however, the state dominates the scene.

Strangely enough, the next of kin to the chartal theorists are not German writers but those English economists whose adherence to nominalism we have just noted. Without falling into any of the naive errors of Knapp, and without giving exclusive emphasis to the *state* in the origination of money, they nevertheless make the discharging of debts the factor which controls the unit of value. Hawtrey shows the influence of chartalism in saying:

To treat the money of account as the unit for the calculation of *prices* is to do it less than justice. It is primarily the unit for the calculation of *debts*, and its use in the calculation of prices merely follows from the fact that the quotation of a price is a proposal for the creation of a debt. . . . Money is the means established by law (or custom) for the payment of debts.¹

Robertson and Lehfeldt² without dwelling on the subject as much as Hawtrey, accept this idea, and Keynes seems to incline in this direction despite his mention of prices and purchasing power along with debts.³ This view makes an advance over Knapp in admitting that custom may complement or supplant the state in creating money, but it either confuses the origin of money with its functions

¹ *Op. cit.*, p. 212. (Italics his.)

² Robertson, *op. cit.*, p. 4; Lehfeldt, *op. cit.*, pp. 8, 100.

³ *Op. cit.*, I, 1-2.

or else gives a distorted view of the functions. No doubt money is controlled by what the state makes legal tender or custom a valid tender, but the origin of an institution does not give its definition. On the other hand, to regard the payment of debts as *the* function of money is awkward and artificial. Bendixen humorously remarks, "When Knapp buys an apple, he takes ten pfennig out of his purse and says, 'This piece has a validity of ten pfennig, and since the vegetable woman demands ten pfennig, I'll pay my debt with it.' What soulless business!"¹ To put cash transactions, the use of money in unspent balances, in one-sided transfers involving no *quid pro quo*, and the like, into the debt solution category is Procrustean.²

The fifth theory of the relation of the state to money does not make the concept of debt payment pivotal. It admits that the money of debts controls the unit of account, that in this way the state or mass psychology creates money. On its abstract side money is the measure of *all* values, not merely of debts; on its physical side, money is the means of transferring values, whether for an economic equivalent or not, whether payment is immediate or postponed. This theory correctly separates the ideas of the origin of money from its functions and identifies money by its two indispensable characteristics. In Germany this theory is represented by Amonn, Casel, Hahn, Nussbaum, Schumpeter, and Wagemann, as we have seen, and by Neisser and Rosch, yet to be considered.³ Its practical significance is threefold. In the first place it offers the economist a conception of money as the basis of the entire price structure in place of a mere debt unit, and as the vehicle of value in the whole mechanism of production and distribution, in place of a medium limited to contracts. To the layman it affords a precise formulation of the idea of money which he probably already holds. To the monetary authority orthodox nominalism gives, besides the criterion of what constitutes money, a theory of the relation of the state to that institution, indicating the maximal and minimal boundaries of currency control.

The greatest significance of the "metaphysical" discussions, however, does not lie in definition or in delineation of the rôle of political

¹ Friedrich Bendixen, *Das Wesen des Geldes*, 4th ed. (Munich, 1926), p. 52, note.

² B. M. Anderson, *The Value of Money* (New York, 1917), p. 434, note.

³ Cf. pp. 44-54, 56-58, above. Hans Neisser, *Der Tauschwert des Geldes* (Jena, 1928), pp. 46-47; Carl Rosch, *Kreditinflation und Wirtschaftskrisen* (Jena, 1927), p. 23.

authority, but in the value problem. This problem resolves itself into two portions, the senses in which money has value, and the fashion after which the value determination process works. Money has value in four important senses: ¹ purchasing power, significance as the unit of wealth or income, the utility to the economic individual of money reserves, and the utility of the monetary mechanism to society. It is necessary to apprehend why these values are distinct, how they are related *inter se* and to the monetary functions, and what import these considerations may have for the theory of prices.

Purchasing power, the ratio of money to goods, is an objective market phenomenon; like any market value, its magnitude rests upon psychological factors, but in itself it is pure number. While the commonest usage designates this as *the* value of money, it is in a sense not a value at all but a price — the price of money in goods.² In order to command a certain amount of purchasing power, the individual must deliver an equal purchasing power in marketable goods or services. In this sense the value of money is uniform to all parties upon the market.

Contrasting sharply with this is the subjective significance of a unit of money income or wealth, depending for its magnitude with each person upon three variables: the variety and intensity of his wants, the size of his money income or wealth in money terms, and the prices of what he buys. Here the *quid pro quo* is normally sacrifice: marginal disutility purchases marginal utility. Whether measured by psychic income or by the pain cost of earning, this value varies amongst the persons experiencing it, though it may be possible with Wieser to conceive of a subjective public economic value of money as a sort of average of individual valuations. Properly speaking this value does not belong to money, but to the marginal unit of real goods owned or got as income, since money figures in this connection only in the abstract function of measuring value.

A third value lies in the utility of stocks of cash or demand deposits held by individuals in order to employ money in function — buying consumers' goods, making loans and investing, repaying debts, paying taxes, and so on indefinitely. Contingencies occur to everyone through the occasional failure of expected income or through sudden demands upon his resources. Even if income and

§ ¹ Here again it might be possible to extend the list of values in the same way as functions have been multiplied; but *praeter necessitatem entia non multiplicanda sunt*.

² Figuratively but not literally, since the real pricing unit is always money.

outlay proceeded with clocklike regularity they could only coincide perfectly in a world where people "lay waste their powers" by devoting all their time to "getting and spending," i. e. where payment proceeded continuously and by infinitesimals. Whatever the purpose to which money may eventually be put, more or less of it must be held in readiness. The flow of utilities from the unexpended money balance¹ appears to the producer indirectly as a *plus* in quantity of product ascribable to his possessing a perfectly liquid asset and to the consumer directly as a *plus* in satisfactions in the form of convenience and immunity from surprise. This *plus* forms a distinctive utility flow from money aside from purchasing power, demonstrated by the fact that holding an unspent margin involves the foregoing of an equal amount of consumptive expenditure or interest bearing investment. Since this implicit cost exceeds the productive activity by which the purchasing power was originally earned, the individual must be receiving something more. It is legitimate to express this unique value as a capital sum, that is, to divide the value of the monetary service by the interest rate, because interest actually measures the magnitude of the service, and because causation actually proceeds here from service or productivity to capital value. But the quantitative result of capitalizing the unspent margin is simply purchasing power. To preserve the undeniably separate character of the value of monetary *services*, I therefore prefer to envisage this third type, a peculiarly monetary value, as a flow of utility equal to interest rather than as a principal sum.

To society money has a fourth value, conceptually distinct from the three already enumerated — the social significance of money as an instrument of production. Wherein does this value consist? By what is it measured? Is it the difference between the national dividend in a barter and in a monetary economy? Such a construction appears as far back as David Kinley,² and is announced with the air of discovery by the latest work in English on the philosophy of money. According to Greidanus' "yield theory,"³ the value of money equals a capitalization of the additional profits which money

¹ B. M. Anderson says, "The money functions are performed . . . not by keeping gold . . . but by passing it on" (*op. cit.*, p. 457). But while the act of expenditure necessarily conditions the holding of money as a "final cause," it *terminates* the flow of services for which we have to pay by foregoing consumption or interest. Mediating exchange and storing value are reciprocal aspects of the same function.

² *Money* (New York, 1904), ch. viii.

³ Tjardus Greidanus, *The Value of Money* (London, 1932), chs. xvii and xviii.

enables the trader to realize or the additional utility it affords the consumer. But the quantity of profit or utility, by this analysis, equals not merely interest on unexpended balances but the difference in total productivity made by money as a sum of all units *beginning with the first*.¹ Such a procedure cannot be countenanced by any coherent system of imputation, which must proceed from the functional and not from the historical angle. Were the productivity of each economic institution to be judged by the effect of its complete removal — what would be the effect of taking away our railway network, our police and courts, or our system of weights and measures as parallel cases — the social product would be completely exhausted several times over. Not presence or absence completely, but the little more, the little less, determines value. The former or generic value, what it means to have *such a thing as money*, does not reveal effective economic importance, for that inevitably attaches to one unit more or less.

On the other hand it has been proposed to set down the total of our money and credit media at face value in the inventory of national wealth, as representing the social significance of money.² People actually do set this value upon money, it is urged, and any departure from "actual values" casts one into a limbo of speculating about what "real" values would be if they were not what they are. And yet the same school of opinion refuses to set down stocks, bonds, mortgages, and the like along with the "real" assets because this would be double counting. By the same token money must be eliminated so far as it is only representative. "People" do indeed treat their money holdings as real wealth; but it is the institution of private property which explains the fiction. From the social angle private property disappears and money has value only to the degree that it makes a demand upon our real resources. And so the measure of utilities from the social institution of money is the opportunity costs involved in its maintenance. If the circulating medium were full-bodied metallic money exclusively, purchasing power and social value would coincide. If the only money were a pure fiduciary issue such as the *Rentenmark*, the opportunity costs for individuals owning money and for society would diverge by the difference between nominal interest loss on the whole sum and printing costs. Most

¹ *Op. cit.*, pp. 323-340.

² M. A. Copeland, "Some Problems in the Theory of National Income," *J. P. E.* 40, pp. 1-51.

monetary systems lie between these extremes. The social value of money amounts to a capitalization of the real loss of interest on treasury and bank reserves, the wear and loss of coins and notes, and such bank operating expenses as fall within the limits of maintaining the circulating medium — costs of encashment, clearing, and a share of the overhead. Society, it is true, cannot even off inequalities in receipts and outlays by means of money, nor through it provide against contingencies. But society can enable individuals to do so by maintaining the monetary mechanism. Consequently, the social utility of money belongs to the same genus as that of unspent margins but does not equal their total because of the large fiat element in the circulating medium. To count money's significance to society at the par value, at real resources saved, would be analogous to pricing automobiles on the basis of horses and buggies saved. For money as for commodities, costs in the situation *as it is* offers the only feasible criterion of social value.

The question remains as to whether these four values are really the same value under different guises, or whether they are quantitatively separate entities of such character as to be additive. From the angle of objective values, society may add to the total of goods purchasable for money (total purchasing power) the total of goods and capitalized services tied up in the monetary institution (the social value of money), and a further sum embracing all goods not offered for money, to get its total real wealth. By virtue of the fiction of private property which treats titles as wealth, the individual may add the value of his unspent margin to his other property. From the subjective angle, conveniently restricted in this connection to the individual, the significance of wealth in money terms is a composite of its significance in consumption, in unspent margins, and in productive investment. Consequently we conclude: (1) for society the purchasing power and social value of money are additive; (2) for the separate individual the purchasing power of his money holdings and the market value of his commodity possessions are additive; (3) the subjective value of a unit of wealth in money terms includes the significance to the individual of unexpended money balances; (4) the purchasing power of all the money in individual balances cannot be added to give its social value.

Identifying and measuring these four values of money has less significance for monetary theory than their causal relation. Purchasing power will be found to stand both first and last in the catena

of causation, though this paradox dissolves upon scrutiny. B. M. Anderson repeats a venerable truth when he says, "Money can function as money only by virtue of having value. . . . It is the *value of money* which makes possible the *money work*."¹ But this does not run into the mere tautology that the value of money determines the value of money. What is meant by purchasing power as the necessary prerequisite of all monetary functions is nothing else than Knapp's "validity." To serve as money a given object must be generally accepted as the medium of exchange and valuation. It must possess valuableness but not a *specific* purchasing power. Next in logical order comes the value of money to an individual maintaining a cash balance. Weighing the relative attractiveness of increments devoted to consumption, to productive investment, and to holding money, he settles upon a division which equalizes marginal satisfactions in all modes of utilizing wealth. Since this calculation runs in real terms, it does not presuppose an established purchasing power. On the contrary, with the quantity of money and credit given, this subjective appraisal of the importance of money regulates its value in exchange, so far as causation proceeds from the monetary member. Velocity varies inversely with the unspent margin, purchasing power directly. Purchasing power once established, the last link in the causal series follows — the subjective significance of unit of wealth or income in monetary terms, functionally dependent upon two further variables, the extent and variety of the individual's wants, and the size of his fortune. Nowhere in this sequence of cause and effect does social value appear. It neither helps establish purchasing power² nor derives from it. If a government succeeded in bringing about a close approximation to a pure credit economy, quantity of money, size of balances, and purchasing power would, *ceteris paribus*, be unchanged. But the principle of opportunity cost would reveal the social value of money as a small magnitude. Every improvement making for greater economy in the employment of a productive factor renders it relatively more abundant and less valuable, and carries us one step closer to Utopia, where opportunity

¹ *Op. cit.*, p. 76. (Italics his.) Similar statements are to be found in T. N. Carver, "The Concept of an Economic Quantity," *Q. J. E.* 21, p. 437, T. Greidanus, *op. cit.*, p. 150, and all writers holding that the demand for money is a demand for so much value.

² To be qualified to the degree that increasing the quantity of real resources embodied in money as opportunity cost goods decreases the goods available for purchase with money.

costs and economic values disappear. That the social value of money represents something quite separate from purchasing power is not unnatural, in view of the fact that exchange is as much facilitated by a small as by a large quantity of money.¹

Enquiry into senses of the value of money fails to reveal a single instance of absolute value. Unlike economic goods and services, which possess value in their own right,² money has meaning solely as a representative. Superficially the value of money to the individual holding balances for the flow of utilities emanating therefrom, or to society maintaining the monetary instrument as a productive factor, appears to exist independently, as a value of money *per se*. Notwithstanding, this is mere appearance. Consider the matter first from the viewpoint of the individual. This is the more important aspect from a pragmatic angle, since the question as to whether money has a value in and of itself usually occurs in connection with purchasing power which we have seen to be a function of individual money reserves and not of social value. Can the monetary member of the purchasing power ratio be regarded as *the* value of money, an independent entity? By no means. Individuals hold money *only because* it has exchange value, whereas they would desire shoes even if shoes were free goods. Moreover, the parties to the market find that the *extent* of the utilities coming from money varies directly with its exchange value, whereas this is not true of shoes.³ If on the side of demand, the existence and extent of value is purely relative, the same situation obtains for supply. The costs undergone in the maintenance of idle balances are fictitious, the interest loss nominal. Balances in the aggregate represent a certain proportion *to* real resources but not *of* them. Consequently the nominalist contention that money functions as a ticket, that purchasing power is the reciprocal of prices and nothing more, prevails against such attempts as Gruntzel's⁴ to make of it an independent entity. Against the uniqueness of money it might be argued that since all values are

¹ Cf. Ludwig Mises, *Theorie des Geldes und der Umlaufsmittel*, 2nd ed. (Munich, 1924), p. 123.

² The imputation of absolute value to commodities and services does not deny that the *extent* of each value depends on other competing values, nor that value exists only as a relation of object and valuing subject.

³ The latter distinction becomes weak with such objects of invidious distinction as diamonds, expensive motor cars, and the like; but it is insufficient to break down the category of money for which "demand" is universally and uniquely dependent on exchange value.

⁴ Cf. pp. 72-73, above.

worked out coincidentally as illustrated by a system of simultaneous equations such as Wieser's, *no* value can be known until all the others are determined. But the quantity theory, adopting precisely the mechanism of simultaneous equations, in which the equation of exchange furnishes the solution for the monetary unknown, does not rest its case on the impossible assumption of purchasing power being established *prior* to the appearance of the functioning of money in its distinctive capacities, but upon the *logical* dependence of those functions upon purchasing power. In this money is unique.

The relative character of other monetary values, while less significant, is equally certain. Society, it is true, undergoes certain real costs in supporting the institution of money; but the social value depends, no less than the unspent balance value, upon money's having exchange value. In any event the search for a supposed absolute value of money which should constitute one member of the exchange value ratio in prices cannot find its goal here, inasmuch as social value bears no definable relation to purchasing power. As for the subjective significance of a unit of wealth in money terms, no argument is needed to show its relative character.

Categorizing the values of money has certain "practical aspects." It would seem to be a practical matter, in the first place, that a theory of prices should know quite unambiguously what value of money it deals with. I do not believe this is always the case; indeed, the only outstanding American work upon the nature of monetary value falls into confusion. Does B. M. Anderson mean by *The Value of Money* its purchasing power? Anderson would certainly respond negatively, and yet the whole work is an *ad hominem* attack upon the quantity theory as represented by Fisher, whose book significantly bears the title of *The Purchasing Power of Money*. One would suppose that objections to Fisher would have to be that he offers an unsatisfactory explanation of purchasing power, conceived by Anderson himself to be a mere reciprocal of the price level, an exchange ratio.¹ But while Anderson has offered a very searching criticism of the quantity theory, the real animus of the work proves to be that the value of money is not purchasing power but "psychological significance."²

Now psychological significance may mean several things. It might be the value of money stocks to the individual, money in the bearer

¹ *The Value of Money*, p. 388.

² *Loc. cit.*

of options function, and Anderson once ventures to call this "*the dynamic function of money par excellence.*"¹ Ordinarily, however, this does not seem to be *the* value of money, but rather one reason amongst several for money's possessing a "differential value." Or it might be Wieser's "subjective public economic value," which I have called the subjective significance of money income or wealth in monetary terms. Anderson points out his agreement with Wieser's concept before the latter had distinguished the subjective and objective variants;² but since Social Value, we are told, does *not* mean market ratios of exchange, Anderson is attempting to use a sense of the value of money to explain prices which Wieser himself did not conceive as capable of causing purchasing power.³ Probably Anderson's comparison of his theory with Wieser's was an aberration; the general tenor of Anderson's work makes *the* value of money to be its significance as a socially productive factor, and for this reason I have adopted the term "social value" to designate this idea. Expatiating quite justly upon the difference between values to society as an organism and to separate individuals, Anderson should not have missed the quantitative difference between the sum of value flowing from individual money holdings and the value accruing to society. Both values arise from the various functions enumerated by Anderson, but their quantitative difference prevents their both being at once *the* value of money.

Purchasing power Anderson believes "included" in Social Value, "market ratios being ratios *between* social values."⁴ In other words, one member of a ratio "includes" the ratio! This bit of legerdemain simply causes purchasing power to evanesce. It disappears into the *ignis fatuus* of Anderson's Social Value, which "includes" not only purchasing power but all other conceivable values of money in the nebulous state. Unless Anderson's treatise does not pretend in the least to offer an explanation of prices, it will have to recognize that Social Value, being ostensibly some sort of psychological significance and therefore lying behind objective exchange ratios, cannot *be* these ratios.

If we examine the various nuances of Social Value, we discover only one which can serve as the cause of purchasing power. The pre-

¹ *Ibid.*, p. 426. (Italics his.)

² *Ibid.*, p. 14. Capital letters are used hereafter to distinguish Anderson's Social Value from mine.

³ Cf. pp. 82-83, above.

⁴ *Ibid.*, p. 99. (Italics mine.)

ceding pages have demonstrated that the subjective value of money income depends upon prices, and that the value to society of the money mechanism differs quantitatively from the individual cash balance value. Only the latter operates upon purchasing power, through its control over velocity. But this is not a social value, since it rests upon the figment of private property that money is really wealth. Holding Anderson to his expressed purpose of explaining prices, we must insist therefore either that Social Value *explains* purchasing power only if it is not Social, or alternatively that it *is* purchasing power, in which case it ceases to be Value, in the deeper sense of a feeling magnitude. Despite all the fanfare concerning Social Value as in essence psychological significance, Anderson seems to me to adopt the latter course in the end, to surrender Social Value as anything distinct from purchasing power. Making the fatal concession that Social Value includes the latter, he really allows purchasing power to gobble up Social Value. The concluding sentences of the work signalize a collapse which has been impending throughout the argument.

The physical weight in gold, which is itself an object of social value, is commonly the immediate basis of the value of the dollar today, but money may get its primary value from other sources than valuable bullion. Given this primary value, the dollar may get an enhancement in that value from the services which it performs in the social technology of adjustment.¹

In other words the value of gold comes from a composite demand in the arts and the monetary employment. This the essence of the positive theory! Aside from contributing to the development of the quantity theory by a brilliant and minute criticism, the whole work spends itself in labyrinthian wanderings amongst conflicting concepts of the value of money.

While Anderson affords an unusual example of mistaken opposition to the quantity theory arising from this confusion, he is by no means alone. As Hans Neisser observes, such marginalists as Aftalion and Mises object to the quantity theory's correlating the value of money inversely with amount, on the grounds that doubling a given individual's money income will not halve the marginal satisfaction.² This involves the crass error of identifying purchasing power and the subjective significance of an individual's money income; of

¹ *Ibid.*, p. 591.

² *Der Tauschwert des Geldes* (Jena, 1928), p. 14; cf. A. Aftalion, *Les crises périodiques de surproduction* (Paris, 1913), II, 277, 297; and Mises, *Theorie*, 2nd ed., pp. 122 ff.

imagining that with *one* individual's income doubled, the quantity theory supposes that purchasing power would be affected at all, or that it predicts whether the fall in marginal satisfaction to the individual would be more or less than proportional. The same sort of error prevails amongst the followers of Wieser who, as we have seen,¹ did not until late in his career succeed in divorcing the subjective and objective elements of money value, and who was never able to subscribe to a quantity theory because it did not deal with psychological significance. "Income theorists" such as Wieser, Liefmann, Genzmer, Eppich, and others of the Austrian school, as well as Kerschagl and Spann, never separate the subjective *determinants* of market value from its purely objective *constitution*, and consequently never attain to the position of judging the quantity theory as an explanation of purchasing power pure and simple.

A peculiar by-product of the misapprehension of money values is the refusal of certain persons to accept price indices at their face value. Repeatedly with the subjective value theorists we find it said that a price index measures the "outer objective exchange value" of money, but not its "inner objective exchange value," and that therefore the index fails to show the value of *money*. But since value can be measured only by value, every exchange value is a ratio; and to seek for a measure of value which shall be affected by only one of the values involved is tantamount to demanding a ratio which is not a ratio. This consideration would dispose of the marginalists' misgivings with respect to indices *even if* purchasing power *were* conceived of as a ratio between a supposed absolute value of money and the absolute value of goods. Nominalists have not fallen into this specious attitude toward indices because they have recognized no other value of money than purchasing power.

It seems almost too elementary but it is nevertheless unfortunately necessary to insist that indices fail to show whether prices have been changed by events upon the side of goods or upon the side of money, not because indices are insufficiently sensitive, as Behrens concludes in a recent work,² but rather because a ratio is a ratio. Otherwise expressed: when purchasing power changes, since the value of money is purely relative, only *one* value is there to change. Such a pronouncement may savor of scholasticism, but it has a very practical corollary in the field of monetary policy. Consider the

¹ Cf. pp. 81-87, above.

² Cf. p. 90, above.

alternative proposals for price stabilization and for secularly declining prices in conformity with the reduction of costs through invention, etc. Which of these represents the truly "neutral" money? The answer from the angle of the value of money is certainly "Neither." The German nominalists have conclusively shown that, from the purchasing power aspect, a value of money *per se* does not exist. The quantity of money, whatever it is, determines the behavior of prices just as much as factors on the side of goods. Consequently no monetary policy, not even the absolute fixation of the quantity of effective purchasing power, is "neutral" with respect to price levels in the sense of not being jointly responsible, along with the "real" factors, for their behavior. If the idea of a "neutral" money is to mean anything, it will have to be from another angle than that of the value of money. The test will have to be pragmatic: which policy actually proves itself most workable, less the occasion for economic disturbances and social injustices. Perhaps such a money can be called "neutral." But there is no neutral *value* of money, *per se*.

If the misconception of inner objective value has to be abandoned in the theory of internal price levels, it must be surrendered in theory of exchange rates. The atavistic view that mint-par represents some sort of "intrinsic" value of one country's monetary unit in terms of another's will have to give place to the nominalist notion that here, as in the domestic situation, purchasing power and that alone reveals the objective exchange value of money.¹

While certain extremists in the German nominalist movement err in denying value to money in any sense, and while the majority make the mistake of denying any other value than purchasing power, the movement has served to establish purchasing power as a purely objective and numerical relationship,² and as such the function of purely objective and numerical quantities. Each of these objective quantities has its psychological background, but the monetary theorist makes no mistake in cutting into the problem above this level if he chooses. The Cambridge unspent margin approach, for example, contributes an intellectually satisfying explanation of the subjective determinants of velocity; but the Fisher "V" simply takes up the same phenomenon as it appears on the market. It is

¹ This does not signify the acceptance of the theory of purchasing power parity, and is in no way connected with it. Cf. pp. 264-268, below.

² "Not the command over quantities of utility," in Keynes words (*op. cit.*, I, 96).

not legitimate to object to a quantity theory of prices because it is "mechanical," because it deals only with physical magnitudes in the explanation of prices, or because the value it does explain is "merely" purchasing power. If it deals with prices from that angle, it need have no concern with a "real" value calculus.

The chartalists and nominalists have succeeded in showing that the *idea* of money is categorically distinct from that of commodities, and that the nature of its *value* is purely relative in contrast to commodity values. It would not be surprising if the manner in which this value is *determined* should prove unique. Foregoing chapters devoted to commodity theories have found the ordinary categories of marginal utility, of demand, and of supply to be inadequate instruments.¹ Marginal utility involves circularity when applied to money, and disappears as a dividing line between satisfied and unsatisfied wants. Deprived of the marginal utility background, the "demand" for money as a rectangular hyperbola representing the total money work to be done ceases to be comparable with ordinary demand schedules and becomes only an excessively simplified graph of the functional relation between money and prices. If, on the other hand, demand be conceived as individuals' need for cash balances, it has been shown that the thing demanded is not really units of money but units of purchasing power. The notion of supply with reference to money becomes hopelessly confused, because increased rate of exchange does increase the effective amount of money but not of goods, and because the arbitrary action of banks results in the quantity of money being neither fixed nor any definable function of its "price." Popular discourse and the usage of economists will not be deterred from further employment of these terms by such considerations; but there is no justification for the practice, and it involves certain hazards from a pragmatic angle. Hayek adverts to one in particular.² If the "supply and demand" of money were really analogous to that of goods, only *one* specific quantity would "clear the market," i. e. set demand and supply in equilibrium. Ordinarily if the market is cleared, it is evidence that the quantity of the good is neither less nor more than the quantity called for by the underlying schedules. Applying this reasoning to money would justify *any* amount of inflationary increase in the circulating me-

¹ Also the conclusion reached by Anderson, *op. cit.*, chs. ii-iv.

² Friedrich Hayek, "Das intertemporale Gleichgewichtssystem und die Bewegungen des Geldwertes," *Welt. Arch.* 28, p. 72.

dium, since with money, given time enough, *any* quantity will set the market in equilibrium. Bankers could therefore always respond that the additional money was warranted by the "demand"; and such a confusion did indeed permeate the argument of the old "banking theory." Irving Fisher points out a further pitfall: the concept of demand gives, in a sense, precisely *opposite results* when applied to money and to goods. "An increased demand for any individual commodity results in a greater consumption *at a higher price*, yet an increased general demand for goods will result in a greater trade (the Q's) *at lower prices.*"¹ To avoid ambiguity the supply and demand categories should be abandoned in the sphere of money.

Other commodity explanations scarcely merit attention. The so-called "functional theory" resolves itself into a platitude on the one hand, since all values are functional, and into a fallacy on the other, since it usually sinks into the morass of "supply and demand" when it attempts to describe how the functions emanate in an exchange value. For these reasons it has not received separate treatment in this study.² We have noted the error of the "yield theory" of Greidanus and Kinley.³ The cost of gold production theory fails to include the velocity factor and besides "lets the tail wag the dog" in a system where credit media are used preponderately or exclusively. To my knowledge there is but one other commodity approach to the problem — the *qualitative* theory that confidence governs the value of fiat issues. A subsequent Part devoted to inflation phenomena will reveal the necessity of recourse to this idea in certain circumstances. But there are two reasons why this theory cannot supplant a *quantitative* approach to the general problem of price levels: first, that many cases where confidence plays an important rôle can without error be treated under the rubric of quantity; and secondly, that the remaining cases are so rare that we may say *de minimis non curat lex*.

The net outcome of this study of the nature of money is a vindication of nominalism, tempered in two instances. Money has value in other senses than purchasing power, and in certain extraordinary cases, qualitative appraisals which give money a commodity character interfere with the purely quantitative determination of pur-

¹ *The Purchasing Power of Money*, 2nd. ed. (New York, 1922), p. 180. (Italics his.)

² In contrast with Herbert Döring, *Die Geldtheorien seit Knapp*, 2nd ed. (Greifswald, 1922), pp. 36-85.

³ Cf. pp. 109-110, above.

chasing power. But generally speaking, money is a token and not a commodity, in idea, in the constitution of its value, and in the process by which its value is established.) In addition to the numerous practical inferences already drawn in the foregoing pages, we should perceive that one result of this philosophy is undoubtedly a lessening of the theoretical significance of gold. The older tendency toward a virtual identification of money with the standard metal had an adverse effect upon monetary policy. Gold reserves of central banks, instead of being a means to an end, were guarded with mercantilistic zeal. In its worst phase this attitude ran off into the absurd idea, propagated in Germany during the War, that furthering the employment of credit as against cash in domestic transactions would stay the progress of mark depreciation through the mere increase in the Reichsbank's gold chest. At best the apotheosis of gold tended seriously to draw attention away from the necessity of intelligently directed control over domestic price levels and exchange rates. The theory of controlled currency had to await the development of a more modern explanation of money. Attempts to discredit nominalism by denying that fiat money ever existed save as a diseased currency fall short of the goal. Even diseased currencies belong to the theory of money; and fiat money has not always been pathological, as the *Reutenmark* attests.¹ Fortunately, however, the case does not turn on abnormalities, for nominalism would call attention to the large fiat element in all contemporary money systems which renders gold a quantitatively and logically subordinate factor. As Hawtrey observes:

The theory that money behaves like a commodity has the attractiveness of a paradox which completes a generalization. But it melts away under analysis except as applied to metallic money. Gold is undeniably a commodity. But gold itself so long as it is being used as money, is subject to all the laws which govern the value of money. A gold coin is itself a ticket.²

Whether it be from indigenous causes or from the impress of German nominalism, monetary theory in Anglo-Saxon countries has

¹ Because the *Reutenmark* was exchangeable for *Reutenbriefe*, or land mortgages, one might imagine it was not a purely fiat money. But Hahn has pointed out that, with the market rate of interest much above the 5% yielded by the *Briefe*, the *Reutenmark* would have had to depreciate a great deal before this redemption would have paid (L. Albert Hahn, *Gold und Kredit, Neue Folge*, Tübingen, 1929, p. 20). Graham correctly holds the actual value of the *Reutenmarks* to have been "due entirely to rigid limitation of issue" (Frank D. Graham, *Exchange, Prices, and Production in Hyper-inflation: Germany, 1920-1923*, [Princeton, 1930], p. 12, note).

² *Op. cit.*, p. 190.

turned very largely away from the commodity approach of a generation ago. In America the development has been less pronounced; but whereas the older standard works¹ without exception practically identified money and gold, at the present Laughlin almost alone represents this school of thought. In England, Cannan adheres to the commodity theory,² while Hawtrey, Keynes, Leffeldt, and Robertson have clearly repudiated it.³

It remains to draw a final inference from the nominal character of money and its value. The metaphysics of money affords to the theory of price levels its point of departure. The representative value of money, the money-offer for goods and services in its totality, equals the goods and services offer for money in its totality. However commonplace this proposition, it must be an anomaly to commodity theories, for if money were itself a commodity its value could not equal the value of commodities. Or if the commodity theorists were to respond that money is a commodity but its value is equal to all *other* commodities, the statement, while ceasing to be a *contradictio termini*, becomes, to employ a phrase of the English philosopher Bradley, "a mere monster," because it is not the nature of an economic good to equal in value all other economic goods. None of the laws governing the values of commodities have as their postulate an equality of value of the good in question with all other values. The unique law governing fundamentally the value of money is on the other hand precisely this equality. The "equation of exchange" follows with apodeictical certainty from the very concept of money; the task of economists lies in perfecting the theory of prices upon that basis. The next Part of this book traces the progress of recent German monetary literature in this direction.

¹ J. T. Holdsworth, *Money and Banking*, 4th ed. (New York, 1923) p. 70; David Kinley, *Money* (New York, 1904), p. 139; W. A. Scott, *Money and Banking*, 5th ed. (New York, 1916), p. 64; Horace White, *Money and Banking*, 5th ed. (Boston, 1914), p. 25.

² Edwin Cannan, *Money*, 5th ed. (London, 1926), p. 25.

³ Cf., p. 105, above.

PART II

THE DETERMINATION OF PRICE LEVELS

CHAPTER VIII

THE QUANTITY THEORY: TRANSACTIONS APPROACH

QUANTITY theory explanations of purchasing power may be divided into significant groups on a number of bases. Some writers, as for example Fisher, seek to establish a correlation and causal connection between money in the narrow sense and prices; others, such as Hawtrey, think of hand-to-hand currency as a mere satellite, credit assuming the chief rôle. Certain theorists — and this includes the vast majority of German writers — who follow Wicksell quite closely, attribute price level variations to changes in bank rate, either absolutely or relatively to natural rate, whereas others, sceptical of the dominance of discount policy, adhere conservatively to quantity of money and credit. Again, in some quarters “the” value of money is treated as a unitary phenomenon, against which in other quarters it is maintained that special indices alone have meaning.

The discussion of price level determination in the present Part is devoted primarily to the *formalities* of theoretical statement, most of the moot questions as to direction of causation and other realistic issues being put over to subsequent Parts upon inflation and business cycle phenomena. With this limitation for the present, I find the most significant contrast between quantity theorists to be none of those just mentioned but that which obtains between the period and point of time viewpoints. Monetary literature in America has characteristically, though not exclusively, been oriented upon the period approach; in England and on the Continent, upon the cross-section basis. Nothing prevents the problem's being solved through either channel; but in the present interchange of ideas, the implications of either mode of analysis are often imperfectly understood by proponents of the other. While trenching upon a variety of topics in the following chapters, I shall adopt the transactions cash-balance contrast as a basis for classification of theories, attempting to resolve some of the real and apparent contradictions which prevail between the two methods of exposition.

The prevalence of the cash balance or point of time analysis on the Continent is revealed by the fact that only three significant writers in the German literature follow the model of Irving Fisher.

Schumpeter abides by this scheme throughout, Cassel states the alternative approach without utilizing it extensively, and Marshak, the third person referred to, has recently abandoned the period equation for cash balances.

I. SCHUMPETER'S INCOME THEORY

Professor Schumpeter's formulation of the quantity theory appears mainly in a notable article contributed to the *Archiv für Sozialwissenschaft* in 1918.¹ Its distinctive features may be analyzed under four topics: (1) the limitation of the equation of exchange to consumers' real and money incomes; (2) the peculiar description of M in the equation; (3) the concept of monetary "efficiency"; (4) the direction of causation.

Schumpeter himself says that, beside the equation for consumers' incomes, there could be set up an equation for producers' goods, in which PT would refer to the social product of the next subsequent economic period.² It would seem, however, from the very casual introduction of the subject, that the complementary equation can be omitted from a formal theory of purchasing power without serious consequence. In a condition of equilibrium, postulated in this article, the values of producers' and consumers' goods would indeed form a consistent system. Even here, from the angle of Marshallian doctrine, value causation proceeds as much from cost as from utility, and contrary to Schumpeter's Austrian value assumptions, from producers' as much as from consumers' goods, so that neither sphere has a superior claim toward determining "the" value of money.

In dynamic conditions, an equilibrium of producers' and consumers' prices is rarely perfect. "Hyper-inflation" may obliterate the distinctiveness of the two fields so that it becomes possible to speak of "the" price level *sans phrase*. But ordinarily, as Mises objects concerning Schumpeter's equation,³ events in the business and industrial world are just as important as developments in the sphere of consumer income and expenditure; and that is true even if, by convention, "the" value of money is referred to the cost of living. Some years ago B. M. Anderson in a chapter entitled "The Redis-

¹ Joseph Schumpeter, "Das Sozialprodukt und die Rechenpfennige," *Archiv* 44, pp. 627-715.

² *Ibid.*, p. 675.

³ Ludwig Mises, *Theorie des Geldes und der Umlaufsmittel*, 2nd ed. (Munich, 1924), p. 253.

covery of a Buried City" brilliantly vindicated the importance of speculative transactions in purchasing-power behavior.¹ More recently Palyi has ascribed the approximate constancy of the general price index in the United States from 1921 to 1927, despite an increase in monetary velocity and a swelling of deposits from \$40 billion to \$56 billion, partly to the increase in volume of physical product, but notably also to speculation.² The League study of the current depression assigns to security and commodity speculation eighty-six per cent of the credit expansion in the United States in the thirteen months following May 1, 1927.³ Professor Schumpeter's own theory of economic innovation stands as excellent evidence of the capacity of monetary developments in the sphere of production to determine the course of consumer purchasing power. Save for the possibility that a cost of living index serves better as an all-purpose measure of the value of money than any other, a consumers' equation takes on significance only as it is complemented by other equations covering the remainder of economic life.

It would be less than just, however, to appraise Schumpeter's theory solely upon these grounds. On a purely logical basis, his equation falls short not only as a disjointed member of what should be a complete system, but also as a self-consistent whole, as we shall presently apprehend. But historically Schumpeter's article achieves distinction (1) for its insistence upon a specific, as against a meaninglessly general, conception of purchasing power, and (2) for its attempt to give Wieser's amorphous "income theory" a definitely quantity theory expression. An initial step in the right direction cannot be depreciated because it does not complete the journey.

We turn to the detailed construction of Schumpeter's equation to discover that the definitions given to both M and V are subject to devastating objections. Apparently he agrees with Turgot that "Every commodity is money; . . . reciprocally, all money is essentially merchandise,"⁴ though this conflicts directly with Schumpeter's present nominalist position as outlined in Part I.⁵ In the

¹ *The Value of Money* (New York, 1917), ch. xix.

² Melchior Palyi, "Die Zahlungsbilanz der V. S. von Amerika als Gläubigerland," *Versis* 174, pp. 268-272.

³ *Course and Phases of the World Economic Depression*, Series of League of Nations Publications, II. Economic and Financial 1931. II. A. 21; Official No. : A. 22. 1931 II. A. (Geneva, Switzerland, and Boston, Massachusetts, 1931), p. 127.

⁴ A. R. J. Turgot, *The Formation and Distribution of Riches* (1770), ed. by W. J. Ashley (New York, 1898), p. 36.

⁵ Cf. pp. 50-51, above.

present instance, he includes under money not only standard and subsidiary coins, bank notes, deposits, and checks passing by further endorsement, but also sugar, tea, etc., when they serve as media of exchange, and even "book" credit and mere verbal promises to pay.¹ If the concept of money is to mean anything, it must be *contrasted* with "not-money"; but as Palyi comments, Schumpeter's usage would "reduce the idea of a quantity of money to the unknowable."² The dichotomy must be preserved if the equation of exchange is to serve as the basis of statistical enquiries, and yet the rather unusual exchange media spoken of must be taken into account.

Does not the definition of money adopted at the end of the foregoing Part afford an escape from the dilemma? Media of exchange, it was said, must be scarce and valuable, and if they pass at a par or nominal value they become also money. These tests will normally admit as money: standard and subsidiary currency, bank notes, deposits, checks themselves when they pass without discount by further endorsement, and other credit media with the same limitation. Transactions taken care of by payment in other commodities with varying prices, such as tea and tobacco, simply disappear from both sides of the equation of exchange, and the same is true of transactions settled by book credit and verbal promises.³

Having put into *M* a variety of nondescript quantities in no proper sense to be thought of as money, Schumpeter proceeds to abstract various classes of money until there is literally nothing left. Only circulating money, he says, must be admitted to the equation, and this means the elimination of (1) hoards, (2) reserves behind credit issues, (3) "unemployed funds awaiting expenditure," and (4) "the actual reserves of banks and individuals."⁴ Now the exclusions

¹ *Archiv* 44, pp. 655-661.

² Melchior Palyi, "Ungelöste Fragen der Geldtheorie," (Munich, 1925), p. 484.

³ B. M. Anderson (*op. cit.*, p. 170) would admit book credit to the monetary member; but F. W. Taussig in his *Principles of Economics*, 3rd ed. (New York, 1922), I, 416, and Irving Fisher in *The Purchasing Power of Money*, 2nd ed. (New York, 1922), pp. 370-371, argue correctly that, though it may have a temporary effect in expanding or contracting, it has no ultimate effect, being only a temporary means of avoiding the use of money. The same may be said of installment sales and verbal promises to pay.

It might be questioned whether bank deposits are scarce and valuable, on the ground that they are not physical. Although the mere paper-and-ink basis of bank deposits may seem rather tenuous, it is no more so than the basis of bank notes, which take their scarcity, not from the limitation of bits of paper, but from the figures imprinted upon them. The mere *idea* of money is not scarce, but these concrete forms of money, sometimes erroneously called "ideal," are really scarce. Figures entered in a pass-book are concrete things, not abstract concepts.

⁴ *Archiv* 44, p. 666.

under (2) and (4) would seem sufficient to account for the entire monetary stock of the country, so that nothing remains as circulating money. Item (2) is legitimately a deduction from the total of purchasing power; it is regularly abstracted from the total money stock of the United States by the Director of the Mint to avoid double counting,¹ and for the same reason such writers as Fisher, Hawtrey, and Keynes do not include bank reserves in their equations.² This leaves (1), (3), and the second part of (4) as circulating money. Some writers would abstract (1), hoards, on the ground that they are definitively withdrawn from circulation; others prefer to include these funds, because they *may* at any time come into active employment and because their magnitude is not statistically apprehensible. The choice is largely a matter of taste. Furthermore if item (2) be given the specific meaning of "contingency reserves" over and above ordinary operating funds, their velocity is zero, and again their inclusion is a matter of taste. But when the process has progressed to this point, to deduct (3), "unemployed funds awaiting expenditure," is to take away operating funds, constituting the balance of the money stock! The second half of (4), "the actual reserves . . . of individuals," then appears to be neither a distinct quantity nor in any event a legitimate subtraction.

In addition to describing the quantity of money appropriate to his income equation as the residual after certain subtractions, Schumpeter also proceeds to a threefold division of the entire monetary stock into the spheres of "circulation," "hoards and reserves" and "capital."³ Granting that the boundary line between these quantities varies, he nevertheless eliminates the second and third, whatever their momentary magnitude, to arrive at *consumers'* income. We should not understand that Schumpeter's "circulation sphere" coincides with what Keynes calls the "Income-deposits," i. e. consumers' as against producers' or savers' balances.⁴ It is rather the total of Keynes' "Income-deposits" and "Business-deposits A," i. e. the total of active balances held by consumers and by producers in a somewhat narrow sense of the word excluding financiers, bankers,

¹ E. g., *Annual Report of the Director of the Mint 1927* (Washington, D. C., 1927), p. 102.

² Irving Fisher, *op. cit.*, pp. 50-53, 162; R. G. Hawtrey, *Currency and Credit*, 3rd ed. (London, 1930), p. 43; J. M. Keynes, *A Treatise on Monetary Reform* (New York, 1921), pp. 81-29.

³ *Archiv* 44, pp. 666-667.

⁴ J. M. Keynes, *A Treatise on Money* (New York, 1930), I, 35, 244-248.

speculators, but including wholesalers and retailers. To this aggregate Schumpeter applies his concept of monetary "efficiency" in his consumers' equation; and to it also he would apply the same efficiency were he to construct an equation for producers' goods.¹ The full import of this description of M in the equation, as well as its inherently contradictory nature, will be made evident in the subsequent discussion of velocity.

In one respect Schumpeter's M magnitude contributes to the formulation of an elastic and realistic sort of quantity theory. By including within quantity of money not only currency but also deposits, he is not obliged to defend an approximate fixity of the bank reserve ratio. Tracing the probable results of increased gold production, it is true, he envisages the impulse as passing first to bank reserves, thence to lower discount rates, and finally to a greater volume of loans.² His application of the cost of production theory to gold also naturally presupposes some fixity in the proportion of reserves and deposits. Finally, while he admits that central banks may absorb gold without extending loans, he remarks that "this is a mere side issue."³ But his quantity theory does not *require* this postulate.

Monetary efficiency is defined formally as the number of times a unit of money⁴ enters into consumers' incomes on the average during "the production period to which the sum of incomes relates." Quantity of money multiplied by efficiency or total money income equals the price index for consumers' goods multiplied by the volume of social product. What Schumpeter obviously desires to achieve by the concept of efficiency is a kind of velocity suitable to an equation of consumers' money and real incomes. Mathematically however, efficiency, or what has been called circuit flow or circuit velocity, is the quotient of person-turnover divided by the number of stages through which it passes against goods both inside and outside the consumers' sphere, and hence it necessarily varies inversely with the size of this quotient. This result is unwelcome to Schumpeter, who desires to keep the symbols in his equation purely con-

¹ *Archiv* 44, p. 675.

² *Ibid.*, p. 691 ff.

³ *Ibid.*, p. 699.

⁴ *Ibid.*, p. 671. To avoid the complicating difference between the "coin-transfer" and "person-turnover" notions of velocity, we shall interpret Schumpeter as meaning that each unit of money is weighted appropriately in comparison with other units of greater and smaller denomination, i. e. the "person-turnover" definition where the persons are consumers only.

sumers' magnitudes; he escapes by taking the completed circuit itself as the unit of velocity. These conflicting strains of thought may be reviewed under three headings.

(1) The first involves two cases in which Schumpeter reasons toward a rise in prices from increased "velocity." In neither case does he employ his own term "efficiency," nor does he earmark the type of velocity as Fisher's "person-turnover," which in general he rejects. But since *E*, or efficiency, is the only velocity term in his equation, the effect must be assumed as being produced thereby. In the first case, prices are forced upward by accelerated velocity under inflation, when people lose confidence in money;¹ in the second, markets are held at shorter intervals and prices rise proportionally to the greater frequency of settlements.² Since in these cases nothing has changed in the number of productive stages through which commodities pass in their progress toward consumers, if velocity in Schumpeter's efficiency sense increases, so must it also in the Fisher person-turnover sense. Velocity increases, it should be noted and Schumpeter explicitly calls attention to the fact, despite the *constancy* of the annual turnover of goods.

(2) Velocity in the rejected Fisher sense, Schumpeter says elsewhere, is "not a distinguishable element in the value of money but *necessarily equals that* [the turnover rate] *of goods*"; it has "absolutely *nothing* to do" with monetary efficiency.³ The occasion for this point-blank contradiction with the ideas of the preceding paragraph is an illustration involving a change in number of monetary turnovers previous to consumer income. The proliferation of firms, he believes, from a single integrated concern to ninety-nine separate businesses for the same productive process would not effect monetary efficiency. Though person-turnover would apparently be increased (1) according to his view of the case, "it is a matter of complete indifference through how many hands a sum of money must go in order to pass from one income to another."⁴ The indifference must pertain to prices, as Schumpeter's critics have assumed, though he does not actually say so.

So far as concerns the evidence of the two preceding paragraphs, we might conclude that Schumpeter believes that efficiency stands upon its own feet and assumes independent significance in determining prices. Where, as under paragraph (1), person-turnover

¹ *Ibid.*, p. 683, note 44.

² *Ibid.*, p. 668. (Italics mine.)

³ *Ibid.*, p. 668-669.

⁴ *Ibid.*, p. 672.

affects prices, it does so because it changes efficiency. Under paragraph (2), where industrial differentiation occurs, it does not affect prices, because it does not change efficiency, but only person-turnover. There would seem to be no point in writing *E* into the equation unless efficiency were independently significant, and moreover Schumpeter states explicitly that it is.¹ This interpretation, including the explanations for differentiation and shortened payment periods, is compatible with Schumpeter's statement in another work that he agrees with Wieser that

changes in velocity of circulation [*Umlaufgeschwindigkeit*, not *Effizienz*] . . . are not independent causes of changes in the price level, since they — or from our standpoint it is better to say "in so far as they" — are induced by the movement of goods.²

He does not accept Wieser's categoric proposition, but only the partial dependence of velocity on the "movement" of goods. This is the interpretation which Marget makes in a recent examination of Schumpeter's velocity theory,³ and one which for a time I thought the only one possible. It is not inconsistent with Schumpeter's position that efficiency represents an "almost constant factor" in his quantity theory. Its effect on the absolute height of prices would then be as a *more or less fixed multiplier* of quantity, since "one and the same money unit . . . can become a part of [consumers'] money income and expenditure *several times* in a period in which the productive process is completed."⁴ Besides, Schumpeter mentions the statistical difficulties in apprehending the magnitude of velocity.⁵ The relevance of these facts will appear in their incompatibility with another viewpoint about to be elaborated.

(3) Occasionally Schumpeter reasons as if, instead of being so inelastic a variable that it may legitimately be imprisoned in "other things equal," efficiency were absolutely fixed in the nature of the case. In substantiation of this, the first three items of evidence which follow show that Schumpeter sometimes comes out with the conclusion that efficiency is *always and inevitably equal to 1*. An

¹ *Ibid.*, p. 685.

² *Idem*, *Theorie der wirtschaftlichen Entwicklung*, 3rd ed. (Munich, 1931), p. 70, note 52. (Italics mine.)

³ A. W. Marget, "The Relation between the Velocity of Circulation of Money and the 'Velocity of Circulation of Goods,'" *J. P. E.* 40, pp. 488-491.

⁴ *Archiv* 44, p. 671. (Italics mine.)

⁵ *Ibid.*, p. 673.

efficiency of 1, of course, simply causes it to disappear both as a determinant of the absolute level of prices and as a factor in price variation. The fourth item involves reasoning which would make efficiency absolutely invariable whether or not it equals 1.

Commenting upon the case already mentioned under point (2), involving a change from complete integration to ninety-nine separate steps, Schumpeter holds not only that in both cases efficiency is the same, but also "*ist übrigens die Effizienz . . . gleich eins.*"¹ In another passage, he asks us to suppose that producers "at every stage" borrow from the banks for precisely the term of the productive period, and that the banks retire the loans and destroy the bank notes at the termination of production: "then this money would have an efficiency equal to 1."² Efficiency, it will be observed, equals 1, but not because the process is integrated, — we are dealing with producers "at every stage." In the third place, we discover the following observation:

Two economies in which production is specialized and divided to different degree would, according to this [the person-turnover concept of velocity], possess different velocities of money. So much might be granted, but *only in the same sense* that they have divergent rates of commodity turnover.³

The implication of "only in the same sense" quite inescapably is that their commodity turnovers are both 1 in the Schumpeter equation, where commodities figure only once at the moment of sale to the ultimate consumer, and that likewise their money turnovers are both 1 in the Schumpeter equation, i. e. the expenditure for final consumption, which is a unique act.

This brings us to the point where it is obvious why efficiency is always 1 in Schumpeter's equation. It is *necessarily* unity because person-turnovers are eliminated by the circuit flow definition of velocity, and because the period taken for the equation is defined as the length of the productive process. It is *always* unity because changes in person-turnovers are denied any influence upon efficiency, and because, if the length of the productive period changes, the period of the equation is automatically adjusted correspondingly. Upon the basis of this evidence directly from Schumpeter's pages and the deductive necessity for an efficiency equal to 1, it is impossible to agree with Marget that Schumpeter clearly avoids that com-

¹ *Ibid.*, p. 673. (Italics mine.)

² *Ibid.*, p. 674.

³ *Loc. cit.* (Italics mine.)

plete or "crude" identification of goods and money rate of turnover which Neisser ascribes to him.¹

A fourth indication to the same effect has been rather widely observed. Under point (2) above, Schumpeter concedes a price raising action to velocity in connection with the panicky buying induced by inflation. But this phenomenon is "temporary" and "has nothing to do with velocity in the sphere of producers' and consumers' purchases really made to carry on the economic process."² Whether much or little money circulates, the economic distance which a piece of money must traverse from income to income remains always the same."³ Producers have neither motive nor opportunity to force the pace of production, their turnover period being objectively determined; consumers desire to hasten the conversion of money into goods, but for them also "the circuit flow of the economic system brings both goods and money . . . no more quickly than before."⁴

How may Schumpeter's errors be cleared away? The contention of the preceding paragraph contains an element of truth which renders it plausible, especially as it does not depend upon the idea of unitary efficiency. As both Bortkiewicz and Neisser have pointed out in connection with the German inflation, velocity assumes an active price raising efficacy only when either of two conditions are fulfilled: (1) when contingency reserves are reduced, or (2) when payment intervals are shortened.⁵ Evidently in referring to the "economic distance" between income and income as remaining "always the same," Schumpeter calls attention to the payment interval, which, because it rests upon business practices and habits, does change slowly or only under great pressure. Despite this element of truth, Schumpeter's statement errs seriously in its implication of constant velocity, in holding that the price rise can be "only temporary" and thus implying a necessary relapse, since in fact contingency reserves may be drastically reduced and payment periods shortened with the specific purpose of aiding fixed income receivers to escape the depreciation.

The difficulties inhering in the idea of efficiency as equal to 1 may now be appraised. In the first place, since, as Schumpeter himself observes, a unit of money may enter incomes several times on the average during a given productive period, prices will have to be written

¹ Hans Neisser, *Der Tauschwert des Geldes* (Jena, 1928), p. 29.

² *Archiv* 44, p. 683, note 44.

³ *Ibid.*, p. 684, note 44.

⁴ *Loc. cit.*

⁵ Cf. pp. 234-236, below.

as a *function* of money times efficiency, i. e. PT does not *equal* that magnitude. With this correction, it is also allowable to define the period for the equation as the "productive period" whatever variation it may undergo, provided the magnitudes involved in all the symbols are appropriately adjusted. Here the convention of writing efficiency as 1 in the initial equation,¹ may have the fatal propensity to make it appear as a *constant*. But in rewriting the equation, the following variables will have to be borne in mind. (1) Industrial differentiation remaining the same, if person-turnover changes as a function of the period of production, efficiency also changes in the same direction. This point is not especially involved in Schumpeter's quantity and may be put over to a later connection. (2) Industrial differentiation and productive period remaining the same, if person-turnover changes, efficiency again varies in like direction. (3) Productive period and person-turnover remaining the same, if the number of middlemen or firms intervening in the productive process from beginning to end increases, efficiency decreases. In the second and third cases Schumpeter falls victim to the fallacy of *constant* efficiency, whether or not this may be ascribed to an assumption of *unitary* efficiency in an initial equation. The character of his erroneous deduction concerning velocity in extreme inflation has already been demonstrated. Industrial differentiation presents an unusually complex problem, the solution of which is postponed until the final chapter of this Part, so that we may have at our disposal the logical apparatus of cash balances. At the present juncture we pause long enough to indicate the main points in the answer and its application to Schumpeter's equation.

Exhaustive proof will later be offered that the "velocity" which remains constant with an increase of differentiation is not efficiency (i. e. circuit velocity) but person-turnover. What actually transpires in terms of the Fisher equation is a rise of T which produces a fall in P , MV remaining unaffected. Mathematically, it has been observed before, efficiency is the quotient of person-turnover divided by the number of stages in production at which goods must be exchanged against money. What therefore must transpire in Schumpeter's equation, contrary to his belief, is a decline in efficiency, producing a fall in P equal to the fall given by Fisher's formula. T in Schumpeter's equation, since it refers to social product or con-

¹ A practice adopted also by D. H. Robertson, *Banking Policy and the Price Level* (London, 1926), p. 60.

sumers' goods at their final destination and signifies simply the physical volume of these goods at a turnover of 1, remains unchanged. Marget, who is undoubtedly right in holding that there is no compensatory movement on the monetary side to balance the change in industrial differentiation on the commodity side so that prices could remain unaffected, simply states categorically that velocity does not change.¹ Having in mind the Fisher V , he gives the correct reason; but he might well have used velocity in the sense of the person he criticizes, in which case he does not give the correct reason. For the Schumpeter equation prices fall, not because T increases, but because, with T constant, V (efficiency) declines.

When we come to examine the effect of differentiation upon the producers' goods equation which should complement Schumpeter's income equation, we discover the *fons et origo* of all his embarrassment. Circuit velocity, being an average velocity through both producers' and consumers' spheres, is the same for both; according to the conception of circuit velocity there is an all-inclusive monetary wheel, and its velocity on the one side is the same as the other. But T in the producers' equation increases in rough proportion to the further differentiation. If in this equation T increases and V decreases (by the same amount necessarily as it does in the consumers' equation), we seem to be driven to the paradoxical conclusion that P falls twice as far for producers' as for consumers' goods — paradoxical because, upon the cost of production basis, values in the two spheres would be in permanent disequilibrium. The solution of course is that the index of prices declines equally in the two fields because relatively larger dollar balances are now maintained by producers in the aggregate, and smaller dollar balances by consumers in the aggregate. But in order to discover how much of the money stock must migrate from the one set of balances to the other to preserve price equilibrium, i. e. the same fall of prices in production and consumption, we must know how much a dollar counts in each sphere when multiplied by the velocity *distinctive* to that sphere. When this information is supplied and utilized, we have completely abandoned the notion of an all-inclusive circuit velocity applied to an all-inclusive quantity of money. Producers hold a distinctive portion of the stock, and their peculiar circumstances give to that portion a distinctive velocity. For consumers, likewise.

¹ *J. P. E.* 40, p. 501.

The circuit velocity concept, hailed as a contribution to monetary science, thus proves to be a pitfall. Without elaborating the theme, Keynes lends authority to the viewpoint developed here:

The relationship between the total annual receipts of income-receivers and the average stock of money held for all purposes is a hybrid conception having no particular significance. . . . It is as though . . . we were to divide the passenger-miles travelled in an hour by passengers in trams by the aggregate number of passengers in trams and trains and to call the result a "velocity."¹

But its consequence is worse than a lack of any "particular significance" when it leads Schumpeter, in the case of industrial differentiation, to reason to "price neutrality" by a direct reversal of causation between the commodity and monetary members of the equation.

In general, however, Schumpeter accepts the orthodox representation of cause and effect. His "first dogma from the basic equation" states that changes in the total value of one individual good, obtained by multiplying price per unit by quantity, cannot directly affect the sum of all such values.² This truth serves to refute certain popular beliefs — that the high price of foodstuffs during the blockade of Germany caused all prices to advance, or that a rise of wages is capable, in and of itself, of raising the general price level.³ The word "directly" in Schumpeter's "first dogma" will have to exclude possible effects upon productive efficiency of changes in the barter terms of trade between the two countries. If the English demand for American wheat increases and induces a gold flow into the United States, the sum total of monetary values here will be augmented. All prices and money incomes tend to rise; and this transpires as the *consequence* of what has happened solely to wheat.⁴

The second principle holds that causation runs normally from left to right in the equation.⁵ But "if prices do not rise equally," as for example the prices of "consumers' and producers' goods, the price thereby ceases to be merely nominal";⁶ and so it becomes necessary to limit the quantity theory to a validity outside transition periods. For such persons as Anderson and Nogaro,⁷ a "qualification" of this

¹ J. M. Keynes, *A Treatise on Money* (New York, 1930), II, 24-25.

² *Archiv*, p. 676.

³ Cf. Fisher, *op. cit.*, pp. 179-180, for a similar application.

⁴ Cf. F. W. Taussig, *Principles of Economics*, 3rd ed. (New York, 1922), I, 497.

⁵ *Archiv* 44, p. 681.

⁶ *Ibid.*, p. 687.

⁷ B. M. Anderson, *op. cit.*, ch. x; Bertrand Nogaro, *Modern Monetary Systems* (London, 1927), p. 119.

sort is tantamount to complete surrender of the theory. For Schumpeter the qualification is more substantial than for other quantity theorists because of his presupposition of perfect adjustment between consumers' and producers' goods. The unequal advance of prices in these two spheres, giving rise as it does to forced saving and windfall profits, actually means a reversal of causation from that embodied in the quantity theory or, at least, mutuality of causation between the two sides of the equation. Hawtrey and Keynes are able to carry the argument upon the quantity of credit basis much farther than Schumpeter, by breaking down the equation into two or more specialized equations, e.g. with Keynes, for output as a whole, new investment goods, foreign trade, the industrial and financial circulations, etc.¹

The third principle from the basic equation concerns gold, first its current production, and secondly, the relation between gold stocks and prices. "Even from the viewpoint of the strictest quantity theory, one must hold that not only does the quantity of gold money determine prices, but just as truly prices determine the quantity of gold money."² Far from being a vicious circle in reasoning, this is actual mutuality in causation, says Schumpeter. How substantial a limitation this means upon the quantity theory is a question treated in a later context.³ Regarding the relation of gold stock and prices, I have remarked upon Schumpeter's reluctance to take a dogmatic position; but apparently he would expect the long-time variations of prices to correlate with gold stock, short-term changes with volume of credit.⁴

Schumpeter has done pioneer work from the angle of German theory in refuting the banking school theorem that credit is entirely passive, adapting itself automatically to the "needs of trade." From any angle his work is notable in the field of business cycle analysis, his elaboration of the Wicksellian doctrine of the bank rate and its connection with the driving force of economic innovation. For the present, it must suffice to point to one fact. Positive or negative differentials between natural and bank rates act upon economic evolution and upon the course of prices, according to Schumpeter's own representation, through *entrepreneur* expenditure and *entrepreneur* motivation. If this is the case, as indeed it seems to be, a quantity

¹ Keynes, *op. cit.*, I, 136-137, 162, and ch. xv.

² *Archiv* 44, p. 697.

³ Cf. pp. 142-144, below.

⁴ *Archiv* 44, pp. 699-714.

theory running altogether in terms of *consumers'* real and money incomes omits the most important facts in a dynamic society. So much may be said without prejudice to a definition of purchasing power as consumers' buying power, or without detracting from Schumpeter's part in giving money science an impulse toward specialized concepts of purchasing power and specialized equations of exchange.

II. CASSEL'S ANALYSIS OF *Ceteris Paribus*

All the propositions made by the quantity theory carry with them the qualifying phrase "other things equal." But, says Cassel,

It must be clear from the first that an increase in money may also exert an influence on the "other factors," especially on the velocity of circulation of money and on the relation between bank money and cash, and perhaps also on the total sales of commodities. The reservation of *ceteris paribus* is here quite inadmissible.¹

Consequently the quantity theory and its corollaries are mere hypotheses; they lie beyond *a priori* demonstration.

This attitude does not seem to me defensible. (1) As Amonn says, the quantity theory is not open to objection merely if "other things" in the equation postulated *may* change, but only if they *must* do so.² The method of concomitant variation, the logical device most commonly employed in economics, correctly neglects all factors save those which *necessarily* vary together. This is an unavoidable characteristic of all reasoning, which by its very nature is abstract, i. e. unreal in that it neglects all the features of a situation not necessarily involved. Cassel errs in assuming that because the proof of a statement is deductive, it cannot take account of forces temporarily "impounded in *ceteris paribus*." The reasoning by which Fisher, for example, concludes that the ratio of M' to M , and the velocities of circulation are partly the effects of volume of trade, is purely deductive.³

Cassel's objection may be emended to mean: (1) that purely deductive reasoning is not sufficient to discover *what* forces operative

¹ Gustav Cassel, *The Theory of Social Economy*, 2nd ed. (London, 1932), II, 459; Cf. *idem*, *Fundamental Thoughts in Economics* (New York, 1925), pp. 118 ff.

² Alfred Amonn, "Cassels System der theoretischen Nationalökonomie," *Archiv* 51, p. 332.

³ Irving Fisher, *The Purchasing Power of Money*, 2nd ed. (New York, 1922), pp. 55-73.

upon the value of money cannot be put into *ceteris paribus* because they necessarily vary with the quantity of money; (2) that purely deductive reasoning is not a sufficient guide in appraising how universally *applicable* is the final form of the quantity theory and when it must be *qualified*. With both of these propositions I should certainly agree. In monetary phenomena if anywhere "closet philosophy" can go far astray. But the foregoing propositions, while recognizing the limitations upon deductive analysis, do not admit that it is an erroneous method, or even that it can be done without. Cassel's rejection of a *a priori* proof is responsible for Palyi's comment that "as to the question, what is cause and what effect, summary statistics decide nothing."¹ And Amonn complains that, after all, Cassel's study shows the correlation of certain series, but not the causal connection.²

According to Cassel, the current practice of defining M as "circulating money" involves an error, for prices are said to vary, other things equal, with the quantity of money circulating, but the division of money into reserves and money in active use itself depends on the price level.³ While P is said to be a function of M , it appears that M is also to a degree a function of P . This difficulty — of finding a really objective and independent magnitude with which to relate prices — Cassel proposes to get around by interpreting M as the entire money stock, and introducing the variation of proportion of money in reserves and money circulating as variations in "paying capacity" or V , attached to the whole money stock.⁴

The difficulty to which Cassel draws attention is real, and one to which little attention has been paid. It is a part of the question whether M' in the Fisher equation bears a fixed relation to M . Fisher, it is well to note, argues (1) that "there is, then, a relation of convenience and custom between the deposit balance of the average man or corporation and the stock of money kept in pocket or till. This fact . . . means that by convenience a more or less rough ratio is fixed between M and M' ."⁵ (2) Deposits bear a fixed proportion to bank reserves. (3) "Hence, both money and circulation . . . and money in reserve . . . tend to keep in a fixed ratio to deposits. It follows that the two must be in a fixed ratio to each other."⁶ The relations may be represented diagrammatically. According to

¹ "Ungelöste Fragen," p. 488.

² *Theory*, II, 452.

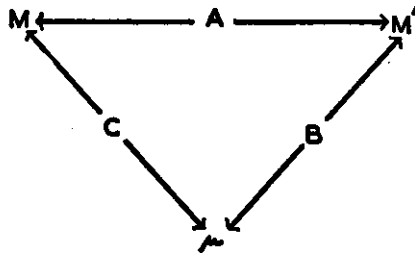
³ *Op. cit.*, p. 52.

⁴ *Archiv* 52, p. 332 ff.

⁵ *Ibid.*, p. 453.

⁶ *Loc. cit.*

Fisher, relations *A*, *B*, and *C* all tend to fixity in the long run. What Fisher wishes to establish, however, for purposes of his quantity theory, is the fixity of relation *A*. Now if argument (1) is valid, relation *A* is fixed, and the point is proven. But relation *A* would also be fixed if relations *B* and *C* were also fixed. The former is a direct proof of fixity between *M* and *M'*, the latter an indirect proof. Having both proofs together would be an *embarras des richesses*, as Anderson believes,¹ if the indirect proof were established *independently* of the direct. But Fisher deduces the fixity of ratio *C* from the fixity of *A* and *B*, as appears clearly in step (3) above. Since this is true, the fixity of *B* and *C* shows nothing as to the fixity of *M* and *M'*. The



M = MONEY IN CIRCULATION
M' = BANK DEPOSITS
R = BANK RESERVES

whole weight of the argument therefore rests, in Fisher's statement, on proposition (1). If Anderson is right in believing that "the money in the hands of individual and corporate depositors is by no means all of *M'*,"² then Fisher's first argument, even if it is right, will not *prove M* and *M'* proportional.

Most of the criticism against Fisher has been directed against his maintenance of a fixed reserve-deposit ratio. That is doubtless a crucial question; but from the angle of the reasoning Fisher himself employs, it would be natural to question *first* the direct argument (1), and next the purely arithmetic way of arriving at relation *C*. Cassel holds that the ratio of circulating money (*M*) to bank reserves (*R*), relation *C*, *depends on the price level*; he calls attention to a variable which is troublesome to Fisher's theory that prices depend ultimately upon circulating money (as against credit).

To cope with this matter, Cassel proposes to include under *M* the *entire* stock of money, whether it circulates or not, and to attach to

¹ B. M. Anderson, *op. cit.*, p. 175.

² *Ibid.*, pp. 173-174.

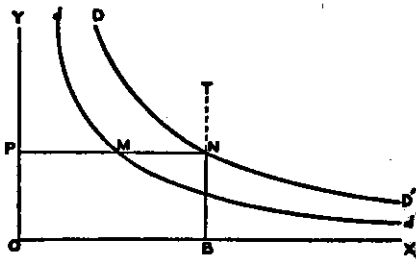
M , so defined, a V which signifies the "average amount of payments effected in the period by each unit of the total quantity of money."¹ But this affords no solution. If it is impossible to assume M (circulating money) as an independent variable, because of the reaction of prices upon that quantity, it is equally impossible to assume V (paying capacity). If "velocity" is attached to bank reserves it is in a somewhat extended sense of the term — reserves "circulate" vicariously in the deposits they give rise to. The transferal of gold from bank reserves would be expected to decrease the efficiency of bank money more than it increases that of circulating specie. Whether this change be envisaged as a greater diminution of the quantity of bank money than an increase in the quantity of circulating specie, or as a reduced velocity of the total stock of money, makes no difference arithmetically in the equation. But the difficulty that prices may react upon the relative distribution of specie into reserve and circulating money inheres in Cassel's amended formulation as much as in the older statement of the theory, and the statistical problem is the same in both.

Even the total monetary stock of gold cannot be assumed as given independently, says Cassel, because the division of the total gold supply into the arts employment and money *depends upon* the purchasing power of money.² Cassel's view is especially plausible if the alternative uses of gold are regarded as a case of composite demand; Marshall analyzes the market situation for gold in exactly these terms.³

¹ *Theory*, II, 453.

² *Ibid.*, p. 453.

³ Alfred Marshall, *Money, Credit, and Commerce* (London, 1923). Appendix C, pp. 282-284. The accompanying diagram differs somewhat from Marshall's, and is perhaps



easier to comprehend; but it makes no changes in the basic propositions. Let the y axis represent the exchange value of a unit of gold in terms of some standard commodity, say wheat, and the x axis the quantities of stocks of gold. Let the rectangular hyperbola dd' represent the monetary "demand" for gold; and DD' the total demand for gold, got by adding to dd' the quantity of gold which at each level of exchange value of "price" of gold would be demanded in the arts. If now

the total gold stock be assumed as OB , and BT the offer of this fixed stock at all possible prices, the supply and demand for gold will equate at N , giving to gold a value per unit of BN . PM will then indicate the quantity going into the currency and MN the quantity absorbed by the arts.

The inference of this reasoning is that a composite schedule of demand in conjunction with a fixed supply schedule sets the value of gold; and that the division of stock between the competing uses (realized demand or amount demanded by each separately) *depends on* the appearance of the particular price or exchange-value equating supply and demand. So indeed must the causal sequence run in the case of ordinary composite demand. If the alternative employments of gold represent a normal case of composite demand, the value of gold does determine the division of the stock; P determines M .

In the case of gold, however, the reasoning applicable to composite demand has to be so modified as no longer to be recognizable. Marshall ordinarily directs attention to *rates* of supply and demand; but here "the demand curves represent the *stocks* of gold which would probably be appropriated to the several uses of currency and the industrial arts, at various values per ounce of gold, *sufficient time having been allowed for the necessary adjustments to be made.*"¹ Where a commodity, such as leather, is continually produced and consumed, market price effectively distributes the good between the various parts of the composite demand so that the last unit consumed in each use gives the same value product or utility. For gold, the process is very much retarded and weakened. The annual increment of new gold which can be diverted into the more attractive employment is relatively very small — in the neighborhood of three per cent according to Cassel's own estimate. The melting down of gold plate and the conversion of coin into articles directly useful in industry and trade form another avenue by which the value of gold could influence the distribution of the gold stock. According to Professor Taussig, the occasion for a change in relative distribution might be either a change in prices and money incomes or a change in tastes regarding the commodity employments. The former cause makes scarcely any difference in the "consumption" of gold in the arts, he believes, because the cost of gold bullion is by no means the only cost involved in the things produced from gold.² As for changes in tastes, an increased diversion of gold into the arts apparently works much more easily than the opposite.

What is in use for the arts may be regarded as practically lost from the monetary supply. . . . In the main, the use of the precious metals in the arts goes its

¹ *Ibid.*, p. 283. (Italics mine.)

² F. W. Taussig, *Principles of Economics*, 3rd ed. (New York, 1922), I, 240.

own way, leaving for the monetary supply the annual accruing surplus of production over and above the independent industrial consumption.¹

Wicksell expresses the same opinion regarding cyclical fluctuations in prices.² If this judgment is warranted, the tendency for the value of gold to apportion the gold stock into alternative employments works against great obstacles; and the degree to which the quantity theory has to be qualified for assuming a monetary gold stock independent of prices is slight.

To concede that the total stock of monetary gold may be a function of the price level is not to approve Cassel's method of dealing with the complication. Again Cassel merely shifts the problem from one factor in the equation to another by defining M as the whole supply of gold in whatever employment.³ If the action of prices upon the *money* stock makes it impossible to assume that quantity as independently given, the same influence also makes it impossible to assume that V , or paying capacity, is objectively given when V is attached to the *total* gold stock. V cannot more easily be put into *ceteris paribus* than M . Conceiving of rings, watches, etc., as entering the average velocity of circulation is an artificiality; and the statistical problem is even more complicated than in the conventional equation.

The final step in defining the quantity theory equation is the admission of bank media of payment. With them a new causal variable appears in the determination of the general price level — the terms upon which banks advance funds.⁴ Cassel is precluded from relating this force to the quantity of bank reserves, or even to the total stock of cash, by the redefinition of M as the *total gold supply*. He therefore conceives the terms of credit-extension as a part of the determinants of V .

Does this not complete the process of converting velocity into a spoliarium for the entire quantity theory, a place for disposing of inconvenient elements? One after the other, three qualifications upon causation from quantity of gold money have been cast into this discard: the effect of price level variations upon active and reserve moneys, the effect upon the monetary and industrial employments of gold, and lastly the independent variable of bank policy.

¹ *Ibid.*, p. 241.

² Knut Wicksell, *Vorlesungen über Nationalökonomie auf Grundlage des Marginalprinzips*, vol. II, "Geld und Kredit" (Jena, 1922), p. 240.

³ *Theory*, II, 454.

⁴ *Ibid.*, p. 455.

Three entities in the Fisher equation — V , V' and M' — have been merged into one, and a fourth thrown in for good measure, the division of gold between the arts and money. To what degree the monetary side of the equation should be broken down into component elements is largely a pragmatic question answered by the available statistical data. On the one hand, Copeland believes that "it is not possible to separate payments by check and cash withdrawn from banks"; and consequently the M in his equation includes both cash and check payments.¹ On the other hand, we find Keynes objecting to the Fisher equation for its failure to provide separate symbols for cash, savings deposits (both in his sense of the terms), and overdraft facilities, available separately in the British banking statistics.² Copeland treats the velocities of cash and credit under one symbol, V , whereas Keynes preserves separate denominations for the velocities of cash and "cash-facilities." Neither writer questions the separateness of velocity and quantity of credit. Cassel's agglomeration of the two is open to three objections, one methodological, another pragmatic, and another analytical. The methodological objection refers to the fact that, in his formal statement of the quantity theory, the quantity involved is gold bullion; whereas, in the study of price series from 1800-1910, the factor which controls *both short and long period* variations is bank credit. Since Cassel believes volume of credit secularly related to gold, there is no arithmetic difference between the two statements; but it is odd that he should have cast his *quantity* theory in such form that the universally valid factor controlling prices appears not as a quantity but a rate (V). The pragmatic objection is that the data to which the equation applies is divided in its original form into volume of credit and velocity; there would seem to be no purpose in merging two empirically distinct entities. Finally, from the analytical angle, both in cyclical variations and in war-time inflation, velocity takes on a causal significance separate from quantity.³

Although Cassel presents his theory in terms of volume of payments through a given period, he also takes cognizance of the alternative form based upon cash balances at a point of time. R desig-

¹ M. A. Copeland, "Money, Trade, and Prices — A Test of Causal Primacy," *Q. J. E.*, 43, p. 649.

² *Treatise*, I, 236.

³ Cf. J. W. Angell, *The Theory of International Prices* (Cambridge, Massachusetts, 1926), p. 180. Parts III and IV below treat the subject at some length.

nates the demand for money per unit of payments effected in the ensuing period when price level and real turnover are both set equal to 1. Equilibrium requires PTR to equal M . Since $R = \frac{1}{V}$ this equation is identical with Fisher's.¹ But Keynes believes there are circumstances which may cause a divergence between the "Cash-balances Price-Level," and the "Cash-transactions Price-Level."² Of two transactions involving the same sum of money, one transaction may have required a "greater amount of anticipatory holding of cash-balances than the other," having been less easily predicted. Furthermore, the prices which compose the transactions price index are either current quotations or current contractual prices, whereas the cash balance equation requires expected prices. "This point is particularly important when prices are changing."³ Robertson has, however, vindicated Cassel's position by showing that a given transaction is appropriately weighted the same in both of Keynes's price-levels, and that in neither is there any necessary presumption concerning quoted as against paid prices.⁴

There remains one more theoretical issue: the objections raised by Cassel against cost of gold production as bearing upon the determination of purchasing power. It is quite possible, he maintains, for the value of gold to exceed costs if "the opportunities for production are sufficiently restricted"; and upon the other hand for value to fall below cost, in which event no gold is produced.⁵ Even if value and cost equate, marginal cost cannot be regarded as determining value, inasmuch as the marginal costs themselves depend on the "price" of gold. All that may be said is that a rise in the general price level, by restricting gold production, checks its own further advance, and a falling price level, *mutatis mutandis*, its own decline.

Concerning Cassel's objection that marginal costs can be known only when the general price level is already determined, Palyi says: "The same argument would be valid against his own and every modern theory of price, namely that it can only be constructed upon the assumption of given prices and not upon the hypothetical value concepts of a Robinson."⁶ This does not dispose of Cassel's point. Of course the price determining process does not commonly proceed

¹ Cassel, *op. cit.*, p. 457.

² *Op. cit.*, I, 237-239.

³ *Ibid.*, p. 238.

⁴ D. H. Robertson, "A Note on the Theory of Money," *Economica* 41, pp. 245-247.

⁵ *Theory*, II, 479.

⁶ "Ungelöste Fragen," p. 502.

from a *tabula rasa*, as the theoretical explanation often pictures; it is, rather, a painful and halting corrective process from continually disturbed equilibria. That fact is generally recognized. Whether viewed as a process starting with no price yet worked out or as a corrective action, the determination of price by marginal cost means the same: no price can persist under competition which does not coincide with the equilibrium point upon the schedules of cost and demand. In this sense marginal cost is the "cause" of price. But when for long periods price does not tend to coincide with costs of any of the gold produced, something else must be sought as the "cause" of its value. Aside from the aleatory nature of gold production, one of the chief causes of this continuing lack of coincidence is the magnitude of the gold stock in comparison with the annual increment. Gold is much more nearly comparable to land than wheat. Its value rests primarily upon demand. Whatever production goes on may be at an actual loss (from the aleatory interest) or earn a quasi-rent. But, it may be objected, given a sufficiently long period, we may assimilate gold more and more to wheat and say that marginal cost is the cause of value. This explanation, which denies the causal efficacy of marginal cost in the short run, and affirms it for the long run, appears with Pigou.¹ But the long run introduces another disturbing factor, variation in the efficiency of banking systems in using gold reserves. As Wicksell says, this factor "may effectuate a much stronger increase in the media of exchange than could gold production during the same time, or perhaps through long periods neutralize the effect of a decrease in production."² Cassel's argument concerning costs holds not only for the short run, but always; the influence of gold production may, at the most, be envisaged as a lagging but somewhat stabilizing influence upon prices.

Having completed the hypothetical treatment of the determinants of purchasing power, Cassel tries to discover if the history of prices shows a correlation with the changes of the total gold stock under the conditions postulated by his improved equation of exchange. The price data employed are Jevons' index from 1800 to 1865 and Sauerbeck's index from 1846 to 1910, the two series being plotted as a single curve by adjusting the scales so as to bring together the aver-

¹ A. C. Pigou, *Essays in Applied Economics* (London, 1923), pp. 196-197. F. W. Taussig (*op. cit.*, vol. 1, ch. 19, pp. 259-260 especially) lays much less stress upon the efficacy of costs.

² *Op. cit.*, II, 169.

ages for the overlapping period 1846 to 1865. For 1850 and 1910 the Sauerbeck index stands at about the same figure, and the averages of several years on either side of 1850 and of 1910 also nearly agree. During the same period the world's gold supply increased by 5.2 times. Cassel assumes that this was paralleled by the increase of trade, since the price levels at the limits of the period are equal. Distributed evenly through the period of sixty years, the increase of the gold supply would have meant an annual increment of 2.79 per cent. Taking this figure as giving the normal increase in the annual gold supply for the whole period 1800 to 1910, Cassel then computes the percental deviations of the effective gold supply. When the deviations from normal — the "relative gold supply" — are plotted against the Jevons-Sauerbeck curve of prices, a close conformity is observed; and Cassel concludes that "the chief causes of the secular variations of the general price level are to be found in changes of the relative gold stock," but the annual variations "have no connection whatever with the gold supply."¹

Even the secular influence of gold stock upon prices is exercised through its effect upon the credit policy of banks. Since short period fluctuations are attributable solely to credit variations, "it is found that at any given moment banking policy alone, on the monetary side, is directly responsible for changes in the general price level."² Cassel's formulation of the quantity theory comes ultimately to close resemblance with Wicksell's. The "true interest on capital" is the rate at which "the value of money is unaltered."³ If bank rate, "regarded as being representative of the whole policy of banks,"⁴ stands at a lower level than true interest, prices must advance; if higher, they must fall. The elaboration of this theorem introduces Cassel's analysis of business cycles.

III. MARSCHAK'S TREATMENT OF VELOCITY

The model set by Schumpeter in approaching purchasing power through consumer income and circuit velocity is adopted by Dr. Jakob Marschak of Heidelberg. The income approach, he believes, has the advantage of greater theoretical unity, although arithmetically it gives the same solution as Fisher's. To convert an inclusive transactions equation into the Schumpeter type, divide both mem-

¹ *Ibid.*, pp. 473-474.

² *Ibid.*, p. 501.

³ *Ibid.*, p. 495.

⁴ *Ibid.*, p. 495.

bers by the "order index" of production, i. e. by the number of steps through which money and goods pass from beginning to end of commodity manufacture and distribution.¹

The "order index" figures prominently in a later connection; but in the early article introducing the idea, it appears merely as one of several reasons why a constancy of velocity cannot legitimately be postulated by the quantity theory. In addition velocity may be affected directly through variations in quantity of money, the character of the reaction depending upon how people respond to price level changes, whether by rationally discounting probable trends or by adhering to the mercantilist illusion of value constancy. Not only may quantity affect velocity, but other magnitudes in the equation have repercussions not contemplated by the quantity theory. Volume of trade variations may cause parallel movements in quantity of money and credit, since otherwise there would be no means of getting dollars "worked out" from the mines and from the banks of issue.² We may also conceive of price level changes which produce inverse variations in the volume of trade, as, for example, when an advance in the former causes "an abstention from certain purchases and therefore a reduction in volume of trade."³

In fine, since neither V nor T may be assumed constant, the equation of exchange indicates merely the direction in which a given variation in one factor will correlate with changes in one or more of the others. Both as to origin of causation with quantity and as to proportionality of price level variations, empiric test alone can give the solution. A regime of free competition, however, gives a presumption in favor of greater elasticity on the part of prices and greater fixity on the part of velocity and trade.⁴

Marschak's concept of *relative elasticity* among the various factors in the equation seems to me superior to categoric ascriptions of causation and to the more rigorous requirement that, to show causation from one point to another, other factors must remain "equal" in the sense of absolutely fixed. But certain functional relationships dwelt upon in this article are spurious, at any rate on the basis which Marschak assigns. What connection actually exists between saving, *per se*, and velocity of circulation? Or again, why cannot additional purchasing power come upon the market without being "drawn out"

¹ "Die Verkehrsgleichung," *Archiv* 52, p. 349.

² *Ibid.*, p. 354.

³ *Ibid.*, p. 355.

⁴ *Ibid.*, pp. 355-358.

by an increase in trade, if prices are free to move upward? What may be said of a relation of velocity to T through the "order index" of production?

It is this last topic to which Marshak, stimulated by the work of Holtrop and Marget,¹ devotes an article on "National Wealth and the Demand for Balances."² Marschak prefaces the controversial portion of this article by an explanation of Holtrop's classification of velocity theories into "monetary" and "amonetary," and by a brief explanation of the determinants of cash balances. Monetary theories deny direct causal relation between rates and magnitudes under T on the one hand and velocity on the other; amonetary theories affirm such a connection (in the sense of an influence, not an exhaustive determinant).³ As for the determinants of margins, Holtrop gave five: (1) discontinuous tying-up and continuous release of resources, (2) the converse, (3) seasonal production, (4) seasonal sales, and (5) size of firms. For this list Marschak substitutes: (1) temporal discontinuity in income and outgo, (2) unlike magnitudes of alternating income and outgo, and (3) unpredictability of the same.⁴ The emendation is all to the good, and it would have been better for Marschak's subsequent discussion if he had remembered that these are introduced, not as what he later calls the *monetary* determinants of cash balances,⁵ but as *the* determinants, *sans phrase*.

Replacing his previous "order index" by Holtrop's equivalent "coefficient of differentiation," Marschak continues to maintain the doctrine that, so far as the Fisher measure of velocity depends upon the coefficient, rapidity of money and commodity turnover vary together.⁶ But not without exception. Holtrop, for example, shows that differentiation in productive processes interferes with the synchrony of the steps, thus increasing the cash balances necessary to provide against risk and decreasing velocity. Neisser, believing that velocity in the business sphere reaches a "technical maximum" set

¹ M. W. Holtrop, *De omloopssnelheid van het geld* (Amsterdam, 1928); A. W. Marget, *op. cit.*

² Jakob Marschak, "Volksvermögen und Kassenbedarf," *Archiv* 68, pp. 385-419.

³ M. W. Holtrop, "Theories of the Velocity of Circulation of Money in Earlier Economic Literature," *Ec. Jour., Economic History Series*, vol. 1, no. 4, pp. 502-524. On p. 509 amonetary or non-monetary theories are described as affirming an influence from V to the rapidity of circulation of goods; on p. 521 they are described as affirming the reverse order of causation. With Marschak I adopt the second interpretation.

⁴ *Ibid.*, p. 387.

⁵ *Ibid.*, p. 403, first new sentence.

⁶ *Ibid.*, p. 398.

by the rapidity of bank clearings, points to the fact that, under this condition, any separation of processes into distinct entrepreneurial units increases proportionally the total of cash balances. According to Marschak's own study of deposit velocity in Germany,¹ the technical maximum is not reached in commodity exchange, but only in purely financial transactions, so that Neisser's point has only a limited validity. A third qualification to the parallel movement of V and T under differentiation is original with Marschak. The independent entrepreneur, trusting other people less than he would be inclined to trust himself were he supplier and demander throughout the process, maintains a higher contingency reserve. Except for these three circumstances, changes in integration and differentiation are "price neutral."

Marschak also accords a somewhat qualified support to the amonetary determination of velocity in an additional sense, that the duration of production has a bearing upon this magnitude.² Without making the distinction very explicit, he treats quite differently the effects produced by differentiation and those produced by changes in duration of production. The former, to the degree to which it is not offset by the three modifications explained in the preceding paragraph, *must* affect velocity parallel to the effect upon turnover of commodities: it must be price neutral. Duration of production, on the other hand, does *not* have to affect velocity and in the cases where it does, the effect may be in either direction, depending upon circumstances.³ Whereas the coefficient of differentiation is written into both sides of the equation,⁴ duration of production appears only upon the commodity side. "The coefficient of production is price neutral," Marschak writes, himself italicizing the verb;⁵ but with duration of production, the effect upon velocity is not the product of direct functional relationship but of a "causal efficiency upon both phenomena on the part of a third."⁶ For example, business prosperity may accelerate monetary velocity and

¹ Jakob Marschak and Emil Lederer, "Größenordnungen des deutschen Geldsystems," *Archiv* 67, referred to in the present article, p. 395, note 12.

² *Archiv* 68, pp. 390, 399-400.

³ Marschak's utterances on this difference are rather Delphic. In one passage he objects to Marget's imputing the price neutrality idea to the doctrine of the coefficient of differentiation and says that *both* duration and differentiation *may* affect velocity, not *must* (*ibid.*, p. 409). Elsewhere his conviction seems to be in the direction indicated above.

⁴ *Ibid.*, p. 399.

⁵ *Ibid.*, p. 398.

⁶ *Ibid.*, p. 405.

at the same time hasten the tempo of commodity sales. Savings and investment on the other hand, he believes, may decrease velocity by adding productive units carrying larger balances than those less remote from the consumer.

As for statistical evidence bearing upon price neutrality and money velocity, Marschak calls attention to the studies of Burgess and Snyder in the United States and of Oskar Anderson in Bulgaria, which seem to indicate a parallel movement of V and T during the cycle. On the other hand, Marschak cites the finding of Bortkiewicz concerning these factors in the German inflation, 1914 to 1923, that a thirty-seven-fold increase of prices over quantity of money could be explained only upon the basis of accelerated velocity; and these results are roughly confirmed by Marschak's own researches. He concludes, therefore, that despite the partial dependence of velocity upon amonetary factors, it is at times capable of exercising an influence upon price levels in its own right.¹

Marschak's fundamental error lies in not applying to the coefficient of differentiation the very same reasoning he makes use of in connection with the duration of production. If rapidity of commodity turnover in either case influences the person-turnover of money, it is an incidental and special connection, in no wise inhering in the necessities of the case. So far as circuit velocity is concerned, it has already been argued in connection with Schumpeter that differentiation produces a fall in this magnitude approximately equal to the percental increase in number of productive stages.² In the consumers' goods equation into which circuit velocity is written, T remains unaffected; and so P declines by the same distance which would be shown by the Fisherine equation, where T increases proportionally to differentiation and MV remains unaffected.

Commenting upon Marschak's treatment of velocity, Marget apparently does not apprehend that, as in the case of Schumpeter, the whole matter turns on what sort of velocity remains the same. It is still necessary to *prove* that what remains unaffected is person-turnover and not circuit velocity.³ Furthermore, in turning over to cash balance terminology, Marget makes a demand upon Marschak, which though not unreasonable, quite begs the question. Why should differentiation permit the owners of cash balances to reduce

¹ *Ibid.*, pp. 412-416.

² Upon the supposition, as previously, that the financial circulation is neglected.

³ Cf. pp. 197-199, below.

the proportion which their money holdings bear to their total money outlays, he asks.¹ Marget needs to consider the fact that total money holdings can neither be increased nor decreased by their possessors, since they coincide with $M + M'$, a magnitude regulated by gold production and the banking system. After differentiation, if some persons hold larger money balances, others must hold less. Nothing can be proven with regard to the behavior of velocity by looking toward *money* balances. The other member of the ratio mentioned by Marget is equally unilluminating. Total *money* outlays are the component of volume of trade times prices; but prices *depend* upon velocity, concerning which nothing is known according to Marget's representation until the ratio of money balances and *money* outlays is established. If he does not believe that velocity is determined by this ratio, he will at least have to concede that nothing can be proven from it.

Against Marschak's position, Marget correctly maintains that differentiation does not reduce the proportion of money balances to money expenditures. But the fixity of proportion in this case is merely the result of more fundamental forces determining velocity which are unaffected by differentiation. To apprehend these forces and the way in which they maintain a fixity of person-turnover velocity in the teeth of variations in productive stages, it is necessary to escape the circularity, dwelt upon in Part I, of reasoning in purely monetary terms. The cash balance analysis, into which we now enter, provides the solution by dealing with real values.

¹ *J. P. E.* 40, p. 501.

CHAPTER IX

THE QUANTITY THEORY: CASH BALANCE APPROACH

THE common formulation of the quantity theory in German economic literature runs in terms of balances maintained at a given point of time, rather than in terms of monetary velocity through a given period. As the chief representatives of the cash balance approach I take Wicksell, Helfferich, Mises, Hahn, and Neisser. It is not proposed, however, to limit the examination of their treatments of the quantity theory narrowly to the character of balances, but to include other features whenever they are significant.

I. WICKSELL'S INTEREST-DIFFERENTIAL THEORY

The quantity theory, according to Wicksell, contrasts with all others in asserting a strictly proportional relation between money, taken in the sense of currency, and prices. When is this precise proportionality realized? In *Geldzins und Güterpreise*, the following conditions are enumerated as necessary: (1) reserves must be maintained by private persons, and not by banks as they are today; (2) velocity must remain constant, though in fact it varies; (3) transactions effected by coins and notes must bear a fixed proportion to those carried through by credit, whereas the boundary is actually "quite flexible"; (4) ratio of circulating to hoarded money and of gold in the arts to monetary gold must be fixed, though here again both vary.¹ The list of qualifications given in the *Vorlesungen* twenty-four years later resembles the earlier formulation. Credit still persists as merely affecting the virtual velocity of cash, though the distinction between circulating and hoarded money disappears.² The presence of factors under *ceteris paribus* may endanger the practical significance of the theory, — though Wicksell does not concede this, — but to disprove the theory it would be necessary to demonstrate that its logical structure is untenable or that factors under *ceteris paribus* cannot actually remain constant if quantity varies.³

¹ Knut Wicksell, *Geldzins und Güterpreise* (Jena, 1898), pp. 34-35.

² *Idem*, *Vorlesungen über Nationalökonomie* (Jena, 1922), vol. II, "Geld und Kredit," pp. 162-165.

³ *Ibid.*, p. 165.

On the side of money, the chief determinants of the price level are quantity and velocity, the former being practically identified with standard gold currency, the latter being made to depend upon individual unspent balances and upon the volume of credit created by the banking system. The dependence of gold production upon the value of money would constitute a serious limitation upon the direction of causation in the quantity theory if the annual increment were not so small a fraction of the total gold stock.¹ Velocity, on the other hand, cannot be so easily disposed of. In a system of cash transactions, the outside limit is set by the physical possibilities of transportation and exchange. The precise level depends upon the size of individual reserves.² Since every piece of money rests within someone's individual reserve, the total *absolute* magnitude of reserves is "simply identical with the total money stock of the country." The *relative* size, i. e. the ratio of reserves to the year's transactions, depends upon how much must be kept to even off inequalities in receipts and expenditures, to provide against contingencies, to allow accumulation previous to investment, etc. In a simple cash economy, this "need for money" is "an almost unchangeable magnitude."³

Even in a relatively primitive credit system, rapidity of circulation, though somewhat elastic, still offers enough resistance "to allow the deductions of the quantity theory to appear as generally substantiated."⁴ But the advanced organization of credit prevailing today almost completely removes the limits to velocity by (1) the employment of deposit media as money, and (2) the centralization of lending operations in the banks. Every extension of their clientele enables the banks to reduce reserves and thus to accelerate velocity.⁵ This "cash-economizing" process is furthered also whenever banks reduce their lending rate below the natural or equilibrium level of interest.

If, other things remaining the same, the leading banks of the world were to lower their rate of interest, say one per cent below its ordinary level, and keep it so for some years, then the prices of all commodities would rise and rise without any limit whatever.⁶

¹ *Geldsins*, pp. 26-30; *Vorlesungen*, II, 169.

² *Vorlesungen*, II, 24-25.

³ *Geldsins*, pp. 45-53.

⁴ *Ibid.*, pp. 53-56.

⁵ *Ibid.*, pp. 56-73.

⁶ *Idem*, "The Influence of the Rate of Interest on Prices," *Ec. Jour.* 17, p. 213; cf. *Geldsins*, pp. 93-113.

It is this picture of the price level as a function of the positive and negative margin between bank and natural rate which German monetary theory has worked out in great detail in the contemporary literature on business cycles. The elaboration of this theorem — not its discovery, since it may be found with Thornton and Ricardo — constitutes Wicksell's chief contribution. But for the present, since the interest-differential theory supplies the text for most of Part IV, we shall be content to appraise it merely as it articulates with the Wicksellian version of the quantity theory.

In this respect, the result is unfortunate. Following the direction set by Wicksell, a number of his followers including Cassel have promulgated gold-coin quantity theories but at the same time have given to bank credit the crucial determination of prices for both cyclical and secular variations. Bank credit is a mere determinant of V in the equation, a gold economizing device. Against this practice the three objections of the foregoing chapter may be urged: it fuses into one concept empirically separate quantities, bank deposits and bank clearings; it obliterates the distinct causal effectiveness of velocity; and it puts the quantity theory into a form in which the chief *quantity* (bank credit) appears as a *qualification*. Treating credit as a factor increasing the effectiveness of the existing gold supply would seem a good deal akin to regarding automobiles as devices by which the existing stock of horse-drawn conveyances is made more effective.

These objections take on especial significance with Wicksell. In the first place, his formal statement of credit as a *rate* (V) has led to misunderstanding. For example, Greidanus says that, admitting the interest-differential as the determinant of price level *variations*, we "get no answer at all to the question" why prices are at a given *absolute* level.¹ An answer is provided in Wicksell's theory — total gold stock multiplied by velocity. But Greidanus' error is excusable, for, to arrive at this ultimate cause of the absolute level of prices, we must reason from interest differential to quantity of credit and then reinterpret the latter as something enhancing the virtual efficacy of gold. It is possible that Keynes exaggerates the extent to which Wicksell envisages the natural-rate bank-rate differential as a determinant of prices *independently* of credit volume, from a misunderstanding similar to Greidanus'. Certain passages seem to confirm

¹ Tjardus Greidanus, *The Value of Money* (London, 1932), pp. 82-83.

Keynes' reading;¹ and Wicksell frequently omits explicit mention of *quantity* of credit in discussing cyclical variations. But this may be ascribable, not to depreciating its influence, but to conceiving it paradoxically not as a quantity, but as a rate attached to cash.

Another difficulty with the merging of quantity of credit with velocity is that it imperils the *raison d'être* of the cash balance approach, its connecting price levels with subjective value. As Keynes says, this method of analysis

furnishes us with a clue to the manner in which the causation of the price-making process is related to human decisions. . . . For it makes apparent in what way harmony is established between the separate sets of decisions made by the body of depositors on the one side and the body of bankers on the other.²

Now, the magnitudes presided over by the bankers are M and M' (in the Fisher equation), whereas depositors decide as to the rates in V and V' . To cast M' into V , as Wicksell does, is to throw into one hopper the outcome of two quite separate sets of valuations. This merely repeats the criticism made of Cassel for the same procedure: that velocity is an important independent cause of price behavior. But it indicates an especially striking shortcoming in a cash balance analysis, which should trace causation to its subjective origins.

Nevertheless Wicksell's theory of balances has its meritorious aspects. From a statistical angle it seems better to adopt his practice of putting all money (save that definitively withdrawn from circulation in bank and Treasury reserves) into unspent balances and averaging velocities, rather than to attempt a separation between unspent working balances and hoards, the extent of which is unknown. Wicksell also gives the chief determinants of the size of balances quite correctly; and he is in advance of certain contemporary writers in realizing that the calculus must run in *real* and not monetary terms.³ Furthermore, although he does not work out the weighing of utilities got from money balances against other competing utilities with the nicety which might be expected in a series of lectures oriented "Upon the Basis of the Marginal Utility Principle,"⁴ he shows with great clarity how excessive real balances are brought into equilibrium with existing stock of money by spending, accelerated

¹ Cf. pp. 303-304, below.

² J. M. Keynes, *A Treatise on Money* (New York, 1930), I, 225.

³ Cf. pp. 189-190, below.

⁴ The full title of the 1922 publication is *Vorlesungen über Nationalökonomie auf Grundlage des Marginalprinzips*.

velocity, and rising prices, until the real balances are sufficiently depreciated to bear the proper ratio to transactions in prospect during a given period.¹

American students of money and banking may note with interest that the principle commonly attributed to Phillips, the limit to the credit expansion of an individual bank given in the parallel advance of the banking system,² was unambiguously stated by Wicksell in 1898, and that Wicksell in turn credits Wagner with having stated the principle, at least as applied to the issue of bank notes.³ The unmerited neglect which Wicksell has suffered in American and English economics until recently is indicated by his remaining unrecognized by Phillips and others in connection with the credit expansion principle.

We come finally to an innovation made upon the theory of *Geldzins und Güterpreise* appearing as early as the first Swedish edition of the *Vorlesungen* in 1906. Wicksell repeats the restatement in an article in the *Economic Journal* the following year,⁴ and refers to it a number of times in the German edition of the lectures in 1922. He explains how formerly he had agreed with Ricardo that an inflow of gold affects prices indirectly, *via* bank reserves and bank rates.

On thinking more precisely, however, I arrived at the view that one must lay chief emphasis on the surplus *demand for goods* on the side of the gold producing countries, a demand which, if there exists no correspondingly great need for the new gold on the part of other countries, must necessarily lead to a price rise, and indeed *directly*, so that the rate of interest is perhaps undisturbed, or conceivably moves in the opposite direction.⁵

The opponents of the quantity theory, he explains later, have always capitalized on the phenomena of rising commodity prices attended by rising discount rates, and *vice versa*. Sometimes this anomaly (recently called the "Gibson Paradox" by Keynes⁶) may be explained by the relative behavior of natural and bank rates and the volume of credit; but even with gold production itself part of the contradiction may be resolved.

In fine it is imaginable that the price rise proceeding from the increased demand for goods appears even *before* the arrival of the gold payment for the

¹ *Vorlesungen*, II, 67-71, 162, 182.

² C. A. Phillips, *Bank Credit* (New York, 1920).

³ *Geldzins*, p. 102; *Vorlesungen*, II, 215.

⁴ *Ec. Jour.* 17, pp. 213-220.

⁵ *Vorlesungen*, II, xiii. (Italica Wicksell's.)

⁶ Keynes, *op. cit.*, II, 198-208.

goods shipped out, — conceivably much before, since the preparations for production, especially in the extractive industries, demand masses of capital and labor, that is, of commodities to be paid for only in the future by the newly produced gold. This capital may be partly created through real saving; . . . but it might also be got by drawing upon bank credit. In the meantime that requisition on bank credit makes possible a price rise or even primarily causes it, and the discount rate tends rather to rise than to fall. The increasing gold stocks would then operate as a sort of ratchet *behind* the price movement, preventing its going back, . . . rather than its original occasion.¹

I offer this lengthy quotation to those possessing an appetite for ferreting out "real" meanings. Is Wicksell merely pointing to the fairly obvious fact that a gold inflow would raise prices somewhat even if it were not multiplied several fold as a basis for bank credit extension? Or is he not rather concerned with the sequence of events, portraying the gold flow as an intermediate or lagging occurrence, while credit expansion supplies the impelling force upon prices after the fashion described by Angell and Palyi?² It is even imaginable that the innovation regarding gold movements goes below the matter of sequences into fundamental *causes*, that Wicksell adumbrates Keynes' theory concerning the "radical difference between a disequilibrium which is set up by the relative price levels falling out of gear from [*sc.* "and"] a disequilibrium which is set up by the relative interest rates falling out of gear."³ Wicksell's analysis pertains, it is true, to the limited case of a gold producing country and the country receiving new monetary gold; it is offered as an explanation of the peculiar circumstance in the '70s and '80s when declining gold production and falling commodity prices attended abundant credit and low interest rates.⁴ Nothing precludes its application, however, to the ordinary case where an alteration of the barter terms of trade or "non-monetary demand" produces disequilibrium upon the capital markets of the countries involved, or the converse, as a stage in the process of reaching equilibrium in both commodity and capital spheres. In advanced inflation, this phenomenon under the captions of a "flight of capital" and the "selling out" of the country attains dramatic prominence.

¹ *Vorlesungen*, II, 187-188. (Italics Wicksell's.)

² J. W. Angell, *The Theory of International Prices* (Cambridge, Massachusetts, 1926), ch. xvi; Melchior Palyi, "Das Zahlungsbilanzausgleich bei einseitigen Wertübertragungen," *Archiv* 56, pp. 302-338.

³ Keynes, *op. cit.*, I, 326.

⁴ *Vorlesungen*, II, 188.

II. HELFFERICH AND UNITARY DEMAND FOR MONEY

Karl Helfferich presents a cash balance theory running for the most part in familiar terms. With Wicksell and Cassel he regards the social demand for money as the "sum total of the money stocks required by the individual households and concerns of a country," and with them he excludes hoards from the total of money affecting prices.¹ Like these writers, Helfferich makes the quantity theory turn upon purchasing-power variations with the amount of hand-to-hand currency, and bank credit figures only as a "cash-economizing" device, increasing the effective velocity of cash. Hence, describing the factors governing demand for reserve money, he enumerates not only (1) the volume of payments in prospect during the given period, (2) the degree of coincidence in receipts and disbursements, and (3) their frequency, but also (4) "the intensity of exploitation of money by the banking system" and (5) "the actual use of credit instruments as exchange media."²

Helfferich detects the circularity of the usual application of marginal utility when the units of supply are taken as money. Not specific quantities of money are needed, but specific amounts of purchasing power.³ With this in mind he apparently envisages the schedule of demand as a rectangular hyperbola, for he says that in the case of money demand offers "no resistance" to changes in purchasing power. The peculiar combination of a cash balance theory and the unitary demand concept requires consideration. Superficially it may seem simpler and more realistic than Marshall's demand in real terms, since it may appear that the ordinary mortal would find a calculation of utility aside from the everyday money terms in units of real value extraordinarily difficult. Certain contemporary writers in America and England favor the dollar-and-cents calculus, and I have occasionally been drawn toward this view.

Nevertheless the Marshallian model is correct. To have any meaning in price level determination, cash balances must be made separate from the mere quantity of money existing within the country. But the rectangular hyperbola does not distinguish the two. The specific volume of purchasing power desired by the individual

¹ Karl Helfferich, *Money* (New York, 1927), pp. 151, 461.

² *Ibid.*, pp. 455, 461.

³ *Ibid.*, p. 533; cf. the chapter on "The Supply and Demand Theory," above.

does not vary with changes in quantity of money, it is true, and this fact is embodied in the unitary curve. What *determines* the specific volume which the individual decides to hold? To answer this question, to allow the psychological make-up of the economic subject to enter the process, it is necessary to depart from the rectangular hyperbola and employ a concept of demand which *does offer resistance* to variations in supply and exchange value. So long as the calculus runs in terms of dollars, xy will *always* equal k ; the competing employments for money can never be shown to strike an equilibrium with the utility of unspent margins. But when the calculus runs in real value, the elasticity of demand will not be unitary (save by an improbable accident) and the conditions of equilibrium may be demonstrated. What the owner of reserve funds desires is to maintain a certain quantity of real value or to carry through appropriate changes if circumstances alter; the dollar-and-cents content is a matter of indifference. Consequently the Marshallian analysis, beside avoiding the circularity of monetary terms, proves to be the more realistic.

Helfferich's statement of the equation of goods and money in the terminology of cash balances should not lead to the impression that he is a doctrinaire exponent of the quantity theory. The association of the two ideas with the Cambridge school conceals the fact that, after all, the cash balance idea is merely the equivalent of an algebraic equation of exchange, not the equivalent of a quantity theory. For example, if events upon the side of commodity exchange can be shown to affect either the existing stock of money or the psychological substratum of velocity, causation then passes in reverse order to that of the quantity theory; but the reserve calculus may still be employed to show the competing marginal utilities of money in reserve, consumption, and investment, and the results of this calculus upon velocity. More often than not, Helfferich believes, "the influence of money, both on the movement of prices as well as the fluctuations of discount rates, takes a secondary place as compared with the effect produced by general economic conditions and movements."¹ The fluctuations of the trade cycle manifest themselves in changes in the demand for money, not the supply; prices causally condition changes in the quantity of money, not conversely.² He is one of the few German writers of standing to deny that inflation

¹ *Ibid.*, pp. 568-569.

Ibid., p. 593.

caused the War and post-war booming of prices. American students unused to the cash balance analysis may therefore note the error of identifying it with quantity theory postulates of causation.

III. MISES' CASH BALANCE ANALYSIS

As with Schumpeter, Cassel, and Wicksell, price level variations are correlated with the margins between bank and natural interest rates by Professor Ludwig Mises of Vienna.¹ As with the others this theorem also forms the crux of Mises' explanation of business cycles. But Mises articulates the proposition more successfully than Cassel or Wicksell into the framework of the quantity theory through defining quantity, not as gold bullion or coin, but inclusively, as money plus the *Umlaufsmittel*, i. e. money substitutes in all forms, bank credit being the most important.² Consequently when he defends the quantity theory against the criticism of its *ceteris paribus* qualification by saying "The hypothesis . . . is the self-evident *addendum* of every scientific doctrine . . .,"³ his answer may not only be granted formal validity but his theory may be conceded greater realism, since an additional variable impounded by the gold quantity theory in "other things equal" is eliminated, — the ratio of gold to the credit superstructure. Since the latter magnitude is the completely dominating element in purchasing power, Mises' practice seems to me clearly superior; most modern versions of the quantity theory, such as Hawtrey's, Keynes', and Robertson's, simply identify "money" with credit for purposes of price level analysis. Mises seeks to dispose of another variable, the relation of hoarded to circulating money, by saying that it does not depend upon the supply of money.⁴ No doubt, as he contends, the employment of hoards, with Fullarton for example, as a *deus ex machina* taking up "superfluous" funds and automatically releasing money when more is "needed," must be rejected. But does Mises apprehend that the ordinary quantity theory is not adequately defended by showing velocity or the size of balances to be independent of volume of money, if velocity may be demonstrated to be either a real independent variable or a variable dependent upon factors on the goods side of the equation? Even if velocity varies from circumstances peculiar to itself, a quan-

¹ *Theorie des Geldes und der Umlaufsmittel*, 2nd ed. (Munich, 1924), pp. 347-374.

² *Ibid.*, p. 133.

³ *Ibid.*, p. 110.

⁴ *Ibid.*, p. 130.

tity theory may yet be maintained, following Hayek's practice, by defining quantity as MV , i. e. as the "effective" quantity.¹ If velocity varies from causes produced on the goods side of the equation, the quantity theory is invalidated. The subsequent analysis of inflation and business cycles in the present book will indicate that these situations are actually realized at times.

Aside from this weakness, the absence of a demonstration that velocity does not interfere with the normal flow of causation from money and credit toward prices, Mises' cash balance approach betrays a further shortcoming. The individual's appraisal of utility in this form is represented as attaching to dollar rather than real units of value; and the complete circularity of this reasoning has already been dwelt upon.² In other respects, the treatment of balances is excellent. It is not always understood that, from the theoretical viewpoint of cash balances, no matter whether for statistical reasons it is or is not advisable to separate off hoards from circulating money, *all* money belongs within the unspent margins, excluding such definitively sequestered sums as bank reserves and Treasury backing for notes. Mises says:

All money, regardless of whether it rests in reserves . . . or whether it circulates, i. e. changes its owner exactly at the moment of observation, discharges the monetary function in exactly the same way. Since a piece of money given in exchange passes over directly from the disposition of one party in the contract to the other, and since no time period may be discovered during which exactly it [the piece] is in motion, we see that all money rests in a cash reserve with some person or other. The social money stock of an economic unit is the sum of individual money stocks. There is no such thing, even temporarily, as circulating money which does not form a part of individual reserves.³

Much after the fashion of Marshall, Pigou, and Keynes, Mises presents the size of reserves as the result of weighing marginal utilities obtained from this disposition of wealth against consumption and against investment, either directly by the entrepreneur in his own business or by the consumer in interest bearing securities or accounts.⁴

In its traditional form, Mises asserts repeatedly, the quantity theory is "too mechanical";⁵ and apparently his cash balance analy-

¹ F. A. Hayek, "Reflections on the Pure Theory of Money of Mr. J. M. Keynes," *Economics* 33, pp. 270-295.

² Cf. pp. 81, 160-161, above.

³ *Theorie*, p. 128.

⁴ *Ibid.*, p. 115.

⁵ *Ibid.*, pp. 109, 111-112, 120 *et passim*.

sis is motivated by a desire to extend the marginal utility theory to price level determination. It does indeed establish a connection between purchasing power and those factors which, in Mises' phrase, "reach deep into the human soul." But when Mises explores this organ as the seat of the *auri sacra fames*, he discovers certain objections to the proportional variation of prices, postulated by the "mechanical" quantity theory, which do not appear tenable. If everyone possessing a certain reserve of *kronen* were suddenly to find himself in possession of double the old amount, it would be "absurd," he argues, to suppose the *krona* precisely halved in subjective significance.¹ The absurdity, it may be hazarded, arises from Mises' confusing money and real value. Doubling the latter would not necessarily produce an exactly inverse decline in marginal utility; the utility curve for real wealth held in monetary form might have any imaginable elasticity. Doubling the *krona* reserves, on the other hand, would make them exactly twice as large as people have desired at existing prices. Only when increased expenditure had forced prices to twice their original height would *krona* reserves again assume the desired real magnitude. Inflation and deflation, attending both war finance and ordinary cyclical variations, often produce an alteration of this real magnitude, but of these circumstances Mises says nothing. Proportional variation of prices is also attacked in another argument which taxes interpretive ingenuity;² but its error is clearly the same. The marginal utility calculus, which can only be applied to money without logical circularity by utilizing *real* units of value, is transferred to *money* units, and the *improbability* of strict proportionality in the first instance is ascribed to the latter.

A number of German writers seem to have difficulty in articulating the quantity theory explanation of the value of money with the general subjective value theory of the Austrian school. Despite the clarity and even the dogmatism with which Mises espouses the quantitative theorem, he is not always consistent. In both editions of his main treatise³ and in an article in the *Archiv*,⁴ he rejects the "mechanical" quantity theory for the subjective value analysis in explaining a supposed tendency, inherent in the very nature of indirect

¹ *Ibid.*, p. 123.

² *Ibid.*, pp. 123-124.

³ *Theorie des Geldes und der Umlaufsmittel*, 1st ed. (Munich, 1912), pp. 170-183; 2nd ed. (Munich, 1924), pp. 135-147.

⁴ "Die allgemeine Teuerung im Lichte der theoretischen Nationalökonomie," *Archiv* 37, pp. 557-577.

exchange, toward a progressively rising cost of living. In a system of barter, he argues, a prospective purchaser who finds the price too high will simply have to be content until the seller has moderated his charge. But in a monetary economy, the buyer may pay the exorbitant price under the conviction that he will be able to recoup the loss by demanding a correspondingly high price for his own products. The original price advance eventually spreads in this fashion to many goods, "and no one can say where the beginning or where the end, what the cause, what effect."¹ A common occasion for the inception of such a vicious spiral of prices is monopoly. But, he adds, "it would be quite wrong to deduce from these facts a complete shifting of all price advances. . . . Conformably therewith, one would have to attribute the rise in commodity prices to the futile efforts of human rapaciousness."²

But the fact that, imagining such an evolution in prices actually to transpire, the advance of all prices might not be parallel, does not in the least reduce Mises' own dependence in this argument upon "human rapaciousness" as the driving force. The absolute incompatibility of this boot-strap lifting with the quantitative theorem must be patent. Mises himself observes that defenders of the "mechanical" quantity theory would object that any variation in purchasing power not arising from the relation of demand for and supply of money automatically disappears; and in rebuttal he remarks that this objection, while valid in a static condition, does not apply to price dynamics. Is this an historical or institutional explanation of actual price levels which Mises offers? If so, how can he countenance his current reputation as the chief exponent in Germany of the quantity theory explanation of war-time prices, the purchasing-power theory of exchanges, and the bank discount explanation of business cycles?

IV. CONTRASTS BETWEEN MONEY AND CREDIT DRAWN BY HAHN

Mises' practice of basing the price level directly upon bank credit rather than indirectly upon gold is adopted by L. Albert Hahn.³ There are other similarities: their championing of the purchasing-

¹ *Theorie*, 2nd ed., p. 144.

² *Ibid.*, p. 146.

³ L. Albert Hahn "Von der Kriegs- zur Friedenswahrung," *Archiv, Erganzungsheft* 14, pp. 51-64; *Geldverteil und Geldverweil* (Frankfort, 1924).

power parity doctrine and their common advocacy of the monetary theory of business cycles. But their diametrically opposite views on credit policy have provoked mutual animosity, Mises representing the very conservative opinion, Hahn the idea that "credit produces goods out of nothing." The latter's contributions to periodical and pamphlet literature during the past fifteen years have the novelty, enthusiasm, and assurance of the practical business man's adventures in theory, and also some of the ingenuousness. From the standpoint of the academic economist, however, Hahn's comparison of the different operation of money and credit has certain significant aspects.

The first is an attempted *rapprochement* between the banking and quantity schools. Whenever a changed demand for money proceeds from a secular trend in mode of payment, the banking theory that quantity responds automatically to need is justified.¹ It is valid again for seasonal variations in the use of money in comparison to credit. On the other hand, when an increase of money accompanies an increase in credit and prices, the quantity theory gives the real line of causation. But it is necessary to avoid dogmatism. The possibility of credit expansion by individual banks independently of any increase in Reichsbank money cannot be denied. But in the ultimate analysis, since a certain proportion of deposits must be kept in money for encashment, and since "every credit expansion . . . represents an anticipation of the creation of Reichsbank money, the issuance of that money is to be regarded as the *logical* cause of the price rise, even though it follow *chronologically*."²

Hahn's attempt at reconciliation between the quantity theory and the old banking theory or its modern successor, the institutional or historical explanation of prices, really delivers the case to the former. But he concedes as much as would seem to be possible. Volume of credit determines prices, though the "needs of trade" govern the proportion of total purchasing power required as currency. Central bank credit extension controls the expansion of member banks through determining their available reserves, though in point of time member bank expansion may precede. Both articles of belief are represented by Robertson in the discussion of cause and effect during the English inflation period. The Bradbury notes figure

¹ *Idem*, "Zur Theorie des Geldmarktes," *Archiv* 51, pp. 289-321; *Volkswirtschaftliche Theorie des Bankkredits*, 3rd ed. (Tübingen, 1930), pp. 83-93.

² *Archiv* 51, p. 309. (Italics Hahn's); cf. also *Kriegswährung*, pp. 44-45.

quantitatively as mere satellites of the really impelling force, bank credit; but the expansion of credit, chronologically precedent to the appearance of the notes, would have collapsed without "the knowledge, on the part of somebody, that they could be created if necessary. . . ." ¹

Another contrast between money and credit is the unlike effects upon unspent margins held in these two forms, produced by movements of interest. I do not recall ever having seen the subject mentioned in English. Following the example set by Marshall, English and American treatments have represented interest as the opportunity cost of monetary reserves; balances would then vary inversely (though of course not proportionally) with interest yields on gilt-edge investments, velocity directly. For the common situation in which no interest is allowed on demand deposits, the description holds good. Hahn calls attention to the fact that when interest is allowed, an advance in the rate *retards* velocity upon deposit balances; ² and the practice appears to be rather common in Germany.³ Inasmuch as the rate paid on customers' balances is usually a fixed margin below bank rate, an advance in that rate would be doubly effective upon the price level, first in penalizing borrowing from the banks, and secondly in encouraging the maintenance of large deposit balances. Where interest is not allowed on balances the advance in bank rate will work partly against itself; as Keynes says, "stringent conditions of credit . . . tend to increase velocity." ⁴

The size of unspent margins depends, amongst other things, upon the owner's spending habits, whether regular or spasmodic, upon his sensitiveness to risk, upon objective facts such as the frequency and degree of coincidence of pay and settlement days, and upon the size of real payments to be made. The multiplicity of these factors must restrict the rôle played by interest, either positive or negative. That it is a relevant variable, on the other hand, cannot be denied, and re-discount policy might be somewhat affected by the consideration of whether its reflex effect upon balances is positive or inverse.

A third aspect of the money-credit contrast dwelt upon by Hahn is the relative variability of velocities, his main concern in the article

¹ D. H. Robertson, *Money*, 1st ed. (New York, 1922), p. 113. (Italics his.)

² L. Albert Hahn, "Zur Frage des sogenannten 'Vertrauens in die Wahrung,'" *Archiv* 52, p. 303.

³ P. Barrett Whale, *Joint Stock Banking in Germany* (London, 1930), pp. 37-38, 178, 335, 338.

⁴ Keynes, *op. cit.*, II, 46.

entitled "The Problem of so-called 'Confidence in the Standard.'" He believes that confidence, taken by the metallists as a non-quantitative factor affecting prices, particularly under inflation conditions, may be reduced to the quantitative element of velocity. Variations in the velocity of money and credit under the psychological factors of confidence and mistrust show much larger amplitude than variations under the interest factor. Moreover, since the fear of depreciation strikes holders of cash and credit balances equally, the two velocities move in the *same* direction in inflation. Now money and credit have each a theoretical maximum velocity, being determined for the former by the time required to pass on the coins and notes physically, and for the latter by the greatest dispatch imaginable in transferring accounts.¹ The maximum for money will obviously be lower than for credit;² consequently, we may expect the greatly accelerated velocity of credit in extreme inflation to be attended by a much smaller acceleration in cash. If now a certain proportion of all transactions has to be discharged in hand-to-hand currency, we may suppose the "anxiety buying" to *force* an increased issue of bank notes. In other words, P and M vary together, not because according to a simplified quantity theory M determines P , but rather because, M' having been greatly increased and prices having risen, V' also increases; V remains relatively constant, and M must vary about proportionally with $M'V'$ (and also P) because of the fixity in proportion of cash to total transactions.

These innovations of Hahn's seem to be illuminating, and other writers, apparently without knowledge of his work have, by a case of simultaneous or independent discovery, enunciated the same theories. Graham, for example, makes use of the concept of a "ceiling" in monetary velocities in explaining the German complaint of a shortage of money during the most violent phases of inflation;³ and Pigou, discoursing upon the same phenomenon, offers an explanation

¹ *Archiv* 52, pp. 303, 306.

² This seems to be a reasonable supposition on the basis of figures showing realized velocities of money and credit under ordinary conditions. But Hahn's "proof" is that the quasi-interest in the form of utility flow from a cash margin "is greater than interest upon deposits." Of course in this event, the cash margin would be reduced only tardily, as he believes (*ibid.*, p. 306). Freely disposable income, however, will certainly be apportioned between cash and credit reserves so as to give *equal* satisfactions at the margin. Hahn's conclusion, but not his supporting argument, may be accepted.

³ F. D. Graham, *Exchange, Prices, and Production in Hyper-inflation: Germany, 1920-1923* (Princeton, 1930), p. 105.

quite similar to Hahn's.¹ In Part III, this subject will be more exhaustively treated.

V. NEISSER'S INNOVATIONS IN VELOCITY THEORY

Further progress in the analysis of velocity may be credited to Dr. Hans Neisser of Kiel.² His division of cash balances into "balance reserves" and "operating funds" strikes into an original enquiry. A certain traditional dignity has been acquired by the division of money stock into hoards and circulating part; many writers have separated the subjective from the objective determinants of unspent margins; still others have made profitable employment of traders' as against consumers' balances. Neisser's dichotomy does not precisely parallel any of these. Balance reserves are held for the sole purpose of meeting *contingencies*, by producers as well as by consumers. Subjective elements, such as the individual's sensitiveness to risk, the competing utilities of money in consumption and investment, opinion as to probable price level developments, and objective facts, such as the interest obtainable in investment, combine to determine how large these reserves shall be.³ Operating funds are held for the purpose of meeting the regularly recurring inequalities between income and expenditure. For everyone they are objectively determined: for consumers by wage, salary, and divided periods, for producers by the turnover period. The Cambridge school erroneously makes the whole unspent margin a function of interest, whereas operating funds cannot be affected by the cost of maintaining them.⁴ If a given person, for example, receives a monthly salary and must spend more or less evenly through the ensuing month, his operating fund on the average necessarily equals one-half his monthly expenditures.

Since the balance possessor's expectation as to the course of prices can affect only his contingency reserve, or as Neisser calls it, his balance reserve, the acceleration of velocity through a "flight into real values" reaches a definite limit. Without a shortening of payment intervals, the limit is reached when balance reserves are exhausted.⁷ The usefulness of Neisser's innovation may be apprehended in con-

¹ A. C. Pigou, *Essays in Applied Economics* (London, 1923), p. 194.

² Hans Neisser, *Der Tauschwert des Geldes* (Jena, 1928).

³ *Ibid.*, pp. 18-20.

⁴ *Idem*, "Der Kreislauf des Geldes," *Welt. Arch.* 33, p. 390.

⁵ *Tauschwert*, pp. 18-19; cf. also pp. 234-236, below.

nection with extreme inflation such as Germany experienced. Only as a last resort are payment periods actually shortened by governments and employers under pressure from the fixed income groups which suffer by depreciation. Until that time, velocity acceleration is limited by the extent of balance reserves as yet unexhausted. Statistics of the minimum amounts reached by individual deposit accounts during each month, for example, would indicate how far removed is the "maximum velocity" referred to by Hahn, or Graham's "ceiling" velocity.¹ Another application of Neisser's distinction pertains to Robertson's "induced lacking." The phenomenon is, by the foregoing reasoning, also limited to balance reserves.²

Reduced to summary terms, the doctrine of Neisser's book so far as it pertains to velocity follows. Balance reserves do not circulate, and may be set down at a velocity of zero. Operating funds have a velocity which is determined by income and business-turnover periods. Average velocity for all money therefore appears as the result of (1) the velocity of operating funds and (2) the proportion which operating funds bear to the balance reserves. This doctrine Neisser modifies considerably in his later paper devoted exclusively to velocity. Balance reserves, having a zero velocity, fall into *ceteris paribus*, and the discussion pertains primarily to operating funds. Rapidity of circulation is now said to depend upon (1) average duration of payment periods in the income sphere, (2) average "technical duration" of payments in the business sphere, and (3) "capital intensity" in the economic system,³ which gives the relative weighting of the two spheres in computing an average velocity for both. Each of these terms requires explanation.

The distinction which Neisser makes between income and business spheres antedates Keynes' and does not coincide with it. According to the latter's usage, velocity of consumers' balances *alone* is said to be velocity in the income sphere. As Neisser uses the term "income sphere," it pertains not only to velocity of consumers' balances but also to that portion of producers' balances which are held to pay for the factors of production, that is, for rent, interest, and wage incomes. Adopting Marxian terminology, Neisser calls these the "V-payments," the entrepreneurial outlays on variable capital.⁴ The other element of producers' balances is the amount held to

¹ Cf. p. 168, above, and 224, below.

² Cf. pp. 364-365, below.

⁴ *Ibid.*, p. 363.

³ *Welt. Arch.* 33, pp. 385, 403.

⁵ *Ibid.*, p. 371 and note 2.

meet "C-payments," that is, entrepreneurial outlays for constant capital, or the expense of "machines, auxiliary goods, and raw materials."¹ It is apparent, therefore, that while Neisser's "velocity of income payments" coincides with Keynes' "velocity of income deposits," since the former is at once the rate at which entrepreneurs receive and disburse consumers' incomes and the rate at which consumers receive and disburse their incomes, the velocity of "C-payments" does not coincide with that of Keynes business deposits, since the latter is a (weighted) average of velocities of producers' balances both for *factors* applied currently and for materials, machinery, etc.

Keynes' distinction is adapted to a contrast of producers' and consumers' balances and outlays during the course of a cycle, whereas Neisser's is germane to structural or secular changes in the relative importance of net income payments as against payments for constant capital in the sense indicated. The two types of change to which Neisser applies his apparatus of velocities are (1) "spurious capital intensification," the process of industrial differentiation, and (2) "genuine capital intensification," or what economists generally would call an increase in the capitalistic method of production. His treatment of the first subject seems to me to be a brilliant piece of analysis. Before these subjects may be studied, however, it is necessary to return for a moment to examine and to amend somewhat the terms employed.

Velocity in the income sphere is made to depend upon the infrequency of payment intervals, just as in the earlier treatment of the *Tauschwert*. Adding to this factor the lack of coincidence of payments, we may accept the proposition. But the innovation introduced in the present article in respect to business payments is scarcely warranted. This particular velocity, it is argued, depends solely upon the "technical duration" of payments; that is, it tends always to the maximum velocity of deposits as established by the speed of bank clearings.² Since production goes on continuously and since entrepreneurs receive payments continuously for their commodities,

¹ *Loc. cit.* The ambiguity of the "constant capital" expense is never cleared up. It might be interest charges, but in fact it seems rather to refer to depreciation on machinery and the direct outlays on cost goods, or what Marx called the "used-up" constant capital. Cf. M. Bober, *Karl Marx's Interpretation of History* (Cambridge, Massachusetts, 1917), p. 210.

² *Ibid.*, pp. 367-368, 374.

receipt and outlay follow as fast as they can be effectuated under the existing clearing technique.¹

No stage of entrepreneurs has an interest in withholding C-payments which it owes to the succeeding stage; and on the other hand, it is impossible . . . [with certain qualifications] for any stage to deliver goods to one nearer consumers unless it receives immediate payment.²

It is highly improbable, even between very efficient business units, that money should attain a velocity approaching the maximum speed of bank clearings. Merely that "no stage of entrepreneurs has an interest in withholding payment" does not prevent a great deal of laxity in discharging obligations, even after it is financially possible and despite the interest loss involved. Consumers may also be dilatory and so reduce velocity in the business sphere by retarding the process of passing the receipts backward to more ultimate producers. Beside, the assumption of continuous marketing and continuous receipts necessitates certain qualifications made by Neisser himself. The net effect is to qualify the "technical duration" out of existence and to allow Neisser's earlier rule, according to which the infrequency of payment intervals determined velocity for business payments as well as for income payments, to reappear.

The adverse criticism of the preceding paragraph must be tempered in two respects. In the first place, it may be freely admitted that the velocity of C-payments more nearly approaches the high rate characterizing financial transactions than the low rate of income payments.³ Secondly, for the subsequent course of Neisser's argument it is immaterial whether velocity actually reaches the "technical duration" of payments limit or not, so long as it is a magnitude independent of other factors in the equation of exchange, an idea clearly implied by the "technical duration," but not conditioned by its validity.

We turn now to average velocity over both income and business spheres, a magnitude which involves Neisser's concept of capital intensity. Whatever its deeper implication from a theoretical angle,

¹ It must not be forgotten that business payments exclude income payments, which are in their nature periodic and necessitate considerable balance holding.

² *Ibid.*, p. 374; cf. also p. 403.

³ For Germany this would mean something closer to 250-290 person turnovers *per annum* than to 12.5-13.5, the estimated velocities in the financial and income spheres respectively. Cf. Jakob Marschak and Emil Lederer, "Größenordnungen des deutschen Geldsystems," *Archiv* 67, pp. 385-402.

capital intensity is from an arithmetical angle nothing more than the relative weight to be assigned each velocity in constructing an average.¹ Granting the desirability of striking such an average for purposes of an all-inclusive equation of exchange, the question arises as to whether Neisser actually presents the right magnitudes for weighting velocities. Capital intensity by formal definition is the ratio of costs per unit of output expended upon "machines, raw materials, and auxiliary goods" to per unit outlays upon pure incomes — wages, interest, dividends, rents. It is, therefore, a ratio of payments. To the Fisher type of reasoning, dealing with *money* payments and quantities of money held, it is an anomaly to weight velocities by *payments*, which are the result of money times its velocity. The only admissible weighting basis, in this sort of analysis, is the relative quantities of money in each field. Unless the velocities of *C*-payments and *V*-payments were the same, variations in the portion of total payments made in the business and income spheres would not give proportional variations in the relative quantities of money in each sphere of payments. But in a calculus such as Neisser's, which runs in terms of *real* balances, there is nothing contradictory in carrying through the weighting on the basis of *real* payments, and this is what he does. It should be made quite clear, moreover, that in the cases of spurious and genuine capital intensification to which Neisser applies his velocity analysis, neither type of change is said to affect velocity (person-turnover) of *C*-payments, but only capital intensity as a weighting factor between the two fields.²

The fallacy that industrial differentiation automatically increases velocity so as to leave prices unchanged Neisser had attacked effectively with the concepts developed in *Der Tauschwert des Geldes*. Proliferation of stages, either through breaking down integrated processes or multiplication of middlemen, does nothing toward shortening the payment intervals nor, in consequence, does it increase the velocity of operating funds.³ So far as balance reserves are concerned, — the reserves against contingencies, — there would, if anything, have to be a slight increase as a result of the greater risk. Velocity would on the whole be somewhat retarded. But the main effect is felt, not upon the monetary side, but upon the side of commodities. Commodity turnover increases parallel with differentia-

¹ *Ibid.*, p. 403.

² *Tauschwert*, pp. 20-21.

³ *Ibid.*, p. 374.

tion, prices decline inversely, and the diminution of velocity merely intensifies this result.

The *Kreislauf* article in the *Archiv* draws some finer distinctions, and it is here, in addition to the earlier separation of contingency and operating reserves, that Neisser makes some net contributions to the cash balance approach. Unfortunately these distinctions are less elaborated than parts of the analysis which seem to be erroneous. But he points out quite clearly that differentiation is attended by (1) constant velocity in the person-turnover sense, (2) decreased velocity in the circuit-flow sense, and (3) increased real balances in the sphere of C-payments.¹ The first two points have been insisted upon at earlier junctures in the present Part; but, so far as I discover, Neisser is the only person to make the contrast in German literature. The third point is also distinctive, but it may have implications which he does not grasp. To say that velocity stays the same in the Fisher sense while real balances increase, though perfectly sound, runs directly counter to the representation of the Cambridge school that the two vary inversely. The answer to the paradox, which he does not offer, as well as the implications of his weighting device, which are not touched upon, will be presented in Chapter XI. Neisser's conclusions as to person-turnover, circuit velocity, and increased real balances supply the lever to which only a fulcrum needs to be added for a definite solution of the problem of differentiation.

Under "genuine capital intensification," that is, under more capitalistic production, "with a constant volume of money, we have a *double* tendency of prices to decline, first because of the greater social product, and secondly because each unit of social product has, so to speak, to pass through *initial stages of greater magnitude*."² Just as in the case of differentiation, the increase of capitalistic production does not affect velocity, either in the business or income sphere, but it does increase the necessary real size of the business money fund and so produces a fall in prices *in addition* to that produced by the greater flow of consumers' goods.

In the passage quoted, Neisser may seem to fall into the error, later to be encountered with Hayek, of identifying the proliferation of separate firms in a productive series with a more capitalistic method of production. But it is not necessary to impute to him this

¹ *Welt. Arch.* 33, pp. 380, 385.

² *Ibid.*, p. 378. (Last italics mine.)

confusion, especially as his contention is fundamentally correct. The application of additional capital tends toward a lowering of price levels, not only through the larger volume of consumable product, but also through the larger volume of fixed and working capital goods. Assuming unchanged rates of depreciation upon the former and an unchanged number of firms through which the second class of goods passes, the increased physical and real value magnitude of both capital categories increases the "money work to be done" over the increase proceeding from enlarged product. A policy of price stabilization therefore theoretically requires a sufficient increase in the monetary circulation to compensate both these effects.¹

¹ Neisser's distinction between balance reserves and operating funds appears also under the captions of *echte* and *unechte Rücklage* with Oskar Engländer, *Theorie der Volkswirtschaft*, vol. II, "Geld und Kapital" (Vienna, 1930). I have not succeeded in compassing Engländer's expository style, which, German students have assured me, very nearly lies beyond their own comprehension. Engländer treats a large variety of aspects of the quantity theory in what appears to be a very thorough fashion.

The difficulties of a mathematical treatment in a foreign tongue prevent my utilizing Karl Schleisinger's *Theorie der Geld- und Kreditwirtschaft* (Munich, 1914), which appears to me well worth the attention of mathematical economists.

Of entirely different calibre are Karl Kirmaier, *Die Quantitätstheorie* (Jena, 1922), and Paul Schultz-Kiesow, *Die Kassenhaltung, Ein Problem der Geldtheorie, der Bankpolitik, und der Kredittheorie* (Jena, 1925). Neither has any claim to attention.

CHAPTER X

THE OPPOSITION TO THE QUANTITY THEORY

MONETARY theory has of late been considerably influenced by the so-called "income theory" of purchasing power. It has been propagated in France by Albert Aftalion, in the Netherlands by Verrijn Stuart,¹ and in Germany and Austria by a substantial following. Both Böhm-Bawerk and Schumpeter lend their authority to the school, but its recognized leader is Wieser. How does the income theory relate to the quantity theory?

The answer is not easily found. In the last publication before his death, Wieser epitomized the income theory in these words: "The height of the objective value of money takes its decisive measure from the values of the individual consumer's economy . . . and is determined by the relation of the money income of the individual unit to the real income which it is used to acquire."² The fundamental ideas are three, that purchasing power relates to money applied to consumers' goods, that it is the result of a quantitative equation, and that the quanta are flows and not stocks. All three components appeared with Wieser as early as 1909,³ and according to Schumpeter it was Wieser who was amongst the first in Germany to recast the quantity theory in terms of rates.⁴ In the *Social Economics*, written as a part of the *Grundriss der Sozialökonomik* in 1914, Wieser sets forth the equation of money and real income as the logical counterpart to the equation of supply and demand for natural values through the mechanism of money price.⁵

Save for the limitation of purchasing power to consumers' goods, there is every reason to suppose that Wieser has in mind something closely resembling the Fisher equation of exchange. The impression that he desires to assume the analytical (sometimes called the

¹ A summary of the views of Aftalion and Stuart may be found in Tjardus Greidanus, *The Value of Money* (London, 1932), ch. xi.

² Friedrich Wieser, "Geld: Theorie des Geldes," *Handb. der Staats.*, 4th ed., vol. iv (Jena, 1927), p. 699.

³ *Idem*, "Der Geldwert und seine Veränderungen," *Verein* 132, p. 516 ff.

⁴ Joseph Schumpeter, "Das Sozialprodukt und die Rechenpfennige," *Archiv* 44, pp. 628-630.

⁵ Friedrich Wieser, *Social Economics* (New York, 1927), pp. 254-258.

mechanical) view of price level determination, against an historical explanation or other variants of a non-quantitative character, is reinforced by his concern to define accurately just what payments shall be included in the equation. Here we encounter a dual division into "price payments" and "payments by assignment," the former arising from the surrender of natural values, i. e. from productive acts, the latter from mere transfers of value claims so acquired.¹ Income obtained from price payments may be called "original"; revenue got from assignment, such as loans, insurance, gifts, and taxes, constitutes "derived" income. The second type of income does not influence the exchange value of money, he says. Whether acceptable or not, this classification surely rests upon a quantitative analysis of purchasing power; and besides being accounted a supporter of the quantity theory by others,² Wieser himself expresses the belief that "much as the quantitative theory has been disputed, it has never yet been supplanted, much less displaced by any other theory which admits of a wholly satisfactory explanation."³

But there are elements in his writing conspicuously at variance with this viewpoint. In Part I it has been shown that Wieser approached a clear-cut conception of purchasing power in the quantity theory sense only late in life.⁴ Most of his publications confuse the idea with subjective significance of money, as when in *Social Economics* he says, "More is predicated in the value of money than the mere fact of a general level of prices."⁵

Wieser also betrays a decided penchant toward an historical explanation of prices. Specific application of this method is made to the general rise in prices during the sixteenth century. In a system resting for the most part upon barter, he says, the producer includes in the money cost of his wares only a fraction of the total costs of production. With the flood of precious metal from the New World,

domestic agriculture comes more and more under the division of labor, and is imbued with the spirit of the money economy. All these facts contribute to increase the outlay of money which the farmer should seek to recover in the price of his goods. Hence there is an increase in the selling price which he must ask in order to meet his reckoning.⁶

¹ *Ibid.*, pp. 252-253, 264; *Höwb. der Staats.*, IV, 609; *Verein* 132, p. 515.

² E. g. S. P. Altmann, *Die Entwicklung der deutschen Volkswirtschaftslehre im XIX Jahrhundert* (Leipzig, 1908), vol. I, sec. 6, p. 48; Frits Machlup, *Die Goldhermährung* (Halberstadt, 1925), p. 110; Schumpeter, *op. cit.*, pp. 628-630.

³ *Social Economics*, p. 287.

⁴ *Social Economics*, p. 263.

⁵ Cf. pp. 81-87, above.

⁶ *Ibid.*, p. 288.

Once begun, the advance in prices transmits itself from basic agricultural products to the entire system.

If Wieser's historical analysis conflicts with the equation of exchange, his treatment of velocity and deposit media runs directly counter to quantity theory causation.

Rapidity of circulation of money is not an independently operative cause of changes in the value of money. . . . Money always takes its velocity from goods.¹ . . . Notes paid out in discounting are subject to a law which has been called after its discoverer Fullarton's Law.² . . . The amount of unsecured balances . . . fluctuates as elastically with the monetary requirements of trade as the amount of unsecured notes.³

Without entering into the merits of the "income theory," and without reference to direction of causation in the passages just quoted, it is patent that Wieser does not conform to the quantity theory even so far as to satisfy its point of departure in the truistic equation. The vital differences between Schumpeter's exclusion of transactions in wealth titles and Wieser's elimination of "derived" incomes will not have escaped the reader. In the first place, granting the desirability of avoiding the vague concept of a general price level by referring the term "purchasing power" or "*the value*" of money to *consumer* buying power, the sums to be deducted from the monetary side of the equation are not "derived" incomes but funds employed in the financial, business, and industrial spheres.⁴ The cost of living is the same whether the particular consumer has earned an "original" income through theft, taxes, insurance benefits, gifts, loans, or the like. Not the *source* but the *employment* of funds decides their relevancy.

Deducting the balances involved in business, industry, and finance from the sum total of national balances leaves the balances appropriate to Wieser's conception of the exchange value of money; but he declares that the sums deducted "do not influence" purchasing power! If the ratio of income balances to the remainder were constant, this would be true, but the contingency is scarcely worth mentioning. What he has done, aside from misapprehending the character of sums to be eliminated in a consumers' equation, is to deny the reality of the largest single variable *qua consumers' equation*.

¹ *Verein* 132, p. 522; cf. *Hdwb. der Staats.*, IV, 706.

² *Social Economics*, p. 145.

³ *Ibid.*, p. 146.

⁴ Cf. J. M. Keynes, *A Treatise on Money* (New York, 1930), I, 35-49.

With respect to one element of "derived" income, Wieser directly contradicts himself by holding that the increasing burden of taxation provides a continuous force toward raising the level of prices. Although the algebraic equation would permit of a rise in prices proceeding from an adverse effect of taxation on economic productivity, or a fall in prices (probably less significant) proceeding from an increased money work in tax payments and disbursements, it does *not* permit a rise of the general price level for the reason that taxes "increase costs and must be recovered in the sales price."¹

The same criticism applies to Wieser's explanation of the advancing prices during the century of geographic discoveries. Alfred Amonn points out that the disappearance of barter, quantity of money remaining unchanged, would produce a fall instead of a rise in prices; that the force driving prices upward was the influx of gold and silver from America;² and, he might have added, this fact was shown clearly in 1568 in Jean Bodin's *Response aux Paradoxes de Malestroit*. Even Mises, whose unorthodoxy upon the historical trend of prices we have observed, and B. M. Anderson, implacable foe of the quantity theory, find Wieser's analysis wanting.³ What the inclusion of the rural districts in monetary exchange accomplished, they say, was merely an equalization of prices between town and country. They might well have turned to a page in Wieser for disproof of his idea that farmers could raise the general price level by including more of their real costs in computing sale values.

It is his personal loss, when one of the contracting parties errs and surrenders a greater value in the one form than he receives in the other. The equation of values in the total, however, is not affected by this error, for what he overpaid becomes the gain of the other party to the contract.⁴

The supposed price raising efficacy of taxation and the disappearance of barter rest, as Lampe observes, upon the postulate that prices and price levels depend on the calculation and will of entrepreneurs.⁵ Certainly it conflicts with all equations of exchange. Add to this Wieser's acceptance of the Fullarton principle and the concept of velocity as determined from commodity turnover, and it

¹ *Social Economics*, p. 289.

² "Wieser's 'Theorie der gesellschaftlichen Wirtschaft,'" *Archiv* 53, p. 663.

³ Ludwig Mises, *Theorie des Geldes und der Umlaufsmittel*, 2nd ed. (Munich, 1924), pp. 130-143; B. M. Anderson, *The Value of Money* (New York, 1917), p. 90.

⁴ *Social Economics*, p. 256.

⁵ Adolf Lampe, *Zur Theorie des Sparprozesses* (Jena, 1926), p. 94, note.

becomes difficult to conceive the founder of the income theory as supporting or even understanding the quantity theory.

With the exception of Schumpeter, other representatives of the income theory in German literature are not particularly impressive. The sentiment expressed by many members of the Austrian value school against a "mechanical" quantity theory is seconded by Professor Liefmann of Freiburg. Because this theory dispenses with a utility calculus on the part of economic individuals, it can "compute but not explain" the course of prices.¹ Liefmann objects to various features in Irving Fisher's formulation: to a (supposed) assumption that each good changes hands but once, to its concept of an objective value of money, to its omission of bills of exchange, etc. from the monetary total, and to the assumption that increased velocity does not affect the volume of trade. If it were true, he says, that the change of one price were always accompanied by an opposite change in other prices (!), the state could lower the prices of most goods by artificially raising the prices of a few.² Liefmann's own theory of price levels is exhausted by the epigrammatic pronouncement that "income determines prices." Other satellites of the income theory, such as Dalberg and Kerschagl, do not weary of accusing quantity theorists of neglecting subjective elements.³

A number of Knapp's disciples have united the income theory with the old banking school tenet that bank notes and deposits, if based upon first-class commercial paper, automatically conform to "the needs of trade." This idea became known to every German through the lively campaign of pamphleteering for "classical money" carried on during the War and inflation periods by Bendixen, supported by Dalberg, Elster, and Singer.⁴ The propaganda was not successful; indeed, it is commonly observed that monetary excesses during these times completely converted the man in the street to a dogmatic and naive version of the quantity theory. Nevertheless, in the ranks of academic economists the views of Tooke and Fullarton continued to be accepted outright by Eulenburg, Gruntzel, Miksch, Mildschuh,

¹ Robert Liefmann, *Die Geldvermehrung im Weltkrieg und die Beseitigung ihrer Folgen* (Stuttgart, 1918), pp. 13, 64.

² *Idem*, *Geld und Gold* (Stuttgart, 1916), pp. 56-64.

³ Rudolf Dalberg, *Die Entwertung des Geldes*, 2nd ed. (Berlin, 1919), pp. 27-29; Richard Kerschagl, *Die Lehre vom Geld in der Wirtschaft* (Vienna, 1921).

⁴ Propaganda for this scheme will be found throughout all the publications mentioned in the bibliography under these names.

Philippovich, and Schultze-Kiesow, and in somewhat modified form by others.¹

Quite different in character is the opposition to the quantity theory by those who prefer an institutional or historical explanation of price level behavior to the cross-section or analytical viewpoint. Both Wieser and Mises verge upon this attitude at times, but a more thoroughgoing exponent is Professor Othmar Spann of Vienna. Spann adopts the banking school theorem and believes that the quantity of money is the result of the turnover and prices of commodities.² But he says also that velocity determines quantity of money, in that the maximum V at times of greatest activity in payments sets the M requisite to perform the given money services. Apparently causation progresses from PT to the V 's and thence to M' and M . It is odd, if this is Spann's conviction, that he should advance reasons for believing that increases in the supply of money and credit will not advance prices *proportionally*.³

Spann applies the historical technique to what he conceives a paradoxical feature of current economic organization, that the progress of material welfare is attended by universally rising prices.⁴ The only person who has assayed a solution of this riddle is Wieser, but his explanation cannot be applied to the contemporary situation when the sphere of money economy is not being appreciably extended. Into a satisfactory theory, the following facts must be fitted. On the one hand a variety of forces tend to raise prices: the law of diminishing returns, tariffs, monopolies, and the costs of social legislation, the military establishment, and the public debt. Set against these are forces working toward lower prices: technical discoveries, the increasing division of labor, and cartel economies in marketing. What needs to be explained is how the obvious preponderance of the second set of forces can at the same time be accompanied by rising prices.⁵

The solution is simple. Suppose for a moment that barter prevails. If certain goods come to be produced more cheaply their

¹ References to the writings of these persons are to be found in other connections in the present volume.

² Othmar Spann, "Bemerkungen zu Fishers Geldlehre," *Schm. Jahrb.* 41, pp. 1570-1571.

³ *Ibid.*, p. 1573.

⁴ *Idem*, *Theorie der Preisverschiebung als Grundlage zur Erklärung der Tenierung* (Vienna, 1913), pp. 1-10.

⁵ *Ibid.*, pp. 10-18.

purchasing power falls, that of others rises. But in a given period only a few goods can be the objects of improved technique. Consequently, "the appreciation of a majority of products stands against the depreciation of a minority, and the general level of values rises."¹ Admitting money into the process does not change its essentials. Improvements in industry release purchasing power for the products of agriculture, raising their prices; but when agricultural raw materials are more expensive, even industrial products become dearer through the influence of costs.² Both the commodities affected by improvement and those not, advance in price; and thus the general advance in the cost of living is explained — to Spann's satisfaction.

Another attack upon the problem of prices in the aggregate parallels the historical approach in emphasizing evolution rather than functional relationships; it differs in assuming what might be called a disjunctive view. Both regard causation as running preponderately from the "real" determinants of production to prices rather than from the monetary side. What I term the disjunctive view, however, denotes extreme scepticism toward generalized conceptions of purchasing power, toward index numbers, and toward any unitary summation of the whole pricing process, such as the equation of exchange. In America, A. L. Laughlin may be taken as a representative; and in Germany, amongst the older writers, Wilhelm Lexis and S. P. Altmann, and Heinrich König,³ accounting the symbols in the algebraic equation inadequate to cover the multifarious factors bearing upon purchasing power, probably belong to this group.

Another proponent of the disjunctive view is W. Eggenschwyler, who has made a systematic attempt at refutation of Fisher's quantity theory.⁴ A number of his objections relate to specific aspects of the equation of exchange: that no time period can be conceived during which it would be valid, that an index of purchasing power is impossible because the articles consumed change constantly, and that *T* is a hybrid of turnover and physical quantity of goods. Other charges pertain to the direction of causation and the postulate of *ceteris paribus*. Velocity is determined by the rate of commodity

¹ *Ibid.*, p. 32.

² *Ibid.*, pp. 41-45.

³ S. P. Altmann, "Irving Fishers, 'Die Kaufkraft des Geldes,'" *Jhrb. für N. & S.* 112, p. 469; Heinrich König, *Die Befestigung der Kaufkraft des Geldes* (Bonn, 1922), pp. 66 ff.

⁴ "Die Kaufkraft des Geldes," Ein Versuch mit untauglichen Mitteln," *Archiv* 36, pp. 213-233, 548-576.

turnover; increasing the quantity of money and credit augments the effort applied to production, he believes. The most serious shortcoming, however, seems to be Fisher's relegation of certain factors to secondary importance.

Capital accumulation, density of population, increasing material prosperity and industrialization through the further division of labor, technical and scientific progress, invention, large-scale production . . . are virtually eliminated by making them subordinate to the five allegedly "direct" causes.¹

These influences operated directly upon prices, not by way of the equation; they may be apprehended only by study of particular prices.

Notwithstanding the traditional anti-quantity-theory alignment of German economics, it cannot be said that the opposition has been notable for vigor or clarity. The income theory, for example, presents a highly ambiguous complexion. An historical account of monetary theory written by Mildschuh for the authoritative *Handwörterbuch* divides the analysis into two major groups, quantity theories and income theories, the latter holding that money adapts itself to need without functioning as an independent cause of price level changes.² But Neisser and Hansen deny that there is any contradiction between the two.³ The solution is clearly that it depends upon whose income theory we are concerned with. Wieser's historical sections flout all equations of exchange; his adherence to the passivity of velocity and bank credit conflicts with all quantity theories, except one which correlates prices simply with *stock* of currency. It should be noted that the supposed passivity of velocity deprives Wieser's income formula of most of its significance. Prices cannot be made the result of an equilibrium between money and natural income, if the "circuit flow" of money through the hands of consumers is itself determined by the rate of commodity turnover. Since velocity does possess independent causality, and since variations in the income balances do affect prices, it is nearer the truth that not incomes but expenditures determine prices, as Hahn protests.⁴

¹ *Ibid.*, p. 560.

² Wilibald Mildschuh, "Geschichtliche Entwicklung der Geldtheorie," *Hdb. der Staats.*, 4th ed., vol. iv (Jena, 1927), p. 718.

³ Hans Neisser, *Der Tauschwert des Geldes* (Jena, 1928), p. 12; F. B. Garver and A. H. Hansen, *Principles of Economics* (Boston, 1928), pp. 366-367.

⁴ L. Albert Hahn, *Volkswirtschaftliche Theorie des Bankkredits*, 1st ed. (Tübingen, 1920), p. 149.

Schumpeter undoubtedly succeeds in uniting the income and quantity theories. What value has the amalgamation? I have previously expressed the conviction that Schumpeter "falls between the two stools" of an all-inclusive transactions type of equation and a *system* of specialized equations. On the basis of the former, to say that income determines (commodity) prices means nothing, since incomes are also prices, and all prices appear simultaneously from solving the equation. This objection to the income theory has been voiced by many writers.¹ On the basis of a system of specialized equations, there is no more warrant for saying that consumers' incomes determine the prices of consumers' goods than the same for producers. The Marshallian equilibrium theory of value, in contrast with the Austrian, makes cost as important as utility, so that there is no apology for viewing values in the productive sphere as derived from the consumptive. For purposes of most dynamic problems, moreover, the *relative* movement of price in these two spheres, not the absolute behavior of one in isolation, is the significant fact.

Nevertheless, the income theory has served some good purposes. As an emanation from the subjective value theory it has offset a tendency to make the value determination of money an impersonal or "mechanical" matter, and to show the possibility of institutional obstacles in the process of paying and expending income and the reality of psychological elements. Still more positively it has given the impulse toward resolving "the" value of money into its more concrete and apprehensible phases. And it may be conceded that purchasing power over consumers' goods approaches an all-purpose index more closely than any other.

The approach to prices, both individually and in the aggregate, from the historical angle forms an indispensable complement to the analytical apparatus. Spann's lucubrations upon the subject are fortunately not to be taken as representative. If under barter conditions part of the commodities rise in exchange value, "the very terms imply a fall of the other half," as Mill said.² The average of exchange ratios could not conceivably rise. Nor could the general level of prices possibly advance, in a monetary economy, by the out-

¹ E. g. Friedrich Bendixen, *Währungspolitik und Geldtheorie im Lichte des Weltkrieges*, 2nd ed. (Munich, 1919), p. 152; Oskar Engländer, *Theorie der Volkswirtschaft* (Vienna, 1930), II, 39-40; Greidanus, *op. cit.*, p. 126; Neisser, *op. cit.*; pp. 12-13.

² J. S. Mill, *Principles of Political Economy*, ed. by Ashley (London, 1909), p. 439.

weighing of diminishing returns by improvement, since physical volume of production would be augmented.

At the present juncture little need be said of the banking school theorem: it is a dogmatic generalization from special cases, later to be analyzed, in which causation proceeds from the commodity to the monetary members. The disjunctive view of prices, on the other hand, errs on the side of too great timidity in generalization. In the construction of an equation of exchange, because the time of settling the price, the time of delivery of goods, and the time of payment seldom coincide, a fictitious period must be taken. The weighting of both the physical volume and price indices is arbitrary. But all reasoning proceeds by abstraction, and it is necessary to discover, as well as may be, the movement of congeries of prices.

CHAPTER XI

CONCLUSIONS REGARDING PRICE LEVEL DETERMINATION

THE present chapter summarizes conclusions drawn from a study of German price level analysis, at certain points pressing the arguments farther, and at others adumbrating later conclusions. Its organization proceeds from general to specific questions: the equation of exchange, its theoretical eligibility, content and varieties; the character of the cash balance equation; direction of causation within equations of exchange; and the compatibility of various velocity concepts.

I. EQUATIONS OF EXCHANGE: GENERAL CONSIDERATIONS

A. *The Adequacy of Quantitative Representation*

Opinion upon this issue ranges from those who regard the equation of exchange as a truism to those who, like Anderson in this country and Altmann, Eggenschwyler, Liefmann, and Spann in the German literature, believe the factors operative upon the value of money to be too elusive or multifarious for quantitative expression. This reflects a fission upon value theory in general which goes beyond the horizon of this book into fundamental questions of methodology. So far as monetary theory is concerned, however, it may be suggested that the opposition between the neo-classical analysis and the historical, institutional, or psychological approach would be diminished by the following: (1) recognition by critics of the quantity theory of the various senses of value of money, and the limitation of equations of exchange to the purchasing power sense; (2) the substitution of special for general indices of purchasing power in the quantity theory; (3) recognition on both sides of the occasional difference between quoted and realized prices. The equation of exchange necessarily pertains to the latter, but the former may be the "moving cause"; (4) realization that the equation, like all generalizations, depends upon the use to which it is put. The effort to make monetary theory exact by giving it the character of a science of mensuration

is dangerous without taking account of historical and institutional peculiarities. This will prove to be especially necessary in the subsequent Parts dealing with inflation and cycles.

B. *The Period and Field Included*

Because purchases and payments fall apart chronologically, the equation must include a period long enough to make uncompleted transactions a relatively small portion of the total; otherwise "money work" and "money work to be done" do not balance. On the other hand, a very protracted period may conceal under the averages used in the equation symbols such changes as should be made apparent. Aside from securing an accurate sample in constructing velocity and price indices, it is necessary to determine whether the proportion of total transactions which are effectuated by money remains constant. If the field to which the equation is applied shrinks by a "flight from the currency," such as we encounter later in the German case, prices rise from a concentration of monetary means upon fewer goods, though an index of physical production or volume of business does not have to be declining.

C. *The Number of Equations*

If but one equation is to be constructed, a consumer income formula will probably serve more purposes than any other. But it is only in extreme inflation that differential price levels pale into relative insignificance in the general upward sweep. Ordinarily a consumers' equation takes on color only in conjunction with another formula for producers' activity, and the farther each of these in turn is resolved into subordinate or specialized equations, the more definite the meaning of the price indices. From this viewpoint there seems to be small warrant for a distinctive "income theory" of money.

II. EQUATIONS OF EXCHANGE: SPECIFIC MAGNITUDES

A. *Quantity of Money*

If the conclusions of Part I concerning the nature of money are valid, M and M' ought to be limited to physical exchange media which circulate as equivalent to the ideal unit of account. This cri-

terion excludes on the one hand miscellaneous commodities, stocks, bonds, and bills of exchange, because their prices vary, and on the other, verbal promises and book credits, because they lack a quantitatively limited substratum. For a different reason, bank reserves and treasury redemption funds are excluded; though they "circulate" vicariously, they cannot themselves be regarded as circulating without double counting.

Theoretical nicety and common sense oppose the absorption of total gold stock into quantity of money in the equation. The functional dependence of monetary gold upon prices still remains in Cassel's effective velocity of the total gold stock, by which he hopes to eliminate the difficulty.¹ Reasons were given for believing this dependence unimportant; Cassel's remedy is worse than the ailment. It would force us to think of watches and rings as somehow bearing on monetary velocity, and besides it would complicate the statistical procedure. Similarly with the functional dependence of hoards upon prices. Helfferich and Keynes would abstract idle deposits from money in the equation; but since hoards are nothing more than excessively large balances, as Mises points out, the statistician cannot presume to judge the proper size of reserves for other persons.

B. *Velocity*

The incorporation of bank credit under velocity as a "cash economizing" device by Cassel, Helfferich, and Wicksell does not enjoy the favor of such progressive writers as Hahn, Marschak, and Neisser. Besides misplacing the emphasis, the older practice allows statistically distinct variables to go to waste. Data upon volume of bank deposits and rate of clearing is merged together with the conceptually distinct velocity of hand-to-hand money. Nowadays the separate causality of M and M' requires no argument, and the importance of differential rates between V and V' , already intimated by Hahn, will be amply attested in the cyclical and inflation analysis.

C. *Trade*

Parallel to the resolution of Wicksellian V into its component elements, the hybrid quantity T should be separated into separate parts. Eggenschwyler, Walré de Bordes, and Marget distinguish between volume of production and rate of commodity turnover, and

¹ Cf. pp. 140-144, above.

there seems to be no insurmountable statistical obstacle to their separate determination. In the problem of industrial differentiation, duration of production, and velocity, the resolution of these ideas is indispensable.

Whatever the type of equation may be, whether an inclusive transactions formula, a consumers' income equation, or otherwise, the transfer of various sorts of titles must be taken account of within the "total money work." In the present Part the subject has merely been broached in connection with Wieser's exclusion of "cession payments." Chapter XXI advances reasons for doubting the theorem supported by Cassel, Hawtrey, Machlup, and many others, that the stock exchange, for example, does not "absorb" credit. These transfers, in which volume and price are indistinguishable, may be introduced into the equation, following Professor Copeland's suggestion, by some such distinctive symbol as R in the right hand member.¹

III. THE CASH BALANCE EQUATION

A. *Mode of Statement*

The foregoing comments are equally applicable to period-of-time and point-of-time equations. The comparative novelty of the latter approach in our own country may recommend special treatment. First, it is observed, the introduction of cash balances at this juncture calls attention to the fact that, however intimate its association with quantity theory causation in the hands of the Cambridge economists, it is nevertheless *per se* nothing more than a bare equation, which such writers as Helfferich, quite opposed to the quantity theory, are also at liberty to employ. Whatever the direction of cause and effect, the following principles prevail.

In the employment of cash balances, the theoretical *pons asinorum* is the recognition of the necessity of a *real value calculus*. The logical circle involved in the direct application of Austrian subjective value theory to money units has already been dwelt upon at length.² Alternatively the difficulty may be stated thus: dollar balances in the aggregate simply coincide with total monetary stock; if M and V are to exist each in its own right, the size of balances has to mean something separate from money content. This has been recog-

¹ Cf. p. 145, above.

² Cf. pp. 81, 160-161, 163, above.

nized by most of the *dei majores* of the English school: by Marshall, who employs fractions of real wealth or income, both typified by quarters of wheat;¹ by Pigou, who follows Marshall closely;² by Leffeldt, whose phrase "resources *in the form of money*" avoids the direct calculation in money units;³ and by Keynes, who speaks of "consumption units."⁴ Very explicit emphasis upon the *real* value calculation is found with the German protagonists of cash balance reasoning — with Helfferich, Neisser, and Wickzell,⁵ and also with the mathematical theorist Karl Schlesinger.⁶ On the other hand, Hawtrey, who has done a great deal toward making the cash balance devise a useful instrument, especially in cycle analysis, continues to insist upon a direct money calculus.⁷ Cannan puts the demand for reserves into terms of pounds, and convicts himself of a complete *petitio* by making the pound volume of "money to hold" depend upon price levels!⁸ In America, Marget expresses his preference for a direct money utility approach,⁹ and his special treatise upon velocity may be able to indicate how the *petitio* may yet be escaped. Greidanus' recent attempt to derive the price level from a capitalization of the *money* profits attributable to the facilitation of trade by *money*, however, bespeaks the difficulty inherent in the situation.¹⁰ Thus far no answer has been given to B. M. Anderson's telling indictment of the Austrian theory for its circularity when applied directly to money units.

B. *The Determination of Size of Balances*

Holtrop, who has traced the histories of transaction and cash balance equations, the "motion" and "rest" theories in his apt terminology, discovers the second theory as far back as Locke.¹¹ But he does not relate the origin of the threefold utility calculus which is

¹ Alfred Marshall, *Money, Credit, and Commerce* (London, 1923), p. 44.

² A. C. Pigou, *Essays in Applied Economics* (London, 1923), p. 176.

³ R. A. Leffeldt, *Money* (London, 1926), p. 99. (Italics mine.)

⁴ J. M. Keynes, *A Tract on Monetary Reform* (New York, 1921), pp. 83-86.

⁵ Cf. pp. 160, 157, 173, above.

⁶ *Theorie der Geld- und Kreditwirtschaft* (Munich, 1914), p. 97.

⁷ R. G. Hawtrey, *Currency and Credit*, 2nd ed. (London, 1923), p. 40; 3rd ed. (London, 1930), pp. 39-40.

⁸ Edwin Cannan, *Money*, 5th ed. (London, 1926), pp. 72-73.

⁹ A. W. Marget, "Leon Walras and the 'Cash-Balance' Approach to the Problem of the Value of Money," *J. P. E.* 39, p. 599, note.

¹⁰ Tjardus Greidanus, *The Value of Money* (London, 1932).

¹¹ M. W. Holtrop, "Theories of the Velocity of Circulation of Money in Earlier Economic Literature," *Ec. Jour., Economic History Series*, vol. iv, no. 1, p. 509.

current today. The individual is represented as weighing marginal satisfactions from a "unit of real wealth or income" devoted to maintaining a cash balance, to consumption, and to investment, the alternative uses being regarded as opportunity costs of the money reserve. Through its adoption by Marshall, Pigou, Keynes, and Mises, this has become an accepted principle.¹ In the main this seems to me a fruitful theoretical device, although it requires one very important amendment.

The amendment consists simply in substituting for the traditional calculus based upon a certain unit of "real wealth or income" a calculus based upon a certain "proportion of real value transactions." Fundamentally the innovation which I propose is necessitated by the fact that T is not a constant. It may surprise American readers accustomed to the Fisher type of equation to discover that the loose generalization according to which velocity (in the Fisher sense) varies inversely as the size of unspent margins holds true only if the ratio of total transactions to total resources remains constant. But this is required in the nature of the case, and is explicitly stated by Pigou in his essay upon "The Exchange Value of Legal-Tender Money."² Greater elasticity and greater realism may be achieved for the cash balance formula by the suggested change. The argument may be summarized under the following propositions: (1) that a calculus in terms of units of real wealth does not necessarily give the same result as real income; (2) that neither real wealth nor income are directly germane to the balance calculus; (3) that the conventional statement does not provide a satisfactory solution of the problem of industrial differentiation and velocity; and (4) that it is, unless amended in the proposed fashion, incompatible with the Fisher transactions equation.

(1) It is not altogether clear from the expositions of the Cambridge writers whether the settlement of size of balances is thought to proceed in absolute or relative "units of wealth or income." No discrepancy between a wealth or income calculus would appear if it ran in *absolute* terms: the subjective significance of a quarter of wheat is the same whether it be regarded as part of one's wealth or part of one's income. But the common unit with these expositors is *relative*, i. e. balances are supposed to be determined upon as a fraction of in-

¹ Marshall, *op. cit.*, p. 45; Pigou, *op. cit.*, p. 180; Keynes, *op. cit.*, pp. 85-86; Mises, p. 163, above.

² Pigou, *op. cit.*, pp. 176-177, reprinted from *Q. J. E.*, November, 1917.

come or wealth, ordinarily denoted as k .¹ Every change in productive efficiency, however, alters the ratio of wealth and income, and consequently calculations in wealth *or* income do not give consistent results after the change in economic efficiency.²

(2) Relatively this difficulty is unimportant in view of the fact that neither wealth nor income determine, except in a minor way, how large the individual's reserve shall be. By the contention of cash balance theorists themselves, the purposes for which anyone holds money are (1) to cover regularly recurring inequalities of income and outlay, which are greater (a) the more infrequent and (b) the less coincident the payments; and (2) to provide a reserve against irregular and unpredictable payments. Not wealth ("resources") nor income, but *transactions or payments* is what the cash balance provides for. Statistics gathered by Fisher for students at Yale University do indeed show that "the amount of money kept on hand by the rich, though larger absolutely than that kept on hand by the poor, is smaller relatively to the expenditure."³ On the other hand, it would not seem improbable that certain situations would reveal the wealthier consumer, the wealthier firm, holding proportionally larger balances, simply because they can more easily afford them. Stated accurately, the situation is this: the *elasticity* of the demand for reserves in the form of money is a function in some rather ill-defined way of wealth or income, but the *intensity* of the demand is a function of payments. Balances vary *ceteris paribus* with the magnitude to which they have to be applied, namely to transactions.

Let it be said again, however, that the Cambridge analysis and that of the majority of the German writers cannot be impugned so far as it insists upon a *real value* calculus. Combining this fact with the result of the preceding paragraph, we may reinterpret the monetary utility curve in the conventional threefold marginal equilibrium. For each economic subject the utility or demand schedule for balances is a series of fractions of the real values which his money stock must turn over during the period in prospect. Following Marshall's symbolism we may allow a bushel of wheat to stand for a certain amount of real value. Suppose the transactions or payments in prospect during a given period aggregate 100 bushels of wheat. Our

¹ For references, cf. p. 191, note 1, above.

² Noted by Jakob Marschak in his article upon "Volksvermögen und Kassenbedarf," *Archiv* 68, pp. 385-419.

³ Irving Fisher, *The Purchasing Power of Money*, 2nd ed. (New York, 1922), p. 381.

particular balance-holder then decides to hold the equivalent of 8 bushels to cover inequalities of payments and to provide for contingencies if his net income is, say, 20 bushels, the first amount being the result of his considering the alternatives of consumption and productive investment. *With the same transactions* but with a real income of 30 bushels, he might hold 9 in the form of money, with 40 bushels income, 10, etc. in the familiar negatively inclined demand function. But at the same time *with his net income fixed*, the demand for real balances will vary directly (though not proportionally) with changes in the total amount of real values to be transferred. Consequently in my representation of the balance calculus, the demand schedule does *not* take on the configuration of a rectangular hyperbola as it does in Pigou's statement, as an example of the conventional procedure.¹ This signifies at once: that absolute real balances vary with total transactions; and secondly, that the ratio of real balances to real transactions does not vary (incomes remaining the same) with variations in the latter. The first half of this statement reiterates the finding of Part I that the value of money is, even when traced back to its most ultimate origin in the balance calculus of the individual, essentially *relative*. The second part of the statement will be found extremely useful in answering the questions under (3) and (4) on p. 191, above, which are considered later under the discussion of direction of causality and the consistency of cash balance and transactions formulae.

One individual's demand, as just described, equates with a supply schedule of real balances in the form of money derived from the addition of all other individual's demands. Because the influence of one person's demand upon this supply schedule is negligible, it assumes the configuration of a constant cost schedule. In equilibrium a set of such equations portrays the proportion of real transactions which all individuals elect to hold in balances; and with the addition of a Keynes or Pigou equation of exchange (transactions being substituted for income or resources) the actual money stock is equated to real balances. The *process* by which equilibrium arrives has been described in an earlier chapter.² At a given level of prices, anyone who possesses more dollars than he desires to hold under the three-fold real value calculation will spend more rapidly; the acceleration of velocity forces up prices until the stock of dollars bears the correct

¹ Pigou, *op. cit.*, p. 177, at the top of the page.

² Cf. pp. 108-114, above.

proportion to "total money work to be done," i. e. to real value transfers. Even in cases where a rise of prices itself causes people to reduce their balances, — circumstances to be treated in Parts III and IV, — the *modus operandi* of balance determination follows this pattern since the effect is summarized through a shifting of the balance demand schedule to the left.

C. *Special Balances*

Balances may be classified upon two bases, according to the economic function of their possessors, or according to the economic function of the balances themselves. The former division appeared early with Adam Smith,¹ who divided the circulation and quantity of money between dealers and consumers. Not only are these two types of balances and the corresponding Fisherine velocities distinctive, but their separation is also logically requisite to equations employing specialized producer and consumer price indices. Hawtrey and Keynes have done most to utilize the distinction in cycle analysis, and in German monetary theory we have noted the work of Engländer, Marschak, Neisser, and Schlesinger.

The other line of division at the present writing seems to be "made in Germany." Cutting through balances in another direction, Neisser distinguishes between the portion of balances devoted to contingencies and that devoted to regular inequalities of payments. For the second type of reserve, the opportunity cost of foregone interest does not operate as a determinant of size, inasmuch as an iron necessity is imposed upon the balance owner by whatever infrequency and lack of coincidence of payments exists under business *mores*. Subjective moments, such as forecasts of the value of money in cycles and outright inflation, and the evaluation of interest income foregone, bear upon the size of the first portion of balances only, the genuine contingency reserve. Parenthetically, it may be observed, the entrance of interest cost into this calculation appears to be more real if it is remembered that both explicit and implicit interest are involved. The business man may be little influenced in settling upon his going cash or demand-deposit margin by the interest rate on savings accounts and bonds, but he certainly must consider the alternative of putting the idle funds to work in his own undertaking.

¹ Cf. Holtrop. *Ec. Jour., Economic History Series*, vol. IV, no. 1, p. 513.

IV. CAUSE AND EFFECT

A. *General Observations*

Because the present study is directed toward the literature of monetary theory and not immediately toward the facts, it avoids sweeping dicta upon the validity of the quantity theory. Parts III and IV offer some definite conclusions on particular phases of the problem. I do not conceal a predilection toward regarding quantity theory causation as more basic and more general than the opposite, but this conviction has no claim to significance. Within the sphere of deduction, however, certain observations are quite legitimate, some of a general nature, some specific. In general, the opposition between quantity theorists and their critics may be lessened by the following considerations. (1) Quantity and velocity of money and credit are sometimes a cause, sometimes an effect. The progress of prices during moderate inflation and the breaking of boom periods seem to reveal the former, while hyper-inflation and the period of extreme cyclical depression and beginning recovery reveal the latter. (2) The monetary and real members of the equation often seem to interact upon one another so intimately that cause and effect are indistinguishable. May this not be the case, as Mitchell intimates in his portrayal of cumulative actions, during most of the course of recovery and recession outside the extremes just remarked upon? If so, I see no reason why one force could not for a time preponderate, giving way then to the other; *PT*, for example, could advance under a seasonal upswing, while *MV*, according to a conception which we shall encounter with Machlup,¹ responding first as effect, becomes a cause of cyclical advance by its inelasticity against the seasonal downswing of *PT*. (3) Even where prices and trade assume chronological priority, money volume and velocity supply their "essential condition";² for purposes of economic control, if the development may be partly managed through the "essential condition," it would be overly fastidious not to regard the condition pragmatically as a cause.³ (4) Some critics of the quantity theory apparently take the peculiar position that money cannot be a true cause because it is a mere *pawn* in a game in which human decisions present the real

¹ Cf. pp. 370-380, 391, below.

² Cf. D. H. Robertson, *Money*, 1st ed. (New York, 1922), p. 113.

³ *Idem*, *Banking Policy and the Price Level* (London, 1926), p. 2.

causes. This is quite explicit in Liefmann's writings,¹ and the historical, institutional, and psychological schools often give such an impression. Value is of course something felt and acted upon by human beings; but a large quantity of money may be just as truly a cause of its low value as a large crop the cause of a low value of potatoes. *Per se* money is no more an appendage to prices than the commodities priced.

B. True Functional Dependence of Quantity of Money upon Prices

Leaving the precarious field of generalization, we proceed to a brief analysis of certain reversals of quantity theory causation encountered with the German monetary schools, dealing first with the genuine cases.

(1) The division between money in circulation and money in bank reserves depends upon the price level. Under the caption of the "internal drain," this phenomenon has been described by Hawtrey in its restrictive action upon bank credit expansion in boom periods.² One way of avoiding the difficulty arising from this fact for quantity theory causation is to state the theory directly in terms of bank deposits, allowing the volume of hand-to-hand currency to appear as a mere satellite of credit without causal significance. In England and America, this device, recommended by Hawtrey and Robertson, and by Hahn and Mises,³ would do little violence to the facts because of the quantitative preponderance of M' and V' ; but for Continental conditions, the functional relation noted must remain as a decided qualification upon the *ceteris paribus* of the quantity theory.

(2) Cassel and Wicksell call attention to the fact that the proportion of gold in money and in the arts is a function of the general price level. The diversion of gold into the arts is largely limited to the annual increment of supply, since jewelry and plate, once made, are seldom melted merely for their bullion content. Conversion of coin into industrial uses transpires more easily; but if demand for gold in the latter is fairly inelastic, as Taussig believes,⁴ the functional dependence of monetary metal upon prices is again not marked.

(3) Various peculiarities of the conditions under which gold is supplied prevent any very noticeable tendency for the value of gold to

¹ Cf. p. 180, above.

² Hawtrey, *op. cit.*, 2nd ed., pp. 21-23 *et passim*.

³ Cf. pp. 162, 165, above.

⁴ Cf. pp. 143-144, above.

conform to variations in marginal cost. Since the adjustment is made chiefly by costs to value, the dependence of quantity of monetary gold upon price levels through cost is negligible.

Although the foregoing dependencies of quantity upon prices are real, they do not count seriously against the quantity theory, particularly if it is cast in terms of bank credit. Later chapters point out important cases of reversed causation upon both M and V , if causation is taken in the somewhat broad sense of "driving force," "inciting factor" or "occasion," and not in the narrow technical sense of "necessary antecedent." But we have encountered the argument in earlier portions of this Part that increased velocity in the turnover of goods "causes" an increase in velocity of money. In the sense of a necessary connection, which proponents of the idea have in mind, there is no such genuine reversal of causation, though there *appears* to be upon several definitions of velocity.

C. *A Spurious Case of Reversed Causation*

The case is a change in the number of hands through which a commodity passes in the course of production before it reaches the ultimate consumer. To simplify the exposition we shall deal only with increases, allowing the word "differentiation" to signify additional turnovers of commodities against money either because of the separation of hitherto integrated processes or the multiplication of middlemen. According to the Fisher equation, T is increased by differentiation, V in the person-turnover sense remains the same, and P falls in inverse proportion to T .¹ Person turnover, defined as "the average number of coins which pass through one man's hands, divided by the average amount held by him,"² is a *ratio* of money spent to money held, it should be noted. If we enquire into the determinants of velocity in this sense, we find them classified as follows:

- (1) Habits of the individual.
 - (a) As to thrift and hoarding.
 - (b) As to book credit.
 - (c) As to the use of checks.
- (2) Systems of payment in the community.
 - (a) As to frequency of receipts and disbursements.

¹ Approximately, that is; I shall not dwell upon imaginable secondary repercussions.

² Irving Fisher, *The Purchasing Power of Money*, 2nd ed. (New York, 1922), pp.

- (b) As to regularity of receipts and disbursements.
 - (c) As to correspondence between times and amounts of receipts and disbursements.
- (3) General causes.
- (a) Density of population.
 - (b) Rapidity of transportation.¹

Differentiation affects none of these determinants, and so person turnover velocity cannot change. The theory that velocity automatically and necessarily compensates for more turnovers is thoroughly wrong, despite its enunciation in more or less categorical form by Schumpeter, Marschak, and others in the German literature,² and by Lounsbury recently in this country.³ Separation of an inclusive transactions equation of the variety Fisher employs into specialized equations for producers and consumers cannot change the result, since velocity in separate economic spheres is shown to be unaffected by differentiation by the argument applied to velocity generically.

Upon the basis of the conventional cash balance analysis, however, we seem to obtain a different result. To provide for, let us say, twice as many payments, the producers will need to hold nearly ⁴ twice as large balances. We assume that "when, *ceteris paribus*, people decide to keep twice as much of their resources as before in the form of titles to legal tender, this *means* that the velocity of circulation is halved."⁵ Apparently, then, we have two factors making for a decline of prices, — an increase in transactions and a decline in velocity! This paradoxical conclusion is prevented, however, in the accepted cash balance formula by the phrase *ceteris paribus*, which precludes any variation in *T*. But though the paradox is thus solved, we find no answer to the question as to what *does* happen to balances and velocity when *T* *does* change.

The amendment which I have offered to the cash balance formula solves the difficulty. People maintain balances, not in proportion to their wealth or resources primarily, but primarily to meet payments.

¹ *Ibid.*, p. 79.

² Cf. pp. 130-137, 148-153, 182, above.

³ R. H. Lounsbury, "Velocity Concepts and Prices," *Q. J. E.* 46, p. 48.

⁴ It would be twice if we neglected the portion of balances held for contingencies.

⁵ Cf. Pigou, *op. cit.*, p. 177. I have suited his sentence to my case by substituting "twice as much" for "half as much," and "halved" for "doubled." The idea is not thereby affected.

When differentiation sets additional exchanges into the productive series, it does not affect the volume of real wealth (except secondarily); but it does increase the volume of real wealth *to be exchanged*. Real balances are increased proportionally to real transactions. According to my mode of statement, balances are settled upon, not as a proportion of wealth or "resources," but as a proportion of real *transactions*.¹ Differentiation gives no grounds for supposing this *proportion* altered, since payments continue at their former infrequency and lack of coincidence, and since contingencies are not (except slightly) affected. By restating the cash balance theory to make the unit of calculation a certain proportion of real transactions, we arrive at a result which coincides exactly with the answer on the basis of Fisher's velocity. Person turnover, the *ratio* of money spent to money held, is unaffected: cash balances, the *ratio* of real transactions to real value held, are similarly unaffected. Being stated in real terms, the latter has the advantage of showing clearly the independence of the velocity determinants from prices. Fisher maintains this independence also, though his definition of velocity in terms of money units spent and held does not bespeak his conviction with sufficient clarity.

The cash balance approach is thus shown to be only apparently in conflict with the Fisher velocity analysis. With Schumpeter's concept of "efficiency," the circuit velocity of money, it is otherwise. A real and irremediable conflict with both the other lines of analysis is presented. Differentiation necessarily produces a fall in circuit velocity, which equals person turnover divided by the number of productive stages through which commodities pass, on the average, from beginning to end. Actually, however, the change pertains to the "money work to be done," — not to the instruments performing the work, i. e. to money and to its velocity in a correct sense. Circuit velocity is an impure concept in two respects: (1) it carries over into the index of rapidity of money circulation a variable which pertains only to the rapidity of circulation of goods; (2) as Keynes points out, and as I have previously insisted,² it merges into a nondescript average the different velocities of money in the fields of production and consumption. I therefore propose its elimination from scientific discourse.

¹ Cf. pp. 192-193, above.

² Cf. p. 137, above.

V. THE TWO APPROACHES TO THE QUANTITY THEORY

When correctly apprehended, the transactions and the cash balance devices are altogether compatible. The cash balance formula has the superiority of revealing the subjective basis of purchasing power, of removing velocity from the realm of pure number, and of bringing it into relation with individual volition. Since it treats of value determination on this level, it is obliged to go behind the nominal money unit into real utility calculations in order to avoid circularity. The transaction equation, on the other hand, makes no pretense in this direction, and it is correspondingly relieved of the necessity of a discourse in real value.

It has been said that "the unspent margin of course affects prices only by being spent."¹ This is nowise the case. Were no money spent, the price level would be zero; were no money ever retained in reserves, the price level would be infinity. The actual position of the price level at some finite magnitude is as much explained by people's not spending as by their spending. It is, in other words, the ratio of spending to holding, and this is asserted by both transactions and balance theories.

¹ J. W. Angell, *The Theory of International Prices* (Cambridge, Massachusetts, 1926), p. 184.

PART III

PRICE LEVELS AND FOREIGN EXCHANGE UNDER INFLATION

CHAPTER XII

TYPES OF THEORY AS TO PRICE LEVELS AND EXCHANGES

THEORETICAL discussions very often reveal in good Hegelian style a thesis, an antithesis, and a synthesis; and the vast literature upon cause and effect under progressing inflation, in Germany as elsewhere, fits fairly well into the scheme. The inflation theory, that causation runs from prices to the rate of exchange, meets with categorical denial on the part of the balance of payments theory, which would either treat the exchange as an independent phenomenon or ascribe to the balance or rate of exchange causal effectiveness upon prices. The third school of opinion seeks to effectuate a compromise by admitting both lines of causation, or by tracing internal and external depreciation alike to a common cause. These differences amongst the three major groups, as well as the subdivisions into which each falls, require a preliminary explanation before the detailed analysis can begin.

The inflation theory takes on two types of formulation: purchasing power parity and exchange equilibrium. Under the former, causation is represented as passing in straightforward fashion from quantity and velocity of money to domestic price level and rate of exchange. This theory has two versions, absolute and comparative, and these will be examined in connection with Cassel. In either version it diverges from the other main type of inflation theory which Pigou christened "exchange equilibrium" in his article describing it.¹ Whereas purchasing power parity rests upon indices of general prices and allows only for causation from prices to rate, the exchange equilibrium doctrine rests upon the prices of internationally traded goods only, and allows for causation in both directions. But the latter can appropriately be classed as an inflation theory because, without denying that the adverse balance of payments may contribute

¹ A. C. Pigou, "The Foreign Exchanges," *Q. J. E.*, November, 1922, reprinted in *Essays in Applied Economics* (London, 1923), pp. 156-173. Several German writers (cf. pp. 232-234, below) and J. M. Keynes, *A Treatise on Money* (New York, 1930), I, 73, persist in calling this purchasing-power parity despite the fact that the latter term universally denotes the Cassel theory, and despite Pigou's suggestion.

toward the decline of exchange and toward the rise of domestic prices aside from monetary inflation, its adherents generally stress the monetary factor as stronger in recent Continental experiences. In form, then, exchange equilibrium is *bilateral*, against the purchasing parity theory, which by virtue of holding to an exclusively price-rate causal nexus is *unilateral*,¹ though the Pigou analysis generally does *emphasize* the same line of causation as Cassel's under inflation.

To the balance of payments theory belong three species which I propose to call the "truistic," the "independent," and the "causal," for want of greater philological elegance. Proponents of the truistic version might, for all their pride in sailing under the colors of the balance of payments theory, be just as legitimately classified with inflation theorists, since they merely assert that the rate of exchange, like any price, is determined by supply and demand, i. e. by the balance of payments. They affirm neither that causation passes from balance to prices nor conversely; indeed, not even that the rate is quite independent of prices. According to the implication or explicit statement of the second group, on the other hand, causation does not exist either way: the rate of exchange stands upon its own ground, and like the jolly miller of Dee, owes nothing to prices nor is owed. The third balance of payments group, by far the most numerous, maintains that the balance determines the complexion of prices; but this group splits into three parties on the *way* causation proceeds. Let us briefly examine these subdivisions of the causal balance of payments theory.

The first I call the "veritable" balance of payments theory because it stands, more than any other variety, in logical antithesis to the inflation theory. It is absorbed with the effects which capital movements and changes in the real terms of trade produce upon rates of exchange and upon domestic price levels. According to this line of thought, the correctness of which cannot be denied either under normal or dislocated standards, an increase in demand for a given article of import shows itself first by a higher price in the demanding country. Importers take advantage of this differential over the international price until, by the fall of the domestic price and by the rise of the international price and the rate of foreign exchange, the unusual margin is eliminated. Where both exporting and im-

¹ This terminology is adopted from J. W. Angell, *The Theory of International Prices* (Cambridge, Massachusetts, 1926), p. 57, without any implication here that Ricardo's theory was necessarily unilateral.

porting countries enjoy a gold standard, the adjustment is done mostly by the fall in the domestic price of the imported good, since the international price ordinarily depends on a broad market and will not rise much, and since, moreover, exchange rates can move only within narrow limits. As a by-product of the equalization of domestic and international prices on the particular good involved, gold may flow from the importing country to the exporting, with the result that the *general* price level of the former will decline somewhat, that of the latter rise by a small amount. Thus causation proceeds from an alteration in terms of trade to prices generally, and a similar case can be envisaged for a capital movement. If the importing country, the one which comes to demand a foreign commodity more heavily, happens to have a fiat paper standard, the adjustment is still done more by the gradual fall in the domestic price of the particular good and less by a rise in the international price; but, since the rate of exchange moves without the ordinary limits of the specie points, it may turn against the importing country considerably and so cushion the fall of the domestic price and retard the rise of the international quotation. Even looking aside from the sale of paper money abroad, we could discover the possibility of changes in general price levels in consequence of this situation. Were demand in several important lines of importation very greatly increased, i. e. if home products for export were sacrificed on much less favorable terms, the *volume* of goods in general offered against money within the country would decrease and result in a general upward movement of prices. By appropriate variations, the same type of reasoning applies to capital movements.

Continuing with the "causal" variety of balance theories, we often find another variant, of quite a different order because it does not rely upon the sort of "mechanical" causation ordinarily envisaged in economics. This theory holds that depreciating exchange "causes" internal depreciation by way of occasioning, prompting, or even forcing the monetary authority to further inflation. There does not seem to be an appropriate catchword by which to designate this idea; but it must be kept quite distinct from the veritable balance of payments construction.

Finally, there appears during "hyper-inflation" another phenomenon which can be described as "direct action." When the flight from a depreciating currency sets in, an early phase is the abandonment of the domestic pricing unit in favor of a stable,

usually a gold, standard. These prices are reinterpreted for the local users of paper by means of a "multiplier," i. e. the current exchange quotation. This phenomena has nothing to do with changes in the real terms of trade and their repercussions upon domestic prices, nor with a furthering of inflation by exchange depreciation. Hence one must again preserve the identity of the "direct action" theory against the two foregoing balance ideas. All three are alike, however, in holding to some sort of causation from exchange to prices.

This completes the synopsis of inflation and balance of payments theories, and we proceed to the third main theory type, which attempts a synthesis of the two. One method of synthesis is the truly bilateral theory, which maintains not only that causation extends from prices to rate and conversely, but also that the balance of payments factors, including variations in reciprocal demand and capital movements, are as important moments in the problem as monetary inflation. Another synthesizing theory does not represent prices as governing the exchange rate, nor reciprocally the rate prices; rather both rest directly upon a common cause, and their war-time behavior may be attributed to waning confidence, speculation, or budgetary disequilibrium.

The foregoing theories and their subdivisions must be regarded as ideal archetypes, not as actual instances, since the vast majority of writers reveal traces or admixtures of more than one line of argument. By looking toward the primary emphasis in each individual's doctrine, however, the scheme may be applied as a method of organization.

CHAPTER XIII

THE INFLATION THEORY

THE recognized leader of the inflation school of theory not only in Germany but universally is Gustav Cassel. Although the main features of his doctrine are well known, a review of its development may not prove altogether gratuitous, since Cassel has suffered from neglect of certain qualifications which he himself made upon the rigorous and rather elementary first theorem by which alone he is sometimes known. While following through the evolution of the parity idea, we shall find it profitable to see just what weight he assigned to the alternative balance doctrine, and to note his views upon the peculiarities of the German inflation history.

As promulgated originally, the Cassel thesis stated merely that the "equilibrium rate" represented the quotient of two countries' general price levels, and these in turn depended upon the quantity of circulating medium.¹ Calculated equilibrium rates based upon general price indices for important belligerent and neutral nations to 1916 showed a very close conformity to the actually recorded movements of exchange. In *Germany's Power of Resistance*, appearing the same year, Cassel strove to offset the popular tendency to ascribe the falling mark quotations to speculation and an unfavorable balance of payments, and to establish the fact of inflation statistically. The insufficiency of the adverse balance explanation, he said, becomes clearly evident when it is borne in mind that all other countries have suffered currency depreciation, though they could not all have had unfavorable balances of payments.² If domestic price levels have risen less rapidly than the swelling volume of notes, it is because of hoarding.³ In 1918 he gave to his theoretical equilibrium rate the name of "purchasing-power parity,"⁴ and accounted for the persistence of Swedish exchange above this calculated parity by reference to the severe obstacles put upon her importation, remark-

¹ Gustav Cassel, "The Present Situation of the Foreign Exchanges," *Ec. Jour.* 26, pp. 62-65, 319-323.

² *Idem*, *Germany's Power of Resistance* (New York, 1916), p. 54.

³ *Idem*, "The Depreciation of Gold," *Ec. Jour.* 27, pp. 351-352.

⁴ *Idem*, "Abnormal Deviations in International Exchanges," *Ec. Jour.* 28, pp. 413-415.

ing that one-sided obstacles of this sort would generally prevent the rate from conforming with theoretical par. Almost simultaneously there appeared the *Theoretische Sozialökonomie* retaining the doctrine without much change. In the body of the text, written before the War, it is unqualifiedly stated that "definitive changes in the rate of exchange can occur *only* if there has been a dislocation of the general price level of one country relatively to that of another."¹ Purchasing-power parity represents the norm to which the actual rate must return after each deviation. If the balance of payments is unfavorable and foreign rates turn against a country, it will adjust the adverse balance by changing the time of payment — prolonging bills, discounting bills not yet due, and floating formal loans — and by increasing exports and diminishing imports.² An appendix added at the time of publication gives the relationship of the internal purchasing powers as simply the main determinant of exchange rates,³ and adds the qualification concerning unequal obstacles to exports and imports. Treating especially the "Depreciation of the German Mark"⁴ in December, 1919, when this exchange stood at only one-third of purchasing-power parity in terms of the Swedish krone, Cassel advances as reasons for the undervaluation three factors: the sale of mark notes at substantial concessions in regard to price, German limitations upon commodity exporting, and the magnitude of her exports of capital.

This brings us to the close of the period of moderate inflation in Germany and to the onset of the avalanche. The current situation marks a change in the parity doctrine, introduced in the course of Cassel's memorandum to the Brussels Financial Conference of 1920.⁵ Parity is not to be calculated directly as the quotient of price levels, but equals "the old rate multiplied by the quotient between the degrees of inflation of both countries,"⁶ an innovation which Keynes elucidates as follows:

For example, instead of calculating directly the cost of a standard set of goods at home and abroad respectively, the calculations are made that \$2 are required to buy in the United States a standard set which \$1 would have bought in 1913, and that £2.43 are required to buy in England what £1 would have bought in 1913.⁷

¹ *Idem*, *Theoretische Nationalökonomie* 1st ed. (Leipzig, 1918), p. 443. (Italics mine.)

² *Ibid.*, pp. 443-444.

³ Without mentioning others; cf. *ibid.*, p. 568.

⁴ *Ec. Jour.* 29, pp. 492-496.

⁵ *Idem*, *The World's Monetary Problems* (London, 1921), pp. 13-102.

⁶ *Ibid.*, p. 37.

⁷ J. M. Keynes, *A Tract on Monetary Reform* (New York, 1921), p. 99.

All subsequent treatments embrace this comparative version of the normal rate.¹ In his next substantial volume, *Money and Foreign Exchange after 1914*, Cassel remarks that though "there is no need whatever to presuppose that the parity rate of exchange corresponds to the quotient of absolute price levels," the United States Tariff Commission's report of depreciated exchange shows that the two methods give negligibly divergent results.² In any event the calculated normal rate "presents a solution of the exchange problem in only a first and quite rough approximation."³ This approximateness does not, as might be supposed, concede anything to the balance of payments theorem. Cassel chides Keynes for his adherence to the "old idea" of explaining the fall of exchange by reference to a supposed excess of supply over demand, whereas Keynes himself admits that there is continuous equilibrium between sale and purchase.⁴ The real source of trouble is the artificial creation of fresh purchasing power, which proceeds to raise prices and the foreign exchanges about proportionally, the increase in hand-to-hand currency being a consequence of the movement. "In this new form the Quantity Theory is unassailable."⁵ Attempts on the part of officialdom to discredit this explanation of the situation by exaggerating the influence of hoarding and the use of mark currency in territory occupied by the German army ought to be combatted. After the first few months of the War, hoarding became insignificant; and it can scarcely be supposed that the money need of Germans in the occupying armies would be greater than if they had been at home.⁶ Deviations of mark quotations below purchasing-power parity are to be laid to the combination of four special circumstances: restrictions upon exports such as

¹ Pigou distinguishes the older and newer versions as the *positive* and the *comparative parts* (*Essays in Applied Economics* [London, 1923], pp. 164-165); and thereby hangs a distressing complication. Aside from the fact that "absolute" would have made a better contrast with "comparative," one wonders how two mutually exclusive definitions of parity can be "parts" of any doctrine. Cassel does indeed persist in using the formula that the rate of exchange is established by the "relative purchasing power of the currencies of both countries," "the ratio between the internal purchasing powers" and "the ratio of the value of money in A and B." Cf., respectively, *The World's Monetary Problems*, p. 36; *Money and Foreign Exchange after 1914* (New York, 1923), p. 185; and *The Theory of Social Economy*, 1st ed. (New York, 1924), p. 487. All of these could be interpreted as the absolute ratio of price levels, but they need not. But as late as the *Fundamental Thoughts in Economics* (New York, 1925), p. 147, he uses the phrase "in direct proportion to the general level of prices," which must be the absolute form.

² Pp. 160-162.

³ *Ibid.*, p. 159.

⁴ *Ibid.*, p. 184; cf. Keynes, *Monetary Reform*, pp. 93-95.

⁵ *Ibid.*, p. 29.

⁶ *Ibid.*, pp. 38-41.

absolute prohibition, licenses, export rationing, and duties, in the first place; secondly, the tendency of international valuations to include the expected fall of currency at home; thirdly, at least as a short time influence, bear speculation; and finally and most significantly, the selling out of the country's balances and currency to obtain funds abroad, a practice induced by fear and by the necessity of reparation payments.¹ Exporting marks is a form of *borrowing*; and being done on ruinous terms because of the risk to the foreigner, it forces down the mark rate sharply.² Regarding the "flight of capital" Cassel gave expression to a quite similar view two years later.³ In a real sense, he explains, capital is exported only when a country has a net export balance of goods and takes payment in securities or other obligations, a condition quite opposite to Germany's following the War. So far as nominal investment goes, on the other hand, what actually happened was an approximately equal exchange of titles; Germans sold marks for foreign balances or real property held abroad. What this really amounts to is borrowing after other means have failed, and the process spells disaster to German exchange. Cassel remarks in this same treatise that an under-valuation abroad has the consequence, if long enough protracted, of "inducing continued inflation within the country."⁴

Since the various European stabilizations by no means ended theoretical discussion of the exchange mechanism, particularly as it involved reparation transfers, Cassel has continued his elaboration of the parity doctrine.⁵ His lecture under the Harris Foundation in Chicago was largely devoted to proving that international capital movements do not affect parity,⁶ though that rate might be rather slightly moved by discovery of new resources or radical revolutions in production and transportation.⁷ Distortion of actual rates from par comes as a consequence of continuing inflation or deflation, of hindrances to international trade, or of capital movements; but

¹ *Ibid.*, pp. 146-155.

² *Ibid.*, p. 44.

³ *Idem*, *Das Stabilisierungsproblem* (Leipzig, 1926), pp. 59-66; the preface to the Swedish edition was signed in October, 1924.

⁴ *Ibid.*, p. 39.

⁵ The first English translation of Cassel's systematic *opus* appeared in 1924 without adding anything to previous publication. Cf. *The Theory of Social Economy* 1st ed. (New York, 1924), pp. 486-490, 635-637.

⁶ *Idem*, "International Trade, Capital Movements, and Exchanges," *Harris Foundation Lectures: Foreign Investments* (Chicago, 1928), pp. 3-33.

⁷ *Ibid.*, p. 14.

these distortions are "small and quite temporary."¹ In the recent second edition of *The Theory of Social Economy*, Cassel points out explicitly that the new mode of calculating parity, "by multiplying the old purchasing-power parity by the ratio of the changes in the internal purchasing power of the currencies,"² does not take account of possible alterations in international trade conditions developing in the interim. But such changes, including the transfer of capital if the countries involved are "at all developed" economically,³ are relatively minor; purchasing parity gives a "first rough calculation" for the new equilibrium portion.⁴ To insist, as some people have, that this equilibrium rate should be determined exclusively upon export and import prices is an error. Were all export prices in country B doubled, its exchange would not fall to half, "as a much smaller fall in the rate would bring out the latent export possibilities of a mass of other commodities of country B, and would prevent a further fall in the exchange."⁵

Much of the adverse criticism directed against the theorem has become obsolete through refinements introduced by Cassel in the score of years since he wrote in the pre-war version of *Theoretische Sozialökonomie* that the equilibrium rate can change "only if" there has been a dislocation of internal price levels through inflation. It is now conceded that purchasing power parity only "roughly" approximates the true norm if there have been changes in the substantive terms of trade. By recasting the theory into its comparative version, by which one-sided obstacles existing in the base year are eliminated, Cassel overcomes one important source of distortion; but even this, he recognizes, does not prevent distortion from this source since the base year.⁶ In the quadrennium from 1928 to the appearance of the revised edition of *Social Economy*, Cassel also modified his statement that capital movements do not affect the equilibrium rate, to a limited validity, i. e. as between countries which are "fully developed" economically. Furthermore cognizance was also taken of the non-mechanical factors in inflation: the tendency of traders to discount future note issues and internal price advances into the present rate of exchange, and also of the temporal primacy of exchange movements over domestic prices in certain instances.

¹ *Ibid.*, p. 17.

² *Ibid.*, p. 676.

³ *Ibid.*, pp. 662-663.

⁴ (London, 1932), p. 660.

⁵ *Ibid.*, p. 661.

⁶ Pointed out by Pigou in 1922, *Essays*, p. 156.

With these emendations and concessions, the difference between Casselians and balance theorists tends to be softened, the division persisting in divergent judgments as to the relative importance of monetary and other factors. But upon one very significant theoretical point Cassel remains adamant: equilibrium rests upon *general* internal prices. This largely undoes whatever influence has been granted to changes in the substantive course of trade and to capital movements, since these factors make themselves felt by a divergence of import and export prices from purely domestic prices; and though they result in an altered general internal price index, that is a secondary consequence, not directly determinative of the equilibrium rate. If export prices are doubled,¹ Cassel thinks that, by assuming all other prices unchanged, the country's exchange rate will not fall to one-half because of the cushioning effect of "latent export possibilities of a mass of other commodities."² But the argument is wholly sophistic. If the country's exchange does *not* immediately fall to one-half, it is because the "latent export possibilities" do *not* rise in price as exportation proceeds, notwithstanding Cassel's assumption; and if the exchange rate *does* fall to half, it is because although the "mass of other commodities" remain at their previous low level of price, they are *not* "latent export possibilities," contrary to his assumption. Both of Cassel's assumptions could be *temporarily* realized with the additional explanation that by accident the whole weight of inflation fell on the old exports. New lines of exporting would begin to break the strange persistence of foreign buyers at doubled prices on the old set; this would spread the given inflation over more commodities, and, as Cassel says, would prevent exchanges falling to half. *Pari passu* with the inevitable reduction in price upon the original exports, the new ones would disappear, for nothing has been said as to a change of tastes or technique. Eventually equilibrium would be reached solely with the old exports; exchange would fall by less than half, and the general price level would advance in exactly inverse proportion. But since no basic alterations in the terms of trade have been introduced, and since therefore export prices would move in exact conformity with the general price level, Cassel fails to show that general price levels govern equilibrium.

¹ Presumably by inflation, since the next paragraph proposes to consider the problem "apart from changes in the value of money." (*Theory*, 2nd ed., p. 663).

² *Ibid.*, p. 662.

Cassel's mode of arguing against the balance of payments theory increases the impression that his allowing for other than monetary factors is a mere formality. One might expect him to emphasize the relative unimportance of the factors embodied in the theory; but instead he attacks its logic. All countries, he says, cannot have had unfavorable balances, and yet they all suffered currency depreciation in the War. But there is nothing in this platitude to prevent a favorable balance for the United States partly compensating for our own inflation, nor the adverse German balance aggravating the fall of the mark already induced by inflation there.

Cassel's extraordinary position on the exportation of marks and the attending movement of capital raises some complicated issues. Though related, the two phenomena are sufficiently distinct to require separate analysis. First it must be determined whether Cassel is right in accounting the sale of German currency abroad as invariably adverse to the foreign quotation. More commonly it has been held, on the contrary, that the willingness of foreign countries to absorb paper money relieved by so much the pressure of German demand for foreign exchange bills and by so much buoyed up the mark exchange. This view is fundamentally correct; but, being stated in these rigorously simplified terms, it does not cover the whole field. When marks can be used to make payment abroad, the amount involved appears on the credit side of Germany's balance; and beside, their withdrawal from circulation tends somewhat to lower prices, including those of exports. Hence there exists a double reason for an enhancement in the external value. If marks flow back to Germany, the reverse condition is engendered. But this does not signify that currency exportation invariably brings about a rise in marks, re-importation a fall, because the *rebus sic stantibus* assumed by the opponents of Cassel's idea may be lacking. Indeed they are likely to be. The foreign purchaser observes a flood of paper about him, a persisting inflationary policy in Germany; he discounts his forebodings into present terms and next time offers less. In other words, *if* the underlying psychology remained the same, vending marks would always improve the rate by relieving the exchange market of an equal offer of Berlin balances or an equal demand for New York balances; but the process itself may finally reduce the foreigners' schedule of demand for marks, or increase the sellers offer, and so turn exchange downward even as exportation proceeds. Stated absolutely, Cassel's proposition cannot be maintained; with this

additional explanation, it can probably be applied to the later stages of inflation.¹

Upon the subject of capital flows under inflation Cassel again disagrees diametrically with the consensus, and again, I think, erroneously. Taking as the criterion of capital export a favorable trade balance with proceeds received in securities or other obligations, he concludes that selling marks constitutes *borrowing* rather than a flight of capital outward, because marks are not "real" capital. But only so far as marks were sent out to command goods and services immediately, and only if this money be regarded as a promise to pay, can Cassel's interpretation be accorded any meaning. So far as marks were sent out to command bills of exchange on foreign centers and are still regarded merely as promises, Cassel might well have made specific application of his statement, unwarranted as a generalization, that mark sales involve an equal exchange of titles; and here he should have discovered no movement of capital. But the nominalists' position — which Cassel elsewhere adopts — that fiduciary money is immediate purchasing power, seems a good deal more sensible than this attitude. So far as mark currency, regarded as money, went to purchase visible imports and foreign services, the "flight from the mark" did not mean a "flight of capital." So far as it went into the building up of foreign balances, it was the surrender on the part of German nationals of cash for credit, a true capital ex-

¹ Professor Graham betrays some vacillation on the same issue. At first he says that mark sales are "not unfavorable" to mark exchange, but *denies* they are favorable on the ground that imports into Germany "may be larger relatively to exports than would be the case if no sales of currency took place." Cf. F. D. Graham, *Exchange, Prices and Production in Hyper-inflation: Germany, 1920-1923* (Princeton, 1930), p. 28. Later he takes as a warrantable assumption that "a fixed amount of foreign exchange was unconditionally required by the Germans," and concludes, "the sale of currency was a bullish factor on its exchange value" (*ibid.*, p. 54). Furthermore, he says, it is "not the sale, *qua* sale, but the terms" upon which buyers and sellers are ready to act which determines the rate (*ibid.*, p. 28). As a matter of fact, the sale of a country's currency always maintained its *actual* exchange rate *over* the *hypothetical* level had such sales been impossible, although progressively more adverse buyers' or sellers' terms may move the *actual* rate continuously *downward*. If these adverse terms are a secondary product of mark exportation itself, the fall will probably persist long enough to eliminate the possibility of vending the money at all; i. e. the actual rate, as in the case of Germany, falls eventually to the hypothetical level as a limit. Whether the country's foreign exchange requirement is fixed, as in the case of reparations, or a function of the rate, as in the case of imports, makes no difference in direction but only in degree of the movement. Were all requirements fixed, a *given* foreign demand for mark notes would simply raise the German exchange rate to a greater extent over what it would have been in default of such a demand, than if, with the fall of foreign exchanges, Germans were to increase their importation.

port. Even Graham, who agrees with Cassel in decrying the popular identification of the two sorts of "flight," does not hold that the practice of buying foreign exchange was not an outflow of capital, but only that it was insignificant.¹ Such evidence as lies readily at hand without special enquiry does not confirm Graham's belief.² Eucken estimates the sale of American exchange alone during the brief period from January to June, 1920, at 700 million gold marks.³ In January, 1922, Sir William Goode placed the total of Austrian call money in Switzerland at 18 million gold pounds; and de Bordes asserted that Austrian reserves of foreign exchange grew annually from 1919 to 1922 by "several hundred million gold crowns."⁴ J. H. Rogers, without linking the capital flight explicitly with currency sales, reproduces an estimate of French capital export during 1924 and 1925 at 20 billion francs and 17 billion in the first seven months of 1926.⁵ A similar situation prevailed in Russia from 1921 to the stabilization during 1923.⁶ It will probably never be known how great a proportion of the paper money marketed abroad by these inflating countries went toward the acquisition of foreign balances, even where the volume of the latter can be stated. But although capital flight does not necessarily involve note export, nor conversely the latter the former, it is a possibility which most German commentators rightly emphasize. Added to the already adverse element of a persistently unfavorable trade balance, the debit item of capital export through currency sales might exercise an altogether disproportionate effect to its magnitude, especially if it arises from a frantic scramble to put values outside the path of "hyper-inflation."

Even more dogmatic than Cassel is Ludwig Mises, who never once departs from the strict unilateral theory that international money movements represent cause and not consequence of the balance of payments.⁷ The fact that his description of the normal exchange rate runs almost exactly parallel to Pigou's cannot be other than ac-

¹ *Op. cit.*, pp. 50-51.

² The statistics of ch. 2 to which he refers (*ibid.*, pp. 51, 52, note) pertain to *mark* balances in German banks or other *mark* obligations of foreigners and therefore do not seem germane.

³ Walter Eucken, *Kritische Betrachtungen zum deutschen Geldproblem* (Jena, 1923), ch. iii.

⁴ J. van Walré de Bordes, *The Austrian Crown* (London, 1924), p. 192, for both.

⁵ *The Process of Inflation in France, 1914-1927* (New York, 1929), pp. 224-225.

⁶ S. S. Katzenellenbaum, *Russian Currency and Banking, 1914-1924* (London, 1925), p. 86.

⁷ *Theorie des Geldes und der Umlaufsmittel*, 1st ed. (Munich, 1912), p. 164.

cidental. That rate, he says, is one which "makes it a matter of indifference whether a person buys goods directly with a unit of money or whether he first buys a unit of foreign money and then makes his purchases with it."¹ Since Mises does not distinguish export and import prices from those purely domestic, and indeed as we shall see,² dogmatically insists that *the* value of money is everywhere the same, it cannot be supposed that this mode of statement, employed by Pigou expressly to admit the other line of causation from specific prices to exchange rate and back to domestic price level, signifies anything of the sort with Mises. The balance of payments theory he rejects completely because it overlooks the dependence of foreign trade upon prices. An offshoot of this school puts forward the proposition that a country with unessential exports but dependent upon foreigners for raw materials may experience a continuous decline in its rate of exchange. In saying so it forgets that "the greater or lesser importance to life or indispensability of particular goods is already completely expressed in the intensity of demand and . . . their prices."³ An unfavorable balance resting on anything other than the internal need for money relative to foreign countries cannot long persist. Neither a scarcity of commodities nor unfavorable conditions of production, neither speculation nor indebtedness, can long account for a low exchange rate.

Regarding especially the position of Germany, Mises views the export of mark currency as substituting for commodity exports and consequently helping to maintain her exchange quotations. He takes a position opposite to Cassel's again in laying considerable weight upon the flight of capital as a disastrous circumstance, interpreting the "selling out" of Germany as a capital exporting procedure.⁴ Mises does not seem to connect this phenomenon with the relative depreciations of the mark at home and abroad, and speaks as though an export bonus invariably attends inflation. To the tendency of domestic prices first to lag behind and then to outstrip note issues, he does give attention. The former situation arises through augmented cash reserves as a consequence of the individual's feeling of uncertainty in war time;⁵ the latter, through a reduced demand

¹ *Ibid.*, p. 234.

² Pp. 243-245, below.

³ Ludwig Mises, "Die geldtheoretische Seite des Stabilisierungsproblems," *Verein* 164, Part II (Munich, 1923), p. 23; cf. *Theorie*, pp. 234-236.

⁴ *Theorie*, p. 189.

⁵ *Idem*, *Nation, Staat, und Wirtschaft* (Vienna, 1919), pp. 123-127.

for money attending the use of foreign money and exchange bills, the reduction of German territory, and the poverty of the nation.¹ Finally Mises offers as the cause of the "shortage of money" the fact that prices rise, not in conformity with actual but rather with expected note issues.²

In general Mises is noteworthy only for his peculiarly doctrinaire disposition; but his version of the capital export is novel and illuminating. His concern is not with a possible increase in Germany's lending position through a flight into foreign balances, with its tendency to depress exchange, but rather with the exodus of German property and its result upon her economic productivity. The matter has two aspects, both of them deleterious. In the first place the export bonus caused German goods to be sold upon ruinous terms, and in this way a certain amount of capital, in the sense merely of wealth, was "exported," or perhaps better, simply given away. Graham argues convincingly in this connection that discriminatory prices against foreigners enforced by the central government were altogether reasonable inasmuch as a larger physical volume of exports at the low prices naturally prevailing would have produced a small volume of foreign exchange.³ Another aspect of the *Schleuderexport* was that necessary capital goods began to be removed from the country. Williams says that "entire factories were dismantled and the machinery sold abroad because the factory could not be operated for lack of raw material, whereas the machinery brought attractive prices in marks."⁴ Quite aside from capital export in the sense of *lending* abroad, this sort of "capital export," which does indeed tend by so much to improve the mark rate immediately, would in the end work against it by reducing the country's productive and export capacity.

Almost as early as either Cassel or Mises, Karl Schlesinger and Alfred Lansburgh began to champion the parity theory. Schlesinger's pamphlet⁵ puts the theorem in the original or absolute form by which a country's parity stands at the quotient of the foreign and domestic general price levels.⁶ Unless borrowings from abroad are

¹ *Stabilisierungsproblem*, pp. 5-13; written in January 1923.

² *Loc. cit.*

³ Graham, *op. cit.*, p. 187.

⁴ J. H. Williams, "German Foreign Trade and the Reparation Payments," *Q. J. E.* 36, p. 488.

⁵ *Die Veränderungen des Geldwertes im Kriege* (Vienna, 1916).

⁶ *Ibid.*, p. 16.

cidental. That rate, he says, is one which "makes it a matter of indifference whether a person buys goods directly with a unit of money or whether he first buys a unit of foreign money and then makes his purchases with it."¹ Since Mises does not distinguish export and import prices from those purely domestic, and indeed as we shall see,² dogmatically insists that *the* value of money is everywhere the same, it cannot be supposed that this mode of statement, employed by Pigou expressly to admit the other line of causation from specific prices to exchange rate and back to domestic price level, signifies anything of the sort with Mises. The balance of payments theory he rejects completely because it overlooks the dependence of foreign trade upon prices. An offshoot of this school puts forward the proposition that a country with unessential exports but dependent upon foreigners for raw materials may experience a continuous decline in its rate of exchange. In saying so it forgets that "the greater or lesser importance to life or indispensability of particular goods is already completely expressed in the intensity of demand and . . . their prices."³ An unfavorable balance resting on anything other than the internal need for money relative to foreign countries cannot long persist. Neither a scarcity of commodities nor unfavorable conditions of production, neither speculation nor indebtedness, can long account for a low exchange rate.

Regarding especially the position of Germany, Mises views the export of mark currency as substituting for commodity exports and consequently helping to maintain her exchange quotations. He takes a position opposite to Cassel's again in laying considerable weight upon the flight of capital as a disastrous circumstance, interpreting the "selling out" of Germany as a capital exporting procedure.⁴ Mises does not seem to connect this phenomenon with the relative depreciations of the mark at home and abroad, and speaks as though an export bonus invariably attends inflation. To the tendency of domestic prices first to lag behind and then to outstrip note issues, he does give attention. The former situation arises through augmented cash reserves as a consequence of the individual's feeling of uncertainty in war time;⁵ the latter, through a reduced demand

¹ *Ibid.*, p. 234.

² Pp. 243-245, below.

³ Ludwig Mises, "Die geldtheoretische Seite des Stabilisierungsproblems," *Verein* 164, Part II (Munich, 1923), p. 23; cf. *Theorie*, pp. 234-236.

⁴ *Theorie*, p. 189.

⁵ *Idem*, *Nation, Staat, und Wirtschaft* (Vienna, 1919), pp. 123-127.

for money attending the use of foreign money and exchange bills, the reduction of German territory, and the poverty of the nation.¹ Finally Mises offers as the cause of the "shortage of money" the fact that prices rise, not in conformity with actual but rather with expected note issues.²

In general Mises is noteworthy only for his peculiarly doctrinaire disposition; but his version of the capital export is novel and illuminating. His concern is not with a possible increase in Germany's lending position through a flight into foreign balances, with its tendency to depress exchange, but rather with the exodus of German property and its result upon her economic productivity. The matter has two aspects, both of them deleterious. In the first place the export bonus caused German goods to be sold upon ruinous terms, and in this way a certain amount of capital, in the sense merely of wealth, was "exported," or perhaps better, simply given away. Graham argues convincingly in this connection that discriminatory prices against foreigners enforced by the central government were altogether reasonable inasmuch as a larger physical volume of exports at the low prices naturally prevailing would have produced a small volume of foreign exchange.³ Another aspect of the *Schleuderexport* was that necessary capital goods began to be removed from the country. Williams says that "entire factories were dismantled and the machinery sold abroad because the factory could not be operated for lack of raw material, whereas the machinery brought attractive prices in marks."⁴ Quite aside from capital export in the sense of *lending* abroad, this sort of "capital export," which does indeed tend by so much to improve the mark rate immediately, would in the end work against it by reducing the country's productive and export capacity.

Almost as early as either Cassel or Mises, Karl Schlesinger and Alfred Lansburgh began to champion the parity theory. Schlesinger's pamphlet⁵ puts the theorem in the original or absolute form by which a country's parity stands at the quotient of the foreign and domestic general price levels.⁶ Unless borrowings from abroad are

¹ *Stabilisierungsproblem*, pp. 5-13; written in January 1923.

² *Loc. cit.*

³ Graham, *op. cit.*, p. 187.

⁴ J. H. Williams, "German Foreign Trade and the Reparation Payments," *Q. J. E.* 36, p. 488.

⁵ *Die Veränderungen des Geldwertes im Kriege* (Vienna, 1916).

⁶ *Ibid.*, p. 16.

used to reduce the indebtedness of the bank of issue, an inflow of capital cannot affect the equilibrium rate; and by consequence, though such inflow may serve as a brake to the mark disagio, the lack of it cannot produce a disagio. Price advances during the first eighteen months of war and inflationary financing have been somewhat attenuated by four circumstances: incursions into commodity stocks, diversion of production from investment goods, capital import, and "forced saving."¹

Lansburgh, as a practical banker, devotes his attention chiefly to the technique of inflation, condemning the Reichsbank with utmost severity for denying the fact and for ascribing depreciation to the unfavorable balance of payments. The position of the exchange rate, he declares dogmatically, "is determined *exclusively* by the monetary structure of particular countries."² In explanation of the 70 per cent gold agio prevailing in 1917 as against a tenfold expansion of central bank deposits, Lansburgh offers the following: hoarding of notes in hope of appreciation, the export of marks, the threatened confiscation of bank balances, which leads people to withdraw funds and hold cash hoards.³ The Reichsbank always maintains that hoarding and exporting marks forces it to further issues; but it should have recognized that these practices only diminish the effect of inflation.

Ludwig Pohle, formerly professor at Leipzig, presents the course of causation under inflation as proceeding in straightforward fashion from note issue through internal price levels to rate of exchange. In the second work to which we direct attention Pohle makes a conciliatory move toward balance of payments theory, but the concession proves to be nugatory.

The earlier work⁴ begins with an argument against the second type of balance of payments theory. The prevalent view, says Pohle, treats domestic and foreign depreciation of the mark as independent phenomena, the former as the consequence of a scarcity of goods, the latter as the result of an unfavorable balance of payments.⁵ Probably the foreign balance has been adverse, although

¹ *Ibid.*, p. 13.

² "Die Politik der Reichsbank und die Reichsschatzanweisungen nach dem Kriege," *Verein* 166, p. 47. (Italics author's.) Cf. also *Die Kriegskostendeckung und ihre Quellen* (Berlin, 1915), pp. 70-71.

³ *Politik*, pp. 20-23.

⁴ Ludwig Pohle, *Das Problem der Valuta-Entwertung* (Dresden, 1919).

⁵ *Ibid.*, pp. 8-14.

Germany sold vast quantities of securities during the War years. Be that as it may, the suppression of all trade statistics makes it impossible to prove the existence of an unfavorable balance. The scarcity of commodities might be a plausible reason for the moderate price advances at the beginning of the War; but despite such offsetting factors as hoarding of notes, the decline of credit exchange, and the expansion of German territory, the subsequent rise of prices in belligerent countries has paralleled the mounting volume of paper issues. Domestic depreciation is the primary phenomenon, the fall of foreign quotations on the mark the secondary.¹

A year later Pohle concedes that the German foreign balance has been decidedly unfavorable. This situation he explains on the following grounds: (1) "the chronic pressure which proceeds naturally from the existence of large quantities of German paper money abroad"; (2) payment of obligations incurred for imports obtained during the War, particularly from Sweden; (3) *Warenhunger* following the War blockade; (4) the smallness of credit extensions to Germany; (5) the practice of leaving on deposit abroad the proceeds of her exports.² Pohle seems disposed in this monograph to adopt a compromise view. Directly it is the balance of payments which sets the price of exchange bills, and the fall of the mark abroad may therefore assume a quite different character from the decline of the money unit at home. A bettering in the military prospects of a warring nation may in itself lead to a general rise in the quotations upon its exchange. But he insists that any deviation of the rate of exchange from purchasing power parity must eventually disappear, and concludes "that in the long run the position of the exchange is regulated by the domestic value of the money in question, or . . . that, beside the balance of payments theory, the inflation theory is also valid, that only together do they give the whole truth."³

Pohle apparently cherishes the delusion that a compromise is effectuated by conceding the short run determination to the balance of payments, while maintaining national price levels as the controlling factors finally. It need hardly be said that the parity school recognizes, as it naturally must, that the day-to-day balance of pay-

¹ *Ibid.*, pp. 46-50.

² *Idem*, *Geldentwertung, Valutafrage, und Währungsreform* (Leipzig, 1920), pp. 29-35.

³ *Ibid.*, p. 34.

ments controls quotations. A real concession is made the foreign trade school only when other factors than domestic purchasing powers are admitted as the ultimate determinants of the rate of exchange.

With the single exception of Cassel, no other writer in Germany has carried on so lively a campaign for the inflation theory as L. Albert Hahn, who enjoys, beside a wide audience with professional banking circles, an attentive hearing amongst academic economists. Hahn argues that the payments theorem errs in two particulars.¹ In the first place, the term "balance of payments" is meaningless for countries on dislocated standards; payments always balance, since gold flows are in the nature of the case precluded. Demand and supply for bills may change and the rate be affected, but that is not a case of disturbed equilibrium in total payments but only in particular items. In the second place, the theory neglects the influence of price levels upon the exchange rate. This influence the inflation theory of Ricardo erects into the sole determinant. Here again, since payments always balance, price levels do not affect the total but rather particular items, as, for instance, the note export balance or the credit balance.² So corrected, the Ricardian theory is flawless so far as it goes; but it neglects altogether the demand for and supply of bills of exchange not arising from the balance of *trade*, such as speculative operations and capital transfers.

A complete theory of the exchanges must analyze separately the demand and supply situation pertaining first to the balance of trade and secondly to the other items in the balance of payments. As to the former, the maximum premium which exporters in an inflating country can demand for their foreign bills, and the maximum premium which importers can afford to pay, is measured by the difference between the prices of their goods within the country and abroad. Now the rate of exchange will establish itself at a premium which is the average of all these price differences, since the "balance of trade" means that exports equal imports in value. All goods more expensive in the country than without, relatively to this rate of exchange, cannot be imported but may be exported. Since importation causes prices of imports to fall within the receiving country and exportation causes export prices to rise, the prices of all commodities tend to the

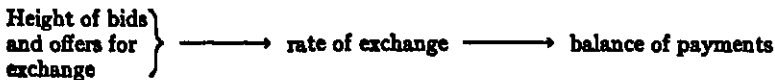
¹ "Handelsbilanz, Zahlungsbilanz, Valuta, Güterpreise" *Archiv* 48, pp. 596-614.

² *Ibid.*, p. 600.

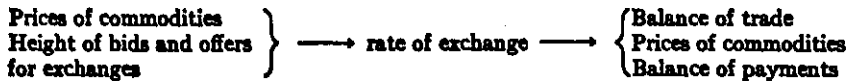
level set by the rate of exchange. This process may be represented thus (Formula I):



The net effect is to equalize prices within the country, but not to change the general level.¹ If we enquire into the market situation for foreign bills *outside* the trade balance, we find on each side a series of bid and offer prices "according to the urgency of the sellers' desire to sell and the buyers' desire to buy."² Whatever be the reasons for these bids and offers, the foreign rate will, as in the former situation, establish itself at the average premium bid and offered. Causation runs thus (Formula II):



Combining the two foregoing formulas into a complete statement we find the following situation:³



As against the strictly inflation theory situation in Formula I, the final solution allows for an effect of the rate of exchange on the general inland price level.

If the domestic price average is, for example, 20% higher than a foreign country's, still, if the foreign rate comes from other items in the balance of payments to stand at 130% [of par], the domestic price average would assume permanently a position 30% above the foreign country's level.⁴

But since a passive balance of trade is imaginable only if compensated for by some other item, it is always the consequence of a relatively too favorable rate of exchange, not, as the balance of payments theory would say, the cause of an unfavorable rate.

Hahn's later paper⁵ purports to take this doctrine as a basis, and to discover the causes of divergence between normal and actual rates

¹ *Ibid.*, pp. 602-604.

² *Ibid.*, p. 605.

³ *Ibid.*, p. 607. The matter is put in substantially the same form in *Volkswirtschaftliche Theorie des Bankkredits*, 2nd ed. (Tübingen, 1924), pp. 162-171.

⁴ *Archiv* 48, p. 608.

⁵ *Idem*, "Statische und dynamische Wechselkurse," *Archiv* 49, pp. 761-779.

of exchange in the German experience. In reality, though Hahn still recognizes the existence of factors outside of price levels, he comes virtually to purchasing power parity. Supposedly independent factors are themselves controlled by the domestic value of money. Thus the flight from the mark and the bearish speculation in 1922 are an expression of the abnormal creation of purchasing power.¹ Hahn believes that deviations of dynamic rates from the static rate may be explained in terms of a domestic capital movement toward or away from the exchange market; but since without further inflation the prices of other things are affected inversely as the prices of foreign bills upon quantity theory reasoning, internal movements of purchasing power can affect neither the average price level nor the static rate of exchange.² Whether an upward shift in the general domestic price level comes from inflation or from a bad harvest does not matter. "Despite all apparent exceptions, if and how much the prices of foreign bills have risen is finally decided *solely* by the fact and extent of the money increase at home."³ A statistical analysis of specific exchange fluctuations seems to Hahn to confirm the proposition.

In his writings upon the purely domestic situation, Hahn never tires of reiterating the rôle played by *confidence*, not as it pertains to gold redemption and acts directly, for he is a staunch nominalist, but as it pertains to estimates of the future course of prices and operates through present velocity. During the period throughout the War and inflation to the murder of Rathenau early in 1922, when the confidence of German people in the mark still persisted and savings deposits increased, depreciation followed the course of new money.⁴ The next year saw a depreciation to one-seventieth, as much as had been suffered in the preceding eight years of inflation, a fact ascribable largely to greatly increased velocity of circulation. In the third period, from early 1923 until the stabilization, confidence disappeared completely and velocity reached its highest level. Because the quasi-interest upon unspent cash margins is greater than interest received upon time deposits, the entrance of mistrust into the situation causes an acceleration of velocity with credit prior to the increase of velocity with money.⁵

Hahn's misapprehension of the nature of the balance of payments predestines him from the outset to error upon the non-monetary fac-

¹ *Ibid.*, p. 765.

² *Ibid.*, p. 771.

³ *Ibid.*, p. 765. (Italics mine.)

⁴ *Idem*, *Geld und Kredit, Neue Folge* (Tübingen, 1929), ch. ii.

⁵ *Idem*, "Zur Frage des sogenannten 'Vertrauens in die Wahrung,'" *Archiv* 52, p. 306. Cf. p. 168, n. 2, above.

tors in exchange depreciation. Elementary as the fact is, it must be pointed out that the balance of payments has precisely the same meaning under dislocated as under metallic standards, that every sale must be met by an equal value in payment, so that continuously, from day to day, values or evidences of values sent out equal those received. Barring exceptions extraneous to the theory of exchange, such as defaults, the balance always obtains; and if, according to Hahn's belief, that fact deprives the total balance of causal significance with paper standards, it must do so in every case. But the truistic character of the balance does not prevent changes in the underlying terms of trade from moving the equilibrium *point*, as the argument in the introduction to this Part and again in criticism of Cassel demonstrated. A thoroughgoing research into a country's exchange situation must certainly, as Hahn maintains, enquire into particular items; but that is only to discover how they affect the total.

As a result of his purely sophistic objection to the balance theory, Hahn's endeavor to include non-monetary causes of exchange movements comes to naught. The original statement of the theory explicitly allows for a portion of the supply and demand on the exchange market coming from items not dependent directly upon price levels; indeed it sets forth the possibility of a shift in the domestic price level in consequence of a movement in the static rate. But the later *Archiv* article categorically affirms that the *only* determinant of that rate is relative internal price levels, the strictly unilateral position. In comparison with this fatal inadequacy, other defects, such as making average instead of marginal bid and offer prices determinative of the rate, sink into relative insignificance.

Hahn represents a strong tradition in accounting for discrepancies between price level series and note issue series on the basis of retarded or accelerated velocity; his efforts must have counted heavily toward securing to the quantity theory that almost universal acceptance which it enjoyed during the inflation. It seems entirely probable, moreover, that credit velocity should be more mobile than the rapidity of cash circulation, just as he suggests. Adopting the same idea, Pigou attacks the anomalous phenomenon of a "money shortage" developing precisely at the time when inflation was most flagrant.

The explanation probably is that it is easier to cut down the proportion of one's resources that one keeps in balances than the proportion that one keeps in actual currency for wage payments and retail purchases. . . . Prices double and

they require twice as many mark notes as before. Until these are printed — the printing will only sustain the rise that has already taken place, it will not cause a new rise — there will be a currency shortage.¹

Hahn is also responsible for a concept of hypothetical maxima of velocity for currency and credit which resembles the concept of a "ceiling" to monetary turnover employed recently by Graham.² In other respects Hahn's analysis of velocity proves less tenable. Although, as a matter of fact, the response of credit velocity to loss of confidence occurs before the response made by currency, it cannot be because in the initial situation the quasi-interest on cash exceeded interest paid on savings, since competition brings them to the same margin. Rather it must be because of the less elastic demand curve for resources in the form of currency. Furthermore, though Hahn's last two divisions in the history of German inflation conform with distinctive periods according to the latest researches, he erred widely as to the "breaking point." Not 1922 but the midst of 1919 marks the beginning ebb of German confidence and the upswing of monetary velocity.³

One of the best studies of the German monetary situation after the War which has yet appeared within the country is Walter Eucken's.⁴ The author is an inflation theorist of somewhat less doctrinaire disposition than either Cassel or Mises. In the monograph under consideration he offers first a penetrating criticism of the balance of payments theory, a systematic defense of the inflation theory, and lastly a somewhat amended and amplified version of the latter as his own positive theoretical contribution.

The balance theory takes as its point of departure the decline of German exports to the following proportions of the 1913 total: 1919, 23 per cent; 1920, 50 per cent; 1921, 36 per cent; 1922, 39 per cent. Factors explaining this chronically unfavorable balance are, it is said, the great demand for foreign luxuries and necessities of life after the armistice, heavy interest payments outward, reparations, restrictions upon German production and discriminatory tariffs enforced by the Allies, the shrinkage of German interest receipts, and the "flight of capital."⁵ To make up the deficit in her payments balance Germany

¹ *Essays*, p. 196, note.

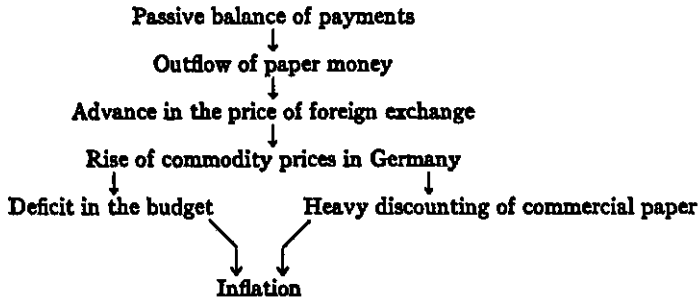
² *Hyper-inflation*, pp. 104 ff.

³ Cf. Graham, *op. cit.*, p. 103.

⁴ *Kritische Betrachtungen zum deutschen Geldproblem* (Jena, 1923).

⁵ This résumé is not encumbered by page references, since it follows Eucken's well-organized exposition in straightforward fashion.

exported marks, a process accentuated by the French *Eroberungspolitik*. With the ensuing decline of mark exchange the prices of imports advanced, and with them the general domestic price level. When the necessity of turning over to the Entente large quantities of exchange became immediate, the government was unable any longer to balance its budget, and so the Reichsbank was obliged to supply paper marks in return for national bonds. A schematic representation of the balance of payments theory of the causal sequence is as follows:



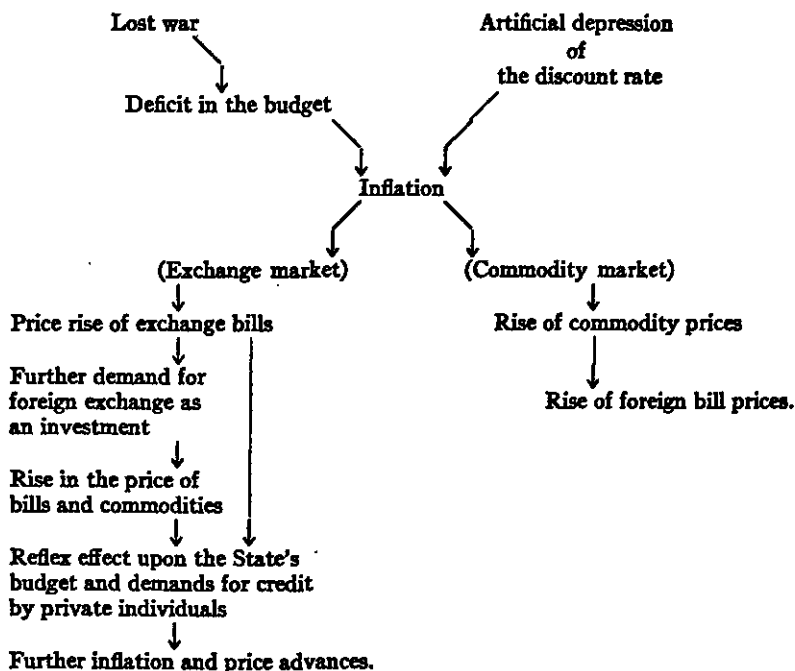
This construction may now be appraised first as to its conformity to the facts of the case and secondly as to theoretical verisimilitude. For 1922 the official estimate placed a value of 4 billion marks upon exports and 6 billion marks upon imports, estimates being made in gold marks by converting paper marks to gold at the average rate of exchange on the dollar. The figures are unreliable because of the shift from declared value in dollars to an official appraisal. Even so, the figures indicate an unfavorable balance of *trade* considerably smaller than it is supposed to be. In addition to the visible imports, account must be taken of a billion marks paid in reparation during the year and sundry payments on private account. On the other side there are two tremendous items in the invisible exports account: the sale of German real estate and securities, and services rendered foreign travellers. The whole situation in 1922 is reflected in a practical cessation of export of marks, and an influx of foreign currency. Hence a more accurate statistical survey is disastrous to the balance of payments theory; the very year showing the strongest depreciation of the mark¹ was characterized by an active balance.

On its theoretical side the balance of payments theory suffers from two errors: the belief that the passive balance "has to be met" by

¹ Written in the middle of 1923, before the final debacle.

directly and indirectly: by creating funds which are used to command exchange bills, and by raising the price level so that the incentive to importation increases. To account for the lack of coincidence of price level advances and the upward movements of the dollar, one should refer primarily to the high protective tariffs of the United States. "In essence the theory of purchasing power parity is right."

The following diagram shows how the various causes of the German inflation are actually connected according to Eucken's analysis.



During the post-war period the causal nexus on the left proved stronger and the rise of the foreign exchanges preceded the rise of internal prices. The necessity of transferring some billion gold marks before May, 1921, as an immediate reparation payment under the London Protocol serves partly to explain this circumstance. About the beginning of 1922 public confidence in the mark disappeared abroad. When people began to dispose of their holdings, importers from Germany remitted entirely in marks, with the consequence that demand for German exchange practically disappeared. The

exchanges in Germany *immediately* advanced, and this forced up first the prices of foreign raw materials and then all internal prices. Although the reappearance of the old mark notes upon the open market was sufficient to ruin the mark exchange rate, it was not sufficient, even with what new marks could be printed, to carry through the trading at the high price level attending the adverse exchange quotations. Thus there appeared the "scarcity of money." Finally, mark exchange was depressed by the cumulative nature of the phenomenon. The more the mark fell, the more anxious were German investors to secure foreign bills of exchange.

Eucken's general theoretical position is not nearly so uncompromisingly that of the inflation school as his unvarying opposition to the balance explanation would indicate. Not only does he admit a line of direct influence extending from exchanges to prices, to budgetary deficits and hence to further inflation, but he even holds this to be stronger than the reversed sequence required under the straightforward Mises theory. But Eucken falls short of effectuating a synthesis between the opposing theories, if that be his real purpose, by failing to consider even once any change in the basic ratio of international demand and capital movements in their bearing upon equilibrium. On the other hand, he presents a realistic picture of the interaction of manifold factors and gives due weight to such imponderables as speculation and confidence.

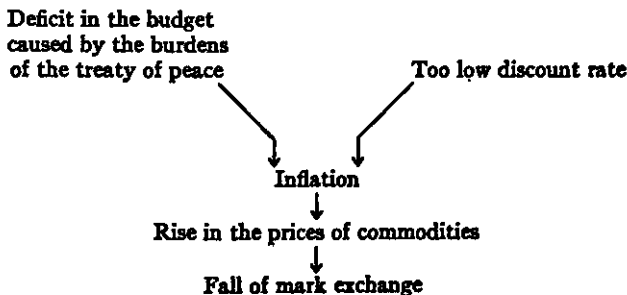
The effectiveness of his criticism of the uncompromising balance of payments theory is badly damaged by two serious errors as to fact, excusable perhaps because of a lack of temporal perspective. Later enquiries have shown that the year 1922 differed in no wise from the period preceding in showing an unfavorable balance of trade with currency export,¹ and hence represented no anomaly to the balance of payments explanation as Eucken imagined. Furthermore, in arguing against Bonn's erroneous implication that imports depend upon "need" and showing that they are a function of price, Eucken pressed the purchasing parity thesis too far. Even during the period of temporary exchange stabilization from February to April, 1923, which he thought attended by a favorable rate for Germany, the import excess continued *despite* the persistence of a lower external value upon its monetary unit than prevailed at home.² Evidently, as Angell concludes, the failure of the export bonus to turn the tide of

¹ Graham, *op. cit.*, p. 24.

² Graham, *op. cit.*, pp. 161-163.

the export of mark currency, and the ascription of the unfavorable balance of payments to the passive *Wirtschaftsbilanz*. As to the former, Bonn is wrong in holding that Germany's "inflexible economic structure" accounts for an unfavorable balance; Germany has no *fixed* need of 5 billion gold marks in raw materials and food stuffs, for the quantity of importation is governed by the commodity level, interest rates, and security prices. Only because of the prevailing prices and exchange rates were foreign producers willing to sell her their goods and accept payment in paper marks. Had they been unwilling to do so, the passive balance would have been impossible. Causation proceeds from export of marks to unfavorable balance of trade. In so far as the passive balance of payments can be ascribed to the "spendthrift economy" prevailing in Germany, it must be recognized that both increased consumption and decreased production are *caused* by the internal depreciation of money, and not the converse. On the side of consumption, inflation provokes people to lay in excessive supplies of necessaries and thus discourages productive investment. Efficiency diminishes also, from the impossibility of close calculation with a rapidly depreciating mark, from wastage of capital made possible by what are really negative interest rates, and from the demoralization of labor. But it cannot be said that the balance of payments nor the *Wirtschaftsbilanz* gives the final causes of rising prices.

According to the analysis presented by classical economists, causation proceeds along the following lines:



Against this reasoning four major objections have been raised, but they can be shown to be invalid.

In the first place, it is said, monetary depreciation causes the deficit in the budget, not conversely. The *Statisches Reichsamt* always ascribes budgetary deficits to the decline of the mark, which in turn

rests upon a passive balance of payments. But during the period April, 1920, to June, 1921, the mark continued to be quoted at approximately sixty to the dollar, despite an increase in the non-interest-bearing debt from 98 to 190.6 billion marks. The budget failed to balance because of unemployment relief, cheap sale of the necessities of life, soldiers' relief, and advances to industries. Of course the inflation theory does not deny that the tremendous increase of note issue in the next period (a 30 per cent increase by November, 1921) had a reflex effect upon the budget.

Against the belief of the inflation theory that a too low discount rate causes artificial creation of purchasing power, the familiar banking school argument is raised: so long as lending is based on paper arising from real production and not upon finance bills there is no danger of overexpansion. Eucken thinks the official reports of current accounts by the Reichsbank during 1922-23 sufficient to refute such a contention. In rebuttal the banking theorists say that a refusal of the banks to discount bills as they were naturally presented would have resulted in trade's creating its own money out of the bills themselves.¹ But such bills, even today (1923), do not form an appreciable amount of the circulating medium, and only those of the very best firms could ever function in this way. Besides, the quantity of these credit media is conditioned upon the amount of actual money through the necessity of redemption at maturity.

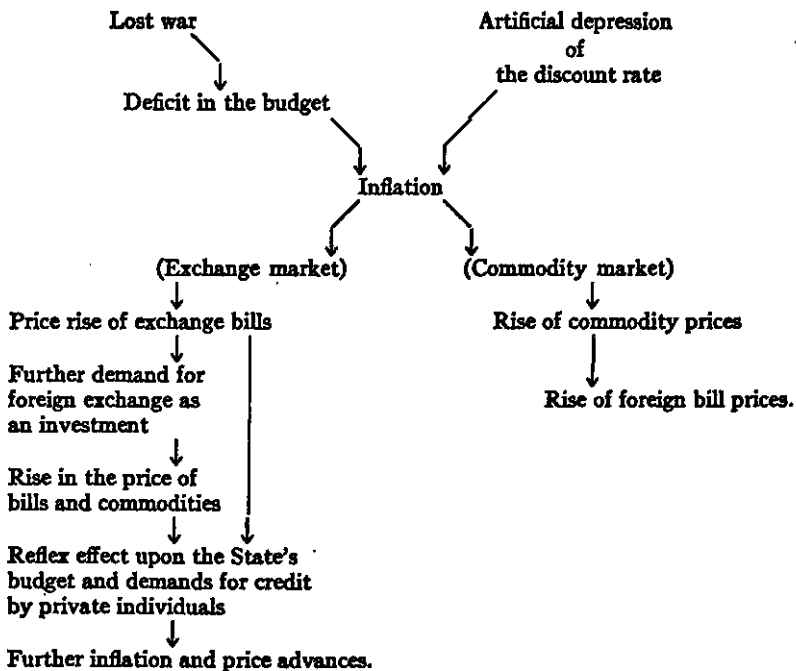
Many writers seek to demonstrate that inflation does not cause the rise of prices, by emphasizing the lack of parallel between the two movements. During the earlier period, when the note issue curve outstrips the price curve, Eucken says, not only was the territory covered by mark circulation greatly extended, but there flourished a lively business in exporting marks. Subsequently the situation was reversed; 1922 saw the cessation of mark exporting and the reentrance of this money into Germany as payment for her exports. Moreover rapidity of circulation was greatly increased by the public's desire to be rid of the depreciating notes.

Balance of payments writers insist that exchange rates are not determined by price levels, but by demand and supply conditions for bills. Supply and demand do indeed set this price along with all others; nevertheless inflation affects the prices of foreign bills both

¹ Such an argument is indeed advanced by most writers with a penchant toward the old banking theory; an example is Bertrand Nogaro, *Modern Monetary Systems* (London, 1927), pp. 117-118.

directly and indirectly: by creating funds which are used to command exchange bills, and by raising the price level so that the incentive to importation increases. To account for the lack of coincidence of price level advances and the upward movements of the dollar, one should refer primarily to the high protective tariffs of the United States. "In essence the theory of purchasing power parity is right."

The following diagram shows how the various causes of the German inflation are actually connected according to Eucken's analysis.



During the post-war period the causal nexus on the left proved stronger and the rise of the foreign exchanges preceded the rise of internal prices. The necessity of transferring some billion gold marks before May, 1921, as an immediate reparation payment under the London Protocol serves partly to explain this circumstance. About the beginning of 1922 public confidence in the mark disappeared abroad. When people began to dispose of their holdings, importers from Germany remitted entirely in marks, with the consequence that demand for German exchange practically disappeared. The

exchanges in Germany *immediately* advanced, and this forced up first the prices of foreign raw materials and then all internal prices. Although the reappearance of the old mark notes upon the open market was sufficient to ruin the mark exchange rate, it was not sufficient, even with what new marks could be printed, to carry through the trading at the high price level attending the adverse exchange quotations. Thus there appeared the "scarcity of money." Finally, mark exchange was depressed by the cumulative nature of the phenomenon. The more the mark fell, the more anxious were German investors to secure foreign bills of exchange.

Eucken's general theoretical position is not nearly so uncompromisingly that of the inflation school as his unvarying opposition to the balance explanation would indicate. Not only does he admit a line of direct influence extending from exchanges to prices, to budgetary deficits and hence to further inflation, but he even holds this to be stronger than the reversed sequence required under the straight-forward Mises theory. But Eucken falls short of effectuating a synthesis between the opposing theories, if that be his real purpose, by failing to consider even once any change in the basic ratio of international demand and capital movements in their bearing upon equilibrium. On the other hand, he presents a realistic picture of the interaction of manifold factors and gives due weight to such imperishables as speculation and confidence.

The effectiveness of his criticism of the uncompromising balance of payments theory is badly damaged by two serious errors as to fact, excusable perhaps because of a lack of temporal perspective. Later enquiries have shown that the year 1922 differed in no wise from the period preceding in showing an unfavorable balance of trade with currency export,¹ and hence represented no anomaly to the balance of payments explanation as Eucken imagined. Furthermore, in arguing against Bonn's erroneous implication that imports depend upon "need" and showing that they are a function of price, Eucken pressed the purchasing parity thesis too far. Even during the period of temporary exchange stabilization from February to April, 1923, which he thought attended by a favorable rate for Germany, the import excess continued *despite* the persistence of a lower external value upon its monetary unit than prevailed at home.² Evidently, as Angell concludes, the failure of the export bonus to turn the tide of

¹ Graham, *op. cit.*, p. 24.

² Graham, *op. cit.*, pp. 161-163.

the trade balance must be explained from "conditions other than the direct mechanical effect of depreciation."¹

Finally, Eucken does give a convincing answer to the balance theorists when they argue from the depreciation of the mark to budgetary deficits rather than conversely. He instances the period of fifteen months from April, 1920, to June, 1921, during which the mark remained at a price of sixty to the dollar while the growing deficit caused a large increase in the unfunded debt. This logic resembles the argument that the (supposedly) favorable foreign trade balance of 1922, when the mark depreciated rapidly, proves that an unfavorable balance cannot ever account for an adverse trend of exchange. During the year and more to which Eucken refers the budget failure cannot be laid to revenue deficits through depreciation, but must be attributed to heavy drains on the exchequer.² Later, however, shrinkage of revenue through the vanishing of the mark's domestic value chiefly accounts for fiscal embarrassments and further inflation.³ Eucken admits this, but insists upon calling it a "reflex effect," a term to which no one would object since it is not to be thought that the *original* budgetary deficits arose from monetary causes.

This completes a survey of the substantive development of the parity doctrine, but a brief reference to other adherents will show the magnitude of its following and the diversity in mode of statement. Fritz Machlup, the author of an excellent study on the gold-exchange standard, believes that the balance of payments theory is a mere truism.⁴ Even if the prices of exported and imported goods changed relatively to others, if only the average price level were unaffected, there could be no alteration of the exchange rate. That exchange variations more often precede changes in prices than not is easily explained from the inclusion of the probable future course of

¹ J. W. Angell, *The Theory of International Prices* (Cambridge, Massachusetts, 1926), p. 449.

² Beside the causes which Eucken mentions for the extraordinary size of public expenditure, it may be noted that this period coincides with the first important coal deliveries to the Entente. Cf. Julius Hirsch, *Die deutsche Währungsfrage* (Jena, 1924), pp. 6-8.

³ According to the official report, taxes yielded in gold marks a total of 5,235.7 millions in 1921-1922, 3,529.1 in 1922-1923, and 1,496.1 in the first nine months of 1923-1924. United States Senate, Commission of Gold and Silver Inquiry, Foreign Currency and Exchange Investigation, serial 9, vol. 1, *European Currency and Finance* (Washington, 1925), p. 393.

⁴ *Die Goldkernwährung* (Halberstadt, 1925), pp. 118-139.

prices in the calculations of exporters and importers. A country cannot experience a continuous depreciation of exchange by reason of "inability to export" even if this is combined with an "inflexible demand for necessities." A heavy demand for these imports forces up foreign rates; but the rising rates make certain other goods produced within the country cheaper for foreigners, so that the resulting export pays for the imported necessities. Machlup admits, however, that *continuous* inflation may result in a persistently unfavorable balance, because the new income continuously advances the prices of imports.

With Rudolf Dalberg there can be seen the gradual metamorphosis through which the lay opinion passed during the period of inflation.¹ In 1916 he gives as the "true cause of the discount" upon the mark abroad the passiveness of the balance of trade. Three years later² he says that in so far as the depreciation of the mark could not be explained from a scarcity of goods, it is due to credit inflation. He sets forth the purchasing power theory, but remarks that the formula is "unimportant in the explanation of the rate of exchange during the War." (1) It applies only to goods actually entering into export and import; (2) exchanges are artificially regulated; (3) capital movements are of great importance; (4) speculation plays an important rôle.³ A still later publication states the parity doctrine without qualification and makes no reference to the scarcity of goods.⁴ Another Casselian, Professor Hero Moeller of Erlangen, says that parity theory must be modified in view of costs of transportation, tariffs, interest loss during shipment, authoritarian interference in the free movement of goods, and the fact that some goods do not enter into foreign trade at all.⁵

That it is logically possible to support the purchasing power proposition without subscribing to the quantity theory, as Georg Kemény believes,⁶ may well be questioned. Kemény rejects the quantity theory because there exists no direct and mechanical connection between note issues and prices, and yet maintains that the relative price levels of two countries determine the rate of exchange.

¹ Rudolf Dalberg, *Die Entthronung des Goldes* (Stuttgart, 1916), pp. 30, 54.

² *Idem*, *Die Entwertung des Geldes*, 2nd ed. (Berlin, 1919), pp. 1-7.

³ *Ibid.*, pp. 91-92.

⁴ *Idem*, *Finanzgründung aus Währungsnot* (Berlin, 1920), pp. 56-57.

⁵ *Die Lehre vom Gelde* (Leipzig, 1925), p. 195.

⁶ *Die fremden Wechselkurse und die Umwälzung der internationalen Wirtschaftsbeziehungen* (Essen, 1921), pp. 119 ff.

Whereas the tendency of prices to uniformity works itself out with open metallic standards by an adjustment of price levels, with dislocated exchanges it is secured by a compensatory movement of the foreign exchanges. But this tendency is hindered by costs of transportation, tradition, and political interference with the free movement of goods. In such a blockaded country as Germany during the War, there appeared in consequence no very close conformity of price level and exchange movements.¹ But a temporary lack of adjustment does not argue against the truth of the Ricardian law any more than lack of conformity of prices with costs of production disproves the law of costs.²

The popular pamphleteer, Richard Kerschagl, adopts the parity theory quite uncritically, but he admits that a passive balance of payments may lead to the state's printing new notes to cover the deficit.³ Mention may also be made of Franz Haber as a follower of Cassel.⁴

Recent years have witnessed the rather strange phenomenon in Germany of a tendency to reinterpret purchasing-power parity so as to apply to the determination of equilibrium not the *general* price level after the Cassel pattern, but rather the prices of internationally traded goods. The retention of the purchasing-power parity caption does not prove to be quite nominal; it bespeaks, rather, an unfortunate lack of comprehension that the Cassel and Pigou theorems differ categorically. This shortcoming appears to greater or lesser degree with Neisser, Dobler, Koranyi, and Müller.

The essence of purchasing-power parity, says Dr. Hans Neisser of the Kiel Institute, is that equilibrium exists "when a certain quantity of national currency, translated through the rate of exchange, can buy the same quantity of commodities as within the country."⁵ These words are almost exactly Pigou's, and the resemblance extends to the further idea that depreciation within the country can extend to the exchange directly, without involving a recalculation by traders as to profitable exports and imports. Elaborating his central theorem, Neisser considers in turn the influence of non-exportable goods and obstacles to exchange; whether the price level or the ex-

¹ *Ibid.*, pp. 99 ff.

² *Ibid.*, p. 119.

³ *Theorie des Geldes und der Geldwirtschaft* (Jena, 1923), pp. 19-27.

⁴ Cf. Franz Haber, *Untersuchungen über Irrtümer moderner Geldverbesserer* (Jena, 1926), p. 31.

⁵ *Der Tauschwert des Geldes* (Jena, 1928), p. 99.

change is causal; and, finally, the influence of invisible items. Transportation costs, tariffs, and peculiarities of certain commodities making them not marketable abroad give rise to a group of purely domestic goods. To take account of this fact, we must subtract from the total volume of national purchasing power that devoted to domestic commodities: the balance determines the prices of traded goods and the equilibrium rate.¹ Causation proceeds from prices to rate with two real exceptions. First, if a rise in foreign rates induces the speculative hoarding of another country's money, the latter's exchange will be directly raised; and besides, through a reduction of its own circulating medium, its price level will be reduced with an ensuing improvement in its trade balance. Secondly, the total volume of the inflating country's money may be extended in effect if rising foreign rates lead to the employment of foreign bills as circulating media. But the supposed modification of the inflation theory, that advancing foreign exchanges prompt further inflation, cannot be admitted as a "truly economic connection, inevitably inherent in market phenomena."² The final circumstance to be taken under the rubric of the theory is the movement of capital; but, outside transitional disturbances, such transfers do not affect the absolute height of prices, and consequently not the equilibrium rate.³ Against the balance of payments theory and its favorite example of a bad harvest turning the exchanges upward, Neisser responds that the matter comes really to an increase in the relative volume of money. The real cause of a possible unfavorable balance is the reduction of cash balances by the agricultural class, which forces an outflow of gold.⁴

There can be no question but that Neisser finds two real exceptions to the parity line of causation, in the effects of the speculative hoarding of foreign money and its use in circulation; and he is right in his belief that note issue *prompted* by adverse rates does not constitute what ordinarily passes as economic effect and cause. Furthermore, he realizes the impropriety of general internal price indices as the basis of foreign rate equilibrium, and formally restricts the volume of money operative upon it to funds used in buying and selling the goods of foreign trade. But, as with so many other parity writers, this proves to be a merely *statistical* matter: the index is made more accurate, but no emphasis is given the underlying reciprocal-demand or comparative-cost situation as causally effective upon

¹ *Ibid.*, pp. 100-104.

² *Ibid.*, pp. 106-108.

³ *Ibid.*, p. 105.

⁴ *Ibid.*, pp. 118-121.

equilibrium, and capital transfers are dismissed in a cavalier fashion as inoperative.

A more sophisticated version than Neisser's appears in a doctoral dissertation by Fritz Dobler.¹ Although he states the theorem of equilibrium on two adjacent pages in the Pigou and Casselian comparative forms as if they were identical, Dobler insists that actual exchange rates are set by the prices of articles entering into foreign commerce and relate only indirectly to other prices through the general fact of value interdependence.² Consequently the wholesale indices commonly employed give an "extraordinarily rough" measure of purchasing-power parity, since they include all commodities. But the movements of the general price level are so great as completely to submerge displacements of real ratios of value. Dobler explains the lead taken by the foreign value of the mark in its downward career on the basis of purchasing-power concentration on the foreign exchange markets, a circumstance attributable to reparations, speculation, and the purchase of foreign bills to escape depreciation. When foreign rates rose under pressure of this concentrated demand, imports advanced so much that the available money was actually insufficient to carry through contracts. After all, the basic trouble was inflation. "Had the quantity of money not increased, it would be impossible for the enhanced rates to persist."³

Karl Koranyi's "modified purchasing-power parity theory"⁴ runs in substantially the same channel as Hugo Müller's *Wechselkurs und Güterpreise*.⁵ Much in the vein of Hahn, these writers lay primary emphasis on the buyers' and sellers' psychology on the exchange market. If commodities are arranged in an array according to their export or import price differentials, equilibrium will be found as the ratio of price of the marginal pair.⁶ As in Hahn's case, these "theories" get little beyond the elementary idea that exchange is a price governed by supply and demand, and that bids and offers depend on the relation of prices at home and abroad.

Before closing the chapter on the inflation theory we must return for a moment to Neisser and his difference with Bortkiewicz and Eucken on velocity changes during inflation. The discussion began

¹ *Kritische Untersuchungen zur Theorie der Kaufkraftparitäten* (Tübingen, 1928).

² *Ibid.*, pp. 21, 23, 42.

³ *Ibid.*, p. 52.

⁴ "Zahlungsbilanz, Kaufkraft, und Wechselkurse," *Welt. Arch.* 26, pp. 260-292.

⁵ Jena, 1926.

⁶ *Welt. Arch.* 26, p. 287; *Wechselkurs*, ch. v.

with Bortkiewicz's paper before the *Verein für Sozialpolitik*,¹ attacking the conventional notion that prices rose faster in Germany than the multiplication of fiat money *because* velocity increased. Bortkiewicz did not deny that velocity could spontaneously increase by a conversion of unspent margins into hoards of goods; but this he held to be *causally* unimportant in the current situation. If velocity increased because consumers paid out their incomes immediately to escape depreciation, producers would have to retain the funds just so much longer unless the wage periods were shortened, for which there was no reason outside the inflation itself. Consequently, he reasoned, mistrust advanced prices directly, a "shortage of money" followed, and to get around the difficulty, employers made the wage intervals shorter. Velocity increased, not as a cause of the disproportionate rise of prices, but as a consequence.² Some time later Eucken attempted to reconcile Bortkiewicz's argument with the commonly held *Schwarze-petertheorie*,³ according to which causation runs from velocity to prices. Velocity of circulation, said Eucken, can be increased only as a consequence of an advance in prices; but an independent price-raising force may arise from a general reduction of unspent margins and a rise in the "effectiveness" of money.⁴ Two years later, and again in 1931, Neisser came to the fore to condemn Eucken's captious distinction between velocity and effectiveness. Bortkiewicz made no mistake in maintaining that velocity could only be increased through a conversion of cash into commodity hoards or by reducing the length of the income payment periods; in Germany during the period from 1913 through 1923 either of these could have occurred only as a consequence of inflation.⁵ But Bortkiewicz missed a more important connection: through consumers' "flight into real values," entrepreneurs came into possession of immense quantities of paper money which they used to purchase foreign goods or bills of exchange. This forced up foreign rates, motivated further inflation, and thus made the original advance of domestic prices permanent.

¹ Ludwig Bortkiewicz, "Die Ursachen einer potenzierten Wirkung des vermehrten Geldumlaufs auf das Preisniveau" *Verein* 170, pp. 256-274.

² *Ibid.*, pp. 264-266.

³ So called after a game which resembles "drop-the-handkerchief."

⁴ Walter Eucken, "Die Ursachen der potenzierten Wirkung des vermehrten Geldumlaufs auf das Preisniveau," *Jahrb. für N. & S.* 125, pp. 289-309.

⁵ Hans Neisser, "Der Kreislauf des Geldes," *Welt. Arch.* 33, p. 390. Cf. *Tauschwert*, pp. 30-32.

In actual fact, the merit lies no more upon the one than upon the other side of this dispute. The rational conviction that property in monetary form will shortly evaporate augments velocity and forces the price curve up faster than the note issue curve. On the other hand, price *quotations* may advance on their own impetus and compel people to trench upon money balances to command the necessities of life; increased velocity sustains the quotations and transforms them into *realized* prices. Prices and velocity react upon one another spirally.

CHAPTER XIV

BALANCE OF PAYMENTS THEORIES

I. TRUISTIC THEORIES

CERTAIN writers during the War and the subsequent monetary chaos seem to have believed a mere reference to the law of supply and demand sufficient to explain the decline of the mark on world markets. Noteworthy examples of this shallow thinking appear with Knapp's closest followers. Even in 1920 Kaulla could say only that the price of foreign exchange depends on the supply and demand for bills, and that these in turn rest on the balance of payments.¹ This self-evident proposition is brought forward by Dalberg² as giving the "true cause of the discount" on marks, as against foreign distrust of Germany's future. According to Elster³ the falling rate on the market is simply the consequence of a new demand and supply situation for bills. Germany's balance of payments has been unfavorable because of the discouragement to production following the inauguration of the government's *Wirtschaftspolitik*, the sale of German securities held abroad because of German taxation of earnings at the source, and the flight of Germany capital.⁴ Elster does indeed take issue with the purchasing-power parity explanation,⁵ but he merely insists that the influence of prices on exchanges runs through the following sequence: "prices, trade and payment relations, demand and supply for means of payment, exchange rate."⁶ He fails to say upon what prices he bases the causal series, and why in view of such a theory he has any objection to the parity doctrine. If Elster leaves us with nothing but an empty formulary about supply and demand, the same is true of Bendixen, who denies any direct influence of prices upon the exchange, because the importer does not buy a bill and then look about to see what he can buy, but purchases it to pay

¹ Rudolph Kaulla, *Die Grundlagen des Geldwerts* (Stuttgart, 1920), pp. 84-93.

² Rudolf Dalberg, *Die Entthronung des Geldes* (Stuttgart, 1916), pp. 24-40.

³ Karl Elster, *Die deutsche Not im Lichte der Währungstheorie* (Jena, 1921).

⁴ *Ibid.*, pp. 9-13.

⁵ *Die Seele des Geldes* (Jena, 1920), pp. 335-334; "Zur Theorie des Paritätsvertrages," *Jhrb. für N. & S.* 116, p. 418.

⁶ *Die deutsche Valutapolitik nach dem Kriege* (Stuttgart, 1919), p. 29.

a debt.¹ But Bendixen does not mean to preclude the influence of commodity prices. "The price relation of his own and the foreign country do not interest him in general, but only the prices of his particular goods."² This may legitimately be interpreted as an insistence that exchange rates depend upon the prices of traded goods, not upon the general price level.

Like other self-evident propositions in economics, the truistic balance of payments theory has been attacked merely because it is a truism. A great many writers refuse to accord the balance theory any significance whatsoever because, they say, if payments must necessarily balance there can be no meaning to a fall of exchange from an "unfavorable balance": an uncovered balance does not exist. Others have sought to give the balance real causal significance by distinguishing a daily and a yearly total, the former simply a matter of logical necessity, the latter a case of real economic equilibrium.³ This distinction accomplishes nothing, since so long as the term is given the same denotation in both cases, the shorter or longer period makes no difference. Another practice makes the term apply to the totality of items outside the balance of *trade*, in which case it must of course come to equilibrium when and if the trade balance becomes neutral. Graham believes that the only meaning ascribable to "unfavorable balance" is that something analogous to a temporary loan is involuntarily extended to the purchasing country when the country suffering from inflation delivers goods during a period of very low quotations upon its exchange.⁴ In similar vein Cassel discovers the only reasonable interpretation of unfavorable balance to be an undervaluation of a country's money abroad.⁵

All of this hair splitting misses the idea which most payments theorists have in mind when they refer to an unfavorable balance. When for any reason, be it inflation, increased demand for foreign products, a flight of capital, or bear speculation, the daily quotation of a country's exchange moves downward, that is in *itself* an unfavor-

¹ Friedrich Bendixen, *Währungspolitik und Geldtheorie im Lichte des Weltkrieges*, 2nd ed. (Munich, 1919), p. 170.

² *Loc. cit.*

³ E. g. Karl Koranyi, "Zahlungsbilanz, Kaufkraft, und Wechselkurse," *Welt. Arch.* 26, p. 262; Fritz Dobler, *Kritische Untersuchungen zur Theorie der Kaufkraftparitäten* (Tübingen, 1928), pp. 18-19.

⁴ F. D. Graham, *Exchange, Prices, and Production in Hyper-inflation: Germany, 1920-1923* (Princeton, 1930), pp. 24, 143, note 15.

⁵ Gustav Cassel, *Money and Foreign Exchange after 1914* (New York, 1923).

able balance of payments. The total market situation turns against the country in making her payments.¹ Any tyro in the supply and demand reasoning apprehends that, even if the two sides of the market were continuously in equilibrium by virtue of the promptness of the traders' response, it would be perfectly legitimate to ascribe the fall of the rate to an excess of supply over demand. Equilibrium obtains at the *new* price; the excess would have existed had price remained at its *old* level. Furthermore, a declining rate is equally unfavorable whether the movement is toward a theoretical norm or away from it. In the latter case one might regard the sacrifice of everything the country delivers in foreign trade at increasingly disadvantageous terms as a "temporary loan" if the undervaluation were later compensated by an equal overvaluation; but this is accidental and unlikely. In the first case, the loss must be permanent. The essence of the matter lies in the descending rate alone.

The truistic theory thus stands upon solid ground. But as an explanation of what really happens it is an empty formula.

II. THE BALANCE OF PAYMENTS AS AN INDEPENDENT PHENOMENON

Without maintaining that the rate of exchange determines the domestic price level, certain writers seek to explain the behavior of the rate *without reference* to the domestic purchasing power of money. Because of the undeniable influence of Knapp's doctrine upon the current of German thought a decade ago, we begin with it, remarking in passing that the original version set forth in the *State Theory* in 1905 remained quite unaltered by the events of the War, through all subsequent editions including the fourth and last in 1923.

On the surface Knapp's doctrine seems to be little more than the truism of supply and demand masquerading under a very pretentious caption.

In order to give to the psychological view a name which suggests to the mind the sum total of mercantile relations, we may say that the intervalutary exchange between two countries is explained *pantopolically*. This word indicates that we are referring to the fixing of a price for the valuta money of one country on the total liabilities and by the moods and feelings on which the settlement of price is based. All this is compressed in the proposition: "The intervalutary exchange is a pantopolic phenomenon."²

¹ Cf. J. van Walré de Bordes, *The Austrian Crown* (London, 1924), pp. 193-194.

² G. F. Knapp, *The State Theory of Money* (London, 1924), p. 222. (Italics his.)

Knapp apparently took a childish delight in this sonorous phrase, which *per se* signifies only that the rate of exchange fluctuates with the supply and demand for bills of exchange arising from both commercial and speculative activity.

Further study of Knapp indicates that behind this innocuous exterior there lies a virtual denial of any effect of price levels upon rates of exchange. The doctrine assumes the form of an argument that the market ratio between gold and silver bullion is determined by the rate of exchange between gold-and-silver standard countries.¹ To demonstrate this he assumes two contrasting cases. In the first instance all countries are on a gold standard, so that silver has its price determined just as tin or lead. In the second instance all countries are on gold, and one country alone has a silver standard, the use of silver in the arts being effectively forbidden. The price of silver in the gold countries depends on the rate of exchange in the silver countries, and *mutatis mutandis* for the price of silver. If now we turn to the real situation, we see a combination of the two hypothetical cases, but the second is the more realistic. Though there is more than one silver country, and though gold and silver are both actually used in the arts, changes in the prices of the metals arising from the bullion trade itself may be dismissed as insignificant when compared to changes arising from the general movements of commodities in international trade.² When in 1850, following the California gold discoveries, the English pound declined relatively to the money of silver-standard countries, the quantity theory traces the movement to the fact that "English money was disproportionately increased," says Knapp. "But we do not admit this deduction from the mere quantity theory of money. There *must be some definite trade transactions which depress the pound.*"³ What really happened was that Englishmen, having acquired gold or bank deposits, looked about for profitable investments, and finding *interest yields low* in England turned to the state securities of such a silver country as Germany. Thus the California gold production lowered gold exchanges because of certain international transactions unfavorable to gold-standard countries, not because the commodity value of gold fell relatively to silver. Referring in another passage to a premium on gold within the

¹ *Ibid.*, pp. 235, 237, 240, 243, 252, 257, 268; "Erläuterungen zur Staatlichen Theorie des Geldes," *Schm. Jhrb.* 30, p. 1696.

² *State Theory*, p. 235.

³ *Ibid.*, p. 240. (*Italics mine.*)

latter, he says: "This valuta agio is a phenomenon of international business and *has nothing to do with* the domestic agio appearing as a consequence of Gresham's law."¹ Finally he declares that to trace the line of causation from the exchange ratio of the two precious metals as it is affected by "purely industrial reasons" to rates of foreign exchange between gold and silver countries is a "heresy which perhaps will be scarcely conceivable in future times." The arch-heretic, as Bonar observes, was of course Ricardo.²

Even when the countries involved have the same metallic standard, the quantity theory idea that the diminution of money in one country and its increase in another reestablishes parity is "vulgar ignorance." Suppose that political feeling causes one country to dispose of its holdings of another country's securities; then the balance of payments is *permanently* altered and "the counterbalancing export of home currency to the foreign currency would then become chronic."³ There can be "no thought of automatic regulation" of international gold and commodity flows; conscious intervention by the central bank, involving, according to Knapp, heavy costs, can alone secure balance and stability.

Critics of Knapp's balance of payments theory point out that, though he nowhere says that domestic price levels have no influence on exchange rates, his denial that conditions governing the industrial production of gold and silver affect exchange rates is tantamount to precisely this.⁴ It is quite impossible to apologize for Knapp's position either upon the basis of any generalized theory of foreign exchange rates or upon the basis of peculiar circumstances to which he had reference. Concerning Nogaro's similar explanation of the decline of silver exchanges after 1873, Angell says: "The objection . . . is that the net excess of payments due from the silver-standard countries to the gold-standard countries was in all likelihood not *big* enough except for brief periods, to be a sufficient explanation in itself alone of the fall in the gold value of silver."⁵ Helfferich also concludes his exhaustive criticism of Knapp's doctrine by emphasizing the monetary and industrial factors, quite aside

¹ *Ibid.*, p. 227.

² J. Bonar, "Knapp's Theory of Money," *Ec. Jour.* 32, pp. 39-47.

³ *State Theory*, pp. 257-259.

⁴ Edwin Cannan, "State Theory of Money," *Economics* 14, p. 215; R. G. Hawtrey, "The State Theory of Money," *Ec. Jour.* 35, p. 554; Melchior Palyi, "Der Streit um die Staatliche Theorie des Geldes," *Schm. Jhrb.* 45, p. 692.

⁵ J. W. Angell, *The Theory of International Prices*, p. 421. (*Italics his.*)

from the balance of indebtedness.¹ A similar judgment based upon an examination of the same episode is expressed by Hawtrey;² while Taussig, guarding against the one-sided Knapp-Nogaro view, believes that "room will remain for differences of opinion" as to how far the final outcome had been due to any one of three forces: merchandising transactions, invisible items, and the price of silver in gold.³ Rates of exchange must be related to the domestic price level of traded goods as it responds to changes in the volume of circulating medium.

But it is still more significant that Knapp really admits by the postern gate the orthodox theory of automatic gold-flow mechanism which he has formerly ejected. Recalling his California gold illustration, we see that the immediate cause of the fall of sterling against the German silver mark was the *high interest rate* in Germany. Knapp seeks to pass over this point with great circumspection, saying that "*perhaps* the rate of interest in England is too low" for English investors, in an offhand way as though it were not essential to the argument.⁴ But as Lotz and Palyi observe, this signifies a complete acceptance of the classical doctrine, save that equilibrium comes about quickly and directly through the security market rather than laboriously through the movement of commodities.⁵

Consequently Knapp's thesis that conscious intervention at a cost, not automatic regulation, maintains the parity of exchange falls to the ground. In all but extremely dislocated currencies — and with these he was not primarily concerned — he might have spared himself "the vulgar error expressed in the cry 'All our gold will be drained away.'"⁶ In those circumstances which necessitate "exodromic" regulation, the central bank, if its attempt to maintain stability is not hopeless from the outset, will not have to stand a continuous cost, as Knapp so often declares. Mises estimates the profit of the Austro-Hungarian bank during one year of successful maintenance of the gold exchange standard (1907) at nearly 6 million crowns,⁷ a result to be expected from the very nature of

¹ Karl Helfferich, *Money* (New York, 1927), p. 432.

² R. G. Hawtrey, *Currency and Credit*, 3rd ed. (London, 1930), p. 390.

³ F. W. Taussig, *International Trade* (New York, 1927), p. 373.

⁴ *State Theory*, p. 240. (Italics mine.)

⁵ Walter Lotz, "G. F. Knapps neue Geldtheorie," *Schm. Jhrb.* 30, p. 1243; Melchior Palyi, *Schm. Jhrb.* 30, p. 558.

⁶ Cannan, *Economica* 14, p. 214.

⁷ Ludwig Mises, "The Foreign Exchange Policy of the Austro-Hungarian Bank," *Ec. Jour.* 19, pp. 201-211.

stabilizing operations, which consist in buying foreign bills low and selling high.¹

Before resuming with the literature devoted to the German inflation period, we must pause a moment with Wieser, who like Knapp, probably because of advancing years, did not attempt any occasional writing upon the contemporary situation. Wieser does not belong especially to the group under consideration, but an issue of present significance is raised by a section of *Social Economics* devoted to "Obstacles to the Equalization of Costs in World Economy."² He argues that obstructions to the migration of laborers, high costs of transportation for goods, and obstacles even to the movement of money capital, are so great that wages, interest, raw material costs, and commodity prices show only a weak tendency toward international equality. But, he concludes, the difference between foreign and domestic trade lies solely in the necessity of relatively larger price-differentials in the former to secure actual exchange.³

To the degree to which Wieser's emphasis upon these obstacles is warrantable, so it may seem, to the same degree the influence of price levels upon rates of exchange disappears. It may be for this reason that Mises, the ardent spokesman of the purchasing parity doctrine, undertook to answer Wieser in a section entitled "The Alleged Local Differences in the Objective Exchange Value of Money,"⁴ in which he sought to prove that "The exchange relation obtaining between goods and money is everywhere the same."⁵ What appear to be differences in price for the same commodity, he says, are really different prices for commodities which differ because of their *place utility*. Before the War the cost of living was commonly supposed to be higher in Austria than in Germany; but a laborer who actually remained in Austria through preference for this milieu, from patriotism, or from habit and ignorance, should not have imagined

¹ Knapp's most sycophantic follower, Kurt Singer, reproduces his view without alteration. If there exists an unfavorable demand and supply condition for a country's exchange, he says, the country "is impotent against a continuous deterioration of that relation, if it does not succeed in floating a loan abroad and hence effectuating not merely an equating but a reversing of the balance of payments situation. In this respect a free standard is in no wise different from a specie standard" (*Das Geld als Zeichen* [Jena, 1930], p. 49).

² Friedrich Wieser, *Social Economics* (New York, 1927), pp. 441-444.

³ *Ibid.*, p. 453.

⁴ Ludwig Mises, *Theorie des Geldes und der Umlaufsmittel*, 1st ed. (Munich, 1912), pp. 151-160.

⁵ *Ibid.*, pp. 159-160.

that the value of money was lower there than in Germany. "He must not forget that in every price he also pays the price of being able to satisfy his wants right in Austria."¹

Mises' argument rests upon a lamentable confusion of subjective and objective value, despite the explicitness of the section title; it illustrates once more the importance of monetary metaphysics. Let us grant that, if the laborer voluntarily² continues to work in Austria, the utility commanded by his wage, his psychic income, must at least be as great as it would be elsewhere. But even if rather artificially the satisfactions of home ties and patriotism are attached to bread and beer consumed in Austria, it is only *utility flows* per unit of purchasing power which tend toward equality between countries. To the degree, however, that international immobility characterizes labor, we should expect unequal *money wages* between countries, and the same would be true of commodity prices. Mises fails signally to show that objective values are "everywhere the same."

The contention is a work of supererogation if Mises believes it necessary to the classical doctrine regarding the influence of prices upon exchange rates. If no differentiation were possible between purely domestic commodities and those actually or potentially figuring in international trade, he would be right. All the reasons advanced for the failure of labor and capital to move with differences in prices would thereby become *prima facie* evidence against the causal flow from prices to rates of exchange. The Gordian knot is cut by separating goods into those purely domestic and those potentially or actually involved in international trade. The former betray only a faint and roundabout tendency to fetch everywhere the same price; their influence upon the exchanges is correspondingly indirect and faltering. The latter class of goods tends everywhere to command an international price; what deviations occur in individual national economies tend to effect a movement of the goods concerned, to alter the supply and demand for bills of exchange, to move the exchange rate, and finally to efface themselves.³ From the angle of general value theory, there arises a deeper and more ultimate problem as to the causal nexus between the various categories of

¹ *Ibid.*, p. 159.

² Of course no equality of utility flows can be assumed if the laborer remains on his native heath from habit or ignorance!

³ Cf. F. W. Taussig, *Principles of Economics*, 3rd ed. (New York, 1922), vol. 1, ch. xxxv; *International Trade* (New York, 1927), ch. ix. Under extreme inflation this argument requires emendation.

domestic and international goods. But in the present context the relevant fact is that the persisting differences in domestic purchasing power which Wieser emphasizes do not justify the notion that exchange rates are not determined by prices.

Turning now to the special literature of the War and post-War years, we find another example of the second type of balance of payments theory in the *Archiv* article on "Inflation" by Professor Franz Eulenburg of the University of Leipzig.¹ The author devotes the first portion of his study to explaining the outstripping of note issues by the domestic price level. The phenomena, he believes, rests primarily upon an increased "need" for money. Although the wider sphere of circulation of the mark during the occupation of Belgium, etc., the supplanting of credit by cash media, and hoarding may fairly be accepted as contributory, it is difficult to see how Eulenburg can also utilize the rise of prices itself to explain an increased "need" for money, when the rise is less than that of note issue figures.² Beside increased "need," the "indirectness" with which additional money permeates the price system is also supposed to show how there can be "no direct connection and no parallel between the rise of the price level and the quantity of paper money."³ Eulenburg considers also the depreciation of mark exchange, denying that the domestic price situation bears upon it, and ascribing it to Germany's diminished productivity, the authoritarian restriction of her exports, the shrinkage in her interest receipts from abroad, and her increased demand for foreign products.⁴

A more able exponent of the independence of exchanges and price levels from one another is Professor Diehl. Movements in the external and internal values of a depreciated money are traceable to a common cause or set of causes, and hence one cannot be said to cause the other. This idea is set forth first in his tract which appeared in 1918.⁵ Adopting Thornton's and Tooke's explanation of the "high price of bullion" in the Bank Restriction period as a result of England's heavy foreign expenditures, the closing off of her sea trade, and the failure of several harvests, Diehl believes Germany a parallel case.⁶ The primary disturbance is a passive trade balance which can-

¹ Franz Eulenburg, "Inflation," *Archiv* 45, pp. 477-527.

² *Ibid.*, pp. 490-496.

³ *Ibid.*, p. 510.

⁴ *Ibid.*, pp. 515-519.

⁵ Karl Diehl, *Über Fragen des Geldwesens und der Valuta während des Krieges und nach dem Kriege* (Jena, 1918).

⁶ *Ibid.*, ch. i.

not be equalized by an active balance of invisibles. German interest and dividend receipts have been cut off, her carrying trade has ceased, and no market exists abroad for her securities. But the decline of mark exchange is at least in part attributable to waning confidence in Germany's political and economic future. Conversely, when in November and December, 1917, there were prospects of a peace with Ukraine, the mark rose in Zurich by 39 per cent and in Copenhagen by 57 per cent, while the dollar fell by one-third in marks.

Contrary to the contention of Cassel and Lansburgh, price levels do not directly determine exchange rates. Such an hypothesis fails to account for the premium on German bills at the very outset of the War despite increases in note issue, or the 50 per cent discount on marks in Switzerland in October, 1917, when the Swiss and German price levels were approximately the same. Obviously inflation plays only a secondary part, and even then the German situation differs both quantitatively and qualitatively from a real *Papiergeldwirtschaft*.¹ Compare the quantity of paper notes of various sorts currently circulating — approximately 17 billion marks — with the 45 billion francs reached in the *assignat* period in the relatively simple economy of revolutionary France. On the qualitative side, it is true, three-fourths of the *Reichskassenscheine* are not covered in gold, but the *Darlehnskassenscheine* are covered to 23 per cent, and the *Reichsbanknoten* to 35 per cent, a marked contrast with the *assignat* situation. Nevertheless there prevails a popular distrust of paper money; this accounts for a substantial part of the domestic depreciation and for the fact that prices rise more than proportionally to the volume of paper issues.

Diehl's diagnosis of the situation may be summarized in these propositions: (1) the fall of the mark abroad and at home until the end of 1917 is primarily ascribable to the unfavorable balance of payments; (2) the increase of paper money is too moderate to account for either aspect of depreciation, though inflation does operate directly, in a minor way, to depress the mark exchange and domestic purchasing power; (3) both aspects of the declining value of the mark are explicable to a considerable degree on the basis of lack of confidence, which to a metallist of Diehl's sort means confidence in ultimate redemption in gold.

Looking back a decade later at this same period, Diehl can repeat

¹ *Ibid.*, ch. v.

in his *magnum opus* on economic theory the verdict of his early monograph.¹ For the years between the end of the War and stabilization, the rôles of unfavorable balance of payments and inflation are reversed so that the latter becomes the dominant factor, with adverse speculation in marks accentuating the difficulty. But here, as before, domestic price levels do not bear directly upon mark exchange: each aspect of the depreciation rests independently upon common causes.²

Some such view as Diehl's inheres in the brochure on *Mark Exchange* by Professor Beckerath of Bonn University, though its appearance two years later probably accounts for a greater emphasis on inflation.³ Like Diehl, he treats exchange rates and domestic purchasing power as causally distinct; unlike Diehl, he traces the decline of the mark in both instances to a negative "economic balance," the outstripping of production by consumption. This emanates on the one hand in an unfavorable balance of payments, and on the other in budgetary deficits for the government, or, in other words, exchange depreciation and inflation.⁴

In explanation of the relatively low external value of the mark, Beckerath offers a number of factors quite commonly found in other writers: the magnitude of mark note holdings abroad coupled with distrust of the future of the German state, the great increase in importation into Germany after the removal of the Allies' blockade, the import of luxuries through the "hole in the West" when the occupying armies removed German tariff barriers, and finally the flight of capital. But when he says that the flight of capital may take on the form of *exporting* mark notes, securities, and commodities, something is sadly amiss. Perhaps he means to view exportation in the last forms as deleterious to mark exchange when the proceeds are allowed to remain abroad.

The official apology for inflation involved as a suppressed major premise that exchange rates are a thing divorced from prices. Not until 1920 did the *Verwaltungsbericht* of the Reichsbank admit that inflation existed, and not until 1921, that inflation was the cause of high domestic prices.⁵ In 1918 it ascribed the fall of mark valuta

¹ *Theoretische Nationalökonomie*, III (Jena, 1927), 366-383.

² *Ibid.*, pp. 383-405.

³ Herbert Beckerath, *Die Markvaluta* (Jena, 1920).

⁴ *Ibid.*, pp. 20, 31.

⁵ Alfred Lansburgh: "Die Politik der Reichsbank und die Reichsschatzanweisungen nach dem Kriege," *Verein* 166 (Munich, 1924), pp. 45-54.

to the necessity of larger imports, payments by Germany to her allies, the fall of the Austrian crown, mistrust of the economic future of Germany, and speculation; and in 1919 there were added to the list the decline of German credit abroad and the flight of her capital, the difficulty of meeting foreign obligations, and, most important, the unfavorable trade and payment balances. As late as 1922, the *Verwaltungsbericht* would concede only that the passive balance of payments acted as a force increasing the need for money.

The idea of valuta independence is quite unacceptable. It involves the idea of a fixed volume of imports, independent of the prices they command and independent of what the purchasing country can afford to pay for them. From this fallacy it branches off into the belief that just so much *has* to be borrowed from abroad to cover the deficit, or just so much paper currency *has* to be sold, whereas both these balancing items, like the flow of goods itself, are not absolute magnitudes but functionally dependent upon price.¹ Rapidly progressing inflation, in conjunction with all sorts of economic and political obstacles to the free movement of goods internationally and to the redistribution of productive factors within the country, may greatly weaken the effectiveness of the price law; exports may seem never to "catch up" with imports; the reciprocity between the two may be long held in abeyance. Even so, to say that the rate of exchange is "independent" of prices involves hyperbole. But recent statistical studies of the German balance of trade under severe monetary depreciation show a surprisingly elastic response to price differentials, exactly as the orthodox theory of adjustment requires.²

III. VERITABLE BALANCE OF PAYMENTS THEORIES

The theory which traces causation from balance of payments through rate of exchange to commodity prices and note issue receives its most careful articulation from M. J. Bonn, writing as technical adviser to the *Sozialisierungskommission* in its hearings on stabilization in March, 1922.³ While the theoretical analysis is sub-

¹ Cf., the excellent refutations by Hans Neisser, *Der Tauschwert des Geldes* (Jena, 1928), pp. 118-121, and Fritz Machlup, *Die Goldkernwährung* (Halberstadt, 1925), pp. 118-128.

² Cf. pp. 251, 252, 284 below.

³ *Verhandlung der Sozialisierungskommission über Reparationsfragen*, III (Berlin, 1922), 3-16 and *passim*. Bonn's theory is stated in more convenient form in his brochure *Die Stabilisierung der Mark* (Berlin, 1922) issued also in English translation the same year by the First National Bank of Chicago.

ordinated to the practical problem of rehabilitating the mark, Bonn presents a classical example of the third type of balance of payments theory. His explanation concerns Germany's unfavorable balance, the failure of the automatic equilibrating process to function, and the transmitting of depreciation abroad to the mark at home.

The most important item of the German balance consists in the trade balance, and this is unfavorable. Although certain invisible exports, such as services rendered foreign travellers in Germany and the Allied commissions and army of occupation, serve to mitigate the adverse balance of visibles, the seizure of German ships weighs heavily on the other side. The balance of capital transfers is also disastrously unfavorable. German property in enemy countries has been confiscated; foreign securities held in Germany have long since been commandeered by the government for foreign payments; what new foreign credits German exporters have received recently are left abroad and give rise to no demand for mark exchange. Furthermore, capital accumulations at home are transferred abroad, either to escape taxation, or, more significantly in 1922, to avoid domestic depreciation. Even without reparation payments, the German balance is unfavorable.¹

When domestic prices lag behind the fall of the mark exchange, the conventional theory calls for a correction by an increase of German exports, but peculiar factors in the current situation prevent such a reaction. Exports and imports are both subjected to extensive government control; Allied activities hinder the free movement of German trade; countries enjoying a high exchange rate in Germany are passing through a business depression which makes it difficult for them to purchase, even though prices are at low ebb.² Serious obstacles to increasing exports arise from the fact that German production for abroad depends largely for its raw materials on importation. Whenever foreign bills of exchange rise in value "the difficulty of purchasing raw materials is increased in like proportion,"³ aggravated by the fact that a rise of foreign rates in Germany stimulates rather than dampens the demand for bills, since every one fears a still further advance. Exports can at best increase only after a time lag, and meanwhile the whole increase of demand for bills falls upon a fixed stock. On the other hand,

¹ *Ibid.*, pp. 25-30.

² *Ibid.*, p. 32.

³ *Ibid.*, p. 34.

some of the imports wanted in Germany are goods which have to be imported regardless of cost. If, therefore, imports fall off seriously it will become more difficult to feed the population and the efficiency of labor will decrease accordingly. This in turn will affect the export trade adversely and thereby increase the difficulty of paying for our imports.¹

Another set of cumulatively bearish influences on the mark exchange appears in the enhanced tendency of foreign owners of mark currency to dump their holdings on the market with every fall in the quotation, and the parallel flight of German investment to foreign securities to guard against still further losses at home. All these factors in conjunction lead one to serious doubts as to whether exports can increase sufficiently to bring about an adjustment of exchanges and price levels.

Not the overissue of bank notes but interruption of economic communication is responsible for what has happened. The failure of automatic adjustment leads Bonn to believe that the balance of payments and exchanges govern the price level and the issue of notes, rather than the converse. An advance in the foreign rates

results immediately in an increase of all imports. The movement of increase of prices in Germany is from the boundaries toward the interior, the whole economic life of the country is affected gradually, the estimates for the governmental budget become worthless, a deficit is created and to make good the deficit more paper money is printed.²

A substantial number of writers who are disposed to lay the mark debacle at the door of inflation affectuate a sort of synthesis with the balance of payments theory by taking cognizance of factors stressed by Bonn: the unfavorable trade and capital movements, the breakdown of equilibrating forces, and the lead taken by foreign exchange movements. But they avoid his unfortunate tendency toward considering the balance items as something given *absolutely*, an error which protrudes through the contour of his theoretical construction in several places.

One might suppose from Bonn's references to imports of raw materials and foodstuffs as "absolutely necessary," as having to be got "regardless of cost," that Germany could *in all events* procure them through the channels of foreign trade by suffering her exchange to

¹ M. J. Bonn, "The Fall in German Exchange," *Q. J. E.* 31, p. 126; *Stabilisation*, p. 42.

² *Stabilisation*, p. 47.

fall sufficiently and by exporting a large enough quantity of mark notes. But even if the amount of imports were an absolute quantum independent of price, it is a complete *non-sequitur* that a low enough rate of exchange on Germany will *inevitably* make her exports of goods, services, marks, and securities pay for all classes of imports. Suppose the attitude of foreign purchasers toward the whole German situation were such that their demand elasticity in terms of their own money for mark exchange and for mark currency were less than unitary; then no amount of fall in the quotation would be sufficient to make the total mark offer equal the total dollar offer, and the only outlet would be a default upon the part of German debtors or borrowing a sufficient number of *dollars*.¹

While this reasoning, applied to mark exchange and currency taken together indicates that the only escape is default or borrowing, it also shows these to be the only resort in the condition given if the export of currency does not make up the balance. On this score several German writers took care to caution the treasury officials and such theorists as Bonn² that the continuance of the unfavorable balance on the basis of printing and selling paper money, instead of being something assured, depended wholly on the disposition of the foreign market to accept the notes, and upon the terms on which it would make its purchases.³ Of course the main reason why the sale of marks to the foreign market actually ceased, toward the end of 1922, was the continuance of inflation, which Bonn will have only as a *consequence* of depreciation. Consequently even if the volume of imports were a magnitude fixed at a constant level by the country's "needs," it would be impossible to reason altogether from exchanges to prices.

Bonn's implication that "need" determines the extent of importing, so that it proceeds pretty much independently of the domestic price situation, has no verisimilitude in theory or fact. In the post-War years the persistently lower value of the mark abroad than at home called for a stimulation of exports and a diminution of imports.

¹ D. H. Robertson, *Money*, 1st ed. (New York, 1922), pp. 130-131, understates the theoretical possibility when he says that equilibrium is reached only provided that at some low enough price "the owners of dollars are ultimately willing to part with them for utopes." No price would produce equilibrium in the case given above.

² Cf. Beckerath, *Die Marktwerte*, p. 11.

³ L. Albert Hahn, "Handelsbilanz, Zahlungsbilanz, Valuta, Güterpreise," *Archiv* 48, p. 609; Machlup, *Die Goldhermudrung*, pp. 135-138; Ludwig Mises, "Die geldtheoretische Seite des Stabilisierungsproblems," *Vierteljahrsschrift* 164, p. 23.

In fact this is precisely what did occur, according to the careful researches of Professor Graham covering especially the years 1920-23.¹ Measured by weight, a more reliable index than the available figures on value, "not a single class of exports shows any visible downward trend";² and the preponderating movement of imports was downward. Even the subdivision of the latter which embraces "raw materials of industry not capable of being produced in Germany" failed to increase, although various indices show that, with the exception of 1923, general industrial production increased from the end of the War onward.³ By virtue of cutting the domestic consumption of goods fabricated from imported raw materials, and by virtue of the low costs of manufacture, Graham finds,⁴ Germany was able to increase her exports of such commodities. The special fact dwelt on by Bonn,⁵ that Germany had to import much of the raw materials to be fabricated and exported, does not prove, any more than a naive notion of "need" for foodstuffs independently of buying power, that the movement of the trade balance went its way independently of prices; for it is only through the differential between external and internal values of the mark that the "export bonus" developed and caused the upward trend of exports and the falling off of imports.

On the other hand, if Bonn's one-sided emphasis on the balance of payments as the cause of the mark's downward career both at home and in other countries must be abandoned, the facts to which he refers may be given their proper significance. Although *in trend* exports and imports responded to the export bonus relation of prices and exchange, they failed to do so sufficiently, as the German trade balance in absolute magnitude remained passive throughout the War and post-War periods. Her demand for foreign products, while not an absolute magnitude, and not independent of the price structure within, was nevertheless sufficiently *intense* to allow the foreign exchanges to soar very high and to cause her to export mark currency, securities, and visibles at disastrously disadvantageous terms.⁶

¹ *Hyper-inflation*, ch. viii.

² *Ibid.*, ch. xii.

³ And also by Liefmann; cf. pp. 261-262, below.

⁴ *Ibid.*, p. 224.

⁵ *Ibid.*, pp. 219-220.

⁶ Notwithstanding his admission of interaction between balance of payments and prices, Graham traces the whole matter pretty much to the monetary factor. His preoccupation with *existing elasticities* of exports and imports seems to lead him to underestimate the force of *changed intensity* of reciprocal demand and the real terms of international trade, a non-monetary factor.

While Helfferich does not present as complete a treatment of the inflation phenomena as does Bonn, his influence in propagating the balance of payments theory seems to have been greater, possibly because of his position first as Secretary of the Treasury, and later as Home Secretary and representative of the Chancellor in the management of the Reichsbank. Helfferich appears to be a bilateral theorist in his explanation of *normal* exchanges; he condemns as one-sided the "old mercantile conception" which explains the world distribution of precious metals on the basis of balance of payments, and calls for the admission of Hume's view also, that price levels react upon balances of trade.¹ But, he believes, "No similar reaction has so far taken place to the infinitely more serious disturbances in circulation which the War has brought about."² The impairment of the belligerents' productive capacity, the boycott on their goods, the withdrawal of most-favored-nation privileges, and the burden of debts and reparations, all taken together permit of no natural economic reaction.

According to the English classical economists, says Helfferich, the collapse of a certain nation's finances leads to an increasing note issue, a rise in the level of prices and wages, an unfavorable balance of payments, and a consequent rise of the rates of foreign exchange. In numerous historical cases the course of events has been just this, but neither of the two historical cases to which Helfferich gave particular attention reveals it. His earlier study of dislocated exchanges pertained to Russia, which had been under a regime of inconvertible paper notes from 1876 down to the year of Helfferich's publication.³ An examination of the statistics of Russian wheat exportation from 1876 to 1893 and the Berlin price of the rouble led him to conclude that the volume of export was almost independent of exchange movements and depended upon the results of the harvest. On the other hand, fluctuations of exchange were mainly determined by the quantity of export.

During the War, "the first impetus to the enormous displacements in the sphere of monetary systems, of the circulation of currency, and of the purchasing power of money came from the side of commodities."⁴ Unproductive consumption and the withdrawal of millions

¹ *Money*, pp. 473-481.

² *Ibid.*, p. 481.

³ Karl Helfferich, "Aussenhandel und Valutaschwankungen," *Schw. Jhrb.* 22, pp. 353-408.

⁴ *Ibid.*, p. 503.

of unproductive workers accounted for rising prices and the falling exchange. Although the *inconvertibility* of the notes may be accredited with some share in the depreciation,

it is open to question whether, for the actual period of the War up to 1918, there was in reality in Germany any "inflation" in the sense of an excess cover of the monetary demand by the issue of new circulating media, especially as the rise of the level of prices was at that time smaller in Germany than it was in any of the other belligerent or in neutral countries.¹

In the first place comes the increased need for money from German-occupied territory: Belgium, Poland, and parts of Russia. Despite the establishment of special banks of issue in these countries, the circulation of mark notes amounted to 6 billions in Belgium alone, for example, just after the armistice.² Neutral countries absorbed large issues, the army required substantial quantities of newly-issued notes, and the decline of credit transactions at home resulted in enlarged demands for cash. Helfferich does indeed seem to admit that the increase in note issue had a tendency to aggravate the upward trend of prices, but only in that putting the printing press at the disposal of military authorities enabled them to fix the prices of war supplies on a "cost plus" basis.

Superficial observation of events after the War might lead to the view that the decisive factor on prices and exchanges was the issue of paper currency. In reality, he believes, additional notes were issued only to relieve the shortage of money, which was developed by the race between prices and wages, a phenomenon ascribable to the decline of workers' morale and their stronger strategic position, combined with necessity on the side of business enterprises for making profit.³ "At the same time, the fact that it was possible for paper money to be issued in unlimited quantities provided the necessary condition for unlimited increases in prices and wages."⁴ The further depreciation went on, however, the more did the rates of exchange come to dominate the domestic price level. Helfferich advances as reasons for this view the twenty-three-fold increase in note circulation in the twenty months following the acceptance of the London ultimatum, attended by a rise of domestic prices by 226 times, of the prices of imports by 353 times, and of the dollar rate by 346 times; the chronological precedence of exchange rate fluctuations;

¹ *Ibid.*, p. 595.

² *Ibid.*, pp. 597-598.

³ *Ibid.*, pp. 231, 594-595.

⁴ *Loc. cit.*

and the tenfold increase of notes from January to April 15, 1923, attended by falling rates of exchange and prices, etc.¹ In conclusion he expresses the conviction that the causes of the price and exchange upheaval lie chiefly on the monetary side, "not, however, in the quantitative variations in the circulation, which is so frequently regarded as the only conceivable cause of alterations in the exchange relations between money and goods, but in the rise of the rates of exchange."² This does not deny that a monetary organization which had offered resistance to unlimited expansion would have brought about reactions from the continuous advance of wages and prices; but these reactions would however have precipitated an economic catastrophe, the breakdown of all production.

On the whole Helfferich presents a fairly well considered argument from the balance of payments angle. What must strike the reader's attention as singular, however, is his denial of the fact of inflation throughout the War. To argue that this is evidenced by a smaller price rise in Germany than in any of the belligerents or in neutral countries³ is of course completely inconclusive, since prices in Germany rose to 217 in the period 1913-18. Helfferich cannot at one and the same time argue that prices and foreign exchanges advanced because of the "enormous unproductive consumption and the throttling of production,"⁴ and that sundry forces increased the need for money. To the degree that he succeeds in apologizing for the note increase of the Reichsbank,⁵ he fails to account for the price rise; and to the degree that he ascribes the price advance to a scarcity of commodities he must *per se* fail to justify *any* increase in the circulating medium. Which failure is the more significant is indicated by reference to tables showing the expansion of the Reichsbank's note circulation and deposits from 1913 to 1924.

A *rapprochement* between balance of payments and inflation theorists may be indicated by Helfferich's admission of the increase of note issue in the post-War years as a "necessary condition" of the

¹ *Ibid.*, pp. 598-602.

² *Ibid.*, p. 603.

³ According to the *Statistisches Reichsamts*'s index of wholesale prices for Germany, prices stood in 1918 at 217 on a base on 1913; the English *Economist*'s index at 225; the official indices of France, Netherlands, Sweden, and Japan at 339, 393, 339, and 146; and *Broadstreet*'s index for the United States at 203. Cf. Helfferich, *op. cit.*, p. 570.

⁴ *Ibid.*, p. 592.

⁵ "The war administration, for instance, with Vice-Chancellor Helfferich holding the Treasury portfolio, had looked with a much too friendly eye on inflationary policies." — Graham, *op. cit.*, p. 10.

whole process of mounting prices at home and depreciating exchanges abroad. This sort of phraseology tends to prevent too much weight being laid upon the chronologically precedent event as necessarily *the* "cause" and to open the way for the admission of more than one set of "causes" as operative in the situation. Robertson makes a similar suggestion, pertaining merely to the internal situation in England, but generally applicable, when he says: "To some extent, therefore, additional loans, like Treasury notes, can better be described as having been an *essential condition* than as having been a cause of the raised price level."¹

¹ *Op. cit.*, p. 116.

CHAPTER XV

SYNTHESIZING VIEWS OF CAUSATION UNDER INFLATION

WRITERS describing the process of internal and external depreciation as a matter of complicated interaction have already been encountered in numbers. Many have selected, without much thought of system, isolated features of both the major types of explanation; but in no case has there resulted a real synthesis. This may be accomplished in two ways: first by dispensing with inflation and real trade items altogether as genuine causes and relating the whole matter on both sides directly to the "non-mechanical" influence of *confidence*; or in the second place by a strictly bilateral theory. Sometimes both modes are combined.

Dr. Melchior Palyi, economist for the Dresdener Bank, has given clear articulation to the belief that the course of foreign exchanges under the recent inflation experiences is not explicable upon any purely mechanical basis: that confidence plays an important, if not decisive, rôle. The quantity theory explanation in terms of purchasing parity at the hands of Cassel betrays several serious errors. Hawtrey correctly maintains, for one thing, that not merely commodities but services as well must be included in any concept of an equilibrium rate;¹ and Taussig rightly objects to the inclusion of purely domestic commodities.² The latter consideration stamps as pure diletantism all calculations of exchange parity based on general price indices. It is not to be denied that there prevails "a tendency toward the determination of exchange rates through price level differences"; and relative quanta of money are especially important factors.³ But as Malthus and Mill demonstrated, there are other forces not connected with price levels, arising from capital transfers, state interference, and *Hungersnot*, which affect the balance of payments. When, therefore, Cassel restricts the validity of his theory to situations in which the rise or fall in prices has affected all commodities in like degree, he "takes from the theory any practical applicability."⁴ The painstaking researches of Subercaseaux

¹ Melchior Palyi, "Ungelöste Fragen der Geldtheorie" (Munich, 1925), p. 504.

² *Ibid.*, pp. 505-506.

³ *Ibid.*, p. 507.

⁴ *Ibid.*, p. 505, note.

and Nogaro on less recent disturbances of exchanges, and of Walré de Bordes on the Austrian episode during and after the War, demonstrate that the effect of the rate of exchange upon price levels was more pronounced than the reverse causation. A theory proceeding upon such lines of causation represents a "basic correction of the quantity theory analysis rather than a 'slight' emendation."¹ Even such quantity theorists as Fisher, Keynes, and Hahn have to concede that factors are involved in the determination of the price level which depend on psychological phenomena not covered by the equation of exchange. Palyi reports as the conclusion of the *Währungsenquete* instituted in 1924 by the *Verein für Sozialpolitik* that changes in quantity and rapidity of circulation of money are insufficient, of themselves, to explain the consequences of inflation upon the price structure and the exchanges. "One has, on the other hand, to recognize the importance of confidence, that is, the prospects of the redemption of low-value moneys (practically, in gold)."² He believes "that such apparently 'ideological' causes can be of the very greatest importance."³ Somewhat inconsistently with the foregoing viewpoint, however, he said at the same meeting of the *Verein*⁴ that the difficulty which the inflation phenomena presented to the quantity theory would probably be overcome if one based the quantity theory, not upon the *present* quantity of money, but rather upon "the quantity of money to be expected as probable within the discernible future."⁵

Contrary to Palyi's opinion, adequate allowance for the psychological factors bearing upon price levels and exchanges under rapidly depreciating paper standards can be made without resort to a supposed appraisal of the prospects of *gold redemption*. Until the end of 1918, when the mark had lost only about half of its value, redemption chances may indeed have entered into the calculus of the domestic and foreign receivers of marks or mark claims, though most of the phenomena can be accounted for fairly well in quantitative terms: volume of notes and deposits, rapidities of circulation, and

¹ *Ibid.*, p. 509.

² *Idem*, Referat, *Verein* 170, p. 254.

³ *Ibid.*, p. 255.

⁴ The *Verein für Sozialpolitik* devoted its convention at Stuttgart in 1924 entirely to the subject of monetary theory and policy. The proceedings appear as vol. 170 in its publications: *Verhandlungen über die theoretische und ökonomisch-technische Seite des Währungsproblems*.

⁵ *Ibid.*, p. 321.

quantities of exports and imports. By the time the note circulation of the Reichsbank had increased thirty times its extent in the opening months of the War and the mark was quoted at two cents (September, 1920), the hopelessness of redemption in gold must have been apparent to everyone. Subsequent note issues in fantastic and meaningless trillions and even quintillions and the quotation of the mark in trillionth parts of a cent deprive the gold redemption theory of its last vestige of meaning.

Primary emphasis upon the psychological moments can be found with several other writers. The well-known Austrian economist Philippovich says in the *Grundriss*¹ that popular appraisal of the future course of inflation figures equally with the balance of payments in the constitution of exchange rates. Another Viennese, Friedrich Gaertner, appeals to speculation to account for the precedence of rising prices over note issue, and lays at its door joint accountability for external depreciation, along with the panicky flight of capital and the denuding of the country of goods.² The sensitiveness of dislocated exchanges in war to the news of military successes and reverses is shown by Ernst Makai.³ Similarly Alexander Mahr voices the idea that under a badly depreciated fiat regime speculation dominates the scene completely.⁴ He objects to the parity theory because it does not allow for disturbances to par arising from capital flows, and because it includes purely domestic prices in its index. Professor Julius Wolf of Berlin attributes the mark decline after the revolution to inflation and the unfavorable payments balance; but during the War and the months of revolution he regards *Stimmungs- und Urteilsmomente* as paramount.⁵ Wolf exactly reverses the commoner and more probable theory: quantitative forces of various sorts played a predominant part during the relatively moderate inflation until the close of the War; only subsequently did psychological factors gain ascendancy. In a contemporary brochure, Professor Lots of Munich lays the trouble to the disappearing trust in ultimate redemption of the paper issues and to the unfavorable balance of payments. Were it not for such obstacles as reparation

¹ Eugen Philippovich, *Grundriss der politischen Ökonomie*, 18th ed. (Tübingen, 1923), p. 297.

² *Vom Gelde und der Geldentwertung*, 2nd ed. (Munich, 1922), pp. 49, 50, 68.

³ *Währungsstudien mit besonderer Rücksicht auf Österreich-Ungarn* (Stuttgart, 1917), pp. 31-39.

⁴ "Zur Theorie der Wechselkurse," *Welt. Arch.* 26, pp. 225-259; cf. p. 241, especially.

⁵ *Valute und Finanznot in Deutschland* (Stuttgart, 1920), pp. 35-38.

payments, the artificial restriction of export, and maximum price laws, the export bonus would be self corrective. Lotz imputes the scarcity of money during the winter of 1918-19 to the rise of prices, the loss of cash economizing methods, and the hoarding of notes.¹

Amongst the strictly bilateral theorists, as defined in the introduction to this Part, is Professor Ernst Wagemann. As between internal prices and exchanges Wagemann believes sometimes one, sometimes the other may initiate change, according to particular circumstances.² So far as the effect of exchange rates upon prices is concerned, almost complete correlation is observed at present (1923) for imported goods because the selling countries require payment in their own standards. Export prices depend more loosely upon exchange rates. They are based upon competitive conditions in world markets, but a country with a rapidly falling exchange can underbid its rivals and force down world prices if its share in these markets is substantial. Finally, purely domestic commodities are connected with the rate rather remotely, and wages bear practically no relation to it.³ As for the general domestic *price level*, the tendency is to move until "with a given exchange rate . . . no more can be bought at home than abroad."⁴

The necessary counterpart to this proposition would seem to be that the *rate of exchange* tends to adjust itself until "for the value unit as much goods can be bought at home as abroad."⁵ But the reaction of prices on exchange operates within narrow limits because the greater part of commodities on the domestic markets do not move at all or enter only negligibly into international trade. Furthermore peculiarities arising from psychological reactions may thwart the equilibrating forces relied upon by parity theorists. Mounting rates on foreign countries do not necessarily further exportation if they raise the cost of living and engender paralyzing wage disputes; and if still further exchange advances are in prospect, consumption and importation instead of being retarded may be stimulated.⁶

Wagemann's brief treatment of inflation phenomena puts its finger upon several sensitive spots in the parity argument, especially one dwelt upon by Robertson and Graham. Any fixed charge upon

¹ Walter Lotz, *Das Papiergeld* (Berlin, 1920), pp. 18-28.

² *Allgemeine Geldlehre* (Berlin, 1923), p. 335.

³ *Ibid.*, pp. 331-333.

⁴ *Loc. cit.*

⁵ *Ibid.*, p. 336.

⁶ *Ibid.*, p. 338.

the payments balance, such as reparations upon the German, bears down upon the country's rate until and unless a corresponding export surplus develops — a fact reiterated by almost every theoretical and popular writer. If, however, the fixed charge be stated in terms of a stable currency while the paying country still suffers under dislocated exchange, a second adverse moment appears. In connection with Bonn we have already noted the possibility that as reparations are paid, to employ Robertson's words, "the more the rate of exchange turns against Utopia (Germany), the larger the number of utopes that must be exported in order to obtain the means of discharging a given debt in dollars."¹ This situation, portrayed by Wagemann and Robertson while inflation was still under way in Germany, has recently been termed "self-inflammatory" by Graham.² Undoubtedly the phenomenon goes far toward explaining the greater depreciation of the mark abroad than within Germany.

Professor Liefmann complains that Cassel's proposition neglects the effect of capital transfers, artificial interference with foreign trade and the exchanges, and the influence of judgments as to the military, political, and economic condition of the country. There is, therefore, no necessity that the rate of exchange should stand at the reciprocal of domestic price levels expressed in index numbers, which are at best unreliable measures of domestic purchasing power.³ Liefmann gives the causes of the low rate of German exchange in the following order:

- (1) The scarcity of raw materials in Germany.
- (2) The presence of a considerable body of postponed obligations on Germany held by foreigners.
- (3) Limitations on *imports*.
- (4) Inflation.
- (5) Impossibility of securing credit advances from abroad.
- (6) Speculation, especially unfavorable to Germany because of:
 - (a) Underestimates of Germany's economic and financial resistance.
 - (b) French and German propaganda in neutral countries.
 - (c) Lack of confidence in Germany inspired by the additions to the number of her enemies.
 - (d) Machinations of the enemy in *baisse* operations on the mark.

¹ D. H. Robertson, *Money*, 1st ed. (New York, 1922), p. 146.

² F. D. Graham, *Exchange, Prices, and Production in Hyper-inflation: Germany, 1920-1923* (Princeton, 1930), pp. 136-144. In order to have this effect it is not necessary that *all* German sales be quoted in terms of marks and *all* American sales in dollars, as in Graham's Case II, pp. 139-142, but only that they be preponderately so.

³ Robert Liefmann, *Die Geldvermehrung im Weltkrieg und die Beseitigung ihrer Folgen* (Stuttgart, 1918), pp. 13-31.

- (7) Payments demanded in advance by foreign exporters and made by Germany.
- (8) Dumping of German exchange in neutral markets by Austria as a result of the latter's importations of luxuries.
- (9) Non-economic causes: the adverse influence of the political and military situation on the tenor of foreign buyers of German exchange.

All the adverse moments listed by Liefmann represent real factors of varying importance; but the mention of limitations on *imports* may require some justification. There can be no doubt that, in a direct and mechanical way, if interference with foreign trade worked *against* the mark, it was not import but export prohibitions, as Cassel insists.¹ Conceivably, however, import rationing might have had secondary repercussions which very largely undid the initial improvement it effectuated in mark exchange. The dependence of German exports upon her importation of raw materials has been emphasized as an unfavorable element in her exchange situation by Bonn² and by Williams;³ and Walré de Bordes has found the same to be true of Austria.⁴ The strict parity theorist holds that, in consequence of the low mark rate and the export bonus, Germany would develop the sale of articles *not* involving foreign raw materials. The answer is not convincing. Germany's holdings of foreign securities had shrunk to negligible proportions by the time of Liefmann's writing (1918). The shifting of labor and capital into such lines of production as employed relatively small proportions of raw materials would, indeed, have enabled Germany to sacrifice her productive services at sufficiently less favorable terms to induce the necessary export balance. But the process must have been slow at best, and meanwhile the quantity of importation effectively conditioned exports. To a degree the difficulty was got around by the development of a system whereby foreign countries *lent* raw materials to German producers during the time of fabrication.⁵ The practice was probably not sufficiently widespread, however, to deprive the Liefmann argument of its force.

Looking back at the monetary debacle of the previous year, Professor Hirsch of Berlin, a member then of the *Reichswirtschafts-*

¹ Gustav Cassel, *Money and Foreign Exchange after 1914* (New York, 1923), p. 165.

² Cf. pp. 249-252, above.

³ J. H. Williams, "German Foreign Trade and the Reparation Payments," *Q. J. E.* 36, pp. 488 ff.

⁴ J. van Walré de Bordes, *The Austrian Crown* (London, 1924), p. 183.

⁵ *Veredlungsverkehr*; cf. Williams, *Q. J. E.* 36, pp. 497-498.

ministerium, discovers the following causes: unfavorable trade and payments balances, the decline of the German economy, inflation, the mistaken credit policy of the Reichsbank, and the flight from the mark in the form of purchasing foreign bills and foreign currency.¹ The author believes the last factor chiefly responsible for the events of 1923. Foreign obligations and moneys were used not only as means of accumulation but even as domestic exchange media.

Professor Prion of Berlin also adheres to the bilateral theory. A noteworthy point in his analysis is the causation ascribed to prices in acting *directly* upon the exchange rate, quite aside from controlling the makeup and volume of commodity movements.² The idea is sufficiently striking to warrant reproducing a fuller statement by Pigou.

It is sometimes asserted that the actual rate of exchange *cannot* be altered by direct process, but only through an expansion of imports and contraction of exports. . . . It does not seem to me that this is necessary. Suppose that, owing to an expansion of paper money, the English price level . . . doubles. Then importers and exporters will both know that, if American stuff is to exchange on the same real terms as before against English stuff . . . a dollar must buy twice as much sterling as before. In these circumstances both sides may be ready at once to accept these new terms without any mediating movement of trade.³

¹ Julius Hirsch, *Die deutsche Währungsfrage* (Jena, 1924), pp. 7-17.

² Willi Prion, *Inflation und Geldentwertung* (Berlin, 1919), p. 53.

³ A. C. Pigou, *Essays in Applied Economics* (London, 1923), p. 170. (Italics his.)

CHAPTER XVI

CONCLUSIONS AS TO CAUSE AND EFFECT UNDER INFLATION

I. THE CHARACTER OF THE EQUILIBRIUM RATE OF EXCHANGE

A. *The Merits and Defects of the Parity Doctrine in General*

THE absolute or positive form of this theory states that "the rate of exchange between two countries will be determined by the quotient between the price levels of the two countries," the formulation originally proposed by Cassel, and subscribed to by Mises, Dalberg, and Moeller.¹ Purchasing-power parity so calculated does not in all probability give the true equilibrium rate of foreign exchange. Since the absolute doctrine speaks only of the *absolute* "general" purchasing power of the monetary unit within the country's borders, purchasing parity would be distorted from true equilibrium by (1) a difference in the prices of exported and imported commodities, and the general price index; (2) a difference in the prices of traded-in services, and traded-in commodities, since Cassel includes only the latter; (3) inequality in freight rates upon exports as against imports for either country; (4) differences in sums expended upon freight according as a country exports chiefly services, or commodities; (5) unequal tariff barriers. There might be added (6) any non-economic factor restricting the free movement of goods between the two nations if purchasing-power parity calculated upon the absolute basis be used as a *norm* for *predicting* the future course of exchange. If it is not so employed, but is used merely to describe what would be a perfect equilibrium at a given time were free play given to economic motives, this qualification need not be added, since then the force mentioned merely causes *deviations* from equilibrium without affect-

¹ Cf. also T. E. Gregory, *Foreign Exchange, before, during, and after the War*, 3rd ed., revised (London, 1925), pp. 83-84. So far as I can discover no writer in Germany appreciates the distinction between the positive and comparative forms of the doctrine. In the aforementioned writers, the statement of the theorem is sufficiently clear to identify it as belonging to the first type. Other adherents to purchasing-power parity simply defend the proposition that price levels determine the rate of exchange, or refer to "Ricardo's principle" or to the "Casselian doctrine," in such general terms that it is impossible to discover which construction they place upon it.

ing it. The same may be said for the various psychological influences interfering with the automatic adjustment of the actual rate to a calculated par, and again for the usual gamut of obstacles to free competition.¹

The comparative form of purchasing-power parity makes the equilibrium rate to be "equal to the old rate multiplied by the *quotient of the degree of inflation*." The five factors previously noted as qualifications will not, by their mere existence, be necessary qualifications of the comparative doctrine, if they enter into the determination of the equilibrium rate of exchange equally in the base period and in the period for which the comparative parity is calculated. On the other hand, any *change* in any of these factors will vitiate the calculated parity as a true equilibrium rate of exchange. Consider first a change in the relation of the price index of internationally traded-in commodities to the general internal level of prices. Two important factors contribute toward making such a change probable: alterations in what Professor Taussig aptly calls the "substantive course of international trade" arising from changed conditions of production or of reciprocal demand, and capital movements. Since inflation is commonly the product of war, with its attendant revolutionizing of the character of commodities wanted from abroad, with its recasting of the outlook for the productive investment of capital, and with its large volume of purely political borrowing and lending, both of these factors bid fair to assume considerable importance. Cassel himself admits the necessity of assuming the constancy of relation between prices within each country, but believes that this is legitimate because of the "quite paramount importance" of the changes in the *general price level*.² Most of the dogmatic defenders of the parity doctrine pass over the possibility of an alteration in the basic terms

¹ Mention of such qualifications in greater or lesser number is made by authors too numerous to review. Attention may be called to A. C. Pigou's statement of the third item in his *Essays in Applied Economics* (London, 1923), p. 167, and to Palyi (cf. p. 257, above); to W. Keilhau, "The Valuation Theory of Exchange," *Ec. Jour.* 35, p. 225, and to R. G. Hawtrey, *Currency and Credit*, 3rd ed. (London, 1930), p. 86, on the second item. Various others of these qualifications are to be found with Cassel (cf. p. 207, above), Dalberg (cf. p. 231, above), Kemény (cf. p. 232, above), Liefmann (cf. p. 261, above), Moeller (cf. p. 231, above), and Müller (cf. p. 234, above). See also D. H. Robertson, *Money*, 2nd ed. (New York, 1929), pp. 78, 132-133, 164; Pigou, *op. cit.*, pp. 164-168; Hawtrey, *op. cit.*, pp. 68-72; J. M. Keynes, *A Tract on Monetary Reform* (New York, 1924), pp. 98, 102, 106-108; A. W. Flux, *The Foreign Exchanges* (London, 1924), pp. 72, 86, 98, 92; Alfred Marshall, *Official Papers* (London, 1926), p. 172; J. van Walré de Bordes, *The Austrian Crown* (London, 1924), pp. 169-199.

² *Money and Foreign Exchange after 1914* (New York, 1923), p. 142.

of trade from changed demand and supply conditions for traded-in commodities.¹ The consensus both in Germany and abroad, however, lays considerable weight upon this factor, sometimes leading to the rejection of the parity doctrine altogether.² In the second place, movements of capital *may* distort the comparative purchasing-power parity away from true equilibrium. Some caution must be exercised in this connection. It is conceivable that a foreign loan *might* not ultimately affect the relation of the price index for trade-in commodities to the general price level. Suppose that with the proceeds of the loan the borrowing country buys only consumable goods, and that by the time the loan has been fully transmitted or shortly thereafter these goods have been completely consumed. Suppose further that the demand for these consumers' goods is a new and additional demand, over what has been demanded from abroad before the borrowing took place, so that the importation of the foodstuffs does not release labor and capital from other lines of production. Finally let it be imagined that at the beginning of the loan transmission, labor and capital in the lending country turn almost instantly to those exporting industries which feel the stimulus of demand from the borrower, and at the termination of the process that labor and capital return almost instantly to the old lines of production. Under such suppositions the total volume of goods will not be greater in the borrowing country than before, since the proceeds of the loan have been consumed; in the lending country goods are not less plentiful than before the loan, since production goes on in the former channels and presumably at the old rate.³ In such a case the final situation would

¹ E. g. Mises (cf. pp. 215-217, above), Eucken (cf. p. 229, above), Pohle (cf. p. 219, above), and several minor writers. Flux, *op. cit.*, pp. 88-89, seems to depreciate the significance of the factor in question.

² Those who consider it a more or less *substantial qualification* are (1) all German "inflation" writers stressing the unfavorableness of the balance of trade, i. e. everyone not a *dogmatic* parity theorist; such English theorists as Robertson, *loc. cit.*, Keynes, *op. cit.*, pp. 106-109, and Hawtrey, *op. cit.*, pp. 76-77, 87. Those writers who are led to *discredit* the parity theory, largely because of its neglect of the changes in basic merchandizing transactions, are, for example: (x) such German "balance of payments" theorists as Bonn (cf. pp. 248-252, above), Beckerath (cf. p. 247, above), and Helfferich (cf. pp. 253-255, above); (2) F. W. Taussig, "International Trade under Depreciated Paper," *Q. J. E.* 31, pp. 387-398; J. W. Angell, *The Theory of International Prices* (Cambridge, Massachusetts, 1926), p. 189; J. H. Williams, "Foreign Exchange, Prices, and the Course of International Trade," *Annals of the American Academy* 89, p. 202; *idem*, "Foreign Exchange under Depreciated Paper," *Jour. Am. Bankers' Ass.* 14, pp. 493-494.

³ This would seem to be true if, as supposed, the exports consisted of consumable goods.

show no change of general price levels nor of the relative positions of imported, exported, and purely domestic commodities; purchasing-power parity would not have changed, nor would the true equilibrium rate.

The more likely consequence of an international loan, on the other hand, is an ultimate or at least long-persisting change in the quantities of goods in both countries. *Part* of the proceeds of the loan will usually go to increasing the productive efficiency of the receiving country; and to an equal degree the efficiency of the lender will not be as great as if the capital had been applied to home industries. This fact in itself stands against the argument of the inflation theory that causation proceeds only from price levels to foreign trade movements, for here the direction of causation is precisely reversed. Furthermore, the additional capital, if we assume part of the loan to be used productively, need not, except by accident, redound equally to the benefit of the receiving country's domestic and exporting industries. That will suffice to alter the relative prices of the two groups of products and distort purchasing-power parity away from true equilibrium, since even in the comparative form of Cassel's parity the rate is calculated upon general price indices.¹

Any other of the factors enumerated above, which by their mere *existence* qualify the positive parity doctrine, will, by *changing* in importance between the base year and subsequent points of time, dislocate the comparative purchasing-power parity from true equilibrium. Finally, even if none of the factors mentioned changed from

¹ The best description of the process of transferring capital under dislocated exchanges is to be found in F. W. Taussig's *International Trade* (New York, 1927), ch. xxvi. The remarks in the foregoing paragraph pertain to the *ultimate* effect of capital transfers, and show how they may cause purchasing-power parity to deviate from equilibrium even *after* the loan has been fully transferred, not merely in exchange bills, but in real goods. If I correctly interpret Professor Taussig's analysis, it pertains to the definitive changes in the rate of exchange and in the "substantive course of international trade" *during* the transfer of the real loan. (This follows from the assumption that there is a larger volume of imports into America than previously, which, outside secondary effects upon productive efficiency in the two countries concerned, would be true only during the loan transfer, i. e. the extraordinary movement of goods which constitute the real loan.) I have laid chief emphasis on the ultimate outcome in the economic structures of the two countries, since deviations of the exchange rate from purchasing-power parity during even the *real* loan transfer might be passed over by the parity theorist as being only "temporary deviations." But after all, Professor Taussig's demonstration of these deviations during capital movements renders purchasing-power parity useless as a *norm*, since the *continuing* existence of such transfers during war and inflation scarcely allows their being regarded as giving rise to merely "temporary deviations" from equilibrium.

their situation in the base year, purchasing-power parity would be a true equilibrium of international exchange only if it were such in the base year, an assumption which is certainly questionable.¹

Despite these material limitations upon purchasing-power parity, the doctrine serves useful purposes. (1) It has called attention to the influence of inflation and the rise of internal prices upon the exchanges. Although its significance is limited to a description only of the *monetary* factors at work, it has "played a great part in recent years as a corrective of the very prevalent tendency to attribute all movements of the foreign exchanges to disturbances in the balance of payments."² (2) Calculations of purchasing-power parity give a rough indication, at least, of where exchanges will stand at various times, when it is clear that capital movements, changing demand, and psychological influences and complications in the way of the international movement of goods are not significant.

B. *The Balance of Payments Theory*

Since this theory stresses the very factors which the parity theory passes over lightly under *ceteris paribus*, we have already by implication called attention to its merits, in treating the shortcomings of purchasing-power parity. On the other hand, the balance of payments theory is not without its own peculiar defects. (1) That form of the theory which treats the foreign exchanges and price levels as independent phenomena — the second group to which we directed our attention — may safely be said to be in error. The influence of internal prices upon exchanges may be exaggerated, but it is real; the influence of exchanges upon prices is patently demonstrated by the post-War period.³ (2) That version of the theory which states that exchanges "cause" the behavior of internal prices sometimes abuses the concept of causation. There are certain instances in which a rise of prices follows *necessarily and inevitably* from the phenomena of foreign trade and the position of the rate of exchange; to

¹ Cf. J. W. Angell, "Monetary Theory and Monetary Policy: Some Recent Discussions," *Q. J. E.* 39, p. 273.

² Hawtrey, *op. cit.*, p. 87.

³ Even such theorists as Angell, who would deny that exchanges "cause" prices and that prices "cause" the exchanges to be what they are, preferring instead to relate both movements to some such basic disturbance as budgetary disequilibrium or lack of confidence, would not uphold the extreme view that exchanges and prices are independent. "Their effects are reciprocal" (*International Prices*, p. 448).

these cases we come presently. When, however, it is argued that advances in the foreign rates cause a shortage of money, or financial embarrassment to certain commercial classes, that these in turn "cause" inflation and a rise of prices, it is evident that the word is not employed in its ordinary meaning. However great the pressure may be upon the central bank, however much further credit extensions and note issues may seem imperative, further inflation is an act of its own authority for which it is answerable. Advancing exchange rates are only the *occasion* for inflation. (3) The balance of payments theory in any form begins with a truism: the supply of and demand for bills of exchange determines the rate of exchange. Relying upon the invulnerability of this proposition, representatives of this school too often lapse into a mere cataloguing of forces increasing or decreasing the supply of or demand for bills. Commonly little or no attention is accorded the influence of internal price structures; more commonly still the whole question as to any less superficial equilibrium than the mere day-to-day market equation is neglected; nearly always there is wholly lacking any attempt to describe the basic equilibrium rate of exchange.¹

C. *The Equilibrium Rate of Exchange under Inflation*

The attempt of parity theorists to define a normal rate of exchange under inflation, as well as the suggestions by its critics as to other factors beside internal price levels bearing upon that rate, combine to create the impression that a sufficiently exhaustive theory should describe the true equilibrium rate in such wise as to embrace all the factors involved and effectuate a synthesis between the apparently opposed lines of causation. I believe that it is possible to *describe* such an equilibrium rate in theoretical terms, although I am forced to doubt the *usefulness* of the concept even under moderate degrees of inflation and aside from certain troublesome complications which arise in the German situation.

Pigou explains very clearly how equilibrium in foreign trade proceeds by degrees.² (x) The superficial equilibrium is a day-to-day

¹ This charge is levied against the payments theory by Hawtrey (*op. cit.*, p. 67). I discover no writer in Germany amongst the balance of payments theorists who undertakes a description of the last two concepts under dislocated exchanges save Karl Helfferich, *Money* (New York, 1927), pp. 548-553.

² *Essays*, pp. 161-162.

balancing of payments. So far as this equilibrium is concerned *in and of itself*, we cannot say that causation runs from commodity prices to exchanges or vice versa: causation runs simply from supply and demand for bills of exchange to the necessary equilibrating rate, and that is the end of the matter.¹ (2) The next degree of equilibrium — a more basic and significant one — is the tendency of any one-sided movement in commodities and services to eliminate itself. Such equilibrium attracts the most attention in theory and leads to the familiar conclusion that imports have to be paid for by exports in the long run. This principle really effectuates a compromise of the opposing views of causation — and to this we return presently. But, as Pigou demonstrates, the equilibrium of values for internationally traded-in commodities and services does not mean that all forces operative on the ratio of international exchange are at rest. Ultimate equilibrium would only be reached when (3) labor and capital bring the same returns *within* one country, whether applied to purely domestic articles or to exports; and (4) when labor and capital bring the same returns in one country as in all others. Only when all four stages of equilibrium are fully worked out can one employ the term “equilibrium rate of exchange” *sans phrase*.

In contrast with the third sort of equilibrium, which is seldom realized, and the fourth sort, which probably never is, the second is sufficiently important in and of itself to afford a practical concept of equilibrium, especially under inflation when the deeper sorts are more than usually held in abeyance. The nature of this second concept is described in Pigou's language, as follows:

There is no equilibrium if (apart from discriminating monopoly) it is impossible, by buying dollars with sterling and then buying American goods with dollars, to obtain and bring into England for sale there any single American good at a less sterling cost than that good could be bought for in England: and there is no equilibrium if, apart from discriminating monopoly, it is possible to send any single English good to America and make, by selling it there, a larger sterling profit than is obtainable by selling it in England. When either of these things is possible, there is a discord between exchange rates and relative price levels, which nature abhors and will endeavor strenuously to correct.²

¹ Except, I may add, for advanced stages of inflation, when the rate of exchange determines internal prices directly. Cf. pp. 291-293, below.

² *Essays*, p. 161. Pigou means by “discriminating monopoly” such monopoly as gives rise to the familiar phenomenon of dumping. A discussion of dislocated exchanges may well disregard this factor as not *especially* significant for inflation conditions. It is quite a different phenomenon from the so-called “Valuta-dumping.”

Exchange equilibrium applies only to internationally traded goods and services. "It means only that nobody can gain by diverting a unit of any kind of product, that might have been sold in the English market, to the American market, or vice versa."¹ In other words, the prices of internationally traded products and the rates of exchange tend to conformity in such wise that no unusual gains accrue to exportation or importation. So stated, exchange equilibrium is a truism.² It is, furthermore, a truism which applies only to goods and services, and not to capital transfers *per se*, except to those transfers of real capital goods which result from a discrepancy between exchanges and *prices* of internationally traded-in commodities. This phenomenon rarely occurs in its genuine form, i. e. where the transfer of capital from one country to another consists at the very outset of a movement of actual capital goods.³ Generally capital moves first in the form of securities, bills of exchange, or gold, which subsequently draw in goods, some of which are productive instruments. Exchange equilibrium tells us nothing as to *why* the more usual form of capital *fund* transferal occurs: it is not the result of a divergence of exchange rates and the prices of traded goods, but of political motives, differences in *interest* rates, differences between two countries in purely *domestic* prices, such as wages and rents, which induce the establishment of branch industries abroad, etc.

With an accurate view before us as to what "exchange equilibrium" really is, we may proceed to appraise its significance as a norm for dislocated exchanges. First as to its merits. (1) It avoids most of the errors of purchasing-power parity. As a part of the situation in which exchange equilibrium as defined by Pigou exists, there is a rate of exchange which at a given moment gives no special import or export "bonus," a rate which I shall for convenience call the "neutral" rate. It is this neutral rate, and not purchasing-power parity, which describes the second degree of equilibrium delineated above. In the first place, the neutral rate as of a given date is defined so as to allow for *existing* one-sided obstacles to trade—differential freight rates, tariff barriers, embargoes, etc. But furthermore, it will be moved, as the true equilibrium rate must be and as even the comparative form of purchasing parity is not, by all *changes* in these differentials. Since the neutral rate applies only to traded

¹ *Loc. cit.*

² Cf. Taussig, *International Trade*, p. 357; Keynes, *op. cit.*, pp. 100-101.

³ One such instance has been previously cited. Cf. p. 217, above.

goods and services, it is moved, but not distorted from true equilibrium as the Casselian norm would be by changes in the relative position of export and import prices to the general domestic price index. Finally, it includes imported and exported services, the omission of which renders purchasing parity an unreliable index. (2) The concept of exchange equilibrium, with the neutral rate as its corollary, gives the real meaning of such expressions as "an unduly low (or high) rate on the mark," or "greater (or less) depreciation of the mark abroad than at home." Reference to the exact wording of Pigou's statement will show that it describes the situation in which no export or import bonus would exist, where all forces involved directly in commodity and service intercourse are equilibrated. (3) Exchange equilibrium indicates the grounds for at least a partial compromise between parity and balance of payments theories. When exchanges and prices of traded commodities and services are out of alignment, equilibrium is restored (if ever) by *mutual adjustment*; it is not restored simply by a movement of prices to the prevailing rate of exchange, as a very dogmatic balance of payments theorist might hold,¹ nor simply by a movement of the rate of exchange to prevailing prices, as the parity theorist maintains. Under inconvertible conditions more of the compensation has to be done by the rate of exchange than by prices, since for the influence of gold flows *plus* the movement of commodities and services in the opposite direction there is substituted merely the compensatory action of commodity flows.

The mutual dependence referred to here is *not* a case of "short-circuited" causation,² such as characterized the German inflation, *nor* of common dependence on a basic third factor, such as budgetary disequilibrium.

¹ The contention that the national prices of internationally traded-in commodities conform to the level set by the world market has sometimes been pushed so far as to imply that no divergence is ever possible. On the contrary, it is apparent that "temporarily and under disturbed conditions the prices in different countries for similar goods which enter into international trade may be out of harmony with exchange rates after allowing for transportation and other factors" (United States Senate, Commission of Gold and Silver Inquiry, Foreign Currency and Exchange Investigation, Serial 9, vol. 1, *European Currency and Finance*, Washington, 1925, p. 38). "It is true . . . that wholesale prices of commodities entering into foreign trade must necessarily be almost the same in all trading areas, if by this is meant that the *gold values* must be the same. But it does not follow from this that prices expressed in terms of local currencies will everywhere show the same development," says the writer of the appendix to the English edition of Helfferich's *Money*, p. 632. (*Italics author's.*)

² Cf. pp. 291-293, below.

The approximation of the rate of exchange to the ratio of purchasing power in terms of foreign trade products does not depend upon equilibrium being reached in the foreign exchange market. . . . The rate of exchange will itself have to change in order to regain equilibrium and the price level in one or both countries must change with it.¹

From the angle of balance of trade equilibrium, the second degree spoken of, adjustment comes about both by a movement of the neutral rate to prices and a movement of prices to the neutral rate; and hence neither parity nor balance of payments theory is in itself sufficient.² (4) A further merit of this concept of equilibrium lies in the fact — already clearly implied — that it responds as much to changes in international demand as to internal price levels. (5) Exchange equilibrium, within the limitations already described, actually achieves what the proponents of purchasing-power parity have aspired to: the formulation of a description of equilibrium which shall be as valid for gold as for dislocated standards. It supplants the wholly indefensible notion that mint par in the former case represents equilibrium,³ a fallacy combatted for many years by the German nominalists.

Unfortunately the merits of exchange equilibrium pertain to its conceptual excellence rather than to its pragmatic justification. In essence, it states that a difference in the purchasing power of money for traded goods and services between two countries will be eliminated, partly through a rise in the domestic prices for these goods in the "cheap" country, partly through a rise in its exchange quotation abroad, and, for the "dear" country, the converse of both. This generalization has both the merits and limitations of a truism: it is theoretically valid, but it is not particularly useful. The animating force in discussions of the nature of the equilibrium rate of exchange has been the quest for a basis by which the future developments of actual rates might be predicted. For this purpose, exchange equilibrium in the Pigou sense has the merit of calling attention to the many variables involved, but its very inclusiveness indicates the number of almost insuperable statistical difficulties in the problem.

¹ Hawtrey, *op. cit.*, p. 72.

² Cf. in similar vein S. S. Katzenellenbaum, *Russian Currency and Banking 1914-1924* (London, 1925), pp. 42-48; J. M. Keynes, *op. cit.*, p. 105; D. H. Robertson, *op. cit.*, pp. 77-78; John Van Sickle, "The Fallacy of a Capital Levy," *J. P. E.* 34, pp. 190-191.

³ Cf. Gustav Cassel, *Money and Foreign Exchange after 1914*, pp. 180-186; Hans Neisser, *Der Tauschwert des Geldes* (Jena, 1928), p. 106; Pigou, *op. cit.*, p. 163, note 1.

Suppose we begin upon the rigorously simplifying assumption that the domestic and international productivity of labor and capital and its distribution between industries remains constant, and that the quantity of money is not changing in either country. The available data toward computing the neutral exchange rate will be actual exchange rates, figures or estimates of various exports and imports, and indices of prices of traded goods and services. I do not presume to be able to sketch the technique of procedure nor to exhaust the pertinent variables; but it is apparent that two appallingly great collections of information would be required. In the first place, in order to know what rate would set exports and imports in equilibrium, it will be necessary to discover changes in the volume of each commodity or service exported by each country when the price changes, and this requires information upon the elasticity of the demand and supply schedules of each good. But in the second place, since the list of traded commodities and services is itself a variable depending upon export and import prices, it would be necessary also to know the demand and supply conditions for all goods and services which stand in the position of potential substitutes or additions to the list.¹

Exchange equilibrium may be realized, as Pigou explains, even if differences persist in the earnings of labor and capital between foreign trade and purely domestic industries within a country and between the same industry at home and abroad. Every change in these differentials, by the same token, will alter the position of the neutral exchange rate, whether the movement of labor and capital domestically or internationally be toward or counter to the realization of uniform returns. In other words, the definiteness of exchange equilibrium, got by making it a superficial sort of equilibrium, is purchased at the expense of having it altered by all changes toward or away from the more basic equilibria of factor earnings.

Dislocated exchanges are frequently the accompaniment of war; and war leads inevitably to pronounced movements of labor and capital within the domestic system of production and to unusual types and magnitudes of capital movements between countries. The conception of the neutral rate is essentially "short run," e. g. it describes the exchange rate relative to domestic price levels of traded goods which is appropriate during the transfer of capital between

¹ Professor Taussig calls questions of this sort the "real problem" of the exchange rate (F. W. Taussig, *International Trade*, p. 357).

countries, and thus it avoids the artificiality of so "long run" an idea of equilibrium that it could only be realized after the transfer had been completed and the capital fully absorbed into domestic industry. But this greater realism imposes upon the statistician who attempts to compute the neutral rate the additional task of discovering not only demand and supply intensities and elasticities for all commodities involved, but also the effect upon them produced by capital transfers. If this seems to be an extravagant requirement upon his capacities, the prospect becomes all the more hopeless when the dislocation of exchange is attended by inflation, particularly when it progresses fitfully and unpredictably. It will be emphasized in the next section, moreover, that a great many of the underlying "real" changes — reciprocal demand variations, capital movements, etc. — are themselves functions of inflation.

If the neutral rate of exchange is impossible of statistical determination, it may be natural to fall back upon purchasing-power parity as an imperfect, but none the less approximate, representation.¹ Such a course seems to me a counsel of desperation. It is sometimes said that the calculated purchasing-power parities at least apprehend the *monetary* influence upon exchanges, because it is based upon movements of *general* domestic price levels. In fact, however, the reasoning holds neither for mild nor extreme inflation. The former case, resembling that of exchanges under open metallic standards, may show movements of the *general* price level which are produced by alterations in non-monetary factors, for changes in the balance of trade traceable to changes in real demand intensity affect the volume of goods upon domestic markets. The case of extreme inflation, much as the less dramatic increase of purchasing power in the boom period of cycles, usually involves so intimate an interaction between monetary and non-monetary factors that they become virtually indistinguishable in their composite effect upon exchange. For example, was the cumulative downward pressure upon mark exchange exercised by the necessity of meeting an absolute amount of reparations in terms of gold when mark buyers were frightened away rather than attracted by its decline, a monetary or non-monetary factor? The flight of capital depressed German exchange. Purchasing-power parity does not show its influence, and yet, outside the

¹ E. g.: Flux, *op. cit.*, p. 9; Keynes in his earlier *Monetary Reform*, pp. 111-116; and others, *cf.* p. 266, note 2 above. In his *A Treatise on Money* (New York, 1930), I, 336, Keynes seems to reject the doctrine completely.

fear of expropriative taxation, the depreciation of the mark at home chiefly accounted for the phenomenon.

Unless the differential effects of capital movements and changed intensities of demand upon export and import prices accidentally compensated each other so as to produce the same movement as that of the general price level, purchasing-power parity would give no index of equilibrium. If the summary of opinion in the next section on the German experience be granted any significance, it shows that, far from mutually compensating each other, these factors worked in the same direction in this particular instance. The net effect of monetary inflation and the real balance of payments factors upon the exchange rate depends upon the stage of inflation and the country in question.

Comparisons of actual exchange rates with computed purchasing-power parities have been used as much against the theory as in support of it. On the other hand, the statistics necessary to a calculation of the Pigou type of neutral rate do not exist. If it is impossible to avoid the conclusion that the equilibrium rate cannot be empirically derived, it should be no more startling or nihilistic than the same conclusion for the true equilibrium price for a share of stock on Exchange. In both cases there exist statistical summaries of important elements in the situation, but the weighting of the factors is a matter of informed opinion.

II. THE INFLATION IN GERMANY

A. *Its Chief Characteristics*

In the foregoing portion of the present chapter, the character of foreign exchange rate equilibrium and its relation to prices has been described in general terms. We turn now to the particular circumstances of Germany during and after the War, having regard not only to the course of mark exchange but also to domestic monetary developments.

1. *Variations in Volume of Money and Internal Prices.* From the beginning of the War until the end of 1919, prices within Germany lagged behind the increases of total circulating media; from early in 1920 until August, 1921, volume increased steadily, while prices, after an initial upward spurt, maintained a fairly even level; thenceforward, with the exception of several months toward the end of

1923, prices took a decided lead over volume. The *Statistisches Reichsamt* price index (on a 1913 base) stood at 2.17 for 1918, at 8.03 for December, 1919, at 14.3 for July, 1921, while the corresponding indices of circulation were 3.75, 8.27, and 14.3. In the five months following July, 1921, prices rose to 34.9 and circulation to 20.3; during 1922, prices rose to 1,475 and circulation to 213.4; and thereafter both increased enormously until the stabilization of November, 1923.¹

During the War, the lag of prices was partly attributed by a good many writers, such as Eulenburg, Eucken, Helfferich, and Pohle,² to the expanded circulation sphere for German currency, though Cassel attempted to show that German banks of issue in the occupied territories retained the local money, so that the increased need for marks was at best small.³ Helfferich believed that "large sums were locked up in army pay offices," and Eulenburg called attention to the reliance of the military organization generally upon cash payments.⁴ A general tendency to hoard notes out of anxiety for the future, particularly amongst the peasants, was remarked upon by Eucken, Mises, Lansburgh, Pohle, Prion, and Schumpeter.⁵ Lansburgh and Pohle were seconded by Schumpeter in regarding the breakdown of credit arrangements in the domestic economy as an important reason why the country could absorb money with a less than proportional effect upon prices. Naturally, also, the exportation of marks relieved the pressure upon their domestic value, as a number of the same writers maintain. Outside these reasons offered by German theorists, attention should be called to the hoarding explanation with Graham, Katzenellenbaum, Keynes, and Walré de Bordes.⁶ Broad classes of the population either believed in the eventual recovery of the mark or cherished a delusion as to the value constancy of money.

With the weakening of this phenomenon early in 1920 when the Versailles Treaty went into effect, and the definite reversal a year and a half later as a result of the London Ultimatum, there appeared

¹ Bela von Jankovich, *Beiträge zur Theorie des Geldes* (Vienna, 1926), pp. 16, 17, 21, 143; Angell, *International Prices*, pp. 440-441; Graham, *op. cit.*, pp. 156-159.

² Cf. pp. 245, 227, 254, 219, above.

³ Cassel, *Money after 1914*, pp. 40-41.

⁴ Helfferich, *op. cit.*, p. 231; Franz Eulenburg, "Inflation," *Archiv* 45, pp. 490-496.

⁵ Cf. pp. 227, 216, 218, 219, 263, 134, above.

⁶ Graham, *op. cit.*, p. 115; S. S. Katzenellenbaum, *op. cit.*, p. 26; Keynes, *Monetary Reform*, p. 89; Walré de Bordes, *op. cit.*, p. 162.

a very widespread tendency to link the more rapid advance of prices than of circulation with accelerated velocity. Most of the quantity theorists, such as Eucken, Hahn, Mises, and Wicksell,¹ viewed causation as passing from velocity to prices; and amongst writers outside Germany the same explanation was very widely accepted;² Walré de Bordes advanced the same theory for the precipitous decline of the Austrian krone.

For the lag of prices behind volume of purchasing power for the five years between August, 1914, and the latter part of 1919, the situation seems to be adequately explained by the wartime extension of mark territory and the decline of velocity, both through the greater use of cash and through hoarding. The period intervening between the end of 1919 and the middle of 1921 presents complications which will be treated later. But from the latter point forward to the stabilization, it does not appear to be possible to explain the outstripping of note issue by prices upon quantity theory lines of causation. We have already noted the objection raised by Bortkiewicz and Neisser against the *Schwarzepetertheorie* that accelerated velocity figured rather as a consequence of inflation than as a cause.³ The two modes of decreasing balances, they argued, are reducing the magnitude of reserves for contingencies and shortening the payment periods, for the idle and working parts of unspent margins respectively. Neither of these reductions would have been called for had not prices been advancing already; and so the mainspring of the movement must have been note issue or mistrust of the future. Under the combined influence of these quantitative and qualitative factors, prices advanced directly, people reduced their cash holdings, and entrepreneurs shortened the payment period to cope with the "shortage of money." This view of the matter is also, it seems to me, too dogmatic; but it suggests how the quantity theory line of causation must be emended.

Actually the relationship between velocity and prices was one of mutual interaction. Contrary to Bortkiewicz and Neisser's conten-

¹ Walter Eucken, *Kritische Betrachtungen zum deutschen Geldproblem* (Jena, 1923), ch. ii, sec. 3; Hahn, cf. p. 222, above; Mises, cf. p. 217, above; and Knut Wicksell, *Vorlesungen über Nationalökonomie auf Grundlage des Marginalprinzips*, vol. II, "Geld und Kredit" (Jena, 1922), pp. 172-173.

² Angell, *op. cit.*, pp. 441-442; Flux, *op. cit.*, pp. 99, 110-111; Hawtrey, *op. cit.*, p. 257; Keynes, *Monetary Reform*, pp. 50-54; Pigou, *op. cit.*, p. 196, note; Taussig, *International Trade*, p. 390; and Van Sickle, *J. P. E.* 34, p. 188.

³ Cf. pp. 234-236, above.

tion, the reduction of margins can proceed in its own right, occasioned, it is true, by increased note issue, but traceable to another set of decisions: those of private balance owners as against the decisions of the treasury or central bank. On the other hand nothing prevents price quotations from advancing *directly* from the public's anticipation of further note issue and further depreciation, so that the increase of velocity (and for that matter also the increase of volume) comes as a base thrust in afterwards to make possible *realized* prices at their contractual level. This feature of inflation has been dwelt upon by Graham in connection with events in Germany and by Rogers for France;¹ and Miss Dulles apparently regards velocity as both cause and effect in her study of the post-War history of the franc.² The presence of causation from prices to velocity in reverse order to quantity theory expectation is certainly attested by chronological sequence and the contemporary *shortage of money*. At the same time, nothing prevents enhanced velocity, once it is realized, from giving added momentum to prices and so functioning as a contributory cause, indeed a very important one. In this respect war-time inflation simply magnifies to grotesque proportions the mutual interplay of psychological and monetary elements observed in the upswing of business cycles.

2. *The Shortage of Money*. If the peculiarly anomalous fact of a shortage of money is to occur in the midst of inflation, one might naturally suppose that its earliest appearance could not antedate the juncture at which prices begin to mount more rapidly than circulating medium. But whereas the latter phenomenon, as we have observed, began in the fall of 1921, the shortage of money was complained of as early as the winter of 1918-19. One would not expect the explanations of money shortage formulated in a period during which prices lagged behind note issue to assume the same character as those advanced in the later period marked by the reverse relationship.

Writing in 1918, Schumpeter expressed the opinion that the complaints of a money shortage meant only an insufficiency in the provision of small change; and in 1919 Dalberg attributed the price rise to credit expansion with the increase of notes as a lagging complement.³ Interpreting the shortage of money in these terms, it is

¹ Graham, *op. cit.*, p. 114; J. H. Rogers, *The Process of Inflation in France, 1914-1927* (New York, 1929), p. 348.

² E. L. Dulles, *The French Franc, 1914-1928* (New York, 1929), pp. 19, 450.

³ Joseph Schumpeter, "Das Sozialprodukt und die Rechenpfennige," *Archiv* 44, p. 651; Rudolf Dalberg, *Die Entwertung des Geldes*, 2nd ed., (Berlin, 1919), pp. 52-61.

possible with Lotz to view the rise of prices itself as the explanation of the peculiar phenomenon.¹ After the turn of the price-quantity relationship in mid-1921, the theories assumed a different character. Thus in 1923 Mises held that prices caused the shortage; but in place of relying upon the contrast of money and credit, he assigned the price-raising rôle to *anticipated* increases in circulating media and discovered the shortage in actually available media of all sorts.² This view inhered also in Bortkiewicz's belief that prices were simply marked up directly by merchants who mistrusted the future, so that existing quantities of money and credit did not cover the needs of trade.³ A new point of departure appeared with the recognition of the influence extending from exchange rates to domestic prices. Analyzing the contemporary monetary situation in 1923, Eucken said that the flood of returning mark notes annihilated the demand for German exchange abroad, and caused foreign rates in Germany to advance sharply and prices to soar; the volume of notes was sufficient to raise the general price level by way of a sympathetic movement paralleling import prices, but insufficient to carry on transactions throughout the country at the new level.⁴ Helfferich, who similarly ascribed the rise of wages and prices to the high rates on foreign exchange, pointed to the fact that, whereas the total gold value of the Reichsbank's circulation amounted to 1/20 of its pre-War aggregate, it was scarcely to be supposed that transactions had fallen to 1/20 their former level. The cause of a shortage of money was apparent.⁵ Even Cassel, by what cannot be regarded as altogether orthodox purchasing-power parity reasoning, pictured the situation as the result of the absorption of money by the foreign exchange markets, so that the remainder of the country was denuded of cash.⁶

The shortage of money after the middle of 1921, when internal prices began to assume a chronological precedence and an absolute margin over total circulation, is not difficult of explanation. German and foreign commentators, even those regularly adhering to quan-

¹ Walter Lotz, *Das Papiergeld* (Berlin, 1920), pp. 17-24.

² Ludwig Mises, "Die geldtheoretische Seite des Stabilisierungsproblems," *Verein* 164, Pt. II, 5-13.

³ Ludwig Bortkiewicz, "Die Ursachen einer potenzierten Wirkung des vermehrten Geldumlaufs auf das Preisniveau," *Verein* 170, p. 266.

⁴ Eucken, *Betrachtungen*, ch. iii, sec. 1.

⁵ Helfferich, *op. cit.*, p. 599.

⁶ Gustav Cassel, *Das Stabilisierungsproblem* (Leipzig, 1926), p. 40.

tity theory causation, rather generally agreed that, in this particular phase of inflation, prices advanced either directly under the influence of "mistrust," "speculation," "anticipation," or other psychological factors, or in sympathy with rates of exchange and the prices of imported commodities. Further issue of notes and extensions of bank loans, as well as the accelerated tempo of monetary circulation, *followed* the lead taken by prices. But since this happened only with a temporal lag, the stock of money and credit at a given moment was inadequate for the money work to be done.

For the complaint of a money shortage toward the end of the period when circulating medium as a whole outstripped internal price advances, the explanation takes on a wholly different character. There the shortage was peculiarly one of hand-to-hand money, not of money in the generic sense, in all probability. It is not possible to assert this with complete assurance, as the ratio of expansion of commercial bank deposits to money in circulation in Germany remained at an absolutely lower level during the inflation period prior to 1922 than it had been before the War, and through the years 1916-18 it had even fallen year by year.¹ These facts would, however, be quite compatible with the shortage of money from its appearance sometime in 1918 to the end of 1919, if, as almost all German observers agreed, there was a pronounced increase in the proportion of total transactions which had to be carried through with actual currency. Schumpeter's contemporary judgment of the character of the money shortage in the winter of 1918 thus appears to be justified.

Between the time when the Treaty of Versailles became effective in January, 1920, and the beginning of the monetary debacle in May, 1921, with the London Ultimatum, the monetary shortage persisted, but under a constellation of factors unlike the preceding or succeeding periods. Before 1920 internal prices lagged behind circulating medium; after July, 1921, the converse relation prevailed. During the entire period now being considered the curve of internal prices lay above that of circulating medium, both curves being drawn upon the basis of multiples of 1913 figures. The effect of the Versailles Treaty was immediately to double prices; from December, 1919, to March, 1920, the index bounded upward from 8.03 to 17.1, although quantity of money increased only from 8.27 to 9.8. Thereafter to the middle of 1921 prices declined somewhat, whereas note

¹ Graham, *op. cit.*, pp. 66-69.

circulation persistently advanced, until both series coincided at 14.3 at the end of the period.¹

One method of explaining the price decline in conjunction with continued note issues is a retarding of velocity; and if one arrives at velocity as Graham does by dividing price index by circulation index, the explanation would apparently have to be exhaustive.² There is, indeed, good reason to suppose that a reaction took place from the extreme pessimism accompanying the Treaty enactment, and that velocity did decline from March, 1920. On the other hand, equilibrium and a shortage of money are incompatible, and one of the price-restraining forces might have been precisely the conversion of too high quoted prices into "correctly high" realized prices through the new money issues. This view naturally implies that the quoted prices came to their high level originally by psychological rather than mechanical channels; but this is not improbable in view of their sky-rocketing career during the first quarter of 1920.

In fine, the phenomenon progressed as follows. The initial variety of money shortage in the form of a dearth of small change was gradually and automatically relieved toward the end of the first period at the close of 1919 by the rise of prices itself. When prices doubled at the outset of the second period in less than three months, a general shortage developed, but relaxed somewhat in the ensuing fifteen months under pressure of equilibrating forces. The shortage reappeared with great severity with the beginning of the third period and increased until the stabilization, despite violent efforts to relieve it by all sorts of "emergency issues." Undoubtedly these measures resembled further dosages of opium to "relieve" an addict. Nevertheless, from the moment when the special small change shortage was supplanted by a general insufficiency of circulating medium, the paradoxical phenomenon stood as *prima facie* evidence against the absolute accuracy of an equation of exchange on the basis of quoted prices and against the dogmatic application of quantity theory causation in these circumstances.

3. *Variations in the External and Internal Values of the Mark.* From the outbreak of the War until March, 1916, the calculated external value³ of the mark remained above the internal value;

¹ Cf. Graham, *op. cit.*, pp. 156-157.

² *Ibid.*, pp. 105-106.

³ United States Senate, Foreign Currency Investigation, pp. 533-535; Graham, *op. cit.*, p. 162. These calculations involve the objections raised against purchasing-power parity, but this is true of all available indices of external value.

thereafter it sank below and persisted in this relation to the end of inflation. Practically no attention has been given the first period, but this is easily explicable from several angles. The external agio persisted for only a year and a half as against seven years for the reverse relation; only once, in July, 1915, did it amount to as much as 29 per cent, while generally it was much less; no particularly important consequences attended it. The phenomenon probably reflected directly the German military successes during the period, and reveals the presence of psychological factors even in the milder phases of inflation.¹

The decline of mark exchange and the purchasing power of the mark abroad after the early months of 1916 was so great and so continuous as to arouse widespread comment. A common explanation referred to a lack of foreign confidence in Germany's future. Even outside the professed "psychological" school, certain parity theorists, including Cassel himself, Eucken, and Machlup,² ascribed the adverse exchange-price differential to distrust. It was also generally conceded that German limitations on exporting reacted seriously against her exchange. In fact, once the subject of obstacles to exportation has been broached, and with it the failure of the one-sided movement of goods to eliminate itself, there is no reason why all the factors making for an unfavorable balance of payments should not implicitly become explanations of the greater depreciation of the mark in foreign quarters than at home. For the benefit of those who continue to believe that an unfavorable balance of *payments* is meaningless because it is always in balance, let it be repeated that this objection overlooks the fact that the *terms* upon which goods, services, securities, gold, and paper currency are traded between two countries may become more and more adverse to one country. While the terms are undergoing this deterioration for one country, it has an adverse balance of payments, no matter if a corrective process may eventually be started, and aside from the necessarily continuous equation of all items on either hand in the aggregate. These terms include export and import prices within the countries involved and the rate of exchange.

Statistics for particular balance of payments items were not pub-

¹ An excellent portrayal of the connection between political events and foreign exchange is given by Elemér Hantos, *Das Geldproblem in Mitteleuropa* (Jena, 1925), Appendix I. The study is an enlargement of Hantos' memorandum to the Economic Council of the League on inflation in the central European countries from 1914 to 1924.

² Cf. pp. 211, 229, 230, above.

lished in Germany from 1913 to 1921; but what their general character would have been is revealed by the contemporary judgment of economists and by the statistics published from 1921 onward. The many factors emphasized by the balance theorists at the time have already been reviewed;¹ and the analysis of statistical data available later has been competently carried through in several special studies.² Between August, 1914, and December 31, 1918, Germany's adverse trade balance has been estimated at 11 million gold marks, and between 1919 and 1923 it is estimated to have amounted to an equal sum.³ For this excess, Germany exported domestic and foreign securities, gold, and mark currency, and borrowed the balance. From the beginning of the trade data in May, 1921, to the end of 1923, Graham finds that visible exports did actually show an upward, and visible imports a downward trend⁴ in response to the "export bonus" relation between prices and exchange. But he refuses to admit the excess of imports (which persisted despite the tendency toward correction) to be a true cause, amongst others, of mark exchange depreciation. The unfavorable balance indicated only that depreciation had not gone far enough to establish equilibrium.⁵ In this argument Graham forgets that the same reasoning may be applied to anything which Germany exported and to her sale of mark currency, concerning which he writes: "The significant thing for exchange rates is not the sale, *qua* sale, but the *terms* upon which the seller and buyer of a given money are ready to part with the currencies they respectively possess."⁶ To command as great an excess of imports as possible, Germany sacrificed everything saleable at disastrously low values. This merely reasserts the generally conceded principle that increased intensity of demand turns the exchanges and the balance of trade against the country demanding.

Under the regime of the *Reichskommissar für Ein- und Ausfuhrbe- willigungen*, Germany encountered other factors unfavorable to her exchange. That obstacles to exporting work in this fashion has been generally contended; but Bonn and Liefmann point out that obstacles to *importing* may also operate adversely to the rate if the

¹ Cf. pp. 27-257, above.

² Angell, *op. cit.*, pp. 440-443, 534; Graham, *op. cit.*, pp. 209-238; H. G. Moulton and Constantine McGuire, *Germany's Capacity to Pay* (New York, 1923), pp. 284-302.

³ United States Senate, Foreign Currency Investigation, p. 408.

⁴ *Hyper-inflation*, pp. 209-225.

⁵ *Ibid.*, p. 25. Graham is quoting Hawtrey.

⁶ *Ibid.*, p. 28. (Italics his.)

transfer of labor and capital into lines of production for export less dependent upon foreign raw materials is slow or inadequate.

The sale of marks abroad in large volume,¹ it has been argued in an earlier chapter, relieved the pressure upon the foreign exchanges in Germany; and if this mechanical effect were not offset by an adverse psychological effect on the markets of the receiving countries, the process would buoy up the mark rate.² But that this costless purchasing of imports entailed a later cost has not escaped most observers. Eventually sums remaining abroad did further the undervaluation of the mark by an adverse effect on the temper of the market, as Beckerath and Pohle observed.³ The mere presence of so much paper was a constant menace to attempts at stabilization.⁴ When some of the notes actually did return, the foreign demand for German exchange practically disappeared and the disparity between the external and internal values of the mark became more and more pronounced.⁵

The inflation was attended also by a "flight of capital" and, in its final stages, by a "flight from the currency," both of which were often spoken of as a "flight from the mark." The phenomena were distinct, but both gave rise to new and insistent demand for foreign bills of exchange and helped to explain the mark's low external value. In addition to the chief form of capital flight, which consisted in making clandestine deposits in neutral countries' banks and purchasing foreign exchange bills to hold, it also took the form of leaving the proceeds of export sales abroad.⁶ The flight from the currency assumed the form initially of reckoning in a relatively stable foreign money; but as the inflation proceeded, it meant the displacement of the depreciated marks through the use of foreign currency and exchange bills as media of transfer and accumulation.⁷ When this stage

¹ Cf. *ibid.*, ch. x, and Moulton and McGuire, *op. cit.*, Appendix B, for statistics.

² Cf. p. 213, and p. 214, note 1 above.

³ Herbert Beckerath, *Die Markvaluta* (Jena, 1920), p. 11; Ludwig Pohle, *Geldentwertung, Valutafrage, und Währungsreform* (Leipzig, 1920), p. 29.

⁴ Cf. Otto Heyn, "Visserings Währungsreformvorschläge," *Bankarchiv* 19, nos. 12-13; Willi Prion, *Inflation und Geldentwertung* (Berlin, 1919), pp. 65-67.

⁵ Cf. Bonn and Eucken, pp. 250, 228, above.

⁶ Cf. Beckerath, *op. cit.*, pp. 14-18; Richard Kerschagl, *Theorie des Geldes und der Geldwirtschaft* (Jena, 1923), pp. 24, 117, 119; Bonn and Pohle, pp. 249, 219, above.

⁷ Cf. Henry Behnsen and Werner Genzmer, *Die Folgen der Markentwertung für uns und die anderen* (Leipzig, 1921), p. 96; Ludwig Mises, *Theorie des Geldes und der Umlaufsmittel*, 2nd ed. (Munich, 1924), pp. 211-212; *idem* "Die geldtheoretische Seite des Stabilisierungsproblems" *Verein* 164, Pt. II, 5-13; Joseph Schumpeter, "Das Sozialprodukt und die Rechenpfennige," *Archiv* 44, p. 683, note.

was reached, it was only a matter of theoretical speculation as to how long it would be until the mark was utterly worthless; but meanwhile the additional pressure on the exchanges widened the *Valutaspannung*. Finally, with all writers comes an emphasis upon the pressure of cash reparations as the dominating factor following the London Ultimatum.

The lag of prices behind exchanges and the lag of the mark's internal behind its external depreciation have been explained by writers outside Germany in much the same terms. Taussig believed that the bounty on exports arose from the fact that the newly created purchasing power turned primarily toward the exchange market to command foreign foodstuffs or to pay on reparation account, a bounty augmented by the purchase of bills to transfer funds outward for security.¹ Flux attributed the spread to the lethargy of commodity prices compared with the mobility of exchange rates, while Angell traced it to the confidence of the home country in its own future as against the scepticism of foreign financiers.² The flight from the currency has been given general recognition as a potent factor in the final collapse of mark exchange,³ and the same is true of the capital exodus. We have already seen that Cassel depreciates the seriousness of this element on the ground that Germany could not possibly have had a favorable balance but that this would be an absolute requisite if real capital were to flow outward. The only sense which he attaches to capital export for Germany was the selling out of its securities and currency for foreign stable values, and this amounted to little in the extreme stages of inflation.⁴ Cassel seems to be overly meticulous in insisting upon the sense of *real* capital export, inasmuch as the transfer of purchasing power is all that is usually implied in the jargon of international trade. In the second sense, the fact that capital export through selling German securities and marks had almost ceased in 1923 does not on that account wholly deprive the matter of significance. It spells the complete playing out of one channel through which Germany could export, the logical conclusion to the process of offering these particular items at lower and lower values, so that the demand for foreign valuta now fell with

¹ *Op. cit.*, pp. 389, 391.

² Flux, *op. cit.*, p. 94; Angell, *op. cit.*, p. 440.

³ Cf. Hawtrey, *op. cit.*, pp. 251-258; Keynes, *op. cit.*, p. 51; Nogaro, *op. cit.*, p. 193; Taussig, *op. cit.*, p. 391; and Van Sickle, *J. P. E.* 34, p. 188. Walré de Bordes makes the same contention regarding the Austrian krone, *op. cit.*, pp. 189-195.

⁴ Cassel, *Stabilisierungsprobleme*, pp. 59-66.

full weight upon the already shrunken commodity and service exports. It represented the flight of capital pushed to a suicidal extreme.

Other forms of capital export remained, however, through the device of retaining the receipts from export sales in foreign banks, dwelt upon by Walré de Bordes, Taussig, and Nogaro.¹ Probably the adverse movement was as much initiated from abroad as from the German side. Alfred Marshall wrote in 1880 concerning a similar situation:

But the real cause [of the undervaluation of the rouble abroad] . . . is a general distrust of Russia's economic future, which makes investors desire to withdraw their capital from Russia; and at the same time that it makes the price of the rouble fall, and so long as they are withdrawing capital, the exchanges must necessarily be such as to give a general bounty on exportation from Russia.²

Closely allied to the capital flight was the payment of reparations. The particular significance of this exodus of purchasing power was its "self-inflammatory" character, in Graham's felicitous phrase. Being stated in absolute amounts of a foreign currency, the magnitude of reparation payments became larger in German money the greater the effort to pay them. It could work against itself indefinitely. Taken in conjunction with the flight of capital and the flight from the currency, it is adequate to explain the *Valutaspannung* existing from July, 1921, until the last months of 1923.

4. *The Behavior of the Total Gold Value of Mark Circulation.* The joint product of a general domestic price level index multiplied by the outstanding mark circulation on the one hand and the purchasing power of the mark in some gold standard country on the other is the total gold value of mark circulation.³ Looking aside from short period variations, we find that this aggregate increased steadily from the beginning of the War until July, 1919, and that it decreased thereafter until stabilization. In somewhat greater detail its movements were these: an increase from 4.5 million dollars in June, 1918, to a maximum of 6.7 in June, 1919; a precipitous decline from that

¹ Walré de Bordes, *loc. cit.*; Taussig, *loc. cit.*; Nogaro, *op. cit.*, p. 63.

² Alfred Marshall, *Money, Credit, and Commerce* (London, 1923), p. 317; *idem*, *Official Papers* (London, 1926), p. 174.

³ For purposes of this total, calculations of purchasing-power parity involve no such error as they do for the equilibrium rate of exchange, inasmuch as goods and services not entering into foreign trade are legitimately included.

point to 1.7 in February, 1920, and a recovery to 2.9 in July, 1920; thereafter, with some inequalities, a shrinkage to .101 in October, 1923, just before stabilization.¹

A critical survey of the metallist school of monetary theory in Part I left the question unanswered as to the truth of its contention that purchasing power under inconvertible conditions depends upon the prospects of gold redemption. If the German inflation be taken as anything approaching a fair test of this theorem, the answer must be a decisive negative. Gold reserves of the Reichsbank remained at about 2.5 billion marks from July, 1915, to June, 1918, while total gold value of Reichsbank issues increased from 879 to 2,723 million dollars, or more than treble;² from June, 1918, to June, 1919, Reichsbank gold reserves fell to slightly over 1 billion marks, while total gold value of all marks in circulation *rose* by one-half; from June, 1919, to February, 1920, gold reserves remained constant, while total gold value declined approximately 78 per cent; and finally from February, 1920, to February, 1923, gold reserves remained constant, while total gold value shrank by an *additional* 86 per cent.³ On a specimen date, January 31, 1923, the total paper circulation aggregated 3 trillion marks, worth at the current exchange on dollars 172 million gold marks, although the Reichsbank's gold reserve amounted on that day to 954 million marks.⁴

The complete disparity of movements in the value of a paper mark and its aliquot part of gold reserves seems to demonstrate beyond peradventure the fallacy of the metallist gold redemption theory. In rebuttal the metallist might disown any attempt to correlate the two magnitudes with much precision, emphasizing rather the *prospects* of gold redemption. When all of the factors entering into this appraisal were summarized, however, it would be discovered that they constitute the substance of a "psychological" explanation of the course of mark purchasing power and that the reference to gold is a mere empty formula, empty because the evaluating economic subjects had long since completely dissociated the mark and Reichsbank reserves. It is difficult to comprehend by what process

¹ Cf. Graham, *op. cit.*, p. 101. Graham's aggregate includes all note issues, whereas the total gold values given in United States Senate, Foreign Currency Investigation, pp. 536-538, include only Reichsbank issues; but the movements of the two series are quite similar.

² United States Senate, Foreign Currency Investigation, pp. 522-523, 536-537.

³ *Loc. cit.*, and Graham, *loc. cit.*

⁴ Graham, *op. cit.*, p. 85.

these inaccessible reserves could have transmuted themselves into anything germane to the market-place.

On the other hand, the behavior of total gold value is equally at variance with a quantity theory explanation. The absurdly small amounts of this total during the greater part of 1922 and 1923 bore no relation to the "money work to be done," as Helfferich has pointed out.¹ Ordinarily the proportion of transactions in a given economy falling within the trade symbol of an equation of exchange represents a sufficiently close approximation to a constant to be neglected. In extreme inflation it is otherwise. The shrinkage of T , through a flight from the currency into foreign moneys and barter, becomes itself a prime reason for the advance of prices; the national currency is concentrated upon a smaller and smaller market; and the *ceteris paribus* of the quantity theory becomes less and less permissible. To divide total gold value by circulation and arriving thus at velocity, to ignore "the other factors . . . as of minor significance,"² is simply to overlook the fact that the T of the equation supplies one of the chief variables in total gold value itself. There is nothing in the quantity theory to account for this behavior of T , since upon its line of argument PT should equal a constant. We seem to be dependent upon a non-mechanical explanation of purchasing power in advanced inflation. Graham himself betrays a decided inclination toward this conclusion; but in discoursing on the subject of velocity, he occasionally assumes a doctrinaire quantity theory viewpoint.

B. *Lines of Causation in the German Inflation*

The main division of opinion regarding inflation and dislocated exchanges lies between inflation and balance of payments theories. The former traces causation from quantity of money to domestic prices to rate of exchange; the latter, from real balance factors to rate of exchange, to certain domestic prices, and sometimes further to quantity of money. What light does the German experience throw upon this opposition? A reassuring impression of theoretical incisiveness would be conveyed by a decision upon the one or other causal sequence; but, in justice to the complexity of the facts, the answer must be hedged with qualifications concerning varieties of the main theories and particular phases of inflation.

¹ Cf. p. 254, above.

² Graham, *op. cit.*, p. 103.

Until the promulgation of the Versailles Treaty late in 1919, that variety of inflation theory which has been termed the exchange equilibrium doctrine satisfactorily explains the German situation. Although the spokesmen of this theory conceive themselves as adherents of the general inflation theory, the formula is sufficiently catholic by reason of its bilateral character to include certain species of the balance of payments theory. Purchasing-power parity, on the other hand, is unilateral for both domestic prices and exchange rates. Either in its absolute or comparative version, it is unilateral for prices in that the international movements of goods and services merely adjust themselves to a predetermined norm on the basis of comparative domestic price levels. Prices are not conceived as themselves functions of the trade balance. By the same token it is unilateral for the exchange rate; market fluctuations of exchange are explained on the basis of changing obstacles to equilibrium, but the variations are not conceived as possible emanations of a movement of equilibrium itself proceeding from a shift in the intensities of international demand for commodities or capital. The concept of exchange equilibrium, as has been explained before, conceives of the neutral rate as a function of domestic prices of traded goods, and these prices as a function of the neutral rate. For this reason it effectuates a synthesis with the first variety of "causal" balance of payments theory enumerated in Chapter XII, the "veritable" balance theory, which emphasizes causation from reciprocal demand and capital movements toward exchanges and prices. Needless to say it embraces the truistic balance theory also, that supply and demand govern market fluctuations of the rate. The doctrines which it necessarily precludes are two: purchasing-power parity, because it asserts a one-sided causation from prices to exchange, and the "independent" balance of payments theory, because it denies any such causation. Concerning the remaining varieties of balance theories we shall come to speak presently.

During the period of relatively moderate price advances from the beginning of the War until 1920, the quantity theory and the theory of exchange equilibrium give a fairly adequate explanation of affairs. Domestic prices lagged behind note issues because of increased balance holding; they were little affected from the foreign exchange angle — the normal condition for a fiat standard country. Germany's unfavorable trade balance in consequence of her more intense demand for foreign commodities was a factor toward increasing the

volume of goods upon her markets and *lowering* prices. So far as the unfavorable balance rested on exporting marks, the tendency was in the same direction. That prices had nevertheless risen eightfold proves the overwhelming importance in the domestic price situation of note issues. For the condition of mark exchange, however, it is necessary to take into account the factors omitted by purchasing-power parity. Only by reference to the various causes of Germany's unfavorable balance of payments can the excess depreciation of the mark abroad over its domestic decline be explained. But the adequacy of the exchange equilibrium theory may be overdrawn even in these years, for the non-mechanical influence of market psychology registers itself clearly in sympathetic movements of exchange with military and political events.

Beginning with the calamitous depreciation both at home and abroad in early 1920 and more conspicuously with the repetition of disaster in mid-1921, the quantity theory and the exchange equilibrium explanation wane in significance. Peculiar non-mechanical factors usurp the leading rôles in both domestic and foreign spheres. Pigou's theory is after all simply Mill's theory of bilateral causation applied universally so as to include dislocated exchanges; we should not be surprised if the equilibrating forces which form its point of departure should be more and more attenuated in the chaos of hyperinflation. In place of a mutual adjustment of exchange rate and prices, we find in Germany a tendency, remarked upon by many writers, for the foreign exchange quotations to dominate internal prices.¹ Just how this happened is an interesting question to which not everyone gave the same answer.

(1) The most indirect line of causation is that envisaged by Cassel, who said that the high prices paid for imported commodities drained money away from other markets, that this resulted in a shortage of money and pressure upon the Reichsbank for further inflation.² (2) In a somewhat more direct fashion, Van Sickle traced the movement from rising rates of exchange to a general apprehension amongst the population and a decrease of balance holding. The subsequent rise of prices produced a deficit in the budget and further inflation.³ (3) Many writers imputed the inflation, particularly after the beginning of cash reparations in June, 1921, to budgetary shortages but with a more direct relation to the exchange rates. The

¹ Cf. Rogers, *op. cit.*, pp. 140-150; Graham, *op. cit.*, pp. 56, 147, 173.

² Cf. p. 209, above.

³ Van Sickle, *J. P. E.* 34, p. 194.

necessity of making remittances at ruinously high rates of exchange or purchasing foodstuffs for the impoverished population resulted in uncovered expenditures and inflation.¹ (4) Helfferich thought the higher prices of imported foodstuffs transmitted themselves to the general domestic price level through wage rates and increased Reichsbank advances to employers.² (5) Bonn mentioned this line of causation but seemed also to believe that the price advance spread by imitation since "the movement or increase of prices in Germany is from the boundaries toward the interior."³ (6) An absolute and direct connection between exchanges and domestic prices obtained when the custom sprang up of quoting all prices in gold, using a coefficient determined by telegraphic reports of the exchanges as a means of interpreting gold prices in terms of paper marks.⁴

Balance of payments writers have been prone to acclaim such facts as these as evidencing the correctness of their view against the inflation theory. The enumeration of balance theories at the outset of this Part included under the third heading of "causal theories" three varieties: the "veritable" type already noted as being absorbed in a bilateral explanation, and two others, one of which refers to the rise of foreign exchange as the *occasion* for inflation, and another which calls attention to (6) above, the direct quotation of prices in foreign money. Although the inclusion of the last two lines of analysis under balance theories is warranted by the profession of the writers themselves, it is now time to point out unmistakably that the causal connections relate no more to a balance of payments explanation than to the inflation theory. None of the six channels described in the foregoing paragraph relate to the basic balance factors: reciprocal demand changes for goods, services, and capital, or changes in international cost differentials.

In reality the phenomenon is much more superficial. It does not deal with causation in the usual rather mechanistic sense of economic and monetary theory, but in a purely *psychological* sense; it deals furthermore with a *direct* relation between rate and prices not con-

¹ Cf. Beckerath, Bonn, and Eucken, pp. 247, 250, 228, above. The interaction of budgetary deficits and inflation in Germany was set forth with statistical evidence by Viscount D'Abernon in his presidential address to the Royal Statistical Society in November, 1926. Cf. the Society's *Journal* 90, pp. 1-40.

² Helfferich, *op. cit.*, p. 601.

³ Bonn, *op. cit.*, p. 47.

⁴ The phenomenon has been observed by Angell, *op. cit.*, p. 448, Nogaro, *op. cit.*, pp. 70, 153, Rogers, *op. cit.*, p. 150, and Walré de Bordes, *op. cit.*, pp. 161-162.

templated by either balance or inflation theories, since the former treats the effects produced on domestic prices via commodity movements (and gold flows under open metallic standards), and since the latter treats effects on the rate of exchange via price level repercussions on commodity movements. In the extremity of German inflation, causation came to be short-circuited directly from prices to rate and from rate to prices. The direct action of prices upon exchange has already been referred to in connection with Prion and Pigou: that "both sides may be ready at once to accept these new terms without any mediating movement of trade."¹ The direct action of rate of exchange has been illustrated in the six varieties of causation just spoken of. Together the two lines of interaction establish a vicious spiral which, in place of moving *toward* equilibrium as the mechanical theories of inflation and dislocated exchange would require, moves rather away from it.

This mutually intensifying interplay of forces is what most writers have in mind in advancing a "psychological" explanation of monetary phenomena in extreme inflation. A few persons have sought to minify the psychological moments by giving them the caption of "speculation" in the narrow sense of bull and bear operations by professionals on the exchange market; such an attitude is found with Cannan in England and Dalberg and Mises in Germany.² When the term is extended to include the whole matter of anticipation by all users of the national currency and foreign exchange, speculation eventually becomes the preponderating fact. In Professor Allyn Young's phrase, it supplies "the indispensable key to an understanding of the vagaries of behavior of the depreciated currencies of Europe."³ Its prime importance in the last two years of inflation in Germany has been recognized by the synthesizing theorists treated in Chapter XV, by balance theorists such as Beckerath, Bonn, Eulenberg, and Helfferich, and by parity theorists such as Eucken, Machlup, and Pohle. Outside Germany the emphasis upon psychological determinants is equally marked.⁴

¹ The words are Pigou's; cf. p. 263, above.

² Edwin Cannan, *Money*, 5th ed. (London, 1926); Rudolf Dalberg, *Entwertung*, pp. 91-92; Mises, cf. p. 216, above.

³ A. A. Young, "War Debts, External and Internal," *Foreign Affairs*, vol. II, no. 3, p. 403.

⁴ Cf. Angell, *op. cit.*, pp. 195, 430-441, 445-447; Dulles, *op. cit.*, pp. 39-40; Graham, *op. cit.*, pp. 33, 48, 128, 235; Keilhau, *Ec. Jew.* 35, pp. 223-234; Nogaro, *op. cit.*, pp. 81, 139, 143, 153; Walré de Bordes, *op. cit.*, p. 180 ff.; Williams, *Jew. Am. Bankers' Ass.* 14, p. 493.

necessity of making remittances at ruinously high rates of exchange or purchasing foodstuffs for the impoverished population resulted in uncovered expenditures and inflation.¹ (4) Helfferich thought the higher prices of imported foodstuffs transmitted themselves to the general domestic price level through wage rates and increased Reichsbank advances to employers.² (5) Bonn mentioned this line of causation but seemed also to believe that the price advance spread by imitation since "the movement or increase of prices in Germany is from the boundaries toward the interior."³ (6) An absolute and direct connection between exchanges and domestic prices obtained when the custom sprang up of quoting all prices in gold, using a coefficient determined by telegraphic reports of the exchanges as a means of interpreting gold prices in terms of paper marks.⁴

Balance of payments writers have been prone to acclaim such facts as these as evidencing the correctness of their view against the inflation theory. The enumeration of balance theories at the outset of this Part included under the third heading of "causal theories" three varieties: the "veritable" type already noted as being absorbed in a bilateral explanation, and two others, one of which refers to the rise of foreign exchange as the *occasion* for inflation, and another which calls attention to (6) above, the direct quotation of prices in foreign money. Although the inclusion of the last two lines of analysis under balance theories is warranted by the profession of the writers themselves, it is now time to point out unmistakably that the causal connections relate no more to a balance of payments explanation than to the inflation theory. None of the six channels described in the foregoing paragraph relate to the basic balance factors: reciprocal demand changes for goods, services, and capital, or changes in international cost differentials.

In reality the phenomenon is much more superficial. It does not deal with causation in the usual rather mechanistic sense of economic and monetary theory, but in a purely *psychological* sense; it deals furthermore with a *direct* relation between rate and prices not con-

¹ Cf. Beckerath, Bonn, and Eucken, pp. 247, 250, 228, above. The interaction of budgetary deficits and inflation in Germany was set forth with statistical evidence by Viscount D'Abernon in his presidential address to the Royal Statistical Society in November, 1926. Cf. the Society's *Journal* 90, pp. 1-40.

² Helfferich, *op. cit.*, p. 601.

³ Bonn, *op. cit.*, p. 47.

⁴ The phenomenon has been observed by Angell, *op. cit.*, p. 448, Nogaro, *op. cit.*, pp. 70, 153, Rogers, *op. cit.*, p. 150, and Walré de Bordes, *op. cit.*, pp. 161-162.

templated by either balance or inflation theories, since the former treats the effects produced on domestic prices via commodity movements (and gold flows under open metallic standards), and since the latter treats effects on the rate of exchange via price level repercussions on commodity movements. In the extremity of German inflation, causation came to be short-circuited directly from prices to rate and from rate to prices. The direct action of prices upon exchange has already been referred to in connection with Prion and Pigou: that "both sides may be ready at once to accept these new terms without any mediating movement of trade."¹ The direct action of rate of exchange has been illustrated in the six varieties of causation just spoken of. Together the two lines of interaction establish a vicious spiral which, in place of moving *toward* equilibrium as the mechanical theories of inflation and dislocated exchange would require, moves rather away from it.

This mutually intensifying interplay of forces is what most writers have in mind in advancing a "psychological" explanation of monetary phenomena in extreme inflation. A few persons have sought to minify the psychological moments by giving them the caption of "speculation" in the narrow sense of bull and bear operations by professionals on the exchange market; such an attitude is found with Cannan in England and Dalberg and Mises in Germany.² When the term is extended to include the whole matter of anticipation by all users of the national currency and foreign exchange, speculation eventually becomes the preponderating fact. In Professor Allyn Young's phrase, it supplies "the indispensable key to an understanding of the vagaries of behavior of the depreciated currencies of Europe."³ Its prime importance in the last two years of inflation in Germany has been recognized by the synthesizing theorists treated in Chapter XV, by balance theorists such as Beckerath, Bonn, Eulenbergh, and Helfferich, and by parity theorists such as Eucken, Machlup, and Pohle. Outside Germany the emphasis upon psychological determinants is equally marked.⁴

¹ The words are Pigou's; cf. p. 263, above.

² Edwin Cannan, *Money*, 5th ed. (London, 1926); Rudolf Dalberg, *Entwertung*, pp. 91-92; Mises, cf. p. 216, above.

³ A. A. Young, "War Debts, External and Internal," *Foreign Affairs*, vol. II, no. 3, p. 493.

⁴ Cf. Angell, *op. cit.*, pp. 195, 430-441, 445-447; Dulles, *op. cit.*, pp. 39-40; Graham, *op. cit.*, pp. 33, 48, 128, 235; Keilhau, *Ec. Jour.* 35, pp. 223-234; Nogaro, *op. cit.*, pp. 81, 159, 143, 153; Walré de Bordes, *op. cit.*, p. 180 ff.; Williams, *Jour. Am. Bankers' Ass.* 14, p. 493.

One advantage of a psychological theory or at least the modification of the exchange equilibrium theory for psychological elements is that connections may be admitted as *causes* which would be precluded in a purely mechanical theory. To say that exchange depreciation *caused* further inflation runs counter to accepted notions of causation: "occasioned" would be preferable from a quantity theory viewpoint. But if the factor of anticipation gained the upper hand of bare physical quantities of money and goods, whatever operated in this nexus became a genuine cause. The same may be said of the direct quotation of domestic prices in foreign moneys. There is nothing in deductive reasoning toward economic equilibrium which indicates such a catina of causation. But the phenomenon of mass psychology known as the flight from the currency reveals how the exchange rate very naturally became the cause of internal prices.

A final rebuttal by adherents to a fairly strict inflation theory takes the form of ascribing both the adverse psychological and foreign balance factors to the issues of paper money. It is said that the outstripping of actual note issue by the internal price level and the more rapid decline of the external than the internal value of the mark rested upon the *quantity* of money, not actual issues, it is true, but estimates of future quantities.¹ This construction seems to me somewhat specious. It really quite abandons quantity of money as an objective magnitude and substitutes for it a purely subjective thing, an estimate, a surmise, a vague feeling which is nothing quantitative. Furthermore, what was offered for sale, how much was bid for the necessities of life, did not rest upon an unimpassioned view of the future of note issuing. Once confidence was undermined a *Kaufzwang* developed which drove both exchanges and prices upward endlessly. Graham has distinguished between exchange rate advances which are self-limiting and self-inflamatory. The former belong to ordinary commercial transactions; the latter to a flight from the currency and to obligations owing in a fixed amount of foreign money.² But there are internal price movements which are similarly self-inflamatory. The only limit to the rise of prices and rates seems to be the mood of buyers of commodities or foreign exchange, because soaring price quotations are converted into realized

¹ Mises, *Stabilisierungsproblem*, pp. 5-13; Palyi, *Referat, Verein* 170, p. 321; Robertson, *Money*, 1st ed. (New York, 1922), p. 114.

² Graham, *op. cit.*, pp. 136-146.

CONCLUSIONS

295

transaction prices through further note issues, by as fatal a linking of cause and effect as would anywhere be encountered in mechanical equilibrium theory. If the Reichsbank temporarily did not satisfy the demand for more paper marks, they were simply printed by municipalities and even by private employers. In the final phases of inflation the concept of quantitative equilibria must be dropped in favor of the cumulative action of mass psychology.

PART IV
BUSINESS CYCLES

CHAPTER XVII

ORIGINS AND DIVISIONS OF THE MONETARY EXPLANATION

I. INTRODUCTION

DURING the course of 1924 it became apparent that the mark stabilization might be regarded as a *fait accompli*, and the attention of German monetary theorists turned away from the pyrotechnical career of prices and exchange under inflation toward the familiar phenomenon of cyclical ebb and flow. Fortunately in the ensuing period many names associated with the excited pamphleteering of the War and post-War years have disappeared, and in their stead comes a smaller number of writers, competent to take up the narrative of conjunctural movements at the point to which it had been advanced before the War by Wicksell, Schumpeter, and Mises. The calibre of the work done by these founders and their contemporary followers is such that, from numbering scarcely more than the names just mentioned, the monetary explanation now commands as substantial a following as the other schools. Furthermore, the interchange of ideas between German and Anglo-Saxon economists has become much more lively than before the War. On the one hand translations have been made of Fisher's work on the quantity theory, Hawtrey's opus on credit, Keynes' *Tract* and *Treatise*, Mitchell's analysis of cycles, and Taussig's work upon international trade, and many others are widely read in the original; on the other hand, although translation has not progressed so far, certain publications in German have had an influence upon our own literature, ranging from Hardy to Keynes. Indeed, many striking developments, it will appear in the following pages, carry forward ideas not altogether new upon the Continent.

Whatever differences German monetary theorists display amongst themselves, they have in common two tenets: that business cycles consist in inequalities between savings and investments; and that this inequality is very largely produced by the behavior of the banking system. This idea is derived from Wicksell, and it is with him therefore that our study begins. But the initial chapter also includes Cassel, though many Germans will object that Spiethoff would be

the appropriate subject, along with Wicksell, in a treatment of origins. So far as influence upon German thought is concerned, Spiethoff has until quite recently at least eclipsed not only Cassel, but probably also Wicksell. No doubt also the monetary *theorists* are greatly influenced by Spiethoff's detailed portrayal of interaction between the multiple factors which combine in cumulative fashion during the course of industrial variations. But his theory cannot be viewed as an origin of the monetary *theories*. The contrast between natural and bank rates and between savings and investment is obviously a monetary matter. Although Spiethoff admits credit as a cooperating element, his emphasis lies chiefly not with these relationships, but with absolute movements in investment, with technical discoveries themselves, and with unutilized labor and plant capacity preceding a boom.¹ The reason for considering Cassel in his stead is that Cassel apparently regards his own theory as substantially Wicksell's, and many of the writers who follow accept this interpretation.

II. WICKSELL'S DOCTRINE OF THE "TRAILING BANK RATE"

The cornerstone of Wicksell's theory of price dynamics is the following proposition:

If, other things remaining the same, the leading banks of the world were to lower their rate of interest, say one percent below its ordinary level, and keep it so for some years, then the prices of all commodities would rise and rise without any limit whatever.²

The ordinary or *natural* rate of interest is one which would establish itself if lending and repayment were made *in natura* — a rate determined by the supply and demand of real capital and equal to the yield of capital instruments after deducting the entrepreneur's remuneration for risk bearing. Or, alternatively, since the quoted proposition holds good *mutatis mutandis* for a bank rate above the natural rate, the latter may be envisaged as the proper rate in a

¹ Arthur Spiethoff, "Krisen," *Hdwb. der Staats.*, 4th ed., vol. VI (Jena, 1925), pp. 70-86.

² "The Influence of the Rate of Interest on Prices," *Ec. Jour.* 17, p. 213. This had formed the central theorem of an article in 1897, "Der Bankzins als Regulator der Warenpreise," *Jhrb. für N. & S.* 68, pp. 228-243, and of *Geldzins und Güterpreise* (Jena, 1898).

given market situation to keep prices from varying.¹ When banks depress their discount rates below this level there ensues not only a diminution of saving, which tends to force up the prices of consumers' goods; but also an increase in the profit opportunities of entrepreneurs, which enhances the prices paid for land, labor, and raw materials. Both movements destroy the previous equilibrium of supply and demand, and this can only be restored by the general price advance itself.²

To what does the natural rate attach? What is meant specifically amongst the various money-market rates by bank rate? Must natural and bank rate coincide absolutely, to prevent concerted price movements? Answering the first question, Wicksell refuses to follow a common practice in making natural interest payments pertain to "real" capital, because fixed capital instruments bear upon the rate only indirectly by stimulating or retarding the demand for capital in moveable or free form; and even stores of consumptibles, raw materials, and half-finished articles have only an indirect bearing. The real object of payment is "*decisions* of savers not to consume a part of their incomes in the immediate future."³ Bank rate, on the other hand, is attached to money; and it is a matter of indifference which money-market rate initiates the change so long as it communicates itself to long term loans such as bonds or mortgages.⁴ Finally, absolute equality of the natural and bank rates is not required to prevent price movements from monetary origins. Sometimes other causes dominate price movements and reduce a difference between the rates to negligible influence.⁵ Bank rate moves only by half-per cent intervals, the natural rate by infinitesimals, but this divergence also makes no substantial difference. Furthermore, there would always be a greater or smaller risk premium incorporated in bank rate, to be subtracted from any apparent margin between the two rates.⁶

Having in mind these explanations, we can apprehend how a too low bank rate may give rise to the phenomenon of boom times. Imagine the initial consequences set forth in the first paragraph to have made their appearance. If the new and higher price level be

¹ *Geldsins*, pp. 79-93.

² *Geldsins*, p. 97; *Vorlesungen über Nationalökonomie*, vol. II, "Geld und Kredit" (Jena, 1922), pp. 221-222.

³ *Vorlesungen*, II, 219. (Italics Wicksell's.)

⁴ *Ibid.*, p. 223.

⁵ *Geldsins*, p. 85.

⁶ *Ibid.*, pp. 97, 112, 113.

regarded by entrepreneurs as merely transitory, and the future prices of their finished products be expected to return to the old accustomed level, nothing more results than general bidding up of wages, rents, etc., by one step. In this case demand and supply of real capital are brought to equilibrium at once. But sooner or later future prices will be estimated on the basis of present prices, and this circumstance induces a further bidding up of prices by entrepreneurs. At length entrepreneurs come to expect their products to be indefinitely enhanced in price.

To put it in one sentence: As long as the price-rise introduced in the manner described above is regarded as temporary, it is actually permanent; as soon as it is conceived of as permanent, it becomes continuous; and when finally it is considered to be continuous, it comes to be like an avalanche.¹

Such in bare outline is Wicksell's theory of general price movements. To apprehend its import, both in and of itself and for the subsequent course of business cycle analysis in Germany, we must seek fuller explanation at almost every stage. In the first place, does Wicksell put forward the theorem that the cycle is a purely monetary phenomenon? Not if we are to accept his own interpretation, despite occasional implications of critics to the contrary.² However intimately the developments from interest differentials relate to conjunctural changes, he says, there is no necessary connection; indeed the one really important and sufficient cause lies in the disparate progress of population on the one hand, and of technical and commercial methods on the other. Even if banks eliminated general price advances and recessions, there would remain wave-like alternations between periods of accelerated conversion of free capital into new forms of fixed capital and periods of stagnation.³ Generally speaking it is the failure of banks to conform to spontaneous movements of natural rate, rather than spontaneous bank rate movements, that today engenders cycles.⁴ The vast majority of Wicksell's followers have agreed with him in this respect, though a few uphold the opposite, more narrowly monetary, view.

¹ *Vorlesungen*, II, Preface, xi; cf. *ibid.*, pp. 222-224; *Geldsins*, pp. 85 ff.; "Hinauf mit den Bankraten," *Archiv* 41, p. 752.

² E. g. Fritz Burchardt ("Entwicklungsgeschichte der monetären Konjunkturtheorie," *Welt. Arch.* 28, pp. 117-119), who attempts to show that all explanations pretending to be monetary are not such in reality.

³ *Vorlesungen*, II, 241, 242.

⁴ *Ibid.*, p. 233.

Because of the sharp distinctions recently drawn by Keynes between the operation of market interest rate as the *capitalization* factor, as a *cost* of production, and as the determinant of *quantity* of credit, and because further of Keynes' belief that the first of these was a discovery of Wicksell's, it becomes important to examine the evidence.¹ Support for Keynes' interpretation comes chiefly from a passage in which Wicksell argues:

A reduction of the discount on three-months bills from 4% to 3% (*per annum*) could . . . raise the cash price of the commodities purchased by $\frac{1}{2}$ % at most; but if the reduction persists and effectuates a decline gradually in the interest on mortgages and bonds from 5% to 4%, for example, then contractors, railway companies, *etc.* could offer up to 25% more for wages and raw materials. . . .²

Superficially, at least, this seems to approximate Keynes' notion of the direct effect of a low market rate upon capitalized values; it may imply that the mere process of immediately capitalizing prospective earnings has a stimulative effect upon business *before* transactions are carried through at these higher prices, necessitating a larger volume of credit. Some additional evidence in this direction appears in a passage shortly before the one just quoted. Here the sequence runs: lower market rate, decrease of saving and increase of consumers' goods prices, increased profit chances for entrepreneurs, bidding up of prices on raw material, land and labor.³ Nothing is said about a larger volume of bank lending. In another connection Wicksell says with respect to an artificially depressed bank rate: "*With unchanged commodity prices*, entrepreneurs will in the first instance receive an extra profit over and above their ordinary entrepreneurial profit or wage at the expense of capitalists."⁴ Apparently an increase in the volume of credit does not enter "in the first instance"; and the extraordinary profit arises either as an appreciation of assets, earnings being capitalized at a lower rate, or from the lowering of the interest portion of costs of production.

When Wicksell says that "a reduction of the discount on three months bills from 4% to 3% (*per annum*) could . . . raise the cash price of the commodities purchased by $\frac{1}{2}$ % at most . . .," he seems to depreciate the importance of interest changes in affecting price

¹ J. M. Keynes, *A Treatise on Money* (New York, 1930), I, 190-191, 196-199.

² *Verlesungen*, II, 223.

³ *Ibid.*, pp. 221-222.

⁴ *Geldsins*, p. 97. (Italics mine.)

through cost, i. e. to represent the position of Keynes against Hawtrey, for example. But Wicksell runs counter to this position completely in his doctrine that stores of finished and half-finished goods operate as a parachute in times of depression and a source from which booms may be nourished.¹ If interest changes do not greatly affect costs of production through circulating capital, how can it be said that "this producing for inventory can be greatly facilitated if cheap enough credit is offered by the banks?"²

The third aspect of bank rate, its control over the volume of credit, may appear to be completely neglected by Wicksell or to have been relegated to an inconspicuous rôle. This false impression comes from a mere terminological practice. As the analysis of Wicksell's version of the quantity theory revealed,³ credit is not set down as a *quantity* parallel to currency, as in the Fisher equation, but as a factor increasing the effective *velocity* of currency. This usage may have misled Keynes. The central theorem of both *Geldzins und Güterpreise* and the *Vorlesungen* is certainly that bank rate controls the price level through the amount of available purchasing power, though this is expressed⁴ as a control through velocity of circulation.

Consequently with reference specifically to cyclical phenomena, it would seem to be fair to assume that Wicksell is thinking as much in quantity-of-credit terms as in terms of the direct effect upon savings and investment through the capitalization process. Furthermore, there is evidence that he also admitted the cost aspect of interest. To some critics the use of all three concepts without any very sharp distinction will appear as a fumbling after crucial differences; to others the concepts will seem to be distinctions without differences. A later chapter reviews opinion upon this issue.⁵

Upon another problem — whether credit inflation results in an increase of the social product — the presence of two contemporary groups of opinion reflects no ambiguity in Wicksell's pronouncements but rather tangential divergence from his moderate position. Bank credit inflation might conceivably so add to the fund of capital by expropriating persons with fixed incomes, he says, as more than to compensate for the attendant falling off in voluntary saving; and so the rise of prices might come to a standstill provided banks did not again lower their rates.⁶ But in the long run the ordinary conse-

¹ *Vorlesungen*, II, 242-243.

² Cf. pp. 155-157, above.

³ Pp. 415 ff., below.

⁴ *Loc. cit.*

⁵ As in *Geldzins*, pp. iii-xi.

⁶ *Vorlesungen*, II, 226-227.

quence of a bank rate below the natural rate is a continued price rise, against which the tendency, dwelt upon by Mangoldt, for unspent margins to increase by a certain amount with a given decrease in the interest cost cannot prevail, since it is not cumulative in its effect, whereas the entrepreneur's profit margin is.¹ Wicksell holds neither that the productive powers of credit are so great as completely to obviate a rise in prices, nor that the net result of forced saving is *nil* because, as Hayek believes, it all goes to waste eventually, but that "the rise of prices can work against itself to a certain degree by increasing production," an effect of merely "secondary significance."² This partly compensating increase in production proceeds not alone from forced saving on the part of fixed money-income groups, but also from additional labor evoked from the ranks of the previously employed by the rise in wages, and from new laborers recruited from the unemployed. But Cassel errs, he believes, in maintaining that agriculture is particularly the source of reserve labor, since this requires as an hypothesis that agriculture does not share in the boom times.³

Wicksell rejects both the common explanation of crises in terms of redundant stocks of all kinds of goods, and the type which attributes the difficulty to inadequate consumer purchasing power and a glut of consumers' goods. Lescure and Tugan-Baranowsky fail to show why the loss of demand to entrepreneurs in this field is not wholly compensated by the gain to producers of capital instruments.⁴

Whether the idea of natural rate performs a useful function in the analysis of business cycles, that is the basic issue raised by Wicksell's theory. If "natural" is dispossessed of any reference to barter conditions, an affirmative answer appears to be justified from the purely ideological angle. A monetary economy reveals no interest rates outside money-market rates; and yet economic theory must recognize a more fundamental phenomenon, since it cannot accept the palpable untruth that interest depends on the mere abundance or scarcity of money. That fundamental phenomenon in a monetary economy is the rate of interest given by money costs and money prices when no windfall profits or losses attach to the utilization of producers' goods. Discussions of monetary disturbances in the cycle

¹ *Ibid.*, p. 225.

² Cf. "Professor Cassels nationalökonomisches System," *Schm. Jhrb.* 52, p. 803.

³ *Schm. Jhrb.* 52, p. 807.

⁴ *Vorlesungen*, II, 239.

and appropriate bank policy cannot avoid some ultimate reference to this equilibrium condition, and the idea is freely used in the ensuing pages. To say that natural interest is an ideological tool does not seem to me to warrant Wagemann's characterizing the concept as "sheer metaphysics," at least in the dyslogistic sense which he implies.¹

But it is another question as to whether, in default of any direct mode of observing the natural rate, some more empiric index of equilibrium between the supply and demand of capital will not have to be discovered. Keynes defines natural rate as that "at which savings and the value of investment are exactly balanced"; but since these two magnitudes are in turn not statistically apprehensible, he offers, as an alternative definition, the rate which keeps price level of output constant.² This signalizes the abandonment of natural rate itself as a criterion of bank rate. As Hardy points out,³ Keynes' chapter entitled "Historical Illustrations,"⁴ which should demonstrate the divergence of bank rate from natural interest to be the cause of price level variations, really proceeds in the opposite direction, deducing what the variations of natural rate relatively to bank rate *must have been* in order that observed price changes be explained by the theory. Known variations of natural rate do not, and cannot in the nature of the case, form a part of the data.

The eighth historical illustration sets forth a phenomenon which Keynes labels the "Gibson Paradox": that from 1791 to 1928 the price level measured by an adjusted Jevons-Sauerbeck index correlates directly with market rate of interest indicated by the yield of Consols, and not inversely as might seem to be required by the theory. Without referring to Wicksell, Keynes considers the paradox, clearly stated in *Geldzins und Güterpreise* thirty-three years earlier, and proceeds to solve the difficulty precisely after Wicksell's model. Since bank operations are largely subject to routine, bank rate is advanced only tardily in response to the mounting natural rate of a rising conjuncture. The lag causes inflation and price advances; after the crisis, a similar lag of bank rate behind the downward course of natural rate causes deflation and falling prices. The theory of "trailing bank rate" calls for a positive correlation of

¹ Ernst Wagemann, *Economic Rhythm* (New York, 1930), p. 190.

² *Treatise*, I, 155, 196-198.

³ C. O. Hardy, "Savings, Investment, and Business Cycles," *J. P. E.* 39, pp. 390-400.

⁴ *Treatise*, II, 148-208.

prices with interest *differentials*, not with the absolute height of bank rate.¹

From the purely ideological viewpoint mentioned earlier, the resolution of the Gibson paradox offered by Wicksell and Keynes can be approved. But what of the practical outcome? Simply as Hardy comments, that "any possible sequence of events supports the theory."² An upward movement of prices and market rates proves that natural rate must be the higher; a downward movement, that it must be the lower. Consequently the theory can never be shown empirically to be wrong, for it is merely a recondite way of saying that prices are rising or falling. In Keynes' particular case the final outcome is even more vacuous. Introducing the Wicksellian doctrine in Volume I in the chapter on "The 'Modus Operandi' of Bank Rate," Keynes makes cyclical variations to turn upon the interest differential. But Volume II throws this explanation overboard, for it is said that since natural rate reveals only "long period movements over decades," the interest differential analysis pertains only to corresponding periods, and not to cyclical variations.³

The upshot of the matter may be briefly restated. In a monetary society the behavior of all pecuniary costs and values under given dynamic influences such as increasing accumulation or progressing efficiency in production depends upon the action — and this includes the inaction — of the monetary authority. Nothing is "natural" any longer. If it is once apprehended, as contended in Part I of this book, that the purchasing power of money is purely relative, depending *as much* upon monetary policy *as* upon the conditions underlying physical production, the dry volumes of the nominalist-commodity-theory controversy will have served their cosmic purpose. Interest rates in a monetary economy do not escape this universal ambiguity of prices. Although reference to a rate unaffected by monetary changes has a certain utility in abstract processes, the impossibility of statistical apprehension of this magnitude renders its significance practically nugatory in the realistic problem of cycles. It is clear that adherents to "natural interest" do not themselves avoid uneasiness over the transcendental character of the concept, for without exception they offer (as alternative indices of an equilibrium condition in the demand and supply for capital)

¹ Wicksell, *Goldkurs*, pp. 105-113, and *Vorlesungen*, II, 231-236; Keynes, *Treatise*, II, 198-206.

² *J. P. E.* 39, p. 391.

³ *Treatise*, II, 204-206.

some definite behavior of commodity prices. With Wicksell and Keynes, constancy of prices indicates a coincidence of natural and bank rates; with Hayek and his school, that coincidence obtains only with a decline of prices reciprocally to the increase of physical output. In both cases natural rate *per se* is eventually abandoned. This puts the problem upon the footing which would have been appropriate from the outset, namely upon the terrain of observable effects of alternative credit policies, upon actual prices relatively to actual costs and the attending behavior of entrepreneurs.

III. CASSEL'S THEORY: VARIATIONS IN THE PRODUCTION OF FIXED CAPITAL

Limiting the field of enquiry to the fairly unified period from 1870 to 1913, Cassel proceeds from the concrete to the abstract: beginning with the influence of cycles on production, or labor and durable instruments; continuing with cycles in prices, income, and saving; describing the phenomena of capital markets; and concluding with a chapter on the determining factors in conjunctural variations.

The general field of production consists of two parts, fixed capital and consumption goods. If we test statistically the behavior of the volume of house and railway construction and the production of pig-iron, we discover that booms are characterized by an increase in the production of fixed capital, depressions by a slackening of that production.¹ Agricultural production shows no tendency to vary with trade movements but depends upon harvests. As for consumption goods, typified by coal produced in Germany or the ton-miles of non-capital freight on German railways, the tendency to vary with the cycle is slight.²

Labor reflects these conditions, not only in the fairly close correlation of total number of persons employed, but also in the much greater variability of employment in capital-producing industries.³ Whence comes the stream of additional workers in prosperity times? Evidently from agriculture, according to such evidence as can be gleaned from occupational censuses in Germany, England and else-

¹ Gustav Cassel, *The Theory of Social Economy*, 2nd English ed., tr. from the 4th German ed. (London, 1932), II, 543-550.

² *Ibid.*, pp. 552-557.

³ The data include factory workers in Sweden, 1896-1909, and persons insured by industrial unions in Germany, 1888-1909; *ibid.*, pp. 560-562.

where.¹ This fact indicates that business cycles are by-products of transition from the self-sufficing agricultural economy to a complex system of specialization upon a national or international scale.

During periods of trading booms there appears a greatly augmented demand for durable means of production, an increase which induces both the manufacture of new fixed capital and the better utilization of the old. Figures showing railway trackage built annually in the United States and average mileage run annually by railway cars in Germany support these generalizations.² The first set of data can be supplemented to show also that fixed capital production continues *throughout the depression*, preparing the way for the next upward trend. Another important phenomenon is that any increase or decrease in demand for consumers' goods, while affecting the demand for instruments of production in that field, falls with greatly intensified force upon basic producers' goods, as for example the English shipyards.³

Commodity price-series for the period under consideration reveal not only general advance and decline prior to and following the years of crisis, explicable upon the basis of bank discount policy, but also a tendency toward much greater amplitude of variation for fixed capital materials (e. g., pig-iron) than for other goods.⁴ The turning-point in the former comes before the crisis by a considerable period and gives a sure portent of ending prosperity. Wage rates and the total wage bill are highest in the "turning years," but no sure judgment can be pronounced upon the exact course of real wages.⁵ Certain it is, however, that whereas entrepreneurs gain at the beginning of the advance, laborers obtain the advantage in the trade boom proper and in depression. Finally, capital formation (saving) relative to the national incomes attains its maximum early in the revival, diminishes little, if at all, in the boom, but declines during the crisis.⁶

"On the capital market the savings appear as supply, and, on the other hand, the real capital produced appears as demand for capital disposal."⁷ At the beginning of an upward movement in business, characterized by the discovery of new and very lucrative uses of capital, entrepreneurs' profits are large, saving increases faster than

¹ *Ibid.*, pp. 566-570.

² *Ibid.*, pp. 596-597.

³ *Ibid.*, pp. 606-610.

⁴ *Ibid.*, p. 622.

⁵ *Ibid.*, pp. 584-590.

⁶ *Ibid.*, pp. 599-606.

⁷ *Ibid.*, p. 622.

the production of capital goods, interest falls, and the capitalized value of fixed instruments rises. The real boom, on the other hand, shows a decline of profits and hence of savings; but, since the production of fixed capital goods cannot suddenly be terminated, a stringency develops on the capital market: interest rates advance and capital goods fall in price. During the depression, interest reaches a low level and capitalized values recover, although both tendencies are somewhat retarded by a decline in saving. It is in the later phase of depression, when capital is again accumulated more easily, but when the production of capital goods has not yet been begun, that the capital market is most favorable to enterprise. Complementing and intensifying the course of interest rates is another factor, the behavior of bank discount. Banks commonly hesitate to raise their rates at the onset of revival, with the result that capital goods are capitalized at a too low rate, entrepreneurs in this field extend their operations, and the community's purchasing power is diverted from consumption even more than would correspond to its increased savings.¹ These facts explain the recorded variations of interest in the same direction as that taken by an index of fixed capital extension, as for instance, pig-iron production. Throughout the cycle, stock and bond values reflect interest and earnings developments. Bond prices tend to vary inversely with interest, lagging somewhat because the Exchange has always to consider a possible reversal of trend. Their maximum price occurs somewhere near the beginning of the upswing, from which, under the growing scarcity of capital, they decline until the crisis. But since stock prices depend not only upon interest but upon earnings, and since earnings continue high to the final onset of boom, it is then that their prices reach a maximum. Thereafter they share the downward course of fixed-income securities, although the latter cease to decline with the outbreak of crisis. The capital market stringency developing during the last stages of boom is marked by a cessation of durable instrument production wherever this is possible, and wherever not, by great difficulty in procuring funds. House construction follows the former course, according to American statistics, whereas railway construction, being a longer term undertaking, necessarily has to continue, despite a great extension in unfunded debt through inability to float bond issues.²

What theoretical conclusions may be drawn from this picture? The central phenomenon is interest on capital. Potential undertak-

¹ *Ibid.*, p. 625.

² *Ibid.*, p. 637.

ings requiring large amounts of fixed capital await the low interest rates of depression periods, but the "restorative effect upon enterprise" disappears as the boom develops and higher rates break off the evolution. There is action and reaction: the boom proceeds out of low rates and throttles itself by advancing them; the depression springs from high rates but reduces them and so terminates itself.¹ Undoubtedly these influences would eventually level off upward and downward movements if the whole process were not from time to time renewed by technical progress and the exploitation of new countries. Business cycles thus appear to be the natural attendant of progress; as such their existence does not depend upon a capitalistic order, for even a socialist state might divert production too much into the channel of fixed capital equipment.² Finally as to crises: a dilettante conception, propagated especially in America, represents them as the consequence of the inadequacy of consumers' income to purchase industrial output in a given income period. Naturally in time of depression, when the supply of money decreases through repayment of obligations to banks, and the demand for money increases through a hoarding propensity, prices must fall. This does not bespeak a deep-seated flaw in our economic organization whereby purchasing power necessarily lags behind production, but only a failure on the part of banks to create sufficient purchasing power to maintain the price level. This difficulty is purely monetary.³ On the other hand, if crises cannot be ascribed to overproduction of consumers' goods, they cannot arise from overproduction of fixed capital by which those goods are produced. Our previous analysis sufficiently indicates that the trouble lies in stringency upon the capital market: an overestimate of the supply of savings to take over the real capital produced.⁴

Before proceeding to the central idea of Cassel's work, we may take notice of objections raised against particular features. The first is Cassel's belief that even during depressions fixed capital equipment increases. Wicksell correctly objects that the statistics presented reveal only an absolute growth in plant.⁵ The really significant fact for a savings-investment theory is the movement of investment *relative* to population or saving; it would be strange to discover that, in this sense, fixed capital equipment expands in bad

¹ *Ibid.*, pp. 640-641.

² *Ibid.*, pp. 440-445.

³ *Schm. Jhrb.* 52, p. 809.

⁴ *Ibid.*, pp. 644-648.

⁵ *Ibid.*, pp. 648-652.

times. Another criticism is directed toward Cassel's notion that the industrial reserve army is recruited almost entirely from agriculture, and that, with the progressive urbanization of population, cyclical ups and downs will be greatly restricted in amplitude. Cassel bases the contention upon the fact that agricultural output "shows no direct connection with trade cycles." Robertson, on the other hand, has come to the conclusion that agricultural fluctuations exercise "decisive influence" on the time and magnitude of industrial variations.¹ In Pigou's opinion, the elimination of agricultural cycles would reduce the intensity of business cycles by about a quarter of their present amplitude.² The important rôle played by agricultural maladjustments in the present depression is exhaustively described by Ohlin in the League of Nations study;³ and the recent work of Timoshenko⁴ indicates that variations in harvests have been one of the most important facts initiating cycles in America.

Treating the relationship between bank rate and capital market in the first edition of *The Theory of Social Economy*, Cassel wrote:

If the rate of interest is kept too low on the market, the mistake will make itself felt in lines of production requiring more fixed capital, and therefore in a relative increase in the production of capital. But an abnormal increase in the production of capital of this kind must gradually curtail the opportunities for a remunerative use of capital or make new investments of it less remunerative. This would in normal circumstances lead to a fall in the rate of interest. But as the rate is already too low, the effect of the augmented production of capital is that the conditions of the capital-market are gradually brought into harmony with the current low rate of interest.⁵

This bald statement is tantamount to a declaration that the interest rate is a purely monetary matter and could be put down to any desired level merely by inflation and forced saving, as Amonn and Diehl have objected.⁶ Despite these criticisms, Cassel has allowed the statement to stand in subsequent editions.⁷ If one were to ac-

¹ D. H. Robertson, *Banking Policy and the Price Level* (London, 1926), p. 14.

² A. C. Pigou, *Industrial Fluctuations* (London, 1927), pp. 36-41, 199-283.

³ *Course and Phases of the World Economic Depression*, Series of League of Nations Publications, II. Economic and Financial 1931. II. A. 21; Official No.: A. 22. 1931 II. A. (Geneva, Switzerland, and Boston, Massachusetts, 1931), pp. 76-77, 134, 283.

⁴ V. P. Timoshenko, *The Rôle of Agricultural Fluctuations in the Business Cycle* (Ann Arbor, Michigan, 1930).

⁵ Gustav Cassel, *The Theory of Social Economy*, 1st ed. (New York, 1924), p. 416.

⁶ Alfred Amonn, "Cassels System der Theoretischen Nationalökonomie," *Archiv* 51, pp. 338 ff.; Karl Diehl, "Über Cassels System der theoretischen Sozialökonomie," *Welt. Arch.* 28, p. 175.

⁷ E. g. *Theory*, 2nd ed., II, 437.

cept it at its face value, one would necessarily conclude that no matter to what degree new capital extensions were entered into, a shortage of "capital disposal" could never appear, and consequently Cassel's idea of capital shortage as the cause of crises would collapse. Rather than accept this result and believe with Machlup¹ that he really pushes the "creative power" of credit to such an absurd length, one may prefer to regard the passage as an aberration.

Coming to Cassel's central theme that disproportionality between supply and demand upon the capital market explains the course of cycles, one encounters a dilemma. Is the failure of the production of capital goods to equate with savings because of anti-equilibrium movements of *the* interest rate, i. e. absolute movements in *one* rate, or is it because of discrepancies between *natural* and *bank* rates? One might suppose that Cassel defends the latter or Wicksellian position when he says that cyclical variations would gradually run down, were it not for technical progress, population growth, and the opening up of new countries.² But three circumstances preclude this interpretation: (1) Cassel formally opposes the conception of a real or natural rate as distinct from actual money-market rates; (2) he introduces the "too low" bank rate merely as "another factor," not as *the* factor, as Wicksell would have done, and labels the discussion of technical improvements "Further Explanation of Trade Cycles";³ (3) the interest differential theory necessarily implies that with reference to the natural rate of interest at the end of the prosperity phase, there are too many capital goods *in comparison with consumers' goods*. But Cassel specifically denies that the production of consumption goods has any "marked dependence" upon the cycle.⁴ Such empiric evidence as he does adduce with regard to consumption goods is to be criticized adversely less upon its statistical adequacy⁵ than upon the theoretical use made of it. As Zimmermann points out,⁶ Cassel concludes merely that consumers' goods show relatively

¹ Frita Machlup, *Börsenkredit, Industriekredit, und Kapitalbildung* (Vienna, 1931), p. 119.

² *Theory*, 2nd ed., II, 644-645.

³ *Ibid.*, pp. 625, 642. With reference to *what* is bank rate "too low"?

⁴ *Ibid.*, p. 552.

⁵ Georg Halm, "Das Zinsproblem am Geld- und Kapitalmarkt," *Jhrb. für N. & S.* 125, p. 29. Beside this criticism, Halm seems to imply the one made here, inasmuch as, despite his general reliance upon Cassel, it is Spiethoff to whom he refers when emphasizing the *relative* movements in long and short term loan markets.

⁶ Kurt Zimmermann, *Das Krisenproblem in der neuern nationalökonomischen Theorie* (Halberstadt, 1926), p. 108.

less important variations than do producers' goods. A theory which rests upon the divergence of natural and bank rates should regard this relatively smaller variation, not as evidence of slight connection with cycles, but as *paramount* with variations in fixed capital production in causing a *disparate* development in the two fields. But Cassel says quite unqualifiedly that "the alternation between periods of boom and slump is fundamentally a variation in the production of fixed capital, but has no direct connection with the rest of production."¹

If the disproportionality in the demand and supply of capital cannot be put in terms of natural *versus* bank rate, of savings *versus* investment, of capital goods production *versus* consumers' goods production, i. e. in all cases in *relative* terms, we seem to be thrown back upon absolute variations in *the* interest rate. Since a trade cycle represents an economic disturbance; and since on this hypothesis absolute movements of interest cause the cyclical variation, only *anti-equilibrium* changes of interest come into consideration. What causes such changes? Cassel seems to respond that cycle analysis may begin conveniently at the end of depression with an interest rate which is "too low" by virtue of the previous period of liquidation and reduced production of capital goods.² But, as Wagemann and Löwe have protested,³ the depression itself is represented as resulting from the preceding period of prosperity, which in turn "owed its existence to the low rate of interest during the previous depression." We seem to be driven to Stucken's conclusion that Cassel "does not at all explain the existence of conjunctural variations, but contents himself with working out their ideal type."⁴ Amonn wonders why Cassel did not utilize in the kernel of his theory the animating factor of periodically renewing entrepreneurial activity — Cassel does mention it — to avoid a *perpetuum mobile*.⁵ Possibly he would respond that, even aside from such waves of enterprise, business cycles could arise from *incorrect estimates* of the volume of savings; he does indeed say that cycles would persist under socialism for this very reason. If this process of elimination actually ferrets out what Cassel considers to be the main factor, his theory resembles Wicksell's quite remotely.

¹ *Theory*, II, 552.

² *Ibid.*, p. 639.

³ Cf. *Economic Rhythm*, p. 254, for both.

⁴ Rudolf Stucken, *Theorie der Konjunkturschwankungen* (Jena, 1926), p. 3, note.

⁵ Alfred Amonn, "Cassels System der Theoretischen Nationalökonomie," *Archiv* 51, p. 350.

IV. CLASSIFICATION OF MONETARY CYCLE THEORIES

With as infinitely complex a phenomenon as conjunctural variations, numerous issues might be taken as bases for separating writers into distinctive groups. Theoretical opinion, even within the monetary wing, divides upon such questions as whether stocks tend to increase in booms or slumps, whether real wages advance in the upswing or downswing, whether idle plant capacity and a reserve of labor is necessary to explain the beginning of revival, whether booms are shut off by bank reserve limitations or by "real" factors, etc. Nevertheless other questions, perhaps no more weighty than these, relate more intimately to the character of the monetary approach. For example, it is a matter of paramount importance whether monetary theories envisage the credit factor not merely as a *necessary* condition but as *the sufficient* condition for cyclical oscillations; in other words, whether, from the angle of the money and credit system, cycles are exogenous or endogenous in origin. But this issue does not recommend itself as a basis because the resulting division would be altogether lopsided. With the exception of Mises and possibly of Machlup, all writers suppose that cycles are initiated by the *inaction* of banks, by their failure to raise the rediscount rate when natural rate advances under the influence of technical improvement. The overwhelming majority of monetary theories are not "pure"; they do not dispense with the exogenous factor of technological progress as a prime mover.

Another line of demarcation might be drawn between those who find the real evil of the "trailing bank rate" in its artificially lowering capital *costs* or raising capitalized values, and those who emphasize the excessive *volume* of bank credit. In this case the division would not be so one-sided, for the latter viewpoint is not only explicitly adopted by Eucken and Stucken but inheres in the stress laid by Schumpeter and Hahn upon the existence and quantity of new purchasing power, rather than upon its cost. But just as in the case of Wicksell himself, many writers do not distinguish between the two aspects of the matter sharply enough to warrant their inclusion in the one or other group.

But a clear theoretical fission, one fraught with weighty practical implications, arises over the question whether bank credit expansion is or is not *productive*. Every writer comes sooner or later to a fairly

definite position upon this issue. Furthermore, the affirmative answer is usually conjoined with one particular conception of natural rate and with one type of monetary policy; the negative with the contrasting rate concept, the contrasting policy. Schumpeter and Hahn are convinced of the generally beneficent effect of judicious injections of new bank credit; if constancy in the commodity price level leads to a coincidence of natural and bank rates, it leads also to stagnation. In common with Robertson, they would look upon recurring periods of temporary inflation as the most expeditious way of bringing technical advance to economic fruition. To eliminate cyclical ebbs and flows by a sufficiently drastic credit policy would throttle the dynamic process of evolution under capitalism.

The other and numerically stronger school of monetary theorists regards credit extension with degrees of mistrust varying from Hayek's certain conviction that the result must in all events be a net economic loss, to Haberler's tempered scepticism of the outcome. Most frequently this attitude is supported by the idea that only when commodity prices decline conformably to cost reduction can natural and bank rates coincide, although here again there occasionally appears the conception of equilibrium with constant prices. Theorists of this persuasion ordinarily demand that bank policy be directed toward the complete exclusion of conjunctural variation, be it by a rigorous fixation of the quantity of credit, or by a policy of price stabilization.

Subsequent chapters proceed upon the basis of this dichotomy between optimists and pessimists. There will appear a general affinity on the one hand between the sanguine attitude toward credit extension, the concept of equilibrium with constant commodity prices, and hostility toward the "conjunctureless economy"; upon the other, between the sceptical attitude toward increased bank lending, the theory that only secularly declining prices secure a balance of saving and investment under technical progress, and the conviction that cycles should be eliminated.

CHAPTER XVIII

THE SCHUMPETER-HAHN TYPE OF CYCLE THEORY

I. SCHUMPETER'S EXPLANATION: WAVES OF ENTERPRISE AND CREDIT CREATION

ALTHOUGH Schumpeter does not agree with Hawtrey that the cycle is a "purely monetary phenomenon,"¹ he considers the cooperation of banks to be an indispensable condition,² and indeed assigns to the credit system so integral a rôle that Keynes finds himself "in strong sympathy" with this sort of explanation.³ Contrasting his theory on the one hand with the reasoned history of Mitchell, and on the other with the Pigou type which admits a plurality of specific causes, Schumpeter seeks for a unique cause of those *regular* economic waves which we distinguish from seasonal, "long wave," and trend movements. That cause lies in the more or less periodic appearance of industrial innovators who introduce new modes of production.

In the static economic system any external disturbance, such as a war or bad harvest, is gradually absorbed by the infinitesimal adjustments of the equilibrating process; production goes on year after year in the same way, each bit of supply being paralleled somewhere in the system by a corresponding demand, the volume of money being perfectly adjusted to the circulation of goods. All funds are predestined in their use from traditional practice, and consequently there is no money market but only a sort of central clearing place.⁴ Since, on the one side, individual differences in appraisal of the future prevent any certain conclusion as to whether present or future would be the object of discount, and, on the other side, since the universal operation of plant at the best-possible factor combination prevents there being any gain in transferring resources through fluid purchasing power, interest does not exist.⁵

¹ Joseph Schumpeter, *Theorie der wirtschaftlichen Entwicklung*, 2nd ed. (Munich, 1926), p. 342, note; *idem*, "Kreditkontrolle," *Archiv* 54, pp. 317-318.

² *Archiv* 54, *loc. cit.*; *idem*, "The Explanation of the Business Cycle," *Economics* 21, p. 306.

³ J. M. Keynes, *A Treatise on Money* (New York, 1930), II, 96, 100.

⁴ *Entwicklung*, pp. 108, 201.

⁵ *Ibid.*, pp. 172, 241, 286-287, 307.

Even in the equilibrium economy there exists a stock of technical knowledge in advance of practical utilization. Suppose now the true entrepreneur, as distinguished from the mere manager (*der Wirt schlechtweg*), appears. He introduces new goods, new qualities, new productive methods; he opens up new markets, discovers new sources of raw material and intermediate goods; he carries out innovations in business and financial methods, creates or destroys monopolies.¹ The drama of economic development begins: capital, interest, and profits enter the stage. Were the supply of funds merely that of static equilibrium, it would be limited to funds set free by the withdrawal of manager-capitalists from production, or by their decision to limit more narrowly consumption or output.² But in a developing economy, the command over productive resources emanates chiefly from banks. The supply of created credit, upon the one hand, is limited by drains upon bank reserves and by the losses of unsuccessful entrepreneurs; upon the other hand, there stands a practically unlimited demand for credit from the innovators and their imitators. Interest rests at the level set by the marginal employment of funds; and profits absorb the excess upon intramarginal employments as a payment to entrepreneurs for the additional product imputable to their contribution.³

Once capitalistic evolution is under way, large streams of purchasing power in addition to the credit created by banks flow into the money or capital market: the reinvestment of entrepreneurs' profits and the gains of their followers, capital liberated by the retirement of entrepreneurs or their heirs from business, savings of persons who are now induced to abstain because interest exists, and temporarily idle capital, e. g. working capital momentarily not in use. Interest completely dominates the scene; the yields of durable income bearers such as land or perpetual monopoly come to be regarded as interest, although in reality they are not. By the same token even the quasi-rents of particular capital goods come to be capitalized. To view actual incomes *sub aspice* interest has no harmful effect with the former class of goods; but temporary yields have the fatal propensity of disappearing suddenly, and to capitalize these earnings invites disaster.⁴

¹ *Ibid.*, pp. 100-101; *Economica* 21, pp. 291-295.

² *Economica* 21, p. 289.

³ *Entwicklung*, pp. 211-226.

⁴ *Economica* 21, pp. 300-310; *Entwicklung*, pp. 310-312.

Such is the complexion of the capital incomes; they are the earmarks of a society such as modern capitalism where innovation prevails to greater or lesser measure over adaptation and adjustment. The "more and less" gives the phenomenon of business cycles. Spiethoff's analysis of these movements can be subscribed to in most respects: that the whole conjuncture and not the crisis is the basic fact; that business cycles are the form of development which capitalism assumes; that cyclical movements made their debut in England about 1821; that an index of iron consumption gives the most significant indication of the course of cycles; that the causal process begins with income-yielding commodities; that the upswing begins with increased capital investment. All this may be accepted as *description*, but it fails to reveal *why* industrial and commercial change is not evenly distributed in time. There is but one answer, that "as soon as any step in a new direction has been successfully made, it at once and thereby becomes easy to follow . . . the first success draws other people in its wake, and finally crowds of them, which is what the boom consists in.¹ Three other factors strengthen this tendency, without being independent causes: (1) the imitators come, not in place of the entrepreneurs, but beside them, and compete with them; (2) this releases a secondary wave, a spread of the rise of prices to all lines of production, setting into motion speculation, itself a factor in prosperity; (3) errors of judgment occur.² The effect of bank credit expansion, created *ad hoc* to finance these combined demands, is an advance in prices of labor and natural resources, "*until enough means of production have been*, by the rise of prices, wrung from those firms which had been in the habit of buying them, to satisfy the additional demand of the newcomers at the new prices."³

The length of the upswing depends upon the production period for new products. At the end of this time of gestation, prices begin to decline under the combined influence of larger volume of product and the liquidation of loans by entrepreneurs when their goods come to the marketable stage. At the very time when entrepreneurial profits are subjected to the depressing effect of price declines, they are whittled away below by the rise of costs.⁴ These are the inevitable outcomes of changes wrought by the crowd of innovators, and

¹ *Economics* 21, pp. 297-298.

² *Entwicklung*, pp. 336-339.

³ *Economics* 21, pp. 303-304. (Italics Schumpeter's.)

⁴ *Entwicklung*, pp. 343-347.

the downswing is equally inevitable. In comparison, other features which signalize the crisis, such as misdirected production and pessimistic mass psychology, play a secondary rôle. Elimination of profit is not the only circumstance preventing the appearance of new entrepreneurs seeking credit for productive ventures, for the complete recasting of economic data during the period of prosperity introduces such universal *uncertainty* concerning prices, costs, clientele, appropriate methods of production, and the character of competition that enterprise must cease.¹ Besides, the central bank usually institutes definitely restrictive measures.

Depressions are rightly interpreted as

periods in which there is realized an adaptation to the situation created by the preceding period of upswing, an adaptation which, because of the magnitude, number, and abruptness of the innovations, lacks that gradualness and inconspicuousness with which small reabsorptions . . . can be accomplished.²

Firms which fail are more likely than not the very ones possessing the courage and zeal of true entrepreneurship. Not the old established producer but the innovator it is who encounters the greatest resistances: difficulty in securing capital, technological problems, complications concerning plant location, the right complement of labor and type of business organization, and finally the crucial question of disposing of product. But from the social angle, the depression fulfills what the upswing promised: an increase of product and a reduction of real costs per unit of output. It redounds chiefly to the benefit of persons with fixed money incomes, the pensioner, the *rentier*, the state employee, the landlord; but even labor does not lose what it gained in prosperity: the purchasing power of the wage unit rises and the total wage bill declines less than its former advance.³

To say that Schumpeter attempts to explain business cycles upon the basis of waves of economic innovators is to do him less than justice. As the title of his work indicates, he does not confront the phenomenon as something *sui generis*, an isolated and special department apart from the principles describing the ordinary tenor of industrial and commercial life, but as *being* the process of production under a developing capitalistic society. He returns to the wholesome

¹ *Ibid.*, pp. 347-348; *idem*, "Die Wellenbewegung des Wirtschaftslebens," *Archiv* 39, pp. 19-20.

² *Archiv* 39, p. 20.

³ *Entwicklung*, pp. 361-362.

attitude of Adam Smith that political economy describes the operation of forces operating not only toward, but away from, the stationary state. *The Theory of Economic Development* represents a signal attempt to narrow the gap between abstract theory and the mere description of economic institutions. Even if cogent reasons may be adduced for believing that both interest and profit would, contrary to Schumpeter's belief, exist in a condition of perfect economic equilibrium, their magnitudes in a rapidly progressing economy depend largely upon anti-equilibrium forces. And even if business cycles are regarded as something less inclusive than economic activity itself in a dynamic society, neither monetary nor non-monetary theories can easily dispense with Schumpeter's entrepreneur.¹

The least satisfactory aspects of the theory appear in Schumpeter's treatment of limits to expanding bank credit. Objecting to Spiethoff's dictum that there exists an "insurmountable limit" to purchasing-power creation in *existing* stocks of goods, he says that "the possible volume of newly-to-be-created purchasing power is supported and limited by *future* goods."² To this Diehl replies that banks cannot lend capital which is yet to come into being, but can only transfer title to existing stocks;³ but Schumpeter has anticipated such an objection, explaining that though the initial increase of bank credit works only upon the distribution of present stocks by means of the rise of costs to older entrepreneurs, there results an increased flow of goods, and this is the future capital against which the early loans were made.⁴ At this stage an altogether natural criticism would be Neisser's: that actually the volume of credit creation tends always toward a maximum allowed by the existing cash basis, and that to say that the volume of future goods sets the limit is to confuse fact with desirable credit policy.⁵ What Neisser evidently overlooks, however, is Schumpeter's explicit contention that fact and

¹ Though they may wish to avoid the aura of virtue and beneficence which Schumpeter attaches to the captain of industry. "There is a crass effect in this hymn to the entrepreneur as the Energetic Hero, who through his idealism brings about economic progress, while all other economic subjects are consigned to the blockhead and obliging group of hedonists, who first oppose the Energetic Man from pure indolence, and then adapt themselves to him with resignation, because they are prevented by the energetic group from continuing with their traditional hum-drum." — Kurt Zimmermann, *Das Krisenproblem in der neuern nationalökonomischen Theorie* (Halberstadt, 1926), p. 50.

² *Entwicklung*, p. 165, note. (Italics his.)

³ Karl Diehl, *Theoretische Nationalökonomie* (Jena, 1927), III, 585-586.

⁴ *Entwicklung*, pp. 155-156 and ff.

⁵ Hans Neisser, *Der Tauschwert des Geldes* (Jena, 1928), pp. 144-146.

desirable policy *do* coincide, that even in default of legal limitations, commercial banks restrict loans enough to prevent anything but a temporary price rise. This is supposed to follow from loss of reserves with inflationary expansion, and from the necessity imposed upon the bank of footing customer bankruptcy with its own reserves or with other persons' savings obtained by further note issue.¹

If losses can be covered by further note issue, there is no second limit to credit expansion beside reserves. So far as concerns the latter, loss of reserves affords no automatic check whatsoever if the boom is international in scope; and even if it is limited to the national economy, what guarantee can Schumpeter find that the loss of reserves acts quickly enough to prevent inflation? His own misgiving as to the possibility of inflation in America in 1925 from redundant gold stocks² does not square with this position; and elsewhere he has maintained that international inflation, conjunctural profits, and further borrowing present a process which "will repeat itself"; "the price level will rise, without assignable limit."³ Despite such concessions, Schumpeter has in a recent symposium upon credit problems⁴ reiterated the stand taken in his systematic work.

Although the self-liquidating character of credit inflation may be rejected as an excrescence, Schumpeter's contention that the *length* of cycles depends upon the period of gestation for the products of economic innovators is another way of saying that fundamentally business cycles *consist* in waves of capital investment. The two ideas stand or fall together. To treat the problem fully would be to construct a theory of cyclical variation. Nevertheless, viewing the whole problem briefly *sub aspice* duration may be profitable, particularly as Schumpeter's position is warmly supported by Keynes. According to the latter, the primary phase of a credit cycle, introduced by some such circumstance as a new technical discovery and characterized by an increase in fixed capital investment, is succeeded by a secondary phase, the expansion of working capital and an increased flow of consumers' goods to the market. But the attendant decline in prices ushers in the downward phase "not much more than

¹ *Entwicklung*, pp. 162-163.

² *Archiv* 54, pp. 299-311.

³ Joseph Schumpeter, "Das Sozialprodukt und die Rechenpfennige," *Archiv* 44, pp. 711-712.

⁴ *Die Kredit-Wirtschaft* (Leipzig, 1927), I, 96.

one production period after the secondary phase of the boom . . . has properly set in."¹

Hawtrey attacks the Schumpeter-Keynes hypothesis as to the length of booms upon three grounds: that it supposes an isolated impulse toward increased investment to initiate each cycle, whereas a technical improvement of a given sort actually persists through several cycles; that stocks of finished and half-finished goods — working and liquid capital in Keynes' terminology — largely neutralize inequalities in the rate of production of consumers' goods; and finally that producers' commitments, not the productive period, determine the interval necessary for an increased flow of output to react adversely upon itself through falling prices.² Against the first criticism Schumpeter might hold with good reason that the impulse to investment from "new combinations" does not have to be "isolated" in the sense of being unique for each cycle. The economic advantages of steam transportation could give rise to a railway boom; and a subsequent collapse, no matter how severe, would not prevent the same advantages from engendering another period of rail expansion once the debris of depression had been cleared away. Merely that the same impulse recurs at the outset of several cycles does not divorce duration of boom from production period *in each cycle*.

One of the main reasons why Hawtrey maintains the "purely monetary" origin of conjunctures, against the theory prevalent in Germany and England that credit variations assume significance not absolutely but in relation to real investment, is his belief in a compensatory action exercised by stocks of liquid capital. If the price rise of consumers' goods attending a deflection of income into fixed or working capital were blanketed down by drawing upon stores of finished and half-finished goods, a number of productive periods might be passed over before a relative shortage of consumers' goods *in general* put a check upon further investment. Or if stocks could readily be absorbed and maintained in storage, the redundancy of *certain* consumers' goods at an advanced stage of boom might be concealed and the debacle postponed. In either event the limit to rising activity would appear considerably later than "one production period after the secondary phase of the boom." Keynes has, however, presented quite compelling reasons for denying a balancing ac-

¹ *Treatise*, I, 304.

² R. G. Hawtrey, *The Art of Central Banking* (London, 1932), pp. 387-391.

tion: the slump of production in depressions, and the weight of such carrying costs as deterioration, warehouse, insurance, and interest and risk charges.¹

But Hawtrey's case against Keynes, and equally against Schumpeter, involves further an attempt to redefine "production period" in a way which would make it too brief to be plausibly connected with the duration of booms. The production of every good goes forward simultaneously in a number of separate processes, Hawtrey argues. Since there are stocks at each stage, the interval required to bring additional consumers' goods to market equals only the "longest separate process" and not the entire series.² Now this is certainly erroneous. A stock of twenty-three per cent at a given stage, such as Hawtrey assumes, does not care for a variation of consumer demand by that amount until the output of this stage has been worked *through all succeeding stages*. Simultaneity of production does indeed reduce the length of the interval below the sum of the separate processes; but it would never be as small as the "longest separate process" unless that were the last but one in the series. But if stocks do not accumulate in any significant magnitude, as Keynes maintains, the supposed simultaneity vanishes anyway.

Finally Hawtrey proposes the state of producers' commitments as the real factor defining the interval "between a change in demand and its effect upon output." Conformably to the Schumpeter-Keynes thesis it would seem necessary to speak in terms of changed *supply* rather than demand, since it is the wave of new output which causes the downward turn in prices and rate of production. With this emendation, commitments may be accepted as a real factor in prolonging the boom past the production period. Cancellation of contracts by mutual agreement and the impunity with which agreements are broken in time of general embarrassment have to be set against this fact, however, and the net effect might not be particularly impressive.

It is not to be concluded from the flaws in Hawtrey's criticism that important forces do not intervene to prevent a coincidence of production period and boom. For one thing, the monetary factor may, through various channels, cut short or prolong the prosperity phase.

¹ *Treatise*, II, 133-147.

² *Central Banking*, pp. 390, 394-399. Hawtrey quite justly objects to Keynes' ascribing to him the idea that at the end of depression stocks are sufficient to maintain production *throughout the upswing*, *ibid.*, p. 396.

A sudden alarm over gold withdrawals may prompt credit restriction and force liquidation before the new production has run its course; or excess reserves may enable the carrying of stocks for a time upon credit, staving off the price collapse. The persistence of an abnormally low bank rate and inflation may turn resources into investment and away from consumers' goods fast enough to offset a deflating effect from the first harvest of output. Keynes himself calls attention to the possibility that the development of bear sentiment should increase the requirements of the Financial Circulation so as to choke off the flow of industrial credits and impose a limit upon expansion of investment, a contingency not necessarily contemporary with the end of the production period.¹ Indeed, this is merely to recognize the operation of the "real" factor of mass psychology as something distinct in the cycle from the technique of production. Finally, the boom might be terminated by a decline in buying power on the part of agriculture, transpiring, as Robertson has shown, as the consequence either of high agricultural prices encountering elastic demand for the produce, or of very low prices encountering inelastic demand.² Amongst these modifying factors, Schumpeter calls especial attention to those of "anticipation" — the psychological cause — and to interference by the central bank.³ It is apparent therefore that outstanding protagonists of the production-period concept of the boom admit other elements operative upon duration. On the other hand, few students of the problem deny the intimacy between business cycles and variations in fixed and working capital; and this carries with it the idea of some degree of correlation between time periods in the two phenomena, whatever index of cyclical variation be employed.

In ascribing crises primarily to the deflating effect of the harvest of new consumers' goods, but avoiding the idea of over-investment, Schumpeter may seem to some persons to take a more defensible position than Keynes and Robertson and the majority of German writers, all of whom adopt both ideas. It may be well to anticipate a possible objection to the juxtaposition of the two concepts, even though this does not characterize Schumpeter's theory. The objection follows these lines: if crises are caused by a superabundance of

¹ *Treatise*, I, 303-304; for a treatment of credit absorption upon the stock exchange, cf. Chapter XXI, pp. 381 ff., below.

² D. H. Robertson, *Banking Policy and the Price Level* (London, 1926), p. 14.

³ *Entwicklung*, pp. 347-348.

consumers' goods how can crises also be attributed to over-investment, which can only mean a superabundance of *producers'* goods relatively to consumers' goods? The answer is that it is really producers' and not consumers' goods which are in excess. If production has not been misdirected in the sense of turning out one sort of consumers' good in too great quantities relatively to other consumers' goods, output cannot be excessive since society can use any amount of consumable products. Despite this, *any* output, however accurately divided amongst various lines of consumer demand, can be made to *appear* excessive by a process of deflation. Unless vigorous action is taken by the central bank to compensate the process, prices will decline automatically, as Schumpeter has shown, under the combined influence of the increased volume of finished products, reduction of employment, entrepreneurs' paying off of obligations, and positive contraction by member banks. In the ordinary business man's terminology, there is a *universal* glut, i. e. consumers' goods will be marketable only below cost. A policy of what Hawtrey calls "reflation," put into effect immediately when the crisis appears, would go far toward preventing the downward spiral.¹ But even if the policy is completely successful and no stocks (save in conspicuous cases of misdirected production) have to be liquidated below cost, the mere cessation of forced saving now makes existing plants inappropriate to prevailing interest rates. Being oriented upon the basis of lower rates, their technical composition is such as to involve too heavy a proportion of capital to labor. The ones which have pushed the substitution of capital for labor farthest will suffer most. The difficulty may be alleviated temporarily by more cheap credit, but the final debacle will only be the more severe. Sooner or later comes the crisis, characterized *in all events* by "over-investment" in the sense just indicated, and also by an appearance of an over-supply of consumers' goods *in the particular event*, which is so common as to be regarded as "natural," of deflation. Nothing, therefore, stands in the way of a union of Schumpeter's theorem regarding crises with the over-investment explanation.²

¹ *Central Banking*, p. 271.

² This subject is considered at greater length subsequently; see pp. 403-410, below.

II. HAHN'S THEORY OF PRODUCTIVE CREDIT

The enthusiastic popular reception accorded Hahn has already been the occasion for comment; but *The Economic Theory of Bank Credit* in particular enjoys such wide recognition that academic economists, somewhat grudgingly,¹ have had to take cognizance of its claims. Indeed, as Haberler remarks, there has grown up of late a sort of separate Hahn literature; scarcely a work can be published in the field of money and credit without a fairly exhaustive critique of his doctrines.²

The necessary foundation for a theory of business cycles, says Hahn, is a correct apprehension of the nature and functions of credit in the economic process. In Germany the conventional view nowadays represents credit as a store of permanent or temporary savings deposited with the banks by the public.³ Classical economists made no mistake in tracing down every credit to abstinence, at a time when the volume of currency was definitely limited. Today the quantity theory does indeed take account of elastic bank credit, but the tradition is still preserved that credit originates in saving. Not primary but created deposits are the basic phenomenon. No longer are banks merely offices for borrowing and lending money, but dealers in "credit" in the literal sense of "confidence"; and interest, from being at one time a payment for saving, has become a price paid for confidence.⁴

In the sphere of goods this change signifies that "*capital formation is not the consequence of saving but of the extension of credit.*"⁵ This follows from the logical primacy of demand over actual production, a primacy concealed by the temporal precedence of the latter before the former. The real prerequisite for the appearance of a capital good is effective entrepreneurial demand, which credit extension brings into being.⁶ It is not asserted that lending itself actually produces goods, but that it induces an increase in production through a

¹ E. g. Friedrich A. Hayek, *Geldtheorie und Konjunkturtheorie* (Vienna, 1929), p. 84.

² Cf. Gottfried Haberler's review, *Archiv* 56, p. 803. Hahn himself gives three or four pages of references upon his doctrines in the third edition of his opus (Tübingen, 1930), pp. xiv-xvi.

³ L. Albert Hahn, *Volkswirtschaftliche Theorie des Bankkredits*, 1st ed. (Tübingen, 1920), p. 6; and ed. (Tübingen, 1924), p. 6. Until the concluding section, page references pertain to these two editions, which are identical.

⁴ *Ibid.*, p. 51.

⁵ *Ibid.*, p. 120. (Italics author's.)

⁶ *Ibid.*, p. 121.

change in distribution. How this transpires will appear from consequences attending a bank rate lower than the expected yield of capital goods, arising either from an absolute reduction of the former while the latter remains constant, or from a rise of the latter with bank rates unchanged.¹

Lower interest charges reduce costs to all entrepreneurs operating upon credit, not merely those to the producers of durable goods.² As a result all production expands, competition for labor and raw material grows more intense, and there appears at first that strictly inverse correlation of prices and discount rates described by the quantity theory. But in the modern industrial system, the introduction of labor-saving technique set over against a virtually constant volume of capital has resulted in an underlying tendency for interest to rise and wages to fall.³ The marginal laborer has passed over into the extra-marginal "not-laborer," choosing to subsist entirely upon his *rentes*. Consequently an expansion of credit operates, on the one hand, through rising wages to draw into active employment many members of this reserve army, including women and children, and thus to induce a fuller utilization of existing plant capacity; and on the other, through rising prices, to transfer income from the fixed salary and *rentier* group to entrepreneurs. The stream of goods is both broadened and lengthened: more of everything is produced and more capitalistic, more roundabout methods are employed. Not saving but altered distribution produces these results — distribution changed "interpersonally" by the forced rise of wages and fall of interest, and "intertemporally," by the forced deflection of goods out of present consumption. "Credit produces goods out of nothing, in that, without it, they would not have been produced."⁴

A by-product of this expansion of production may be⁵ a rise of prices for consumers' relatively to producers' goods. But the expansion could persist as long as new credit drew additional labor power into production.⁶ Experience shows, however, that ordinarily before this point is reached the rising conjuncture is broken off by a universal glut. How can this be accounted for? Simply by the fact that in the period of high earnings the laborer, having a fairly fixed standard

¹ *Ibid.*, pp. 131-132.

² *Ibid.*, p. 130.

³ *Ibid.*, p. 139.

⁴ *Ibid.*, p. 141.

⁵ *Sic, ibid.*, p. 133. Hahn does not seem to appreciate that his previous reasoning calls for "must," and so this sentence is merely a parenthetical observation.

⁶ *Ibid.*, p. 145.

of living, saves instead of spending his income; "circulating deposits metamorphose into savings accounts"; and the disappearance of this demand precipitates a fall in prices, production, and employment.¹ But a way lies open to the state to prevent this termination of the boom either by continued interest reductions through the central bank, enabling the producer to hold his finished products, or by removing the interest burden entirely through the purchase and storage of the goods on government account.² ". . . theoretically, at any rate, the assumption of the possibility of a 'perpetual boom' does not belong to the realm of Utopia."³ Whether or not to purchase greater and greater production by expropriating the salaried and *rentier* classes is a question belonging not to economics but to politics.

The course of Hahn's original argument, culminating in a supposed dethronement of frugality and an apotheosis of credit creation, has evoked emphatic denial at every stage. Aside from the identification of capital and money markets and a tendency, decried by Hayek,⁴ to recognize no more ultimate determinant of interest than bank liquidity, Hahn proves to be particularly vulnerable in arguing that capital originates in fundamentally different ways in a cash economy and in a cashless economy. As Neisser, Mannstaedt, and Haberler observe, the difference between the two systems is purely a matter of payment technique: bank deposits function just as money does, and in both cases interest is paid for the surrender of purchasing power, not, as Hahn would have it, for the cession of money in the earlier and for "confidence" in the modern system.⁵ To go below the merely superficial phenomena of credit and cash exchange media, we must agree with Lampe that it is quite as possible for coinage in a cash economy to make purchasing power available without saving as for credit creation to accomplish the same end in a bank deposit regime.⁶ By consequence, if capital comes into being in another way in the latter than in the former, it will have to be on other grounds than merely the creation of new purchasing power.

That the existing volume of bank deposits originates preponderately from loans is of course a far cry from the proposition that capi-

¹ *Ibid.*, p. 148.

² *Ibid.*, p. 159.

³ Neisser, *Tauschwert*, pp. 70-71; Heinrich Mannstaedt, *Ein kritischer Beitrag zur Theorie des Bankkredits* (Jena, 1927), pp. 13-15; Haberler, *Archiv* 56, p. 814.

⁴ Adolf Lampe, *Zur Theorie des Sparprozesses und der Kreditschöpfung* (Jena, 1926), pp. 134-135.

⁵ *Ibid.*, p. 151.

⁶ *Konjunkturtheorie*, pp. 103-104.

tal formation proceeds from credit creation and not from saving. It is not surprising, therefore, to find that Hahn tries to support the latter notion by some other argument than this flimsy confusion. Demand, he says, precedes production. But the really surprising thing is that this homely truth, equally valid for cash and credit economies, should somehow demonstrate that capital formation does not nowadays proceed from saving. Probably, as Lampe suggests, Hahn has unwittingly fallen victim to an ambiguity in his term "demand." If demand be interpreted as applying to the products of a capital instrument, it is of course apparent that the instrument would not be produced unless such a demand were *expected*. On the other hand, without demand in another sense, that is, *actually available* purchasing power in the form of a bank deposit, the entrepreneur could not undertake production at all. But Hahn, who says his proposition pertains to the first sort of demand, actually applies it also to the second, i. e. he assumes that whenever a bank extends credit to a customer, a *sure* market must exist for the capital good and its products. Of course, even if every bank loan did result in economically useful capital-good formation, it would not be true that "no capital good can be produced without credit creation," as Hahn states literally,¹ unless, furthermore, *no* new capital were produced on the basis of bank loans of accumulated savings. It is not necessary to argue against this absurd proposition inasmuch as Hahn himself blows hot and cold within the confines of a single paragraph. Admitting that current production proceeds out of "a certain stock of goods produced in the past capable of covering the need for nourishment, clothing, and shelter," he concludes, "*If this certain stock is present*, then the founding of new enterprises is independent of the supply of capital!"² Indeed, far from supporting the earlier dictum that capital formation is *solely* the product of credit creation, Hahn's description of the period of rising conjuncture indicates at the utmost that new credit *increases* the quantity of capital, and even then he concedes that this does *not* invariably transpire. And so the thesis of a totally new origin of capital is abandoned by the author himself.

The theory of business cycles, based upon the more modest claim of a productive effect of expanding bank credit, has been most ad-

¹ *Volkswirtschaftliche Theorie*, p. 121. "*Ohne Krediteinräumung*" might be ambiguous were it not for the previous statement "*Krediteinräumung ist also Schaffung kaufkräftiger Nachfrage*" (*ibid.*, p. 120. *Italics mine*).

² *Ibid.*, p. 142. (*Italics mine*).

versely criticized at three points: the course of wages relative to prices during the upswing, the cause of crises, and the final outcome of the whole evolution. Hahn, it will be remembered, relies upon *mounting* wage rates to activate the industrial reserve army during boom times. To object, as Haberler does, that this contradicts his admission that consumption goods are enhanced in price does not dispose of the matter,¹ because Hahn argues that through the competitive tendency of prices toward cost, consumption costs are indeed raised by the increase of nominal wages, but this is partly offset by the low interest charges which generated the upward movement.² On purely *a priori* grounds one might agree with Lampe that forced saving imposed merely upon the small class of non-laboring and non-entrepreneurial *rentiers* would scarcely support an increase of real income for the whole wage earning population.³ Or again, simply deductively, one may object that Hahn has given to laborers the conjunctural gains which were supposed to be in the hands of entrepreneurs, supplying the motivating factor in the whole upward movement. But the most effective answer would be Burchardt's appeal to the fact that real wages lag,⁴ if economists could be more certain that the statistical evidence is clearly in this direction. If Hahn had not relied upon a strictly rationalistic calculus to account for the existence of the reserve army in the first place, — that technical progress so raises interest rates as to induce the *rentier* to prefer idleness, — and had instead attributed ordinary unemployment to economic friction and inertia, he might more easily have accounted for increased employment and output attending *falling* real wages in the period of recovery. But unless real wages actually decline, the amount of forced saving would not be such as to lend much color to Hahn's expectation of a substantial increase in capital.

Furthermore, if forced saving supplies the driving power to a period of industrial expansion, why should not the voluntary savings of laborers, which Hahn supposes on the increase in the late stages of boom times, support the expansion indefinitely? It is enigmatic why he should believe that banks allow savings deposits to pile up without investing them, when the universal characteristic of the system

¹ *Archiv* 56, p. 817.

² *Volkswirtschaftliche Theorie*, p. 137.

³ *Sparprozess*, p. 161.

⁴ Fritz Burchardt, "Entwicklungsgeschichte der monetären Konjunkturtheorie," *Welt. Arch.* 28, p. 131.

according to his account is extending more credit than it receives.¹ This version of the over-investment theory, it will be observed, rests not upon the fading out of forced saving, but upon the (altogether improbable) growth of hoards.

No single feature of the entire structure has occasioned a more general outcry than Hahn's suggestion that proper authoritarian measures at the time of impending crisis might support a "perpetual high conjuncture." It scarcely requires an academic economist² to point out that either continued injections of credit at progressively lower interest charges or the purchase and storage of unmarketable products by the state would signify a nationalizing of industry, and that even such drastic measures would only intensify the final debacle, the more the longer they persisted.³ Far from leading to a progressive diversion of resources into capital form, as Lampe suggests,⁴ such policies mean outright and violent inflation, and the disappearance of all accumulation.

Finally the question presents itself whether, aside from such attempts to protract the boom indefinitely, artificial credit creation attending the ordinary cycle leaves society at the end better provided with usable capital. The answer naturally varies from the enthusiastic affirmative of Hahn's own followers to the categorical denials of the Vienna school. Midway lie the appraisals of the majority of special Hahn critics whom we have just mentioned. While maintaining that credit extension *per se* means only capital displacement, Diehl concedes that it may lead to an increase of capital formation, depending upon the success of the ventures it fosters.⁵ Lampe, as we have seen, proposes the same test. Considerably more sceptical is Haberler,⁶ for whom the "spark of truth" in the doctrine of the productive effect of "inflationary" credit is first, that it prevents declining prices in a progressive society, and secondly, that it overcomes the frictional resistance of an indolent entrepreneurial community. But the new undertakings called into being by inflation would not persist longer, with the return of interest to its natural level, than the life of their fixed capital equipment. Mannstaedt concludes that in a free exchange economy where banks exercise control only through prices, any policy may be thwarted by a tendency

¹ An objection levied by Burchardt, *loc. cit.*, and by Haberler, *Archiv* 56, p. 818.

² Diehl, *Theoretische Nationalökonomie*, III, 582.

³ Cf. Wilhelm Röpke, "Kredit und Konjunktur," *Jhrb. für N. & S.* 126, p. 263.

⁴ *Sparprozess*, pp. 152-158.

⁵ *Theoretische Nationalökonomie*, III, 571.

⁶ *Archiv* 56, pp. 817-818.

for the public to react upon these prices negatively; in other words, though banks may give an initial impulse toward the liberation of productive factors through credit creation, ultimate success depends on the public's voluntary continuance of the additional saving.¹ This is practically what Lampe and Diehl have said: the answer depends on whether the ventures based upon forced saving succeed. It is certainly not a foregone conclusion, as Hahn assumes, that even while the artificial depression of interest persists, the new produce will cover interest and depreciation costs, nor *pro tanto* that this will be the case if the cessation of the forcing is accompanied by a sag in the magnitude of saved income.

Since the appearance of the first and second editions of the *Volkswirtschaftliche Theorie*, Hahn has abated his radicalism at certain points and at others altered the supporting argument. Most noteworthy is the disappearance of the idea of maintaining a "perpetual boom." Although proposals to overcome glutted markets by state assumption of interest changes or by inflation were repeated as late as 1926,² their omission in Hahn's widely read contribution to the *Handwörterbuch* on "Kredit"³ is a matter of general comment. In the third and completely revised edition of his magnum opus,⁴ Hahn retains nearly all of the catchwords around which the underlying theory was originally developed. But there are some very significant departures. Although we still read that "every increase of credit increases goods through a change in their distribution," we discover also that even aside from such debacles as the German inflation, the stimulating effect of credit sometimes proves to be quite short-lived.⁵ Credit expansion now becomes an "essential condition" for the development of cycles, not the unique cause.⁶ But most notably, the explanation of crises from laborers' savings, or rather hoards, disappears completely. There is some evidence that the reason is an uncertainty on Hahn's part as to whether real wages advance as much above the standard of living as he had imagined in boom times.⁷ Be that as it may, crises occur simply because a time

¹ *Kritischer Beitrag*, pp. 30-31.

² According to Diehl, in Hahn's article "Krisenbekämpfung durch Diskontpolitik und Kreditkontrolle," *Soziale Praxis* 37, p. 931.

³ *Handb. der Staats.*, 4th ed. (Jena, 1923), V, 944-953.

⁴ *Volkswirtschaftliche Theorie des Bankkredits*, 3rd ed. (Tübingen, 1930).

⁵ *Ibid.*, pp. 155, 152.

⁶ *Ibid.*, p. 154.

⁷ *Ibid.*, pp. 119, 123-124. The increase of labor supply is sometimes made to turn merely upon the "illusion of a constant value of money."

must "necessarily" come when the stimulus of conjunctural gains to entrepreneurs has exhausted itself.¹ Although he continually lays great stress upon "intertemporal and interpersonal changes in distribution" wrought by artificially low bank rates, Hahn does not recognize that this distortion of productive factors into the capital category can itself account for a breakdown. In this he resembles Schumpeter, and it may be ventured that the failure to perceive the dangers of over-investment accounts for the sanguine attitude of both writers toward the outcome of credit inflation.

A section on Hahn should not close without reference, at least, to his study of German bank series over the period 1900-13.² Here Hahn writes as a practical banker, and the analysis has been widely recommended. From the angle of the history of German theory, however, the early and more radical writings of Hahn are more significant, presenting a bold thesis³ which gives rise to an equally bold antithesis on the part of the Vienna group.

¹ *Ibid.*, p. 146.

² "Zur Frage des volkswirtschaftlichen Erkenntnisinhalts der Bankbilanzsiffern," *Geld und Kredit, Neue Folge* (Tübingen, 1929), pp. 149-189.

³ An illustration of the "idiot fringe" which all theories possess is afforded by Hans Honegger's *Der schöpferische Kredit* (Jena, 1929). Capital is necessary to production only when it has to be pledged as collateral for a loan. So long as confidence persists, there is no limit to the profitable extension of bank credit. The entire pamphlet is a panegyric to "creative credit."

CHAPTER XIX

THE MISES-HAYEK ANALYSIS OF CYCLES

THE classical expositions of the two main types of cycle theory proceeding upon the monetary basis are of course Schumpeter's *Theorie der wirtschaftlichen Entwicklung* and Mises' *Theorie des Geldes und der Umlaufsmittel*, both of which appeared first by an odd coincidence in 1912. To discover what results from pushing some of Schumpeter's ideas to their "logical" — or perhaps better, illogical — conclusion, it was necessary to turn to Hahn. For the full development of Mises' theory it is necessary to study the work of Hayek.

I. MISES' INDIVIDUALISTIC PHILOSOPHY OF CREDIT

When the first edition of Mises' book on money and banking appeared, it concluded with an adoption of Wicksell's description of the conjunctural effects arising from the bank-rate natural-rate differential, adding however that "we are concerned here with a cause of crises which operates alongside others. Indeed, we ought to regard it as probable that in the scheme of things prevalent today in economic life and polity, the primary impulse to a boom does not come from the action of credit banks."¹ More conservative banks, prompted by consideration of their own interests in the long run, would dominate the tenor of the banking system sufficiently to prevent over-extension of credit unless there were pressure from outside. But in the second edition twelve years later, the foregoing limiting remarks are omitted.² With the publication of his special monograph on cycles in 1928,³ Mises comes definitely to the position that aside from economic disturbances caused by war, natural events, and adaptation to new economic data such as new wants and technique, the ebb and flow of business activity turns upon the development of credit. It is the artificial depression of their rates on

¹ Ludwig Mises, *Theorie des Geldes und der Umlaufsmittel*, 1st ed. (Munich, 1912), p. 434.

² *Ibid.*, 2nd ed. (Munich, 1924), pp. 374-375.

³ *Idem*, *Geldwertstabilisierung und Konjunkturpolitik* (Jena, 1928), p. 42, 56 ff.

the part of banks which initiates conjunctural movements. But why do banks launch into inflation when they know from experience its disastrous consequences? Because at the time of the founding of European banks of issue the notion prevailed that an important goal of *Wirtschaftspolitik* is the reduction of interest charges, and that banks are suitable instruments for this purpose through making credit more abundant. Even then, since the expansion of banks disposed to "wildcat" operations would be checked by adverse clearing balances in favor of conservative institutions, there would be no danger were it not that the state comes to the rescue of the prodigal members of the system by such devices as suspending the Bank Act. This it does in response to popular sentiment for cheap money. The final cause of crises is ideological: since the state always yields to this pressure, the whole banking community relies upon outside relief in extremity and proceeds to drive a lucrative business on low discount rates.

The relation between the value of capital goods *in natura* and their expected product is the natural rate of interest.¹ If banks begin lending at a lower figure the prices of commodities will advance faster than costs, chiefly through the lag of wages, and entrepreneurs realize a differential gain. These persons, being generally richer than the ones expropriated, will add somewhat to the total volume of voluntary saving. No doubt the effect is not mechanical and varies with different societies, with different income stratifications, etc.; but one may conservatively guess the reduction in the natural rate from this cause to be "seldom very appreciable."² On the other hand, with every position of the natural rate there is an appropriate degree of indirectness in production: the productivity of capital suffices to support laborers for just a certain degree of roundaboutness in production. The too low rate of bank discount artificially prolongs the productive period, initially raises the prices of producers' goods more than consumers' goods, and finally, when a shortage of consumers' goods develops before the newly initiated and more capitalistic processes can be completed, raises the prices of the means of subsistence acutely. The latter tendency is accentuated by the

¹ *Theorie*, 2nd ed., p. 347. Mises believes that the Harvard Bureau's A, B, and C curves give some indication of the behavior of this rate; but in general his attitude toward statistical measures of cyclical variations is highly sceptical. *Konjunkturpolitik*, pp. 69-73.

² *Theorie*, 2nd ed. pp. 354-366.

reduction in voluntary saving, which arises as an offset on the part of the victims of forced saving.

The time comes when banks, having persistently raised their rates but always with a certain lag after the natural rate, now advance them sharply to exclude a portion of the borrowers and to compensate for the high rates which must be paid on primary deposits. When the bank rate thus approaches the natural rate and credit is besides rationed out, the crisis comes. Even if there were no reserve requirements, the process of inflation would eventually be terminated by a flight into real values, foreign moneys, precious metals, and barter. By continuously pumping bank money into circulation banks may postpone the evil day, but the crash comes all the more violently when it does occur.¹ And so ordinarily the banks anticipate the ultimate debacle and put a stop to the inflation out of consideration for reserve requirements and foreign exchange quotations.²

After the crisis the price level declines under the influence of a bank rate higher than the natural rate, but the liquidation of stocks progresses with such violence that the former rate finally falls below the latter without producing any effect toward recovery. Eventually the process of recovering confidence and continuous accumulation brings the two rates into equilibrium and the way lies open to a repetition of the whole cycle. The final situation is as before with the exception of the misapplied capital, which remains permanently unprofitable.

Instead of fatalistically accepting business cycles as an inevitable characteristic of capitalism, the economist does well to point out the desirability of avoiding all inflation and forced saving. If, on the one hand, artificial stimulus to trade would disappear, on the other a slower but more continuous and economical rate of progress would result. But this policy does not imply an attempt to stabilize the value of money, for purchasing power cannot be measured objectively. Price indices do not distinguish between changes in the inner and outer exchange values of money; they rest upon the assumption of an eternal man with crystallized wants; their weighting, type of average, and inclusiveness depend upon personal judgment; the process is arbitrary, the results artificial.³ What is really the prime requisite is to eschew all attempts to lower interest by artificial devices, to bring about prosperity through bank credit. Inflationism

¹ *Ibid.*, pp. 372-375; *Konjunkturpolitik*, pp. 50-53.

² *Idem*, *Die Ursachen der Wirtschaftskrise* (Tübingen, 1931), p. 13.

³ *Konjunkturpolitik*, pp. 18-34.

thrives today under such deceptive catchwords as "international cooperation of banks" and "bank control of money markets." To thwart this tendency it is necessary either to reintroduce the *fixed* uncovered note and deposit contingent of the Peel Act or to eliminate all state intervention in banking and restore the principle of free banking.¹

Aside from the common run of objections to the interest differential theory of cycles, Mises' position has aroused adverse comment even from members of the monetary group because it lays the whole responsibility upon the activity of banks. The Wicksellian tradition, that the *inaction* of banks, in failing to advance their rates, causes a distortion when technical progress raises the natural rate, commands greater respect with such persons as Hayek, Strigl, and Machlup.² Hayek has also deplored Mises' emphasis upon general price level movements, pointing out that important economic variations of a cyclical character can be traced to an increase in the volume of money and credit, even if, as in the half-dozen years before 1929 in the United States, no pronounced drift in the general level of prices can be discerned.³

Nor have most writers accepted the dogmatically individualistic policy toward banking for which Mises is so widely known. Neisser has shown that the argument advanced in favor of the free banking principle rests upon a false analogy, that bank notes do not have the same homing power as deposits, and that the adverse clearing balance, which Mises thinks will hold the less careful banks in check, may be met for dangerously extended periods by inter-bank borrowing. Furthermore, whatever stability is imposed upon the banking system by the conservative banks redounds equally to the advantage of the other banks.⁴ Mises' alternative proposal, to reconstitute the Peel Act in its strict form, has been called by Stucken "a stabilization of perpetual depression."⁵ This issue may best be considered in connection with Hayek, Mises' most distinguished follower.

¹ *Ibid.*, pp. 72-84; *Theorie*, 2nd ed., pp. 406-410; *Wirtschaftskrisen*, pp. 32-34.

² Friedrich A. Hayek and Richard Strigl, comments in "Konjunkturforschung und Konjunkturpolitik," *Verein* 173, ii, 190, 240, ff.; Fritz Machlup, *Börsenkredit, Industriekredit, und Kapitalbildung* (Vienna, 1931), p. 177.

³ Hayek, *Geldtheorie und Konjunkturtheorie* (Vienna, 1929), pp. 61-63.

⁴ Hans Neisser, "Notenbankfreiheit," *Welt. Arch.* 32, pp. 446-461.

⁵ Rudolf Stucken, "Neue deutsche Konjunkturliteratur," *Ztsch. für d. ges. Staats.* 86, p. 150.

II. HAYEK'S DOCTRINE OF NEUTRAL MONEY

The most systematic elaboration of the monetary explanation of cycles in Germany and the most instructive formulation of the sceptical position regarding the outcome of bank credit creation is the work of Friedrich A. Hayek, director of the Austrian *Institut für Konjunkturforschung*, at present professor at the London School of Economics. Beginning with the groundwork laid in an article upon "Intertemporal Equilibrium,"¹ Hayek has devoted several critical articles to the theories of Foster and Catchings and Keynes,² has presented an exhaustive defense of the specifically monetary approach in his monograph on "Monetary Theory and Cycle Theory,"³ and has added refinements and restatements in his addresses before the London School and the German *Verein*.⁴

Non-monetary explanations, says Hayek, fall into three types: one based upon the intensified reaction of changes in demand for consumers' goods upon producers' goods; one stressing maladjustments between savings and investment; and one emphasizing the psychological factors. Against the first it may be urged that it rests upon the assumption that "no force intervenes to check the continued increase of production till it reflects itself in declining orders and falling prices."⁵ But this is tantamount to saying that producers have to depend only upon such reactions as occur when the goods actually come upon the market, and then only upon the effect of the total supply against the total demand. In reality, however, entrepreneurs control the volume of their output not upon estimates of totals, but upon the per unit cost and per unit price. Barring monetary interruption, they will count upon known or estimated functional relations between each of these and volume produced; and indeed it is this very calculus which works toward equilibrium under an individualistic scheme. Once a cycle is under way, the greater range of

¹ Hayek, "Das intertemporale Gleichgewichtssystem und die Bewegungen des 'Geldwertes,'" *Welt. Arch.* 28, pp. 33-76.

² *Idem.* "The 'Paradox' of Saving," *Economica* 32, pp. 125-129; "Reflections on the Pure Theory of Money of Mr. J. M. Keynes," *Economica* 33, pp. 270-287; "A Rejoinder to Mr. Keynes," *ibid.* 34, pp. 398-403.

³ *Idem.* *Geldtheorie und Konjunkturtheorie* (Vienna, 1929).

⁴ *Idem.* *Prices and Production* (London, 1931); "Einige Bemerkungen über das Verhältnis der Geldtheorie zur Konjunkturtheorie," *Verein* 173, pp. 247-295; cf. also "Kapitalaufzehrung," *Welt. Arch.* 36, pp. 86-108.

⁵ Quoted from C. O. Hardy in *Konjunkturtheorie*, p. 28.

variation of producers' over consumers' goods production assumes importance; but the theory does not reveal why there should be *continuous* variation merely from this circumstance.¹ The second sort of explanation comes ultimately to an erroneous estimate on the part of capital good producers as to the volume of saving being done currently. It repeats the mistake made by the first line of analysis: not total savings and total investment but the interest rate is what the entrepreneur must know; and if that rate is not interfered with it will adequately reveal supply and demand for capital and indicate the correct extent of new investment.² Lastly, the psychological theory does not demonstrate, even in the hands of Pigou, why entrepreneurs wrongly estimate changes in economic facts nor why these errors tend to accumulate despite the operation of those equilibrating forces postulated in economic reasoning.

If the outcome is conceded in a system of natural economy that interest keeps the production of capital instruments within the bounds of accumulation, then it must be conceded that disproportionality can develop "only through the independence of the supply of loan funds from saving, which in turn rests on the variability of the quantity of money."³ The entrance of money, which in contrast to all other goods is incapable of satisfying wants, removes the rigorous interdependence and closed character of the economic system and makes possible movements excluded in the equilibrium process. But it is little wonder that the monetary theory of business cycles has been accorded such scant recognition, for it has rather generally attended only to the phenomenon of *general* price level changes. But "the" value of money is so attenuated a concept that it proves to be nearly superfluous; the really important matter is *relative* prices and incomes: how they are effected by monetary policy, how they give rise to cyclical variations.⁴ The theory represented here turns upon the distortion of bank discount from the natural interest rate and follows upon the analysis of Thornton, Ricardo, Sidgwick, Giffen, Nicholson, Marshall, and Mises. To appreciate the unique character of Hayek's version one must begin with the concept of "intertemporal equilibrium."

Assume first the case of a single commodity subject to fairly predictable seasonal variation in price. It appears that "a very definite

¹ *Ibid.*, pp. 25-35.

² *Ibid.*, pp. 36-39.

³ *Ibid.*, p. 46.

⁴ *Ibid.*, pp. 51-74; *Prices and Production*, pp. 6, 7, 25, 27; *Verein* 173, ii, 257-259.

gradation in these prices is just as necessary a prerequisite for the possibility of an equable repetition of the economic process operating at the present as are the contemporaneously prevailing prices."¹ If some authority imposed a uniform price upon a seasonal commodity, as for example eggs, there would result an overvaluation at the time when production is easy and an undervaluation when production is difficult. During the former period producers would apply too much of their resources to the satisfaction of current demand and too little toward provision of future supply in view of the prices which consumers stand ready to pay for eggs when they are respectively abundant and scarce. The inevitable result would be an insufficiency of supply at the authoritarian price during the season of scarcity, and the dearth would not even be corrected by a tardy advancing of the official price.²

But the conclusion that the free movement of price is necessary to accomplish intertemporal equilibrium for one such particular good as eggs is also unavoidable for the price level generally. If it be admitted that the price of eggs must move freely as between the seasons to conform to the underlying conditions of production and in order to secure the maximum yield from given resources, correlative changes of the general price level must be accepted as equally necessary. Still proceeding upon the assumption that eggs are the only commodity varying seasonally, suppose that the general price level is stabilized. On the one hand, since this would mean a somewhat lower price for eggs than otherwise at the season of scarcity, producers would arrange for a somewhat smaller output at that time and consumers would demand a somewhat larger amount than if the price of eggs had been allowed to express the natural scarcity freely. Obviously this price is lower than one required to equate the supply and demand of eggs, and it has transpired as a consequence of price level fixing.³

Now change the assumption from the case of predictable seasonal fluctuations in production to a predictable trend, but limit the change as before to one commodity. Suppose that a drainage project to last over a long term of years is announced and put into effect. Entrepreneurs of agricultural products would expect the prices of

¹ *Welt. Arch.* 28, p. 49.

² *Ibid.*, p. 50.

³ The illustration departs slightly from that of Hayek, *ibid.*, pp. 51-52, but reproduces its essentials, I believe.

their commodities to decline secularly; they would respond by a suitable increase in the rate of exploitation of existing land so as to realize at all times an equal expenditure of factors per unit of output. Such an arrangement would be necessary to maximize yield from existing and newly appearing resources over the entire period of improvement. Were the prices of their products stabilized, however, farmers would not hasten present exploitation to allow for the new supply; when the new supply actually appeared it would result in an excess over demand, or else equilibrium would come only by an advance in prices of other products reciprocally to the decline of real costs for agricultural products.

If this experience repeated itself frequently, and if a further persistence of the factors lowering costs is expected, the entrepreneur will need in his own interest to increase his current output through more intensive exploitation of the soil; but as long as, relying upon his justified expectation of a constant price, he spreads production equally over time, it will give him losses.¹

What has been demonstrated for one particular good or group such as agricultural products holds also for any other good or numbers of goods throughout the economic structure. Wherever there exists a reasonable expectation of falling costs, an artificial stabilizing or raising of price causes *an artificial distortion of resources to future production*. In sharp opposition to prevailing opinion, Hayek holds that the fundamental reason why money upsets economic equilibrium is not its *lack* of stable value, but the very stability of value approximated by open metallic standards (or still worse, the tendency toward rising prices resulting from credit expansion). Intertemporal equilibrium can only be got if each, and hence every, price freely expresses the tendency of real costs to fall with advancing technique, i. e. if the quantity of money is not increased to "compensate" for the increased volume of production, but is instead kept constant.²

Business cycles are caused by the existence of a market rate of interest below the natural rate, a general distortion of resources toward future production from that which is economically permitted. This is a monetary theory in that it takes monetary changes as the *sine quibus non* of cycles, and since, furthermore, "if monetary changes are once assumed, then all deviations from the static process con-

¹ *Ibid.*, p. 54. The passage should be noted especially for later reference.

² *Ibid.*, pp. 55, 59-61.

ditioned by them must be represented as their consequences.”¹ It differs from many other monetary explanations of an exogenous variety, employing an erroneous bank policy as the *deus ex machina*, by its holding that the mere passivity of the money and credit mechanism in the face of a rising natural rate causes the initial dislocation. Even a full-weight metallic currency would give rise to cyclical disturbances since the tendency of prices to fall conformably to costs of production, under which condition alone the natural rate may be realized, is prevented by the inevitable increase in mining the standard metal.² But under present conditions the most important cause appears in that very elasticity of credit which is universally demanded as a cure for conjunctural instability.³ Finally the explanation offered here does not have to postulate the existence of unused resources such as idle plant capacity or an industrial reserve army of labor.⁴

Imagine that because of new inventions or discoveries or the appearance of entrepreneurs seeking to put through new economic combinations, the profitableness of capitalistic production is increased. Even if they do not lower their rates, banks will be able to lend more; and any bank adopting a more conservative policy than others will get so much cash from the clearing process that it is practically constrained to turn its non-earning assets to account. Furthermore, the internal draining away of reserves lags, because the first effect of expansion is an advance in prices of producers' goods where payments are large and not effectuated by cash.⁵ Since the characteristic feature of “elastic” bank credit is the extension of loans to producers and since borrowing has been induced by a relatively low interest rate, both the proximity of funds and the direction of their most profitable application combine to raise the prices of intermediate capital goods.⁶ These enhanced prices serve to set free a certain amount of original means of production — land and labor — from less roundabout processes and to insure their employment in the newly injected and additional stages. For a time consumption can proceed without reduction since the goods already in process are of a highly specific type and cannot be transferred. Finally, however, when these goods are “worked out,” there comes a gap in the flow of consumers' goods, for the new flow from the new

¹ *Prices and Production*, pp. 14, 48.

² *Konjunkturtheorie*, pp. 102-106.

³ *Konjunkturtheorie*, pp. 95-101.

⁴ *Welt. Arch.* 28, pp. 58, 59.

⁵ *Prices and Production*, pp. 31, 85.

⁶ *Prices and Production*, pp. 76-77.

and longer processes has not yet reached the market. Had actual saving in place of inflation been responsible for the changed structure of production, there would have been a reserve of consumers' goods accumulated to bridge this gap. As it is, society has temporarily to put up with shortened consumption.¹ But society will not indefinitely tolerate the forcing of its expenditure into productive channels in greater measure than it desires. It will respond by changing the proportion of current expenditure in favor of consumption and the prices of these goods will rise relatively even to the advancing prices of producers' goods if the banks do not more than offset the tendency by continuing extensions of credit. As soon, however, as the pace of inflation has to be somewhat abated by reason of reserve limitations, the greater demand for consumers' goods makes itself felt in the more rapid advance of the prices for these products.²

This means a reversal of the process during the boom. The profit margin between consumers' goods and the producers' goods immediately preceding them increases, and the spread between more remote stages decreases. Non-specific producers' goods are transferred to stages closer to the consumer; the number of productive stages shrinks; and specific goods, by reason of the withdrawal of their complement of non-specific commodities or services, will decline in price. Since the producers' goods nearest the consumer are apt to be the most highly specialized, they will be the most adversely affected. But the transition to shorter processes takes time; production has virtually been stopped in the more roundabout methods, and it will absorb the available productive factors in the new method only gradually as the products progress toward the consumer. Furthermore, industrial adaptation encounters another obstacle in an uncertainty on the part of entrepreneurs as to just what degree of indirection or capital investment is justified in the new circumstances.³

What now is the net economic balance after this alternation of over-extension of plant and retraction?

The situation would be similar to that of a people of an isolated island, if, after having partially constructed an enormous machine with which to provide them with all necessities, they found out that they had exhausted all their savings and available free capital before the new machine could turn out its product.

¹ *Ibid.*, pp. 78-79.

² *Ibid.*, pp. 81-83.

³ *Ibid.*, pp. 79-80.

They would have no choice but to abandon temporarily the work on the new process and to devote all their labor to producing their daily food without any capital.¹

In other words, there can be no doubt that forced saving inevitably extends the body of capital goods; but just as surely it means that this accumulation is economically misapplied.² The flow of products to the market from the new indirect processes can persist only so long as the market rate of interest remains as much below the natural rate as it did when these new processes were begun, since the new degree of indirection depends directly upon this differential. As soon as the banks cease to maintain the same proportional lead of producers' over consumers' purchasing power, the differential begins to disappear. When this occurs the demand for capital must exceed the supply, since the new capital instruments continue to demand capital as before for replacement and operating capital purposes, but their yield and therefore the amount of saving possible from it must decline with the decline of their prices relatively to consumers' goods and the less direct instruments of production. Such a shortage of capital may just as well spell disaster for some of the old established lines of production as for the newer, since they are all at an equal disadvantage because of the advance of the natural rate of interest. And so a thoroughgoing recasting of the whole productive apparatus must ensue, entailing an economic loss corresponding to or even exceeding the forced saving.³

The only way to "mobilize" all available resources is to refrain from artificial stimulants and allow the slow processes of automatic adaptation to take their course.⁴

What happens, for example, when, without any increase of the quantity of money or credit, consumers begin to save a larger portion of their income? The change may be represented schematically, showing the price structure before and after the new savings rate appears.⁵

It is assumed that no additional land or labor are involved in the second case over the first, the only difference being the greater time during which production proceeds. Total demand for consumers' goods changes from \$40 to \$30, for producers' goods from \$80 to \$90. The change means an alteration in the ratio of demand for con-

¹ *Ibid.*, p. 84.

² *Ibid.*, pp. 133-136.

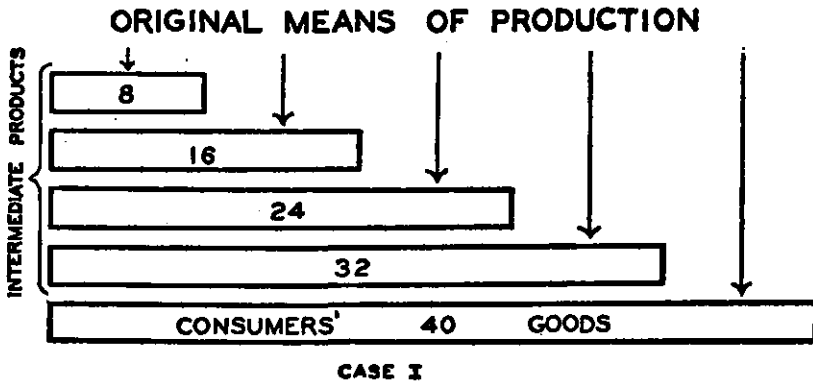
³ *Ibid.*, pp. 40, 49; Figs. 2 and 3.

⁴ *Konjunkturtheorie*, pp. 131 ff.

⁵ *Prices and Production*, p. 87.

sumers' goods to demand for producers' goods from 1:2 to 1:3. This requires a lengthening of the productive process, i. e. an increase in the number of stages, in the ratio of 2:3. If \$90 is put at the disposal of entrepreneurs of producers' goods in the second situation, exactly the saved money is invested; but any addition to this sum by way of bank loans to entrepreneurs will artificially extend production past the required 2:3 increase of investment.

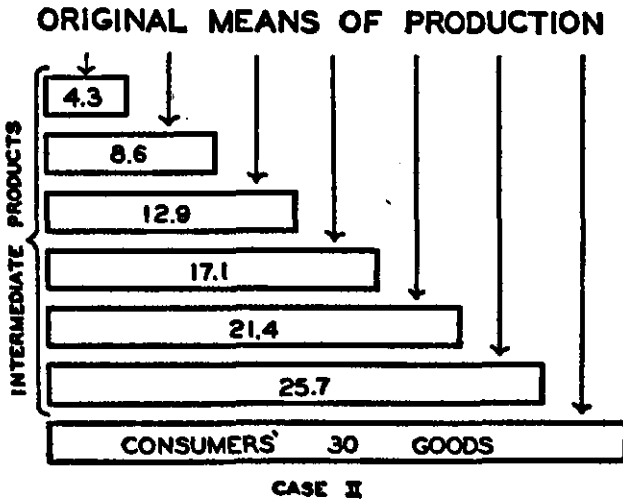
A detailed inspection of the process, letting fall the foregoing assumption of an equal reduction in the prices of producers' goods at each stage, will show that the price mechanism actually makes the requisite adjustment to increased savings. When consumers reduce



the portion of their income spent, producers' goods nearest the consumer will feel the depressing effect of the lowered price of their product more than the elevating effect of the increased expenditure upon capital goods in general.¹ This decline in price will cause a shifting of funds backward toward the more remote stages of production. There comes a point where the backward shifting of productive expenditure accumulates sufficiently to offset the depressing effect upon the price of the products of this stage effected by the declining prices of consumers' goods. From this stage backward to the most remote stage, the products advance in price under two influences, the general increase in demand for producers' goods and the backward transferal of demand; and the effect is cumulative, since at any stage an enhanced price for the product means a stimulation to that particular stage. The final effect, through the rise of

¹ *Prices and Production*, p. 70.

prices in the most remote stage and a fall in that nearest the consumer, is on the one hand an addition of one or more productive stages back of what was formerly the ultimate one; and at the same time a general reduction all along the line of price margins, corresponding to the fall of interest and the increased saving. There has been a transfer of non-specific producers' goods backward to accomplish the profit equalization for all stages and a general increase of return to this type of producers' goods, an augmented real income because of the enlarged capital equipment. Specific producers'



goods nearest the consumer will decline in value relatively, and also in amounts produced if they are reproducible commodities. Goods of more ultimate character will be produced more abundantly at relatively higher prices.¹

Such a period of readjustment ensuing upon an increase in the rate of saving necessarily involves frictional losses, particularly to owners of consumers' goods and of specific producers' goods in the later stages of production, and unusual gains to others; it might even be thought of as a sort of conjunctural movement.² It differs from the ordinary business cycle in that the boom does not lead by a sort of internal necessity to depression. If, on the other hand, economic progress came by the other channel — through technological im-

¹ *Ibid.*, pp. 71-73.

² *Konjunkturtheorie*, pp. 120 ff.

provement and an increased demand for capital — no such quasi-conjectural movement would be engendered, “since it is impossible to understand why entrepreneurs should calculate upon receiving in the future larger credits than are now required but at an unchanged rate of interest.”¹ Consequently only such variations in the natural rate as emanate from alterations in the rate of savings can induce quasi-conjunctural changes. As we have seen, even these fail to provoke genuine business cycles but only transitional adjustments.

If the supply of money is kept constant, this effect of every extension of production will be well known to producers and they will therefore only choose such employments for the investment of new savings as remain profitable even if prices are expected to fall. But these employments are the only ones through which the social advantages of saving can be realized without loss.²

It is now easy to draw the practical conclusion that if money is to be neutral, if prices are to decline in accord with the secular fall of real costs of production, its effective volume must be constant. Any departure from this policy necessarily distorts the prices of producers' and consumers' goods from their equilibrium relationship as dictated by the natural rate of interest, and so introduces cyclical fluctuation.³ It remains, therefore, only to define a constant effective volume accurately, and to enquire whether a neutral money is socially desirable.

What ought to be kept constant is the proportion between the total flow of goods and that part which is affected by money, or the “coefficient of money transactions.” To illustrate: increasing or decreasing the volume of money and credit parallel with an increase or decrease in the sphere of the monetary economy would merely keep purchasing power constant when the underlying conditions of technology and accumulation require no change in prices, absolutely or relatively. Similar compensatory changes should accompany any changes in the degree of integration in industry which eliminate or introduce monetary transactions. The same is true of variations in velocity of circulation. In any of these cases to hold the absolute volume of money or credit constant, when the “demand” for money

¹ *Ibid.*, p. 121.

² *Economica* 32, p. 150.

³ Hayek would indeed admit the possibility of maintaining the equilibrium relation even with inflation if money were injected into circulation on both productive and consumptive sides so as exactly to cancel its opposing influences in the two cases; but “such a policy would effectively prevent any increase in capital equipment and completely frustrate any saving whatever.” (*Economica* 32, p. 168.)

has increased, would only increase the real value of money stocks and result in hoarding, or what Robertson calls "abortive saving."¹

Is a neutral monetary system, so described, the proper goal of central banking policy? Hayek's attitude seems to have undergone some change upon the question. Earlier writings express the opinion that "progress is inseparably linked with those very disturbances which today it is desired to eliminate; and therefore the removal of these upheavals would not be possible without retarding progress."² Consequently banks can only be counselled to moderation, to a timely restriction of boom tendencies. But while the London lectures conclude with a similar admonition to banks, the underlying reason is different. Instead of adhering to his early position, which he must have taken over from Schumpeter, that cycles are the instruments of material progress, he declares flatly that "an increase of production and trade forms no justification for an expansion of credit"; the only reason for the tempered advice to banks is that the natural or equilibrium rate cannot be ascertained, and even if it could, banks do not completely dominate the growth of credit in boom times, and cannot therefore be held to a strict accounting.³ Hayek has therefore emended his answer from "No" to "Yes; but a really neutral credit system lies outside the possibilities of present-day control."

Prefatory to the criticism of Hayek's analysis of the cycle itself, a moment's attention should be accorded to his general attitude toward the specifically monetary approach. At a later juncture it will be argued that the criterion of single difference does not prove the purely monetary origin of the whole disturbance.⁴ But what of his contention that monetary theories have been the object of merited scepticism because they have dealt exclusively with general price levels? In a literal sense no such theory ever existed. If all money expressions of value moved in absolute accord, no distortion of incomes or production could exist. Monetary theories have always dealt with specific and unequal price changes: the lag of the price of labor, the fixity of the "price" of debts, etc. The elaboration of Wicksell's position represents therefore not a categorically new attack but at most a novel emphasis upon one price, — the interest

¹ *Prices and Production*, pp. 102-107.

² *Welt. Arch.* 28, p. 65; cf. also, *Konjunkturtheorie*, p. 112.

³ *Prices and Production*, pp. 107-109.

⁴ Cf. pp. 307-308, below.

rate, — with the possible addition of greater stress upon unequal *commodity* price advances.

From a doctrinal angle Hayek's entire work pivots on one distinctive thesis, that a constant effective volume of money is the unique prerequisite of "intertemporal equilibrium." This idea carries with it two corollaries: that if the effective volume of money is held constant, added savings, whether from increased frugality or productive efficiency, automatically go into actual investment of an economically correct nature; but that if the effective volume of money is increased, although savings still go completely into actual investment, ultimately *all* of the saving forced by the process of inflation is economically wasted, with the likelihood of additional loss of a part of voluntary accumulation. It follows that effective constancy in the quantity of money is the only and sufficient criterion of central bank policy. Despite the forcefulness of Hayek's case and despite certain undeniable contributions to the analysis of cycles, none of these ideas — from basic principle to the resulting policy — seems to me correct.

The notion of intertemporal equilibrium, quite aside from the unusually felicitous caption, offers an indispensable tool in the deductive apparatus with which business cycles can be attacked. Quite as far back as Wicksell, it is true, the idea was clearly expressed that the rate of interest means nothing in the total system of equilibrium apart from its context of present and future prices. Hayek has given new impetus to this line of thought by the very dogmatism of his solution.

Nevertheless, against the fundamental thesis that a constant effective volume of money alone secures intertemporal equilibrium three major objections must be raised. In the first place a constant effective volume of money, as he defines it, would not produce a decline of commodity prices in actual accord with real costs. Secondly, a decline of commodity prices in actual accord with real costs is not the only condition satisfying "perfect competition"; nor does Hayek correctly describe the mechanism of price reactions to added savings, even upon the assumptions of perfect competition and fixed effective quantity of money. Thirdly, equilibrium does not depend solely or even mainly upon the sort of perfectly competitive process under discussion. Parenthetically let it be remarked in advance that all of these arguments are without prejudice to the policy of stabilizing the prices of factors of production, the "labor" standard.

(1) Hayek's definition of "constant effective volume of money"

embraces all such increases in quantity as are required to compensate for decreased velocity, for a lessening of the degree of industrial integration, or for extension of the sphere of monetary economy. It does not, however, extend to the addition of a "stage" of production in the sense employed by Hayek to represent more indirect or capitalistic methods. Indeed, it is precisely this constancy with respect to the last variable, which secures, according to his representation, the transfer of savings to correct amount of investment. Whether this is true and what sense may be attached to the "additional stage," aside from lessened integration, will be considered presently. But if the quantity of money is not increased to cover the additional turnover of an added stage, the prices of products must necessarily fall for *two* reasons, the increased volume of consumers' goods "on account of the utilization of the more roundabout methods," and the decreased total money value on account of the withdrawal of payment media to care for the added turnover of producers' goods.¹ If "real" be taken to mean the value of consumers' goods expressed in producers' goods directly, only the first reason represents a decline of "real" costs; the fall in the ratio of value of consumers' goods per unit to producers' goods per unit expresses the decline of the interest rate in consequence of the decreased time-preference responsible for the new increment to savings. Therefore whatever further decline transpires in a monetary economy in consequence of a deflation of consumers' goods prices to cover the turnover of an additional "stage" in production, exceeds by so much the fall of "real" costs. By so much also does the "constant effective volume of money" depart from Hayek's own ideal of "neutral money."

(2a) Even if this difficulty be overlooked, a secular decline of commodity prices attending increased accumulation or increased efficiency cannot be proven the requisite to rational behavior on the part of entrepreneurs. Let us consider the argument as developed in the *Weltwirtschaftliches Archiv* article, first because Hayek ordinarily refers to it as the ultimate proof of his main theoretical principle, and secondly because it merely contrasts falling with stabilized prices and so does not involve the complication of paragraph (x) on the *degree* of fall. Beginning with the case of a single article subject to pronounced and known seasonal variation of costs, he proceeds to a number of important articles and the general price level under seasonal variation, then to a small group of commodities with a

¹ *Economics* 32, p. 247.

predictable secular fall of costs, and finally to a large number of important commodities under the same circumstances. In the last analysis, Hayek's "proof" comes to a supposed analogy of the second with the first case, and of the fourth with the third.

In the first and third cases, involving known seasonal and secular declines in cost for a *few* goods, the assumption is warranted that *absolute* price declines are necessary to secure equalization of return on invested capital between various points of time. If only a *few* goods are relatively cheaper, the general level of consumers' goods cannot change appreciably,¹ and so the price decline of the few goods *has* to be absolute. From this basis, the logic of which cannot be impugned, Hayek proceeds, in the second and fourth cases involving a general cheapening of all products in real terms, to speak in terms of absolute price changes, merely assuming that relative changes could not maintain equilibrium.

What Hayek apparently misses is that *any* announced and persisting policy with regard to the price level of consumers' goods would, upon the assumptions he makes, be appropriately discounted into the present and give no grounds for a distortion of resources. Hayek himself admits in one passage that if the producer repeatedly went through the experience of losses occasioned by stabilizing the price level in the teeth of falling costs, he would "need in his own interest to increase his current output through more intensive exploitation of the soil" at the outset.² In other words, anticipating the glut in the future, he will immediately increase current production enough to secure equal returns on investment at all points of time. If the extent of the improvement is known in advance, if price level policy is known and consistent, if there is no resistance of prices because of contracts and tradition, — Hayek apparently assumes as much, — it would make no difference to a rational community of entrepreneurs whether prices rose, fell, or remained constant. Upon the same assumptions, *relative* and not *absolute* price changes are the important thing, a fact which Hayek himself often reiterates in criticizing the older monetary theories of cycles. This signals the collapse of the case for a "constant effective volume of money," so far as it turns upon Hayek's hypothetical situations involving calculations of future prices.

¹ Unless the monetary authority, as we need scarcely suppose, decides to deflate prices generally for some extraneous reason.

² Cf. p. 342, above.

(2b) But Hayek develops, in the schematic representation of the process by which savings become investment,¹ another type of argument to support the ideal of "constant effective volume." Apparently here the case turns not upon entrepreneurs' calculations of future prices, but upon the *modus operandi* of "real" capital extension compared with the requisite readjustments in total money devoted to production and consumption. The argument may be paraphrased as follows. If, because of a stronger disposition or ability to save, the demand for consumers' goods relatively to producers' goods changes from 1:2 to 1:3, the correct extension of stages in production will be in the ratio of 2:3. But this correct extension takes place *only* if the total money expenditures upon producers' goods increase by the same absolute amount as total money expenditures on consumers' goods decrease, i. e. if the "total effective volume of money" is constant. Any increase by way of loans to producers would put the entrepreneurs of producers' goods in possession of more purchasing power than savings warrant; the number of stages is extended over the allowable 2:3 increase, and this artificial extension must collapse when inflation ceases.

The argument with the accompanying arithmetical illustration is a veritable mare's-nest. We confront a dilemma at the very outset: what do magnitudes of the rectangles stand for? By Hayek's own interpretation they are money values and not physical magnitudes, because the increase of Case II over Case I does *not* involve an increase of land and labor application. This requires that we imagine cases like ageing wine, where, if the money value increases, it is solely because of more "waiting." Value added by manufacture or the physical increase of growing crops would be eliminated. But the aging wine interpretation cannot be maintained because the only value increment it does involve — that of interest — is not once mentioned in the exposition. What Hayek pretty clearly has in mind — indeed he himself once makes the comparison² — is the "synchronized production" idea of J. B. Clark, in which the total of capital involved appears as a cross-section of products in all stages of fabrication on their way to the consumer. Such a view *necessarily* involves a physical increase of intermediate products when production is more capitalistic, and *probably* involves additions of land and labor, if the analysis is not restricted solely to instances of natural fructification. While Hayek may legitimately let the numbers in the

¹ Cf. p. 345, above.

² *Prices and Production*, p. 37.

rectangles and their size refer to money value, the additional numbers of rectangles must mean more goods. This interpretation helps to make Hayek's argument intelligible. It is still necessary, however, either to restrict the whole case to working capital, to the flow of goods in process, or to invent a way, not divulged by the author, of spreading fixed capital over turnover, by some depreciation factor, for example.

Making these preparatory adjustments, let us see if Hayek's conclusion follows. In the first place, if the proportion of *current* demand for producers' against consumers' goods changes from 1:2 to 1:3, the amount of capital, even restricting it to operating capital, is not altered in the proportion of 2:3 because this entirely neglects *existing* stocks of goods in process. Consequently *no* conclusion can be drawn as to the relative increase of money-work-to-be-done involved by an increment of savings. In the second place, a given increment of capital has nothing to do with the number of independent productive stages through which the intermediate products pass. Here Hayek leaps adroitly from the Clarkian idea of a "stage" to the quite unrelated matter of degree of integration, confusing the cross-section view with the flow of goods against money.¹ Consequently, even with a 2:3 increase there would not necessarily, indeed quite improbably, be a corresponding increase of goods turnover and on money work. A third, and to my mind the most disastrous, objection is that the proportion of "effective volume of money" (*MV*) in the producers' economy to that of the consumers' economy has nothing to do with the proportion of current demand for producers' and consumers' goods. Hayek would actually ask us to believe that the ratio of saving to consumption of *current* income coincides with the ratio of *MV* (or *PT*) in the two fields during a given *period*. Even if the disparateness of the two concepts is removed by making the former ratio pertain to total savings and consumption between the two dates which limit the period for the equations of exchange in the two spheres, Hayek's assumption quite neglects those dealings in *titles* on the side of producers' goods, the entire Financial Circulation in Keynes' sense.² Finally, aside from this, no certain conclusions can be drawn as to the absolute amount of money which a given in-

¹ Hayek must realize the absolute distinctness of these two phenomena, for he always says that "upon our *assumption*" additional capital means an additional stage. Nevertheless his whole reasoning necessarily turns on precisely this postulate. Cf. *Prices and Production*, p. 46, and *Economica* 32, p. 143.

² J. M. Keynes, *A Treatise on Money* (New York, 1930), I, 244.

crement of savings will withdraw from the consumption sphere because there is no necessary coincidence of velocities of money in the two fields of productive and consumptive expenditure.

In addition to all these difficulties, Hayek has forsaken, in this second mode of demonstrating the necessity of a constant effective volume of money, that very instrument which in the earlier proof he supposes to guide production correctly, namely cost of production per unit. Nowhere in the analysis do mistaken estimates of the increase of savings or of productive efficiency enter. Knowing these increases and the price level policy of the credit authority, the entrepreneur has everything at his disposal which Hayek would seem bound to require for correct investment. Yet the second type of argument requires that the entrepreneur should have the disposition and ability to carry through an intricate calculation on the basis of the equation of exchange. Even upon the over-simplified scheme of *Prices and Production*, the entrepreneur would need to compute the deflation of prices of productive factors attending the additional turnover in the sphere of intermediate products, and calculate besides the still greater fall in the prices of consumers' goods from the joint action of this deflation and the greater volume of current production. Add to these the other variables inhering in the situation explained in the preceding paragraph, and the hard-pressed entrepreneur, unless he combined the mathematical wizardry of Einstein with a capacity in economic theory equal to Hayek's, would end up in Bedlam.

(3) It is not difficult to believe that, in strict accord with the postulates of classical value theory, the quantity of money is a matter of complete indifference in a world of perfect foreknowledge of economic events, of perfect competition and rationality, of infinite divisibility of factors and complete absence of contractual and traditional prices. In such a world a "constant effective volume of money" or any other consistent monetary policy would allow savings to be transformed automatically into investment and permit the right degree of capital extension to be secured under technological progress. But this world is not real. As the economic mechanism actually does operate, frictions, lags, and mass psychology tell the tale for monetary policy. It has generally been observed that such cost items as contractual wages, interest, and rent lag behind commodity price movements. If improvement in technique is taken as a datum, stabilizing commodity prices will require an upward re-

vision of contracts if all of the gain shall not be given the entrepreneur. Hayek has performed a real service by insisting, against the very common assumption,¹ that even stabilized purchasing power over commodities *may* give windfall profit. But the very *assumption* of technological advance under a decline of prices parallel to real costs could be challenged. It has been generally observed that periods of persistently falling prices engender pessimism and hesitancy on the part of enterprisers. In this case savings come slowly into investment, and even then at modest yields. The process of applying new technique lags. Hence there arises the demand that the central monetary authority shall avoid deflation at all costs, and perhaps even administer a small amount of inflation through a "gently rising" price level, to avoid stagnation.

The net result is that there is nothing "automatic" about any price level. Hayek's definition of "constant effective volume" of money includes enough elasticity to protect prices from meaningless upward and downward movements arising from contracting or expanding the sphere of money economy, from decreased or increased magnitudes of the unspent margin, from lessened or extended integration. It prevents the contagion of foreign inflation from infecting the domestic economy. But of course *any* intelligent banking policy would maintain a "constant effective volume" against these variables. Beyond this point the question still remains as to whether the more probable *impasse* is Keynes' banana plantation suffering stagnation for want of a little inflationary stimulus, or Hayek's juggernaut machine called into being by forced saving and now quite useless because of the disappearance of the interest differential.² Hayek does well to direct attention to the dangers attending forced saving,³ but he does not *prove* it necessarily more disastrous in its final effect than its absence might be. The solution will vary from time to time and from country to country. It will not be discovered through reasoning as to perfect competition.

¹ E. g. A. C. Pigou, *Industrial Fluctuations* (London, 1927), pp. 92-93.

² In his latest article Hayek forecasts such a situation for Russia as a consequence of forcing industrialization past the point where plant will be useful on a low scale of preference for future income. Cf. "Kapitalaufzehrung," *Welt. Arch.* 36, pp. 86-108.

³ Amongst the exiguous critical comments which Hayek's work has so far evoked is Sraffa's, notable for its astonishing misinterpretations (*Ec. Jour.* 42, pp. 42-45). He imagines that Hayek pictures the victims of forced saving as retaliating by consuming what has been taken from them! (*Ibid.*, pp. 47-48.) Of course these persons neither own the capital of which they have been expropriated, nor could they consume it if they did, since it is sunk in specialized instruments.

CHAPTER XX

OTHER EXPONENTS OF CREDIT THEORIES

ALTHOUGH Mises and Hayek are unrivalled in the vigor of their attack upon the productiveness of credit expansion, they are only the vanguard of theorists ranged against the Schumpeter-Hahn position. These writers betray such wide individual differences that it is difficult to order them into any more significant grouping than that based upon their common scepticism of credit creation. Nevertheless, an approximate classification may distinguish three types of opinion: that most closely allied to Mises and Hayek, that which departs from them in advocating commodity price stabilization, and that which is peculiar in rejecting the Wicksellian doctrine of the "trailing bank rate."¹

I. THEORIES RELATED TO THE MISES-HAYEK POSITION

It is not surprising that, in addition to Machlup, three other members of the present group are to be found at Vienna. Dr. Reisch, former president of the Austrian National Bank, not only espoused the test of conformity with natural rate for bank rate policy, but also actively seconded the protests of more theoretical writers against the "inflationism" of Hahn and Schumpeter.² Those who defend forced saving forget that it may be used, as revealed by the growth of installment selling in America, to finance consumption. So far as it goes into production, it results in superfluous and irrational processes which cannot be completed when inflation ends. Just as in any other sort of inflation, the guidance of interest is destroyed; the loss is much greater than any imaginable gain through forcing abstinence.³

¹ The symmetry of this scheme is departed from by postponing to the next chapter the work of Machlup, whose cycle analysis follows Hayek closely, but whose preoccupation with subjects somewhat aside from the main theme recommends separate consideration.

² Richard Reisch, "Das Kreditproblem in der Volkswirtschaft," *Zeitschrift für Nationalökonomie* 3, pp. 1-22.

³ *Ibid.*, pp. 12-15.

This position is also taken by Dr. Richard Strigl, professor at the University of Vienna, who believes that credit creation results only in "spurious capital."¹ Even if bank rate reduction brings into utilization previously idle plant capacity, this effect can only be temporary. When laborers drawing income from this source come to spend their wages, factors of production are necessarily diverted into consumers' goods, and the operation of the excess plant is again rendered unprofitable.² Strigl would therefore directly oppose those writers who have discovered in idle plant capacity one of the main supports to industrial upswings.

Another peculiarity lies in his unique emphasis upon the operation of interest as a cost and capitalization factor and his depreciation of its operation through *volume* of bank credit. Price level advances, he says, are supposed to result in forced saving through a "compromising" of certain incomes. But for every decrease there is a parallel increase to someone else. Against the reduced income of creditors stands the gain to debtors; against the smaller real wage of the government employee is to be set the reduced tax burden; against the depreciation of any factor lagging in the price rise, the windfall to its users. What Strigl seems to imply is that the artificial transfer of real income does not secure its being saved or invested.³

An artificially low interest rate has the power of deflecting factors away from the production of consumers' goods into processes which are either more indirect than allowed by the equilibrium rate or less effective in a physical-technical sense. It affects working capital in concerns newly established by making the *interest cost* less, and the fixed capital already invested by old firms, by causing an appreciation in the *value* of these assets. The combined effect of these two aspects of low interest is to throttle the production of consumers' goods; here lies the essence of forced saving.⁴

While Strigl's contention regarding idle plant capacity merits later consideration, his peculiar interpretation of forced saving may be disposed of immediately. To contend that capitalization operates *prior* to the actual transaction of business with a greater volume of credit, as Keynes appears to do, is quite another matter from tracing forced saving to that source. The uniqueness of capitalization lies in its

¹ Richard Strigl, "Die Produktion unter dem Einflusse einer Kreditexpansion," *Verein* 173, ii, 185-213.

² *Ibid.*, pp. 205-206.

³ *Ibid.*, pp. 196-197.

⁴ *Ibid.*, pp. 193-195.

buoyant *psychological* effect, in the prospects which a low rate gives to the production of producers' goods. Forced saving on the other hand rests upon *mechanical* effects, and is made by Keynes quite correctly to attend Income Inflation,¹ the monetary or quantity-of-credit phase of interest. Putting the matter in terms of relative commodity prices after Strigl's system is only the obverse side of the discourse in terms of income. The relative rise of the price of producers' goods signifies a transfer of resources to that field *only* because of the "compromising" of certain important groups of consumer income. Were its incomes perfectly mobile, the consuming public would come into as great an increase of purchasing power as the entrepreneurial community, and the effective demand for consumables would prevent any "throttling" of production there. Forced saving requires both the upper millstone of mobile commodity prices and the nether millstone of relatively fixed incomes. Strigl is attempting to dispense with the latter.

The translation of the Vienna philosophy into precise objective criteria for monetary policy has been assayed by Dr. Gottfried Haberler. Although he does not assign to the monetary factor exclusive causality, he adopts virtually the same explanation of cycles as Hayek.² So far as credit bears on the situation, Haberler has consistently held that after the forcing process during booms, people return to "their habitual proportion of saving and spending," and that this spells the ruin of newly instituted roundabout processes. Furthermore, in agreement with Mises and Hayek, he expects natural and bank rates to coincide only when commodity prices under technical progress are allowed to decline reciprocally to the increased volume of production. Haberler's *Memorandum to the Gold Delegation of the League of Nations*³ puts this idea into terms of practicable indices.

Under the *commodity standard*, the prices of consumers' goods would be held constant, technical progress expressing itself by a rise in rates of money income; under the *labor standard*, money income would be held at a level, technical advance appearing through the fall of commodity prices. These rival policies have to be tested first from

¹ J. M. Keynes, *A Treatise on Money* (New York, 1930), I, 299.

² Gottfried Haberler, "Money and the Business Cycle," *Harris Foundation Lectures: Gold and Monetary Stabilisation* (Chicago, 1932), pp. 43-74.

³ Published as "Die Kaufkraft des Geldes und die Stabilisierung der Wirtschaft," *Schm. Jahrb.* 55, pp. 993-1023.

the angle of ethics and conflicting social interests, and secondly from the pragmatic angle of securing a maximum flow of production.¹

Conformably to the usage established by Hayek and Neisser, two kinds of progress must be distinguished: the extensive sort in which improvements go to support a larger population on the old level of incomes, and the intensive variety, which raises the incomes of the existing population. Actually economic progress involves both. So far as extensive expansion takes place, the appropriate monetary policy is clear: credit should be increased proportionally to the increase of product, and in this fashion both commodity and labor standards are realized.²

The question of justice between social classes arises in connection with *intensive* progress, where the two standards necessarily diverge, and where any attempt to carry water on both shoulders by stabilizing some index without social significance, such as the prices of everything purchased and sold, is completely stultifying. In favor of the labor standard it is urged that the debtor can pay the same nominal debt even though commodity prices are falling, because his nominal income has remained undiminished. Humanitarian interest demands that the pensioner, the *rentier*, and other recipients of fixed money income receive some of the benefits of progress, and this the labor standard brings to pass by an automatic decline of prices without any troublesome upward revision of contracts. Finally the claim of the creditor to share in social betterment rests upon the fact that his saving made it possible. On the other hand, one can maintain that the commodity standard gives less social friction because laborers take greater delight in rising wages and fixed prices than in being able to buy more and more with the same nominal income. Some theorists who believe that higher rates of interest tend to accompany technical progress look upon this increase of income as sufficient participation in the gains on the part of creditors, without recourse to a labor standard. Others defend the commodity standard because it avoids the throttling of enterprise which attends falling prices in the minds of the economically active debtor class. It is said in conclusion that creditors and debtors both expect a stable price level, that this assumption goes into the determination of interest rates, and that their calculations should not be belied.³

If the intricate *pros* and *cons* of the ethical argument indicate the

¹ *Ibid.*, pp. 999-1000.

² *Ibid.*, pp. 1003-1006.

³ *Ibid.*, pp. 1003, 1016.

impossibility of any decision on such a basis, this result need not be particularly disconcerting, because the niceties of the matter are overshadowed by the great evil of unemployment, and because lending and borrowing in large measure proceeds between members of the economically dominant class.¹ Hence the incomparably more vital problem is non-ethical: to discover a really neutral money which will eliminate all periodic disturbances having their origin in monetary policy and avoid all prostitution of the interest rate.

Intensive progress assumes two modes. Improvements may be introduced without increasing the indirectness of production in the sense of additional "stages" and additional turnovers of goods against money. If prices decline under this condition, there should be no cause for crises. The burden of debts does not increase, because, though they remain nominally fixed, so do incomes. Between this relative deflation and the absolute sort, in which the volume of money contracts even though trade remains the same, there exists a significant difference: the former subjects the debtor merely to *lucrum cessans* in that he does not share in the increased flow of products, but the latter imposes upon him *damnum emergens*, i. e. a positive loss of property, and this precipitates a series of bankruptcies. Under relative deflation the fall of prices is "not unexpected, but brought about by improvements consciously carried through, and therefore calculated in, and harmless."² Maintaining commodity prices would add to the appropriate economic stimulus of lower costs the purely artificial stimulus of bank rate reduction. Inflationary credit does serve to break down frictional resistances such as the indolence of entrepreneurs and the recalcitrancy of labor when wages fail to increase periodically.³ "Nevertheless," says Haberler, "I still incline . . . to lay more weight upon the inflationary dangers of such a schematic stabilization of commodity prices than upon the increased social resistances [which it avoids]."⁴

If intensive progress assumes the form of lengthening the indirectness of production with an attending insertion of turnovers against

¹ *Ibid.*, pp. 1006-1007.

² *Ibid.*, pp. 1011-1012.

³ Gottfried Haberler, "Die Kredittheorie der Cambridger Schule," *Archiv* 62, p. 259; cf. also his review of Hahn, *Archiv* 56, p. 818.

⁴ *Schm. Jahrb.* 55, p. 1014. But Haberler's criticism of Robertson's "Policy d" neglects the latter's not unreal assumption that increased wheat payments for iron would increase the productive effort expended by iron producers, so that an iron output of 120 does not withdraw factors from wheat. Cf. *Banking Policy and the Price Level* (London, 1926), p. 24, and *Archiv* 62, pp. 255-259.

money for each new step, less of the total monetary circulation is left for remunerating factors, and so money wages decline absolutely. This condition cannot be tolerated, especially as it signifies at the same time a rise in the proportion of social income going to *rentiers*. To correct this undesirable tendency Haberler would again apply the labor standard, which in this case calls for an *increase* in credit sufficient to maintain constant money incomes.¹

Although an index of income for productive factors is not really attainable, a sufficiently close approximation can be got from commodity prices. Non-labor incomes cannot be statistically apprehended. Furthermore, wages indices in their present form pertain only to unskilled labor; they fail to exclude the effect of trade union restriction of output, or the effect upon wages of changes in intensity of foreign demand for the country's exports. For these reasons a commodity index must be employed. Monetary influences upon the price level and extensive progress do not cause a commodity index to depart from the labor standard. In case of intensive progress, any divergence may be prevented, as Hawtrey suggests,² simply by omitting those commodities known to be undergoing marked technical improvement. Cost-of-living commodity indices are not suitable for purposes of the labor standard inasmuch as they depend too much upon which social class is selected for the budget and what the the index maker decides upon as suitable items. Furthermore, short period changes in direction and quality of consumption subtract from the significance of a cost-of-living index; it is insufficiently sensitive to price fluctuations generally; and its application is restricted to a particular country. A wholesale commodity price index, on the other hand, based upon Hawtrey's procedure, obviates these difficulties and gives a practical criterion for stabilizing incomes of productive factors.³

Comparable to the foregoing writers in their pessimistic prognosis of bank credit expansion is Hans Neisser. The trend of his convictions appears in a chapter in *The Exchange-value of Money* treating of "investment credits."⁴ "Pure" investment credits go into plant when economic factors are fully employed; "supplementary" in-

¹ *Schm. Jhrb.* 55, pp. 1014-1015.

² R. G. Hawtrey, "Money and Index Numbers," reprinted from the *Journal of the Royal Statistical Society*, in *The Art of Central Banking* (London, 1933), pp. 303-331; cf. especially pp. 306-307.

³ *Schm. Jhrb.* 55, pp. 1017-1021.

⁴ Hans Neisser, *Der Tauschwert des Geldes* (Jena, 1928), ch. v.

vestment credits go into the utilization of idle labor and plant capacity. What is the probability in each case that the new bank credit will lead to an increase in social product sufficient to prevent a general advance of prices?

Take first an extreme case: entrepreneurs share equally in the new investment credits, there are no technical improvements, no new savings, no unemployed factors. These assumptions preclude any lessening of the proportion of resources devoted to consumers' goods and any addition to productive apparatus; prices rise parallel to volume of credit. Robertson has sought to qualify this conclusion because of "induced lacking," the rebuilding of unspent margins depreciated by the inflation.¹ But he forgets that both consumers' and producers' operating funds are automatically increased with the augmented money incomes, and that only pure contingent reserves have to be replenished through saving.² Not only is it true that real reserves form a relatively small portion of unspent margins, but also that producers feel the same necessity as consumers to increase their money holdings, and so there is no reason for a distortion of purchasing power away from consumers' goods. A small modification lies in reserve reductions by those entrepreneurs who can rely upon quick loans from the banks, now that credit is "easier."

Introducing a *rentier* class into the assumptions does indeed admit forced saving and some increase of capital equipment. Credit transferred to entrepreneurs would on the one hand certainly exceed the increase of social capital, because *rentiers* would reduce the *absolute* amount of their voluntary savings and also their cash reserves, thus partly offsetting the lacking imposed upon other persons. But there would be *some* increase of social capital above what it would have been with purely voluntary saving, because in the first place some *rentiers* probably were not in the habit of saving anything, and secondly because even those who reduce the absolute amount of voluntary saving do not reduce it as much as the quantity taken from them by the forcing process, as Pigou has proven upon the basis of the marginal utility analysis.³

Alternatively we may abstract from induced lacking and forced saving by *rentiers*, and postulate that technical improvements of such sort exist as to lead entrepreneurs to invest all the new credit in

¹ *Ibid.*, p. 127; cf. *Banking Policy*, p. 49.

² For Neisser's twofold division of unspent margins, cf. pp. 170-171, above.

³ *Tauschert*, p. 129; A. C. Pigou, *Industrial Fluctuations* (London, 1927), p. 133.

fixed capital equipment. Prices for producers' goods will rise and divert factors into this channel until the rise of demand for consumers' goods emanating from the wage increases puts an end to the process, at which time the technical improvement will have been fully exploited.¹

Finally, we may take Schumpeter's case of bank loans to a small number of especially gifted entrepreneurs. Social productivity will rise; but the same result, though at a slower rate, would have been attained through competitive elimination of less capable entrepreneurs, had there been no new credit.²

In these cases does there exist any guarantee that the increase of production will be enough to prevent prices from rising? It is, in the first place, by no means certain that the addition would even equal the absolute amount of newly created purchasing power, since interest and amortization have first to be met by the sale of products, and that is by no means assured.³ But as Robertson has shown, money has an effect upon prices equal to its absolute magnitude raised mathematically to some higher power by its velocity.⁴ Only in the quite improbable event that the new product amounted to this augmented sum would price inflation be avoided.

Supplementary credit, employed to utilize idle capital and labor, has a greater chance of avoiding inflationary effects because the entire amount goes into the stream of consumable product; but the funds still possess an augmented effectiveness through velocity.⁵ Under supplementary credit belongs also the use of funds to bid up nominal wages. The effectiveness of this process upon production depends upon the laborers' not realizing the purely nominal character of the rise in wages, and also upon their not electing leisure rather than more hours of work.

On the whole Neisser's conclusions are moderate and plausible, but his criticism of Robertson seems to rest upon a misapprehension. Far from presenting "induced lacking" as a process by which the existing proportion of capital goods and consumers' goods is modified in favor of the former, Robertson takes it as a case of "abortive lacking" or "hoarding," "an increase in the real value of the public's money stocks."⁶ Only by further loans to producers can the banking system *offset* this effect and transform the unutilized pur-

¹ *Ibid.*, pp. 129-131.

² *Ibid.*, pp. 131-135.

³ *Ibid.*, p. 137.

⁴ *Ibid.*, p. 133.

⁵ *Banking Policy*, pp. 57-59; 68-70.

⁶ *Banking Policy*, pp. 45, 53.

chasing power to actually "applied lacking."¹ This disposes of Neisser's objection even if Robertson imagined that only consumers are subject to induced lacking, though there is no evidence that he did so. But it may be, as Neisser suggests, that Robertson overestimated the magnitude of induced lacking through a failure to realize that the portion of unspent margins required for working capital automatically increases with money receipts.²

Keynes also objects to induced lacking,³ though in doing so he disowns a fatherhood ascribed to him by Robertson,⁴ and comes under suspicion of moral delinquency. *Honi soit qui mal y pense*. At any rate Keynes objects that the amount of saving (or better hoarding) resulting from induced lacking is very small. Whereas automatic lacking,⁵ he says, arises in case of Commodity Inflation with "reduction in the purchasing power of current money incomes," induced lacking attaches only to Income Inflation. In this Keynes is certainly right. If the laborer's reserve is depreciated, so are the dollars of his income; and there would be no reason for expecting him to return to his old reserve in absolute terms of real value when that would mean now a higher fraction of his real and money income. Only in case Income Inflation reimbursed him for the Commodity Inflation would he undertake to restore the old reserve in absolute terms. But to the degree to which the lag of incomes disappears, automatic lacking does also. It is furthermore true that whereas automatic lacking places the proceeds of forced saving directly in the hands of the investing class, induced lacking represents only a *possibility* of doing so, by virtue of the fact that building up of laborers' margins allows the banking system to carry through, with given legal bank-reserve prescriptions, more Commodity Inflation, and thus to cause more automatic lacking.⁶ But Robertson

¹ How great this credit creation will have to be under various hypotheses forms the subject of the Appendix to chap. v, *ibid.*, pp. 60-70.

² Robertson does state that receipts increase as fast as expenditures, but he does not apply this fact to induced lacking. *Ibid.*, p. 73.

³ *Treatise*, I, 299-300.

⁴ *Banking Policy*, pp. 49-50, note.

⁵ Keynes actually says "imposed lacking," but this is an error, as his own earlier usage of the word shows. Cf. *Treatise*, I, 175. Robertson contrasts "induced" with "automatic" lacking, calling the combination of both together "imposed lacking." Cf. *Banking Policy*, pp. 48-49.

⁶ Keynes makes an argument somewhat similar to this, but his ascribing available resources to induce lacking only "when this results from genuine saving" is not understandable, since the very notion of induced lacking is foreign to "genuine saving." Cf. *Treatise*, I, 300.

himself appears not to lay great stress on the importance of induced lacking. In all events Keynes and Neisser correctly give the chief emphasis to the lag of money earnings.

In addition to Neisser, Haberler, Strigl, and Reisch, the present group of writers includes also Professor Budge of the University of Frankfurt, who comes to the conclusion that the explanation of cycles must be based upon monetary phenomena.¹ The cause of the turn from good to bad times must be incorrect pricing; and for the whole economic order to be permeated with error, the fault must lie with a factor of production. Experience shows that neither wages nor rent are subject to persistent one-sided distortion, because they are competitively determined. But lending is subject to the monopolistic dictates of the central bank; within the limits imposed by gold redemption, this authority may give the banking community the opportunity to increase its profits by a lowering of interest charges.²

Low bank rate artificially lengthens the productive period, the vertical application of capital, past the point indicated by existing demand for and supply of labor. A relative overproduction of producers' goods ensues, drawing upon the labor reserve of agriculture³ and upon the unexploited time of women, children, household personnel, and the lower orders of state employees. From the increase of bank credit the ensuing price advance occasions an outflow of gold, on the one hand, and necessitates larger borrowings by entrepreneurs on the other. Banks respond only tardily in raising their discount rates to the "economically justified interest rate," and meanwhile the dislocation of expenditure toward capital goods continues. For a time prices of intermediate goods rise faster than finished products; but eventually a relative reduction in the real wage fund (the horizontal application of capital), set against growing population, engenders a downward movement on the markets for intermediate products.⁴ Restriction of labor time in producers' goods industries follows and the glut is at hand. In the money markets the shrinkage of the subsistence fund and of entrepreneurial profits produces a shortage of fluid funds, a sharp advance in discount charges, and a collapse upon the bourse; and finally, as the joint result of reduced

¹ Siegfried Budge, *Grundsätze der theoretischen Nationalökonomie* (Jena, 1925), Pt. VIII, pp. 201-225, "Die Probleme der Dynamik."

² *Ibid.*, pp. 215-218.

³ Budge does not agree with Cassel that progressive absorption of agriculture into the highly specialized price economy will materially reduce cyclical variations.

⁴ *Ibid.*, p. 219.

bank lending and private repayment of debts, commodity price levels fall. It is the more or less arbitrary power of central banks over interest rates on short term loans which breaks through the principle of competitive adjustment and induces conjunctural variations.¹

II. THEORIES FAVORING COMMODITY PRICE STABILIZATION

In view of the zeal with which Mises, Hayek, and others in their following have maintained the proposition that only with secularly *declining* commodity prices under technical progress can the coincidence of bank and natural rates be obtained, it is singular that there exists in Germany no outstanding spokesman of the idea held by Wicksell that *constant* prices secure equilibrium. Even with Röpke and Lampe, who are taken in the present section as illustrative of the Wicksellian position, the doctrine supplies a merely incidental feature of their work.

Röpke's successive publications parallel in a striking fashion the change in German literature upon business cycles from its earlier descriptive and eclectic character to its recent emphasis upon savings and investment, particularly as these are affected by bank credit. His original work, *The Business Cycle*,² has been received as a classical exposition of the former or Spiethoff type of analysis. Causes of conjunctural disturbance appear under two main heads, objective and psychological,³ the former set comprising "extra-economic" factors, both natural and social, and the "economic" factor of inequality in saving and investment. Under the psychological cause belong such phenomena as stock exchange booms. Natural causes embrace harvest variation, etc.; and the "social extra-economic" components are wars, foreign economic developments, changes in bank discount policy, population growth, and technological progress.

Later treatments, however, dwell chiefly upon credit policy and the rate of capital formation. In "Kredit und Konjunktur,"⁴ Röpke does indeed interpret monetary explanations as referring only to general price movements, and upon this basis objects in a much-quoted passage, that "even if one were to clap down upon the capi-

¹ *Ibid.*, p. 224.

² Wilhelm Röpke, *Die Konjunktur* (Jena, 1922).

³ *Ibid.*, ch. iv.

⁴ *Jahrb. für N. & S.* 126, pp. 243-285.

talistic economic process the cheese-bell of a stabile price level, the other factors making for cyclical movements would not be excluded." ¹ Röpke assumes constancy of prices to be evidence that money is not altering the interest rate from its natural level. But a bank rate below natural opens up a veritable Pandora's box of ills. In the first place, the motive to save is lessened and the demand for consumers' goods stimulated; the very cheapening of carrying costs prompts speculators to carry commodity stocks rather than market them in an orderly fashion; and besides, the capitalized value of fixed instruments mounts along with an increased use of productive processes of longer duration. ² Ultimately the banking system will not be able to avoid higher interest charges, not only because there has been no marked increase in saving during the boom, but also because the inflation has depreciated the purchasing power of interest income. To postpone the crisis serves only to make the inevitable collapse more severe. Banks must be forced by central authority to take timely measures in the upswing against excessive expansion, but not so severely as to jeopardize "the organic growth of credit into the volume of goods." ³ Rather more original and vigorous is Röpke's *Theory of Capital Formation*. ⁴ Every increase in capital formation which outstrips the tempo of economic development causes an upheaval; the analysis of such changes bids fair eventually "to resolve the riddle of cyclical fluctuations." ⁵ In a monetary economy capital additions originate either with ordinary private savings, with reinvestments by entrepreneurs, with government commitments, or with forced savings. Currently the notion seems to be favored that the second and fourth of these sources may be counted upon to make industry independent of the capricious virtue of private saving. The danger of self-financing, however, lies in entrepreneurs' allowing pride in their ventures to override common sense; the marginal productivity of reinvested earnings may easily be pushed below the market rate, with corresponding social loss. ⁶ As for forced savings, they represent at best "a temporary expedient of the most suspicious sort, linked with grave social and economic drawbacks." ⁷ Pigou demonstrates satisfactorily from a purely deductive angle that the quantity of saving forced out by rising prices more than compensates for the reduction in voluntary accumulation;

¹ *Ibid.*, pp. 265-266.

² *Ibid.*, p. 272.

³ *Ibid.*, p. 282.

⁴ *Die Theorie der Kapitalbildung* (Tübingen, 1929).

⁵ *Ibid.*, p. 8.

⁶ *Ibid.*, pp. 18-20.

⁷ *Ibid.*, pp. 22-23.

but this does not mean that the resulting capital may not be altogether misapplied.¹ When it comes to the matter of capital formation through taxation, people commonly forget that this trenches to a greater extent upon private savings than upon private consumption. Furthermore it lies within the power of the state to ignore interest costs, the one indispensable index which we possess as to the permissible degree for burdening the present in favor of the future.²

Adolf Lampe, Privatdozent at Munich, devotes his attention chiefly to the phenomenon of saving and its connection with business cycles. He insists upon the paramount significance of the monetary setting, and, like other writers under review in the present chapter, differs categorically from the Schumpeter wing in his conviction that a period of credit inflation concludes with no net increase in social income. In general his argument seems to favor price stabilization. Unfortunately Lampe suffers from an expository style ranging from opaque to translucent. It never becomes sufficiently transparent to reveal whether the savings factor is *the* cause or only one amidst a plurality, and, if the latter, whether variations in accumulation or in quantity of credit creation play the more important rôle.

According to his treatise on saving and investment,³ economic disturbances from changes in the rate of saving inhere in the very nature of monetary economy. Ideally, every increment to population should be accompanied by a simultaneous increase of producers' goods capable of an output appropriate to the wants of the new consumers. But a society based upon specialized production and monetary exchange will, if we neglect speculation for the time being, provide only enough producers' and consumers' goods to care for existing population. Whatever addition to capital may arise through increased social production and saving after the new laborers have begun to operate, comes *too late*. Stated otherwise, the price mecha-

¹ *Ibid.*, pp. 15-16.

² *Ibid.*, pp. 21-22. Another theory which lays cyclical variation at the door of the saving process appears in Hans Marzell's monograph *Das Kapitalsinsproblem im Lichte des Kreislaufs der Waren und des Geldes* (Jena, 1927). But Marzell is distinctive in holding that the difficulty is too much saving in general, or alternatively, too little purchasing-power in the hands of consumers. Although he nowhere mentions Foster and Catchings, he gives a virtual reproduction of their idea that crises follow a short-circuiting of buying power, so that consumers' incomes no longer suffice to clear the market.

³ Adolf Lampe, *Zur Theorie des Sparprozesses und der Kreditschöpfung* (Jena, 1926), pp. 61-65.

nism makes no advance capital provision for additions to population; consequently the ideal technical proportion between *existing* plant and labor has to be departed from, first when the additional dose of labor is absorbed, and again after this recasting of capital, when the new savings begin to flow upon the market. A second obstacle to correct adjustment comes from the incapacity of the price mechanism to call forth in advance precisely those types of plant which shall satisfy specific demands once the additional population begins to earn and save. "The contention that on principle the effect of saving is annihilated by frictions attending it is as much justified as the opposite pronouncement that saving and economic expansion run parallel."¹

It would be wrong to attribute these difficulties to free competition and to imagine that authoritarian regulation could obviate them. Even if a central authority could predict population growth, frictional loss would attend the recasting of productive apparatus when, in the period antecedent to the increment to population, factors of production were turned into providing larger plant capacity. In addition the socialist authority would need to know the channels of demand on the part of the new laborers, their rate of saving, and the repercussions of their savings and consumption upon those of the existing population.²

What is the appropriate action for the monetary authority in a competitive regime in view of the dislocations which attach to increases in social accumulation? Departing from his usual implication that commodity price stabilization affords the criterion,³ Lampe seems to make the behavior of stocks of reserve goods the crucial matter. Credit inflation results in a relative overproduction of capital instruments and an undersupply of consumers' goods "in the broad sense of the term, a decimating of the stocks of enterprises, a lessening of the reserve or equilibrating fund in the economic order."⁴ The limits of legitimate credit extension are given, therefore, in the normal level of this fund. At a given moment credit extension must be governed by three considerations: the absolute magnitude of reserve stocks, "the rate at which withdrawal follows input into social product," and "the economic possibility of quickly restoring to social product whatever is withdrawn or its equivalent."⁵

¹ *Ibid.*, p. 77; cf. also pp. 63-65.

² *Ibid.*, pp. 68, 76, 110.

⁴ *Ibid.*, pp. 128-129.

³ *Ibid.*, pp. 78-90.

⁵ *Ibid.*, p. 124.

In a concluding section Lampe inquires into factors which mitigate the severity of disruptions caused by increased saving. (1) The central bank may be able to form a judgment as to the capital necessary to carry through new investments until the ventures are articulated into the productive process, and upon this basis regulate the available present supply of loan funds. (2) Business enterprizers do not commonly count upon the indefinite persistence of low interest rates produced by a wave of abstinence. They enter into only the relatively most promising projects which will not be jeopardized by the subsequent rise of interest when population increases. (3) Increased saving does not invariably produce a larger population. To the degree that population growth lags behind accumulation, real incomes advance and the initial fall of interest may be made permanent by a sustained rate of saving. (4) The losses arising from a reduction in saving may be partly avoided by an influx of foreign capital and by the selective effect of a capital shortage upon the grades of entrepreneurial ability. (5) The existence of stocks of goods serves as a buffer against sharp rises in commodity prices when saving diverts effort into captial goods. (6) Increasing the volume of credit to stabilize purchasing power eases the transition to more capitalistic production.¹

The ranks of the commodity price stabilizers include also Edmund Herzfelder. In his recently published work on credit management,² he evolves a "dynamic price law" as the basis of the theory of manipulated standards. If historical observations can supply the function by which the "efficiency of money" increases and the function of the "need for money," it is possible, he believes, to calculate a "production-potential" showing precisely how much money will be needed to maintain constant prices.³ Herzfelder's assumption of "money need" as a datum and his adherence to the old banking school philosophy of credit⁴ houses strangely with the idea of controlled credit. The book is apparently too fantastic to evoke criticism from economists who could master its complicated algebraic notations.

¹ *Ibid.*, pp. 161-176.

² *Ibid.*, pp. 36, 69-70, 95, 99, 265.

³ *Kreditkontrolle* (Berlin, 1930).

⁴ *Ibid.*, p. 30.

III. THEORIES OPPOSED TO THE "TRAILING BANK RATE" DOCTRINE

The existence of theories not based upon Wicksell's doctrine of interest differentials has significance in the present connection merely as the exception proving the rule. Neither in the case of Stucken nor Eucken is there offered a satisfactory defense of this exceptional attitude.

Professor Eucken voices the opinion¹ that historical evidence shows conclusively that abnormally low interest rates can persist for years without inducing recovery. Statistics likewise fail to reveal the existence of either accumulated stocks of commodities or unexploited savings in monetary form as possible resources for increased economic activity. Current savings offer no solution, since the greater portion of the annual increment — King's calculation for the United States puts the fraction at two-thirds — proceeds from entrepreneurial profits, which are unusually low before the onset of revival.² What actually accounts for the upward turn³ is the increased velocity and quantity of bank deposits, the ensuing rise of commodity prices, and the forced reduction of consumption by the fixed-salary and *rentier* groups. Against this thesis it has been protested that since banks provide only short term credit, they could not support a real investment boom.⁴ But the practice of banks in lending to investors on collateral and the practice of corporations in borrowing from commercial banks for capital purposes pending the flotation of security issues combine to deprive this objection of its force. The monetary explanation has been held to be invalidated by boom periods attended by falling or constant commodity prices, such as England experienced after 1882 and America after 1925. Both cases were in fact marked by an increase in the volume of trade which arose from favorable harvests and the progress of rationalization, and which exceeded the quantity of newly created credit. But forced saving necessarily resulted from the creation of purchasing power in that commodity prices declined less than they would have in its absence.⁵

¹ Walter Eucken, "Kredit und Konjunktur," *Verein* 175, pp. 287-305.

² *Ibid.*, pp. 292-296.

³ Eucken's description of the *potensierende Wirkung* of velocity is set forth in *Kritische Betrachtungen zum deutschen Geldproblem* (Jena, 1923), pp. 52, 53.

⁴ *Verein* 175, p. 297.

⁵ *Ibid.*, p. 301.

Similarly in depressions, the monetary factor must be relied upon ultimately to account for the most striking phenomena. The inception of depression, characterized by high interest rates and a scarcity of capital, can be explained neither by an exhausting of stocks nor by a reduction of current savings, since the entrepreneurs, who reap a rich harvest of conjunctural gains, count more heavily in the balance than the receivers of fixed income, who presumably reduce their voluntary saving. The real limitation is imposed by bank reserves. The fall of interest rates in advanced stages of depression has nothing to do with volume of saving but proceeds from risk. The industrial borrower prefers to liquidate his obligations with the bank rather than continue utilizing the funds; and the bank prefers to restrict its loans rather than attempt to cover the risk on an equal volume by a risk premium. This explains the anomaly of falling rates attending a diminution of loans.¹

With Eucken is to be linked Professor Rudolf Stucken of the University of Erlangen. The resemblance rests not only upon Stucken's rejection of the Wicksellian "trailing bank rate" doctrine² but upon his emphasis upon the factor of velocity of circulation.³ Although Stucken has been especially noticed for his correlation of rising and falling velocities with booms and depressions, this particular factor forms only a part of an analysis which partakes more of the nature of comprehensive description of numerous conjunctural phenomena than distinctive theory.⁴

The writers examined in this chapter represent a variety of opinion. In general they are more closely allied to Spiethoff, Mises, and Hayek than to Schumpeter and Hahn. Beside the issues involved in this contrast, they raise two questions of basic import to the doctrine of "trailing bank rate." Does bank rate operate in cyclical movements chiefly as a cost, or as the capitalization factor, or as the determiner of quantity of credit? If it is the last, does bank rate constitute the exclusive regulator of credit, or are there not other determiners of equal importance? Opinion upon these problems will be reviewed later.

The contention of Röpke and Lampe that variations in the rate of saving are themselves capable of engendering cycles does not have

¹ *Ibid.*, pp. 302-305.

² "Weitere deutsche Konjunkturliteratur," *Ztsch. für d. ges. Staats.* 87, p. 557.

³ *Idem*, *Theorie des Konjunkturschwankungen* (Jena, 1926), pp. 47-48.

⁴ Dr. Stucken's latest work, *Die Konjunkturen im Wirtschaftsleben* (Jena, 1932), unfortunately comes into my hands too late to be reviewed in this chapter.

much force. Additions made annually to the social fund of capital, as Professor Knight¹ explains, represent a small fraction of the total. The case is not unlike that of a highly durable commodity such as gold; even fairly large variations in the rate of accumulation, as an annual increment, could produce relatively insignificant changes in total supply of capital and rates of interest.

Putting the matter in terms of mistaken *estimates* of saving does not change the answer. In a society where saving and the construction of capital goods fall into the hands of entirely separate persons, it is argued, there is little wonder that additions to demand for these goods should not be paralleled by additions to supply. Admittedly all production goes forward on the basis of estimate, and these estimates may err. But to what does the estimate in this case pertain? If to *rate of saving*, then upon the argument of the preceding paragraph, there should be little cause for wrong judgments. Even if "rate of saving" include forced saving the argument still holds. Natural rate of interest varies but little on account of the annual capital increment, and the annual capital increment in turn can be affected by forced saving only within limits. Bank rate varies considerably, partly no doubt from changes in the current flow of voluntary money savings, but chiefly from grounds of bank policy. When that policy is inflationary it would be an inversion to envisage the relatively too low rate as the result of forced saving. Consequently even a broad interpretation of saving does not support the view that cycles rest upon mistaken estimates of the volume of *saving*. The errors of judgment so far as they are not merely general waves of optimism and pessimism, and so far as they do not pertain simply to specific lines of production — both facts of prime importance — are the product of the diverging *rates of interest*. A rise of natural rate depends upon advancing demand, for example, from technological improvement; a lagging bank rate, upon bank policy or mere routine. This divergence produces errors which may augment or cause a period of unnatural prosperity; the converse divergence, recession and depression. Saving itself is not a prime mover.

¹ F. H. Knight, "Professor Fisher's Interest Theory: A Case in Point," *J. P. E.* 39, pp. 203, 206, 208-210.

CHAPTER XXI

QUALITY OF CREDIT AND THE BUSINESS CYCLE

ASIDE from problems relative to the quantitative variations of purchasing power, current theoretical enquiry in Germany has revealed important controversial issues pertaining to the quality of credit. Does bank lending for security speculation constitute a peculiar hazard in the prosperity phase of cycles? Can banks maintain liquidity in assets by lending only for working capital purposes? Can the national economic structure be peculiarly jeopardized by a boom financed from abroad? The present chapter reviews the opinion being currently expressed upon these questions.

I. STOCK EXCHANGE CREDIT, INDUSTRIAL CREDIT, AND BANK LIQUIDITY

These subjects are the center of attention in the suggestive work on *Börsenkredit, Industriekredit, und Kapitalbildung*¹ by Dr. Fritz Machlup, Viennese business man and follower of Hayek. Since the stock exchange does not absorb capital literally in the sense of capital goods, Machlup proposes to enquire what becomes of the capital disposition in the form of savings, replacement funds, and new bank credit, which flow into that market. Suppose these funds come into the hands of a speculator purchasing *new* securities: what is their destination? The entrepreneur who sold shares may employ the funds (1) to refund another obligation, (2) to hold for later use, (3) to purchase an already produced capital good, or (4) to extend plant. If the speculator purchases *old* securities, the seller may use the proceeds (5) to retire another obligation, (6) to lend out, (7) to purchase productive goods, (8) to produce instruments, or (9) to consume. In cases (1) and (5) (the repayment of a loan), in (2) and (6) (the extension of credit) and in (3) and (7) (the taking-over of already produced real capital), capital disposition is unabsorbed or "unbound" for its ultimate receiver; in cases (4) and (8), the capital disposition is bound by real capital formation; and in case (9) it goes into con-

¹ Vienna, 1931.

sumption. In no case is there any *unproductive* binding or absorption of capital.¹

The answer is affected neither by appreciation nor by losses upon share values. In the former case the surplus goes into the hands of the seller as free or unbound capital disposition; if he expends the funds consumptively capital is dissipated, but no more so than if the appreciation of anything outside the stock market had been squandered.²

Losses may arise from six sets of circumstances. If they occur because of damage or destruction of the real capital of the business, the declining stock quotation simply registers a real social loss. Loss of profitability in one undertaking, on the other hand, signifies no social loss but rather a gain accruing from progressive firms displacing outmoded units. If the lower value rests upon a running down of the capital equipment, it measures a real social loss. A rise in the capitalization rate forces down share prices; proceeding from decreased saving this is socially an evil, proceeding from technical progress, an advantage. Wrong investment represents a fifth cause of losses; but whether the bourse itself can be held responsible to a measure forms one of the initially proposed questions later to be answered. Finally, security values may be carried down in a backwash from artificially high levels. In general this does not mean a social loss but only a distortion of property and income between individuals; indeed there is possible a social gain by forced saving upon those who cover losses through restricting consumption. All of these cases save the fifth, upon which judgment is reserved, show no losses specifically attributable to the stock exchange itself, but only to natural economic processes.³

But the preceding argument neglects what might transpire between the inflow and outflow of funds on 'change. It has commonly been supposed, regarding the matter solely from the angle of *payments*, that the stock exchange withdraws money and credit from industry, commerce, and agriculture. The author, however, seemingly at variance with the quantity theory, denies that rising prices on the bourse mean falling prices elsewhere even with a fixed volume of credit, and maintains that shares, being valued as claims upon capital goods, will not rise in price unless the latter are rising also. The apparent anomaly is resolved by the fact that transactions on the

¹ *Ibid.*, pp. 38-42.

² *Ibid.*, pp. 57-67.

³ *Ibid.*, pp. 33-37.

floor are settled preponderately by clearing and only negligibly by cash or credit.¹

But the same argument cannot be applied to the general speculating public not participating in the stock clearing arrangement. Although purchase and sale of securities exemplifies Wieser's "cession payments" such as taxes, loans, and gifts, which only transfer purchasing power and do not directly affect the price level at all, the indefinite protraction of cessions in a bull market may actually tie up funds to the degree that the public is involved.² What causes continuous bull speculation on the part of the public? Increased saving could scarcely be the explanation, for speculators would discount the increase into the present to the extent that growth is predictable; and the anticipatory rise in share prices would provoke sufficient new security issues to absorb the augmented savings at an equilibrium price. A sudden advance in saving could not induce a bull movement since no one would imagine a sudden change to be progressive. Thus we are driven back to inflationary bank credit. Speculators, unable to anticipate the extent of such an inflow of funds upon the security market, hesitate to underwrite new issues; and this decline in demand for fluid funds, set over against continuously increasing bank credit, leaves a certain amount of purchasing power unproductively "bound" in savings accounts. In brief, an absorption of funds by the bourse would require (1) that not all security transfer is accomplished through the clearing device; (2) that credit is being inflated, i. e. extended at a rate of interest lower than the natural rate; (3) that new security issues are not forthcoming to withdraw the new credit into productive employment. But it will readily be seen that the third of these conditions is rather seldom realized.³

Now consider the second question, as to whether the stock exchange by an absorption of credit can misdirect production. Because this issue hinges upon the general problem of bank credit and the direction of production, we confront immediately the necessity of defining a "legitimate" extension of credit. Monetary literature abounds in criteria: maintaining a constant price level, anticipating actual savings, restricting loans to first-class commercial paper, lending only for operating capital requirements, and so forth. The third and fourth of these really signify the same test, which we propose to examine quite narrowly later. Suffice it for the present to say that

¹ *Ibid.*, pp. 73-84.

² *Ibid.*, pp. 49-51, 94-100.

³ *Ibid.*, pp. 84-94.

if only the short term market is supplied with additional funds, there will be an overflow into the long term market under the competitive tendency toward equalizing returns, and the result will be the same as if lending had been done in the first place without restrictions on use.¹ Anticipating saving gives a defensible rule for lending if the savings actually materialize; but the theory of forced saving has failed to show why increased lending must certainly add finally to the rate of accumulation, and banking policy can ill afford to proceed upon the mere chance that this *might* result. On the other hand, Hayek has adduced adequate reasons for believing that even the forcing which attends a price stabilization policy eventually collapses and precipitates crises, and the debacle is only the more complete with booming commodity prices. Banks cannot indefinitely protract inflation. Cessation of the process signifies the playing out of forced saving and a return to the old rate of accumulation with an attending shortage of operating and replacement funds to cover production at the existing level.² To maintain equilibrium, bank rate and natural rate must coincide; prices must decline in conformity to any lowering of real costs; the only permissible extension of credit aims at offsetting hoarding, decreased integration, and saving, where its increase is actually predictable.³

What does the theory of business cycles developed here signify as to the misdirection of production supposed to attend stock exchange absorption of credit? Remember in the first place that the conclusions of the first part were that a binding of funds occurs only with *inflationary* credit; and secondly, that the binding ensues upon inflationary extensions not merely to the bourse but *anywhere*, inasmuch as commercial loans find their way ultimately to the bourse. We must conclude that to the slight degree to which it absorbs credit, the stock exchange merely offsets pernicious overextensions to producers. "If the bourse has the capacity to absorb inflationary credit actually and finally, it would be an extraordinary blessing to industrial production through being spared the wrong investments to which the easing of credit leads."⁴

Let us pause a moment to consider the commonly accepted rule that commercial banks lend only for operating purposes. These loans are regarded as more liquid than investments in fixed capital equipment and therefore peculiarly suitable for utilizing funds

¹ *Ibid.*, pp. 127-128.

² *Ibid.*, pp. 120-122, 124, 129.

³ *Ibid.*, pp. 103-114, 122-124.

⁴ *Ibid.*, p. 100.

payable on demand. But this idea confuses the viewpoints of private business and society. No doubt from the angle of a particular bank the short term operating loan is more liquid; and from the angle of a particular manufacturer, investment-in inventory is also. From the economic angle, however, turnover for a particular firm has nothing to do with the real circulation period for capital, because the latter includes the whole span from the inception of the process to its culmination with the consumer.¹ If an industry is to be kept upon a going basis, current reinvestment must cover not only replacement of machines but replacement of goods in process. A loan upon the latter has to be repaid out of *profits*, as does any loan for production; to repay it out of sums received through marketing the finished product would necessitate a reduction in the amount of plant employed.² Carl Menger is one of the few to have recognized that to possess "capital" for a period shorter than the productive period is not to possess capital at all.³

Conversely, to add to the capital available for operating expenses means nothing from an economic angle unless the whole process of production from its inception is similarly extended by entering into more capitalistic, more roundabout methods. On the one hand, the nature of each productive technique will *demand* in more or less proportional relation an increase in plant to accompany any increment of working capital; and on the other, *supply* will certainly be forthcoming, since any addition to available operating funds liberates some credit for long term investment.⁴ A drift of purchasing power into the fixed capital field becomes all the more probable in that there, in contrast with working capital, "enhanced prices of the means of production play a smaller rôle than the lessening of interest."⁵

The relevancy of these considerations to the present problem is apparent. If banks "utilize" temporary savings, which appear nowadays chiefly in the form of idle balances in seasonally slack industries, they provoke by so much ⁶ an extension of plant elsewhere. When a tightness develops subsequently through the withdrawal of balances by the seasonal industries, the banking system has to in-

¹ *Ibid.*, pp. 132-135.

² *Ibid.*, pp. 138-141. Machlup would probably exclude strictly seasonal loans from this generalisation.

³ *Ibid.*, pp. 157-160.

⁴ *Ibid.*, pp. 138-141, 184-186.

⁵ *Ibid.*, pp. 184-186.

⁶ Machlup apparently means to the extent that seasonal fluctuations in working capital needs for one industry is not offset by inverse seasonal variations elsewhere.

crease its credit extension to tide over the critical period. This can only mean a *permanent* addition to the volume of outstanding loans, however, since the loans which found their way into fixed capital have not been and cannot be liquidated. Another seasonal abundance of funds will mark a repetition of the same erroneous "utilization" of idle balances, followed by another increment of inflation.¹

The foregoing theory forms a complement to the monetary explanation of cycles by revealing how seasonal inflation, *following* the actual increase of fixed capital, makes it unnecessary to suppose that business booms operate from the very beginning with an expansion of bank credit. Furthermore, it explains how the ratcheting action of this type of inflation allows for a persistent upswing upon relatively modest increases of credit, periodically repeated.² Finally it throws the responsibility for misdirected production squarely upon inflation and not upon the stock exchange, which has been shown to have a salutary effect to the degree that it induces an absorption of excessive credits.

We may now proceed with the questions as to whether the stock exchange causes inflation and whether it raises the cost of credit to industry. Whatever the ideological, psychological, or teleological connection between speculative demand and inflation, it may be said categorically that the former does not "cause" the latter; banks can decide to meet speculative demand or not, and this is decisive.³ The second question might also be disposed of summarily by a reference to the conclusions just reached. The security market could enhance the cost of credit to industry only where credit is really absorbed, i. e. in the unlikely case of a lag of security issues behind inflationary bank loans.

But it is necessary to anticipate the rejoinder that even if the stock exchange absorbs no credit it may yet raise interest cost to producers.⁴ Take first the effect of increased security values proceeding from the willingness of the bull speculator to pay higher rates on bank loans than he receives in real dividends.⁵ When call-money advances, the rates on direct commercial loans (e. g. acceptance rates) rise in sympathy. This gives the bourse the much-decried appearance of raising industrial interest costs. In reality what has trans-

¹ *Ibid.*, pp. 161-176.

² *Ibid.*, pp. 176-178.

³ *Ibid.*, pp. 190-193.

⁴ Machlup's exposition of the following points seems very elusive, and I cannot be certain of having correctly reproduced it.

⁵ *Ibid.*, p. 203.

pired is merely a relative rise in short term rates and a corresponding fall in effective long term rates. The high stock quotations mean that new security issues can be floated at lower real rates; indeed this is precisely the way in which the bull movement redounds to the benefit of industry. Firms which have already completed the marketing of their securities complain of the high costs of working capital; but if their lines of production are really sound, nothing prevents their covering working capital needs by marketing new securities at the advantageous prices now prevailing, in place of persisting with the expensive short term financing of what are really permanent uses of capital.¹

But if the initial disequilibrium of rates proceeds from credit inflation, the outcome is different. Interest rates in the short term markets supported by bank credit will be low relatively to effective security yields. In the case just mentioned, the flow of funds into security purchase took place *despite* the *lower* rate because of the bull sentiment. In the present case, funds move into long term application *because* the rate is *higher* than in the short term market. But in place of stopping when equilibrium is reached, short term rates may actually advance over the real returns on securities, inasmuch as inflationary credit has a way² of becoming logged in *savings* accounts. "This last possibility of a rise in the cost of bank credit must therefore be explained as the consequence of — too cheap bank credit!"³ In other words, the scarcity of funds upon the money markets has been indirectly caused, not specifically by loans for security speculation, but by the general fact of inflation.

Machlup's virtual denial of capital absorption upon the stock exchange reflects an opinion expressed as early as 1902 by Adolph Weber, seconded by Johann Plenge in 1913, and more recently by Albert Hahn and Hans Neisser.⁴ But it is chiefly through the works of Gustav Cassel⁵ that the idea has been transferred to America and

¹ *Ibid.*, pp. 188-206.

² Machlup does not explain why. Cf. *ibid.*, p. 208.

³ *Loc. cit.*

⁴ Adolph Weber, *Depositbanken und Spekulationsbanken*, 1st ed. (Munich, 1902), p. 173; Johann Plenge, *Von der Diskontpolitik zur Herrschaft über den Geldmarkt* (Berlin, 1913), p. 175; Albert Hahn, *Geld und Kredit, Neue Folge*, pp. 184-190; Hans Neisser, *Der Tauschwert des Geldes* (Jena, 1928), pp. 71-74.

⁵ *Theoretische Sozialökonomie*, 2nd German ed. (1921), p. 187; elaborated in articles in the *Frankfurter Zeitung*, May 5-7, 1927; in *Shandinavska Kreditaktiebolaget*, Quarterly Report, April and October, 1929; before the Committee on Banking and Currency, House of Representatives, 70th Congress, first session, H.R. 11806; and in the *Forum*, June, 1930.

England, where it has been championed most notably by Reed and Rogers, but also by Hawtrey, Hoover, and Eiteman.¹ In Germany the opposition numbers amongst its ranks Balogh, Beckerath, Palyi, Reisch, Richter, and Wagemann.² In our own country the party opposed to Cassel is represented by Anderson, Hardy, Williams, and others.³

Despite its superficial plausibility, the Cassel-Machlup case has not yet been statistically verified, and there exists a strong *a priori* presumption against its correctness. To clear the ground for what seem to be reasonably debated issues, let us consider first several respects in which it is certain that stock speculation does not absorb credit, indicating also the relevancy of these arguments to the ultimate issue.

First, it is to be admitted that if we look to the *ultimate* destination of funds, the mere appreciation or depreciation of securities, the flotation of new issues, or the selling-off of holdings by speculators, do not signify a binding of capital. Sale is always accompanied by purchase; what one party surrenders or loses the other gains; funds are transferred, but they are available still for whatever purpose the recipient desires. Applied to brokers' loans, the same view of ultimate destination gives like results. This magnitude increases when brokers' clients demand more funds than they deposit, i. e. when speculators withdraw profits or purchase *new* security issues on margin, or when securities pass into weaker hands.⁴ In

¹ H. L. Reed, *Federal Reserve Policy, 1921-1930* (New York, 1930), chs. iv-v; J. H. Rogers, *Stock Speculation and the Money Market* (Columbia, Missouri, 1927); R. G. Hawtrey, *The Art of Central Banking* (London, 1932), p. 73; C. B. Hoover, "Brokers' Loans and Bank Deposits," *J. P. E.* 37, pp. 713-727; W. J. Eiteman, "Economics of Brokers' Loans," *Am. Ec. Rev.* 22, pp. 66-77.

² Thomas Balogh, "Latente Inflation," *Schm. Jhrb.* 53, pp. 581-616; *idem*, "Absorption of Credit by Stock Exchange," *Am. Ec. Rev.* 20, 658-663; Herbert Beckerath, *Kapitalmarkt und Geldmarkt* (Jena, 1916); Melchior Palyi, "Zinsfuß und Zahlungsbilanz in den Vereinigten Staaten," *Magazin der Wirtschaft* 5, 45, p. 1687; Richard Reisch, "Über das Wesen und die Wirkungen der Börsen-Kredite," *Bank-Archiv* 28, pp. 154-162; *idem*, "Rückwirkungen der Börsenspekulation auf den Kreditmarkt," *Zeitschrift für Nationalökonomie* 1, pp. 205-221; *idem*, "Das Kreditproblem in der Volkswirtschaft," *ibid.* 3, pp. 1-22; Hans Richter-Altschaeffer, "Some Theoretical Aspects of Stock Market Speculation," *J. P. E.* 39, pp. 229-238; Ernst Wagemann, *Economic Rhythm* (New York, 1930), pp. 111-113.

³ B. M. Anderson, "Brokers' Loans and Bank Credit," *Chase Economic Bulletin*, vol. VIII, no. 4; cf. also, vol. IX, no. 2; C. O. Hardy, *Credit Policies of the Federal Reserve System* (Washington, 1932), ch. viii; J. H. Williams, "The Monetary Doctrines of J. M. Keynes," *Q. J. E.* 45, pp. 547-587.

⁴ Eiteman (*Am. Ec. Rev.* 32, pp. 76-77) deals only with withdrawal of profits, erroneously omitting the other occasions. Hawtrey (*Central Banking*, pp. 61-65, 83)

these events the volume of broker borrowing increases, but there is nothing on the surface to indicate absorption: funds withdrawn by the trader, whether profit or principal, are available for whatever disposition he desires, and credit advanced to purchasers of new issues goes to the corporation or its underwriter and is similarly disposable. But all of this proves too much: the multiplicity of cases of this sort constructed by Machlup and Eiteman results in a Pyrrhic victory. For whatever can be said of the *ultimate* destination of funds upon the stock exchange could with equal justice be said of funds upon commodity markets. Money spent upon anything goes "ultimately" to someone for his own free disposal. But

It would never enter the heads of economists to assert that the turn-over of goods does not tie up money simply because each buyer is confronted with a seller who passes on the funds realized, ultimately back to the source of their origin (let us say, a central bank).¹

In the second place, so far as transactions on the floor of exchange are concerned, the efficacy of the Stock Clearing arrangement and the almost unlimited effective velocity of brokers' accounts practically eliminate any demand for additional bank credit *from this source*, just as Machlup, Cassel, and Keynes contend. Even Hardy, who belongs with the opposition upon grounds yet to be examined, concedes the case here;² and the conclusion is amply confirmed by statistical studies of the absolute magnitude of brokers' balances in New York, as well as by comparisons of the volume of bank credit in New York banks against those of member banks outside.³ But it would certainly be a complete *non sequitur* to deduce from the high degree of cash economy in the exchange itself a like perfection elsewhere in the sphere of what Keynes calls the "Financial Circulation."

The *a priori* case which may be developed in support of credit absorption through speculative security trading rests in the first place upon the mechanism of payments. *Pecunia non facit saltum*; and to jump directly to the "ultimate" destination of funds is to ignore the real problem. Throughout its course from the private investor or speculator to the industrial user, money involved in the Financial

adds to the first two occasions named above the withdrawal of foreign funds, an addition which is not required if "speculators" is taken in an inclusive sense.

¹ Richter-Altschaeffer, *J. P. E.* 37, p. 231. (Italics mine.)

² *Credit Policies*, pp. 164-167.

³ Cf. Rogers, *op. cit.*; Hoover, *J. P. E.* 37, pp. 569-573.

Circulation drops a little by the wayside here and there in necessary working balances, and arrives at its industrial employment with diminished magnitude. Outside the stock exchange itself with its clearing system, transactions involving securities would appear to "absorb" money in the same sense as commodity transactions, namely in carrying through the "money work," in working accounts, in unspent margins. Whether speculation takes the form of larger volume of shares traded or of the same shares traded at higher prices, or the usual combination of both, is immaterial. Every investor knows that there are inevitably periods when his bank or brokerage account shows considerable sums awaiting his decision as to just what and when to buy. An inactive market means few of these occasions, for securities are held in the same hands for longer periods without a break; active speculation proliferates these interruptions and increases — if not proportionally, at least absolutely — the size of average cash balances. Local brokerage houses can no more expect to carry through a larger volume of business with the same credit balances than can the local grocer. Funds tied up in the float to and from outlying points and exchange cities, and between exchange cities, must swell. On their way from underwriter to receiving corporation, from ultimate subscriber to underwriter, new funds go through several stages. The probability of absorption from this angle, as yet unverified empirically,¹ supports the position taken by Anderson, Palyi, Reisch, Richter, and Williams, that a genuine parallel exists between commodity and security markets, in that both require more money to carry through more trading.

The second cause of absorption is touched upon by Machlup in his reference to the hesitant security buyer.² Balogh also rests his case on the fact that "many sellers will decide to use the proceeds of their sales to build up cash reserves or to leave them with their banks for later use in reentering the stock market."³ Whatever absorption

¹ Wagemann (*op. cit.*, p. 112) does indeed present a chart showing a striking inverse correlation between security prices and money-volume movement on the commodity markets from 1897 to 1913.

² Machlup also modifies his general denial of absorption for a supposed dearth of new issues, arising from apprehensiveness and uncertainty on the part of corporations as to future developments. Speculators find themselves in possession of funds without outlet into industry (*Börsenkredit*, p. 208). But the sky-rocketing curve of actually recorded new issues (Reed, *op. cit.*, pp. 175, 182) precludes the dilemma envisaged by Machlup. Furthermore, any surplus funds could be lent directly for industrial purposes without the intervention of security issues.

³ *Am. Ec. Rev.* 20, p. 660.

develops from this action, it should be noted, pertains in the first place to unspent margins resulting, not as in the former argument from the inevitable frictions in monetary transactions, but from intentional hoarding; and in the second place, it pertains only to the latter phases of a boom when a strong bear sentiment appears. Both these peculiarities are stressed by Keynes, who is responsible for the fullest statement of the phenomenon, although he rejects the mechanism-of-payments argument by extending to "Business-deposits B" in its entirety the extraordinarily high velocity characterizing only the portion involved on the floor of exchange itself. According to Keynes' account, a bull market may proceed "without much effect on the supply for other purposes" as long as the movement rests upon a favorable consensus amongst speculators, i. e. as long as the rise of security prices is not great enough to induce withdrawals from the market and the building up of Savings-deposits. But as a growing bear sentiment develops, as, in the opinion of more and more people, the price advance has gone too far, an increasing volume of funds is withdrawn and put into Savings-deposits. The increase in Savings-deposits, which along with Business-deposits B constitutes the Financial Circulation, necessarily withdraws credit from the Industrial Circulation, unless the banking system creates enough additional money to offset the hoarding. Indicative of the bear activity on this head is the mounting volume of brokers' loans.¹

Keynes' argument becomes more conclusive if the matter of absorption is explicitly² put in terms of tying-up bank reserves. Reed quite correctly adopts the reserve approach, but by overlooking Keynes' bear faction he comes to a diametrically opposite conclusion.³ Since it is through the necessity of maintaining customary or legal reserves against "Savings-deposits" that banks have less lending capacity for industrial purposes, an accurate measure of absorption under American conditions could only be got by taking account of the divergent reserve requirements for time and demand deposits, for bear withdrawals might be put into either category and a preponderance of either would make a considerable difference in results. With this refinement, "Savings-deposits" indicates satisfactorily the

¹ *Treatise*, I, 251.

² With Keynes himself this test is clearly assumed, but implicitly only. *Treatise*, I, 267; II, 196.

³ *Federal Reserve Policy, 1921-1930*, pp. 156-161.

extent of paralyzed purchasing power.¹ C. O. Hardy combines Keynes' contribution with the accuracy of the Reed approach through reserves. In the latter stages of a boom, says Hardy, there is a body of persons "who consider it better business to sacrifice current income for the sake of a more advantageous purchase at a later time."² If these persons do not themselves utilize the withdrawn funds either directly in industry or indirectly through loans, "part of the bank reserves will be tied up in support of these investment [i. e. Savings-] deposits, and the supply of bank credit for other purposes will be correspondingly curtailed."³ This is the crux of the matter, and it may be profitably employed as a test for other alleged causes of credit absorption. Brokers' loans do not themselves necessarily mean tied-up reserves, though there exists a presumption in that direction. The passage of securities into "weaker hands" does not inevitably imply a hoarding tendency on the part of sellers, though the likelihood for just that result is great. In any event, the conscious retention of funds in idleness, whether described accurately in terms of neutralized bank reserves, or more loosely under the aspect of brokers' loans or the appearance of weaker hands, constitutes a demonstrable ground for credit absorption.

To view with equanimity the absorption of credit into security speculation for the reason given by Machlup that it reduces the spread of inflation to industry, is wholly indefensible. If the factors augmenting purchasing power tie-up operated early enough, the basis for the stock market boom in windfall industrial profits would be withdrawn, the boom would not occur. What actually happens is that the withdrawal serves as a check at precisely the wrong time, *after* the artificially induced industrial boom has passed its zenith and approached a limit. Security speculation requires additional credit in the mechanism of transfer, the first factor analyzed above, as the volume of trading increases. But trading reaches its greatest extent when the division of opinion is most marked, i. e. toward the end of the boom when prospects are most uncertain. Absorption into Savings-deposits occurs at the same time, as bear sentiment waxes. Keynes explains how in these circumstances the central bank encounters a dilemma. If it expands credit to offset absorption in the

¹ And not brokers' loans, as Keynes once intimates (*op. cit.*, p. 251), because speculators withdraw profits partly for consumptive employment.

² *Credit Policies*, p. 172.

³ *Ibid.*, p. 169.

Financial Circulation and to prevent actual deflation in the Industrial Circulation, the bull market continues; but if it merely ceases to increase loans, the momentum of the bull market will result in a shortage of funds for industry, followed by a collapse of security prices. The solution offered is to lend freely for both speculative and industrial purposes, but at a rate of interest sufficiently high to restrain the bull sentiment.¹

Reed therefore misses a potential source of serious disturbance when he says of the Wall Street situation before the debacle:

Threatened loss of credit control was the real source of apprehension, and speculative use of credit had to be checked, not because such credit was made unavailable for other uses, but because speculative demands threatened an expansion of credit in general. The right culprit was indicted but on precisely the wrong counts.²

Admittedly, however, the *basic* trouble is inflation: even the withdrawal of credit follows only as one of its by-products. Or alternatively the danger may be envisaged — persons of opposite convictions upon the absorption question such as Machlup and Reisch, Hawtrey and Keynes here agree — as the tendency of security flotations to outstrip savings.³

Even if the stock exchange were quite incapable of depriving industry of credit it would be an error for the monetary authority to ignore changes in its complexion. Hawtrey argues quite correctly that speculative gains and losses partake of the nature of gambling turns, and that aside from the real industrial conditions reflected in their course they have no net social significance. But is there warrant for supposing further that inflation is “*at once* recorded in the commodity markets,” so that the central bank need take account only of the latter?⁴ Stock and bond quotations have always appeared as more sensitive barometers than commodity prices. Furthermore, as Machlup maintains, they are peculiarly useful when “prosperity” is international in scope and gold movements give no cue of overexpansion; or when, as in the 1921-29 experience, peculiar circumstances combine to prevent commodity prices from giving portent of economic unsoundness.

¹ *Treatise*, I, 254-255.

² *Federal Reserve Policy, 1921-1930*, p. 176.

³ Cf. respectively *Börsenkredit*, p. 208; *Zeitschrift für Nationalökonomie* 3, pp. 14-16; *Central Banking*, p. 83; *Treatise*, I, 257.

⁴ *Central Banking*, *loc. cit.* (Italics mine.)

Machlup's opposition to discriminatory measures directed toward speculative credit reflects a growing sentiment. Funds put upon the direct commercial loan market ease rates generally and liberate purchasing power for whatever purpose the holder desires. "Bank deposits know no father," it is said; no matter what the initial *occasion* for the loan, the banker does not dispose over its subsequent history. Given a predilection on the part of the public for speculation, discrimination by central banks against member banks which have lent heavily upon collateral would merely force the process under cover. Perhaps these measures have a dampening effect psychologically; a direct or mechanical effect there is none. No better example could be afforded than by the phenomenal increase of "Loans to Brokers on Account of Others" during the 1928-29 boom.¹ Corporate balances, no matter what their origin, came into active use on the Street.

Upon the second qualitative problem (whether commercial loans are really liquid) Machlup's negative answer appears to be unwarrantably categorical, but more acceptable than the banker's rule of thumb. The question has several facets and must be approached from the angle, first, strictly of liquidity, under which the banking system and the individual bank demand separate consideration, taking cognizance of minimum and maximum credit requirements; and secondly, from the angle of implications which liquidity has upon quantity of credit.

A fundamental fact sometimes overlooked by the practical banker is that every firm requires a certain minimum of working capital in order either to operate at all or to operate without such waste upon unutilized plant capacity that costs exceed value of output. Advances upon this minimum are generally as illiquid as fixed capital loans. To the degree that working capital in the bankrupt line of production can be technically utilized in others, the commercial loan possesses liquidity superior to the fixed capital loan. No doubt the prospects are better if a firm or a few firms are involved and not a whole industry; but in all events the liquidity of working capital² arising from alternative applications can easily be exaggerated. Re-

¹ Reed, *op. cit.*, p. 115.

² Liquid capital or stores of finished and half-fabricated products in excess of normal needs (the normal contingent being included here, in conformity to Keynes' usage, in working capital) are of such doubtful liquidity that even the proponents of commercial loans probably do not envisage them as part of the eligible backing.

garding minimum requirements, the position taken by Machlup and still more recently by Hardy¹ is fully justified: commercial loans cannot be liquidated out of turnover, and in case of bankruptcy working capital items have a narrowly limited marketability.

But consider working capital needs *above* the minimum for profitable operation, restricting the matter at first to a relatively small number of firms, though they may be assumed to be scattered through all industries. Many firms even in no better than "normal" times enjoy producers' surpluses in the Marshallian sense; for these firms it would be quite possible for the banking system or a particular bank to force repayment upon commercial loans and some reduction of working capital without bringing the operating ratio beneath a "profitability" margin. Consequently certain commercial loans even upon what Moulton called "permanent" working capital in his pioneer attempt to deny the traditional liquidity,² are in fact perfectly liquid. Furthermore, certain whole industries, and by the same token the firms within them, experience temporary increases in demand such as seasonal requirements or fads, so that working capital has to be extended past its normal level. Here again there is justification for the bankers' rule: the goods come upon the market and the loan is liquidated without embarrassment to the entrepreneur.

Suppose that in place of a few industries we include in the analysis industry as a whole. The former distinction between minimum, normal, and abnormally large working capital now pertains to *general* movements, over the whole field, i. e. to seasonal and cyclical variations in volume of trade. So far as concerns *seasonal* increases in working capital, the banking system must provide the necessary elastic increases in credit, since prices are not adjusted downward in so short a period, and since the "money-work" assumes thereby a larger magnitude. First-class commercial paper with a period approximately equal to the turnover period for the goods seems admirably adapted to this purpose; its liquidity from a social angle cannot be impugned, though Machlup quite overlooks this fact in his anxiety over inadequate post-seasonal contraction, to which we turn presently.

But from the angle of a cyclical movement in all industry, the mat-

¹ *Credit Policies*, pp. 332-333.

² H. G. Moulton, "Commercial Banking and Capital Formation," *J. P. E.* 26, pp. 713-723.

ter assumes quite a different aspect, and here the service of Moulton, Machlup, and Hardy is most notable. A general upward movement in production puts all firms into possession of producers' surpluses. They all appear to require permanently more working capital and they all appear to the banker as good risks. Commercial paper becomes covertly on the part of the borrower or by tacit understanding with the lender a subterfuge for plant extension, or when not, it merely supplies the necessary working capital to complement plant extensions largely the result of forced saving. When the crash comes, liquidity of the ordinary commercial loan is practically as low as the loan for fixed capital purposes. Indeed, if the crisis is not international in scope, the marketability of securities abroad may give a shade of preference to the latter. At the very time when bank liquidity is most prized, the bankers' routine adherence to commercial paper proves to have been least efficacious.

In summary, commercial loans are liquid from a truly economic angle when they provide working capital in excess of normal for a *seasonal* increase of output in industry *generally*, or when in a *particular* industry or firm either experiences a temporary abnormal demand or enjoys a profit margin large enough to permit reduced operation even from normal, or, finally, possesses easily marketable working capital goods in case of a shut-down. Liquidity of the commercial banking system in time of general crisis is largely a chimera, whatever the type of its assets. If anything, collateral loans prove more liquid than commercial on the basis, mentioned by Keynes, that stocks and bonds are more apt to be taken over by non-banking resources, i. e. out of Savings-deposits.¹

A second basis of apology for the banking tradition in favor of commercial loans departs from the inclusive viewpoint of all banks together, of the whole economic structure, and regards the matter from the angle of one bank, i. e. the "shiftability" of assets. Here it might be argued that even if working capital does not prove economically liquid, "first-class commercial paper" has a peculiar merit as against securities. That merit lies in the banking tradition itself. Just as gold in international transactions serves as a convenient, if quite irrational, fetish or symbol, so in inter-banking lending within a country commercial paper takes on a certain utility simply because it is held in highest esteem. It becomes the agreed-upon basis of advances of one bank to another, and in absence of this particular

¹ *Treatise*, I, 348.

basis, another, perhaps equally arbitrary, would have to be invented to provide the game with an objective rule.

The question of liquidity cannot be completely divorced from quantity of credit, however. In this respect arguments *pro* and *con* the commercial loan appear to be about equally divided. Neisser calls attention to the fact that limiting individual and central banks to this type of paper provides a certain check to inflation over requirements for legal money reserves.¹ But against this stands a very real danger. The practical banker favors commercial loans for precisely the wrong reason when it comes to the quantitative aspect: merely because this asset is particularly acceptable to his fellows, merely because it is "shiftable," he concludes that any amount of it is safe. The intricate problem of true economic liquidity touched upon in earlier paragraphs does not enter into his calculus. He fails sometimes to realize that the liquidity of his portfolio depends, not upon the *dates* stamped upon the bills he discounts, but upon the borrower's earning capacity in case the loan is not allowed to be renewed. Reliance upon the traditional basis of lending may thus prove an ostrich-like procedure. Machlup argues that the banking system, feeling that loans on short term to tide over a seasonal peak in working capital needs are entirely legitimate, inevitably finds itself with idle funds during the off-season period when the loans are repaid, and that this gives rise to inflationary lending, i. e. loans to which there is currently no corresponding flow of goods. If banks expanded and contracted credit parallel to the seasonal increase and decrease of some fairly reliable index of the volume of production, commercial loans would be as liquid as they were elastic. To the degree, however, that the net amount of seasonally idle deposits is "utilized," it *must* be utilized in non-seasonal applications; and this means, as Machlup demonstrates, that it goes partly into additional plant and partly into the necessary additional operating capital, neither of which is liquid. The result is simply capital extension through forced saving.

II. FOREIGN CREDIT

The vulnerability of the German economic structure to foreign developments because of extensive short term advances from abroad has called forth in Carl Rosch's *Kreditinflation und Wirtschaftskri-*

¹ *Der Teuschwert*, pp. 151-152.

sen¹ an attempt to orient the theory of conjuncture toward this particular fact. The course of Rosch's argument, which assumes a purely *a priori* form, is obscured by the intricacy of the interactions dwelt upon. Like the majority of writers whom we have encountered in this Part, he seems to conceive of cycles as generated by technical improvement and population growth impinging upon a monetary system peculiarly subject to inflation. But to his peculiar mode of thinking, the influx of foreign funds is as inflationary as excessive domestic credit.² The hallmark of crises is overcapitalization proceeding not from mistaken entrepreneurial estimates of capital requirements, but rather from banks and abroad,³ concealing for a time the limits imposed by available labor and raw materials and by real saving. Were Rosch's ideas satisfactorily articulated, it might appear from his involved reasoning concerning "relative and absolute degrees of saving" and "relative and absolute saving activity" why he concludes that savings must fall off in the period of high conjuncture.⁴ Strangely enough one nowhere discovers upon what basis *overcapitalization* is to be measured. Sometimes there seems to exist some inflexible proportion of real capital to labor and land, a proportion which cannot be exceeded without disaster;⁵ sometimes that there may be too many capital instruments relatively to the flow of real savings;⁶ sometimes that industry cannot any longer float securities and must turn too much to the short term market;⁷ and finally that there may be a relative shortage of working capital!⁸

In representing the inflow of foreign capital as *per se* inflationary Rosch takes up an extreme theoretical position lying behind the demand which Schacht made upon the Reichsbank, that every increase of foreign loans be offset by a corresponding reduction of its portfolio. The opposite extreme is presented in Röpke's address before the business cycle session of the *Verein für Sozialpolitik*.⁹ Since loans from abroad automatically provoke commodity imports into Germany in like measure, Röpke argues, any inflation from this angle is necessarily temporary.¹⁰ Unlike the forced saving induced by genuine credit inflation, no reduction of consumption is thrust upon the country and there is no reason to expect a reaction in which pro-

¹ Jena, 1927.

² *Ibid.*, p. 147.

³ *Ibid.*, pp. 126-127.

⁴ *Ibid.*, pp. 112, 126, 133.

⁵ Wilhelm Röpke, "Auslandskredite und Konjunktur," *Verein* 173, ii, 213-247.

⁶ *Ibid.*, pp. 216-220.

⁷ *Ibid.*, pp. 58, 167.

⁸ *Ibid.*, pp. 157-158 *et passim*.

⁹ *Ibid.*, pp. 58, 121.

¹⁰ *Ibid.*, pp. 136-174.

ducers' goods are found to be overextended relatively to consumers' goods. Unlike the result of inflation, again, there is no necessity of more and more credit expansion merely to support the *existing* volume of productive apparatus. Röpke admits that foreign capital may intensify crises,¹ but limits the case to the withdrawal of short term credits, and concludes that the German economic system can in general absorb any sum of foreign credit without damage.²

No doubt much of the popular opposition to foreign capital rests ultimately upon mere chauvinism or fallacious thinking. Röpke is certainly right in rejecting the notion that funds derived from abroad tend to go into consumptive use more than those available to borrowers upon the domestic markets, and furthermore that there is something inherently sinister in a "boom resting on borrowing," since industry normally derives its capital in this way even within the country. Nevertheless his reliance upon a flow of imports³ to neutralize the effect of additional funds from abroad would be belied in case the lending country were experiencing an approximately equal rise of prices. As Machlup has emphasized, the capital movement in this case transfers inflationary credit to the borrowing country.⁴ The effect may easily be to remove central bank control from the money markets, and to justify Schacht's dictum that "there are two Reichsbanks in Germany; the one we represent, and the one which consists of foreign credits."⁵ Neisser believes that in the latter half of 1926 German banks largely dispensed with a rediscounting at the Reichsbank because they commanded so large a volume of exchange bills proceeding from foreign borrowing.⁶ Keynes has shown with great clarity how the central bank of a gold-standard country confronts a dilemma: raising bank rate to penalize domestic expansion has the consequence of drawing in gold from abroad, and so putting the banks in command of more reserves.⁷ To counteract the spread of foreign inflation into the domestic economy, the central bank might increase its own holdings of bills or gold or liquid balances abroad;⁸ or failing to stem the tide in this way, it

¹ *Ibid.*, pp. 240-241.

² *Ibid.*, p. 220.

³ *Ibid.*, pp. 225-238.

⁴ *Börsenkredit*, p. 72.

⁵ Quoted from *Die Reichsbank* (Berlin, 1929), p. 203 by Hardy, *Credit Policies*, p. 222, note.

⁶ Hans Neisser, "Die alte und die neue Reichsbank," in *Strukturwandlungen der deutschen Volkswirtschaft*, 2nd ed. (Berlin, 1929), II, 315.

⁷ *Treatise*, ch. 21.

⁸ *Ibid.*, II, 310-311.

might depart a little from the ordinary gold standard by widening the gap between its buying and selling rates for gold.¹

Even if foreign credits do not spring from inflation, the prolonged reduction of lending, or the sudden cessation of long term advances, in case the gap cannot be bridged over by drawing on short term balances, may intensify or even precipitate crises. Taussig, Williams, and Graham have described such effects in the cases of the Franco-Prussian indemnity, of Argentina, and of the United States, and Ohlin has dwelt upon the disturbances in capital movements as aggravating the depression beginning in 1929.² Because the basic constructional industries come to be organized on the basis of constant plant *extension*, the definitive stoppage of credit from abroad produces not merely a want of working capital, but through the cancellation of orders for plant, a standstill in producers' good industries. On the other hand, a sufficiently gradual falling off in loans from abroad would allow for readjustment without serious revulsion. The truth thus appears to lie between the extremes indicated by Rosch and Röpke.

¹ *Ibid.*, II, 319-331.

² *Course and Phases of the World Economic Depression* (Geneva, Switzerland, and Boston, Massachusetts, 1931), p. 219.

CHAPTER XXII

OUTCOME OF THE CREDIT THEORIES OF CYCLES

I. ON THE SPECIFICALLY MONETARY EXPLANATION

A. *The Discovery by German Theorists of Credit Creation as a Factor in Price Formation*

WHATEVER opinion may be held regarding the verisimilitude of monetary explanations, it would be generally conceded that quantitative changes in the volume of bank lending play an important rôle in the drama of conjunctural variation. But until very recently, German literature has displayed a scepticism toward this factor which astonishes the Anglo-Saxon reader and vexes the more progressive German analyst.

On the one hand, the characteristic anti-monetary alignment has been caused simply by a failure to apprehend that banks *create* credit. As Stucken says, ". . . only now, more than sixty years after the first appearance of Juglar's book, does the recognition of credit-creation by the credit banks begin to be a commonplace in Germany, thanks to the labors of Schumpeter and Hahn, amongst others."¹ Hayek and Neisser particularly resent the fact that Germany so long ignored the theory of deposit creation with which English and American students were quite conversant.² Hahn, whose intransigence has accomplished more toward securing an appreciation of the activity of commercial banks than the earlier, more academic, and more careful statements of Wicksell, Mises, and Schumpeter, points out the persistence in the widely accepted systematic treatises on banking by Schulze-Gaevernitz, Somary, and Adolf Weber of the view that banks lend only the funds deposited with them by customers.³

¹ Rudolf Stucken, *Theorie der Konjunkturschwankungen* (Jena, 1926), p. 20.

² Friedrich Hayek, *Geldtheorie und Konjunkturtheorie* (Vienna, 1929), p. 83; Hans Neisser, *Der Tauschwert des Geldes* (Jena, 1928), p. 52.

³ Albert Hahn, *Volkswirtschaftliche Theorie des Bankkredits*, 2nd ed. (Tübingen, 1924), p. 25, note; 3rd ed. (Tübingen, 1930), pp. 8-9. Weber is conceded to be occasionally more liberal. Against Hahn, it is held by Gottfried Haberler ("Albert Hahns

In the second place, German theory until relatively recently has been under the influence of the Tooke-Fullarton doctrine,¹ and has not been able to exorcise the hoary wraith that even when banks call purchasing power into being they do so only in response to the "needs of trade," so that credit never becomes an active element in determining prices of the course of business developments. This idea is a heritage from the outright banking theory of Wieser and Gruntzel,² and its war-time recrudescence with the proponents of "classical money" such as Bendixen, Elster, Dalberg, and Singer, and also from the confused utterances of Philippovich, Eulenberg, and Knapp.³ Even today the idea of the passiveness of banks is not without new converts.⁴

The notion of the automatic self-extinction of commercial loans, and the concept of bank deposits as emanating from saving exclusively, both tend to be merged in the belief of certain economists and in the universal conviction of practical bankers, as expressed by Adolf Jöhr of the Swiss Credit Institution, that "banks are pre-eminently reservoirs of newly saved capitals. With them chiefly they extend credit. Consequently the volume of credits extended by them is not the cause, but the result, not the inciting factor, but an attendant phenomenon, of business cycles."⁵ Just why this attitude preserves its vitality in the teeth of clear theoretical demonstration to the contrary is no more mysterious than the perennial burgeoning of economic fallacy in general; but Hayek has called attention to two contributing circumstances.⁶ Because the individual banker cannot lend much more than the funds he receives from outside, he reasons from the part to the whole and draws the same conclusion for the banking system. There is, furthermore, a peculiarity in the technique of German banking which creates the same illusion, a distinctive feature adduced by Jöhr in support of the view expressed

"Volkswirtschaftliche Theorie des Bankkredits," *Archiv* 56, p. 809) that the credit creation function is generally recognized in Germany. But Haberler writes at a time when the tide has already turned, whereas Hahn's comment persists, somewhat archaically it is true, from his first edition, a decade earlier.

¹ Cf. Wilhelm Röpke, "Kredit und Konjunktur," *Jahrb. für N. & S.* 126, p. 264.

² Cf. pp. 178, 180, above.

³ Cf. pp. 245, 181, 35, above.

⁴ E. g. Leonard Miksch, "Gibt es eine allgemeine Überproduktion?" (Jena, 1929); cf. Rudolf Stucken, "Weitere deutsche Konjunkturliteratur," *Ztsch. für die ges. Staats.* 87, p. 557.

⁵ Adolf Jöhr "Kredit und Konjunktur," *Verein* 175, p. 310.

⁶ *Konjunkturtheorie*, pp. 86-87.

above. The common relation between bank and commercial client is the *Kontokorrent*,¹ which includes both the customer's deposits and his borrowing, the ordinary practice being to allow interest at 1 per cent or $1\frac{1}{2}$ per cent below bank rate on credit balances and to charge interest at 1 per cent above bank rate on debit balances. Since by this arrangement the customer, because of the difference in credit and debit rates, does not borrow in advance and have for a time at least unutilized funds, Jöhr concludes that the amount of "fictive deposits" must be very small, and hence that in European practice a bank loan does not involve "any increase in monetary assets from the angle of society."² Hayek believes this sort of reasoning to be fairly common. Merely because the deposit does not exist for some time prior to its disbursement, but on the contrary is created as disbursed, it does not seem to be created at all, but rather *continuously* used, i. e. the bank appears to be simply a middleman.

Whether the neglect of credit creation is ascribable to a certain backwardness on the part of German students of banking or whether it may be apologized for upon special grounds, there can be no doubt that the German approach to the problem of business cycles has suffered from the unjustified exclusion of monetary elements. Lengthy expositions upon the process of credit expansion in the works of most writers reviewed here, while they may appear unduly elementary to the English or American reader, have at long last brought about the recognition of new purchasing power as an active factor and potentially a source of economic disturbance.

B. The Hayek-Budge Criterion of Causation

Despite its real contribution in this direction, certain representatives of the German monetary school maintain that credit variations constitute not merely an important factor in cyclical upheavals, but the one necessary and sufficient condition — a conclusion which the present complexion of cycle analysis scarcely warrants. This belief proceeds not from neglect of other significant phenomena, the influence of Spiethoff being sufficient to insure the inclusion of a broad

¹ Cf. P. Barrett Whale, *Joint Stock Banking in Germany* (London, 1930), pp. 37-38. The *Kontokorrent* resembles the English "current account," except that the former is commonly distinct from the checking account.

² *Verein* 175, p. 311.

range of elements, but rather from a logical maneuver which makes the whole gamut of imaginable causes to proceed from the monetary. The process, probably implicit with many others, is formulated with greatest clarity by Hayek and Budge. According to the former, because money itself does not satisfy wants, it is peculiarly capable of interrupting the continuous equilibrium which proceeds from laws operative upon real want satisfaction and the real processes of production. Budge expresses the same idea in slightly different terms. Crises arise from incorrect pricing; but amongst the various productive factors none is subject to a persistent one-sided distortion of price except capital, and there the arbitrary dictates of the banking system provide a cause of universal error through a too high or too low interest rate. Both writers adopt the logical instrument of *single difference*: return to a barter system and business cycles disappear.

This criterion is not applicable to most economic problems. Value theory refuses to conclude that labor alone is productive because the removal of this factor would cause production to cease. An earlier chapter in the present enquiry rejected the device in connection with the "social value" of money. To attribute to money the excess product of a monetary over a barter economy would conflict with the rational imputation of most of this excess to currently applied real factors. What seems to be required, not only in these cases but in the analysis of conjunctural variations, is the logical instrument of *concomitant variation*. In most quarters this is received as a somewhat worn truism, but it may allowably be repeated in the present context. Whatever contributes to the amplitude of business cycles is a cause in its own right.

Upon this criterion there are other important causes of cycles beside the monetary factor. In the first rank will have to be placed variations in agricultural output, the wave-like errors of optimism and pessimism, and technical innovations. The elaboration of the effects of changing demand and modes of production is Schumpeter's intellectual *tour de force*, and its propagation in the German literature constitutes one of its chief claims to distinctiveness. The recent study by the Economic and Financial Section of the League of Nations establishes beyond doubt the contemporary importance of "new economic combinations": the altered direction of demand from raw materials toward highly fabricated goods, the progress of rationalization, the introduction of marked economies in wholesaling

against retail trade, the increase in agricultural productivity.¹ Beside the monetary, agricultural, psychological, and technological factors should be ranked the loose articulation of the competitive system and the purely technical difficulties in adapting output to demand. The fact that there is everywhere so much slackness in the system allows entrepreneurial error to proceed far and to engender further misdirection of activity. Robertson calls attention to the fact that a 10 per cent increase of demand for the joint output of 50 firms may lead each one to expand output by 25 per cent, thinking itself especially apt to obtain the additional market.² The mutually aggravating character of contributing elements is a theme which needs only to be mentioned in view of Mitchell's unrivalled treatment. Aside from such reactions as easily lead off into the psychological channel, certain technical facts amplify the severity of industrial fluctuations. Reference may again be made to Robertson's description of the awkwardness attending the large, expensive, and durable instruments of modern industry.³ Because of the indivisibility of factors, a 50 per cent increase in output may necessitate a 100 per cent increase in plant; when it is once constructed, everything points to overproduction. The condition of decreasing costs, resting also on indivisibility, may lead entrepreneurs producing at a loss to *increase* output to reduce per unit costs, when the opposite is required for equilibrium upon the market. Furthermore, in the case of blast furnaces, coal mines, etc., the cost of shutting down the plant may long postpone the requisite reduction in output. It has also been shown how an industry normally demanding 10 per cent of its plant value as replacement will, in consequence of a 10 per cent increase of demand for its own products, in all probability expand plant by 10 per cent. But for the constructional industry this signifies a 100 per cent increase in demand, to be followed at the recession period by an absolute disappearance of demand. All such facts combine to make the cycle to a high degree "self-inflamatory" once the movement in either direction is under way. Without any pretence at exhaustiveness, an enumeration of causes should include also the factor of influx and withdrawal of funds from abroad.

¹ *Course and Phases of the World Economic Depression* (Geneva, Switzerland, and Boston, Massachusetts, 1931), pp. 64, 73-78, 84, 99, 162, 226, 283; Bertil Ohlin, "Ungeklärte Probleme der gegenwärtigen Krisis," *Welt. Arch.* 36, pp. 6-10.

² D. H. Robertson, *Banking Policy and the Price Level* (London, 1926), p. 37.

³ *Ibid.*, pp. 34-38.

The admission of this multiplicity of factors may evoke the protest that some are merely underlying conditions, not active causes. There is justice in such an objection. The notion that business cycles are "self-generative" cannot prevail against the common criticism that it does not explain why these disturbances do not in the course of time "run down." But on the other hand the cumulative and mutually intensifying action of plural causes does reduce the "start" of a cycle — who can say where this comes? — to a mere incident, and focuses the diagnosis upon the actual progress of events. In the second place, the adoption of concomitant variation may seem to imply the relegation of *causation* to the museum of intellectual curiosities. Such is not the conviction of the present writer. Causation is no doubt a metaphysical surd about which the economist may well be cautious. But statistical establishment of correlation and theoretical explanation differ as do fatalistic determinism and free will; a world which requires action for survival also requires some sort of rough-and-ready distinction between cause and effect. The distinction between active causes and underlying conditions is similarly indispensable. For the present complexion of cyclical analysis, however, this represents a goal rather than an attainment, and this is the warrant for admitting into the category of causes all factors contributing to the amplitude of variation.

Save for a very small minority, Mises in Germany, Hawtrey in England, Fisher and Hansen in the United States, cycle analysts whose orientation is primarily monetary would be quite content to admit money as a "passive" element in the sense that it does not act *alone* as the initiating cause. That low interest rates in and of themselves cannot transform depression into revival, a fact frequently adverted to by writers hostile to the monetary explanation, such as Diehl, Spiethoff, and Wagemann,¹ would be readily conceded. But once a rising conjuncture has been set in motion by any one "active" factor or a constellation of circumstances, it is difficult to imagine how the movement could proceed far without the coöperation of the banking system. Once that coöperation has begun, and price advances, anticipatory buying, plant extension, augmented payrolls, further credit extension to producers, increasing security prices, rising wages, and all the multiple interacting elements come

¹ Karl Diehl, "Über Cassels System der theoretischen Sozialökonomie," *Welt. Arch.* 28, p. 183; Arthur Spiethoff, "Krisen," *Händ. der Staats.*, 4th ed., vol. VI (Jena, 1925), p. 72; Ernst Wagemann, *Economic Rhythm* (New York, 1930), pp. 194-195.

into a maze of interplay, it is pedantic to insist that money is not a *cause* of "prosperity." The distinction between an "essential condition" and a "moving cause" comes to be more and more difficult to maintain as prosperity develops into boom and boom into crisis.

A review of business cycle analysis at its contemporary stage seems to warrant the generalization that money does not operate to *induce* industrial variations except in conjunction with good and bad harvests, technological improvements of all kinds, waves of optimism and pessimism, and the like; but that, once an upward movement has been initiated, the monetary factor assumes a rôle at least as important as any other separable factor. Furthermore, if "monetary theory" is not taken in the very narrow sense which two hostile critics, Löwe and his disciple Burchardt, have insisted upon,¹ that all non-monetary factors depend upon general price movements, but rather in the more liberal sense that bank credit supplies the most important single variable in cyclical movements, the following purely abstract considerations may have weight. In contrast to land and labor, capital in the sense of loan funds or fluid purchasing power represents an aggregate of almost perfectly fungible or homogeneous units. This makes it highly probable that any disturbance affecting either the interest rate or the purchasing power of money in one segment of economic life should communicate itself to other segments. Figuratively, money is a good "conductor" from the very fact of its generalized purchasing power. Whether it is impinged upon from outside by alterations in productivity or whether the impulse comes from within through variations in credit policy, changes in discount rate and purchasing power make themselves felt universally. In the second place, whether or not money itself "initiates" the ebb and flow movements, whether or not money is "active" in the course of events, it might be argued that a monetary theory of business cycles is justified on the pragmatic basis of control. Medical science adopts this practice in the germ theory of certain diseases, without minifying the low organic resistance which is necessary in most cases to allow the micro-organism to develop. Whether monetary control can offset in large measure the disturbances emanating from various real factors is a problem upon which the present critical review of theories does not venture.

¹ Adolf Löwe, "Über den Einfluss monetärer Faktoren auf den Konjunkturzyklus," *Versia* 173, p. 366; Fritz Burchardt, "Entwicklungsgeschichte der monetären Konjunkturtheorie," *Welt. Arch.* 28, pp. 74-144.

II. CONCLUSIONS FROM RECENT GERMAN DISCUSSIONS

A. *The Rôle of Economic Progress in Cycles*

Nearly four decades have elapsed since Wicksell took the definite position that conjunctural movements cannot be explained without reference to the "real" phenomenon of economic progress. It may be set down as a positive contribution of the German monetary theorists in the ensuing years to have elaborated this theme and to have brought it into its necessary connection with the modern mechanism of bank credit. The contemporary Cambridge school owns its obligation to the work of Schumpeter, Cassel, Mises, Hayek, and others who have contributed to this literature;¹ it has left its impress upon the work of American writers.² So far, perhaps, this school has been too much preoccupied with working out the logical apparatus involved in the natural-bank-rate contrast; it has still much unexplored territory in the matter of qualitative differences in various credit markets and the behavior of credit in what Wagemann terms "free" and "tied" commodity markets.³ But it has, on the one hand, lent to the monetary explanation a realistic cast and has, on the other, articulated numerous "real" variables with inflation and deflation without falling into a purely eclectic and descriptive character.

B. *The Rôle of Investment and Savings*

The inherent instability of credit furnishes the Archimedean point for both Schumpeter and Mises types of cycle analysis; indeed, this is merely to reaffirm that they both offer monetary explanations. But Schumpeter and Hahn, possibly because of their optimism regarding the outcome of forced saving, do not envisage the crisis as essentially a matter of too great plant extension. Precisely this maladjustment, however, supplies the cornerstone not only of the congeries of theories in the Mises tradition, but also to some of the most imposing works outside Germany. Keynes makes disturbances in

¹ J. M. Keynes, *A Treatise on Money* (New York, 1930), I, 197. Robertson, *Banking Policy*, pp. 1, 88-90.

² C. O. Hardy, *Credit Policies of the Federal Reserve System* (Washington, 1932), *passim*.

³ *Economic Rhythm*, pp. 193-194.

fixed and working capital his central theorem;¹ Robertson believes the universal feature of cycles to be "disproportionate movements in the output of consumable goods and instruments," occasionally attended by excessive investment in stocks of goods;² and throughout the course of the League study of the current depression, Ohlin assigns paramount importance to the investment cycle.³

Despite a virtual consensus amongst monetary writers in favor of the overinvestment explanation, Cassel has categorically rejected it on the grounds that it falls into the error of all "general glut" theories, and that, on the contrary, society can no more have a superfluity of producers' than of consumers' goods.⁴ Furthermore, the fact that some persons have attributed crises to *oversaving* and some to *undersaving* may seem to indicate serious confusion in the entire mode of approach. These objections are demonstrably false, but some prefatory distinctions and concessions are required.

One variety of overinvestment theory, that developed by Rodbertus, Marx, Sismondi, Bouniatian, Hobson, and apparently also by Foster and Catchings, attributes the breakdown to an inevitable insufficiency of consumer income to purchase output when savings increase. This variety may be designated the *distributional* theory of oversaving or overinvestment, in contrast with the *technical* variety presently to be examined. Except in a very special sense which makes it virtually coincident with the technical explanation, the distributional theorem cannot be supported. In its cruder form the theorem merely states that the majority of consumers have unsatisfied wants but narrowly limited incomes, whereas the few have income but no unsatisfied wants. Reinvested profits proliferate capital goods, but there is no parallel increase in consumer buying power to absorb the product. This unsophisticated argument is disposed of by the reflection that actual investment, which does constitute wants on the part of profit receivers, necessarily involves, to the same degree, the disbursement of funds to laborers and owners of resources. More subtly, however, it is said that side-tracking income into saving *immediately* lessens by so much the consumer command over commodities, a command which is regained only *gradually* as outlays by producers are made during the productive period, so that incomes lag

¹ *Treatise*, vol. I, ch. xviii, *et passim*.

² *Banking Policy*, chs. vi, vii.

³ *Course*, pp. 215, 295.

⁴ Gustav Cassel, *The Theory of Social Economy*, 2nd ed. (London, 1932), II, 648-652.

behind output. If this argument signifies an *impasse* resulting from actual *investment*, it is simply self-contradictory, in that increased equipment can only be got by outlays to the buying public. Any lag is eliminated by the direct passage of savings into investment and thence into incomes. If, however, the argument would represent a possible hitch *between* saving and investment, it discovers a genuine source of disequilibrium, such as Keynes dwells upon in the banana saga. But the difficulty pertains to the period *after* crises, as Keynes insists, commenting upon the Foster and Catchings "dilemma of thrift"; it cannot be advanced as an explanation of crises.¹

Distribution of income in connection with existing capital investment plays a rôle in precipitating crises in two senses; but in the first, the fault does not lie primarily with distribution, and in the second, the distributional error becomes identical with *technical* overcapitalization. In the period preceding the crisis of 1929, it seems evident now that industry was directed too much toward objects of mass production, that with the contemporary distribution of income, middle and lower class buying power eventually proved too small to absorb output. But unless it is held that purchasing power should be so distributed that, no matter what entrepreneurs decide to produce, their course will be correct, the error lies with *misapplying* capital. The difficulty is not a superabundance of capital in general but its particular use in view of income stratification. Testing investment relative to income from a second angle reveals a real condition of *general* overinvestment. Credit inflation forcibly distorts income from its wonted channels and bids fair to bring about a revulsion. If it may be assumed that forced saving redounds chiefly to the benefit of the well-to-do, overcapitalization can be represented as the consequence of inequality. The maldistribution of income is not the underlying inequality, however, but *increased* inequality.² With this interpretation, distributional overcapitalization comes to coincide with the technical variety.

What does the latter concept signify, and how can it meet the test of Say's law? According to that proposition, it might be thought, so long as savings are put into various lines of production propor-

¹ *Treatise*, I, 179.

² This is apparently also Ohlin's conception of the bearing of unequal distribution upon cycles (cf. *Course*, p. 72). Robertson says, "There is a limit to which entrepreneurs can transfer to themselves, for retransfer to their workmen, command over the community's consumable output without endangering a complete collapse of the monetary system and even of the social structure" (*Banking Policy*, pp. 93-94).

tionately to ultimate consumer demand, there could be no "overinvestment," "overcapitalization," nor "oversaving." Certainly in a generic sense society can no more have an excess of capital than of labor or natural resources. But the notion of overcapitalization with such persons as Spiethoff, Mises, Hayek, Keynes, and Robertson does not run in *absolute* terms; it signifies always that for some reason — error of judgment or forced saving — the technique of production has come to be too capitalistic *relative* to the current flow of savings and the interest rate. And this not merely for some industries but conceivably for all, so that overcapitalization is general. When employed with labor, capital must assume a specialized form, and this technical form will be unique with each combining proportion of capital and labor. The complement of machinery with which the laborer is endowed under a low rate of interest cannot be alchemically transmuted to the proper instruments when interest rises relatively to wages. Although the difficulty quite conspicuously inheres in the particular application of capital and not its general redundancy, the phrase "overcapitalization" calls attention to a peculiar difficulty not apparent from the term "misdirected production," which carries with it an implied reference to the relative outputs of different consumers' goods. The current idle supply of tractors and the substitution of horses is dictated not by the circumstance of a glut upon agricultural markets, but by the fact that *costs* per unit of output are reduced by this change, regardless of the *price* of wheat. Adequate capital is not forthcoming for agriculture, and the *overcapitalization* or *overinvestment* consists in the losses upon the tractors, the too capitalistic instruments.

Clarity upon this subject is imperilled by terminological complications. The same difficulty may be called alternatively *oversaving* and *undersaving*, and almost with equal justice. When specific instruments *per* laborer are taken as the point of reference, and the interest rate is supposed to have advanced from the level which gave rise to them, the present supply of capital appears to be too small; there is "undersaving." But when the present supply of capital is taken as the point of reference, the savings embodied in specific instruments *per* laborer appear too great; there is "oversaving."¹ To avoid misunderstanding, the most recent practice reserves the word "saving" for the act of abstinence and "investment" for the act of putting purchasing power into concrete form. It might be added

¹ This ambiguity is explained in a similar fashion by Ohlin, *Welt. Arch.* 36, pp. 2-3.

that to avoid the appearance of a moral judgment upon what society ought to save, the maladjustment may be designated "overinvestment" or "overcapitalization" in preference to "undersaving."

An overcapitalized plant is one in which interest costs per unit of output are so high as to raise total costs per unit of output above price set by competition. Upon the basis of this criterion it is obvious that *all* plants cannot at once be overcapitalized, since competitive price covers outlay to marginal producer.¹ In this sense general overcapitalization is impossible; but this merely reasserts that industry as a whole cannot have too much capital. Opponents of the overcapitalization theorem see only this aspect. But some or many plants in *all* lines of production may show losses from a too heavy capital charge. Production may be divided in altogether appropriate proportions as between ultimate consumers' goods and yet each consumers' good be produced at loss to a substantial portion of suppliers. The difficulty lies not in *what* is produced but *how* it is produced. Were all capital perfectly liquid and unspecialized, overcapitalization could not arise. Even with imperfect liquidity, if debts could be devalued, entrepreneurs could shift the loss of too-capitalistically organized plants to the owners and operate henceforth profitably.² Lacking these modes of escape, entrepreneurs — in all industries — who have carried the substitution of capital for labor farthest under the influence of the previous low interest rates, will be obliged to face losses.

Amongst plants with equally high capital cost relatively to labor cost, those having the longest construction period if they are in process of building, and those having the longest depreciation period if they are in operation, will be most adversely affected by a rise in interest. Ability to meet an increase in interest cost upon current borrowings by reducing valuation of assets entails the reduction of outstanding securities carrying fixed charges. Superficially the matter takes on a purely financial character, turning upon the interrelation of various securities in the corporation's financial structure,

¹ Unless there occurs a general deflation of prices; but this is a phenomenon separable in idea from the cessation of forced saving, and probably in fact avoidable by vigorous and prompt measures by the central bank.

² The present context does not include misdirected production in the sense of too much of one consumer's good. If this complication is added, only those plants can be operated, however readily owners scaled down valuations on plant to a "true" value set by capitalization, where the predicted incomes or quasi-rents are sufficient to cover the marginal rate of time-preference.

upon the temper of security owners, the adroitness of managers, and the credit standing and connections of the firm. Underlying these immediate determinants, however, is the more truly "economic" factor of capital fungibility. Plants with longest construction or depreciation periods entail greatest fixity of investment and give least promise of "getting the capital out"; consequently they require the maximum reduction in valuation.

Another sense of "overinvestment" distinct from the foregoing is the piling up of redundant stocks of goods at various points in the productive process. Opinion amongst monetary theorists as to the significance of this factor in the cycle is not unanimous. Hawtrey, it has already been observed, takes the extreme position that stocks act as a *counterbalancing* factor to movements in bank rate and are hence the farthest thing possible from a cause of crises or depressions.¹ Keynes' chief concern is with theoretical and factual evidence that Liquid Capital does not amount to enough at the end of depression to support revival. But in the early stages of slump when these stores attain their maximum, the factors accounting for the paucity of goods in storage at the inception of boom now operate with sudden violence to dissipate accumulations and so to aggravate the slump.² This attitude does not preclude the emphasis put by Mises and Röpke upon accumulations *before* the downward turn as a factor operative in conjunction with excess plant capacity in precipitating the crisis. Wagemann says, "A surfeit of goods in storage is a symptom which warns us of the approach of a crisis."³ His "Barometer of Storage Movements" reveals that inflow exceeds outflow⁴ from a point midway in the upswing to sometime after maximum activity as registered by employment. Since an increase of stocks might result either from speculative hoarding or from an effort of entrepreneurs to maintain production in the teeth of weakening markets,⁵ it is not surprising to find the volume of goods in storage *relatively* large (at least) both immediately before and immediately after the crisis. The League's study of the current depression reveals this

¹ R. G. Hawtrey, *Currency and Credit*, 3rd ed. (London, 1930), pp. 24-26.

² *Treatise*, vol. II, ch. xxix.

³ *Economic Rhythm*, p. 114. He is, of course, not to be counted a monetary theorist.

⁴ *Ibid.*, p. 152.

⁵ A point made by J. R. Bellerby in *The Control of Credit*, p. 75, referred to by Robertson, *Banking Policy*, p. 83, note. Robertson is peculiar in refusing to take the absolute magnitude of stocks as significant, but only in comparison to the supply of Short Lacking. Cf. pp. 410-412, below.

condition to have prevailed before and after the crisis of 1929.¹ With the exception of Hawtrey, the opinion that excessive stocks intensify and perhaps help to precipitate crises seems to find general favor.

Assuming that excessive stocks are actually a phenomena of crises, the theoretical question still remains as to whether this may legitimately be called overinvestment in the sense previously defined. It might be argued with seeming force that so long as stocks are divided proportionately to consumer demand for ultimate product they cannot be redundant. Misdirected production there might be in the sense of too much of this good in storage relatively to that; but since human wants are indefinitely extensible, society can consume any amount of goods out of stores just as much as out of current production; loss upon either stores or production indicates merely an error in forecasting the channel of consumer demand. This argument appears all the more convincing if it is believed that the banking system may, by avoiding deflation when the excess stocks come upon the market, prevent their liquidation at loss.

To meet this argument squarely seems to me of utmost importance, since otherwise overinvestment theories collapse from the apparent contradiction alluded to in connection with Schumpeter. How can crises be attributed at the same time to an excess of investment and an excess of consumers' goods? A more satisfactory answer can now be given by utilizing the precise definition of overinvestment just developed.

The solution lies in the distinction between Liquid Capital and Working Capital, between excessive and appropriate stocks at various stages in production, including the last. Suppose with Keynes, Schumpeter, and other writers who discover a rough correspondence between length of upward conjuncture and productive period, that a new wave of consumable goods comes to marketable form, the consequence of augmented plant capacity. If the banking system refuses to allow more deflation than is justified by an imaginable decline of natural or equilibrium interest,² Working Capital ripening into consumers' goods may be disposed of without losses. In this connection a footnote in the *Treatise on Money* deserves to be raised to prominence. Commenting upon Johannsen's doctrine of "Impair

¹ *Course*, pp. 39, 52, 53, 56, 71, and pp. 134, 138. *Commodity* stocks did not, however, increase much after the crisis.

² The pessimists would not expect *any* decline as a consequence of forced saving during booms, in which case no deflation is warranted.

Savings,"¹ Keynes observes that any failure of entrepreneurs to market their output profitably, provided wrong proportions of consumers' goods have not been produced, does not rest upon a saturation of the capital market but upon "a temporary but recurrent failure of the banking system to pass on the full amount of the savings to entrepreneurs," and that Johanssen "overlooks the fact that a fall in the [natural] rate of interest would be the cure for the malady if it were what he diagnoses it to be."² In other words, overinvestment cannot consist in capital embodied in stocks of goods *unless they are too large to be held at an interest cost set by the current natural rate*. Or alternatively, according to Say's law, if the banking system does not sidetrack purchasing power into hoards by a deflation greater than the imaginable fall in natural interest cost, consumer demand suffices for the increased output of new investment at prices covering cost. Indeed, if it were not for excessive stocks and deflation, crises engendered by the fading away of forced saving would be marked by an absolute fall in prices for producers' goods and an absolute rise for consumers' goods. The essential reason for collapse would then be losses upon *plant* which was appropriately constructed for a lower market rate of interest, but which is now "too capitalistic" when market (i. e. bank) rates rise to meet the imaginably declining natural rate. Writers like Mises and Budge³ who speak of a shortage of consumers' goods do so with complete justice, since the decline of saving puts a premium on consumable output and gives rise to the technical variety of overinvestment.

But it does not put a sufficient premium upon consumable produce to take care of *any amount* of goods held in storage. In addition to losses upon plant, entrepreneurs will have to face losses upon *excessive* stocks, i. e. upon Liquid Capital.⁴ The excessiveness consists in the fact that their magnitude, appropriate to lower market rates of interest, now appears to their owners to be too great when these rates advance toward natural rate. The line of demarcation between Working and Liquid Capital, i. e. between requisite and excessive stocks of goods in the circulating capital category, depends upon the same factor which distinguishes appropriate and too great fixed

¹ A doctrine of the Foster and Catchings variety, represented in German literature by Marcell; cf. p. 369, note 2, above.

² *Treatise*, II, 100, note.

³ Cf. pp. 336, 366, above.

⁴ Whether this factor is *important* in crises constitutes a separate problem, already touched upon; cf. pp. 407-408, above.

capital per laborer: the rate of interest. Given a certain amount of liquid capital on hand, an advance in interest to its true equilibrium level confronts the owner with three ways of accepting losses. Either he may continue to hold the old stocks even though the high interest charge makes them cost more than what they afford to the entrepreneur in the way of convenience against predictable or unpredictable inequalities in production; or he may let them run off along with full current output, and so depress price below the level set by current demand for consumers' goods relatively to investment; or he may reduce output while marketing the excessive inventory, taking the loss on idle plant capacity. The trouble is not that society possesses too many consumers' goods in a generic sense, an obvious impossibility, but that it possesses too many consumers' goods in a *particular capital form*. Though the cessation of forced saving calls for more consumers' goods relatively to producers' goods in current production, it does not call for more than can be marketed at costs defined by the equilibrium rate of interest. Were such transmutations possible, the entrepreneur, beside "melting down" his fixed capital equipment so as to spread it more thinly over available labor, would also be pleased to convert excessive stocks into the new and more modest capital instruments. Since this cannot be done, he must accept losses not only upon overinvestment in plant but also in stocks. The overinvestment theory does not in reality suppose an excess of both producers' and consumers' goods at time of crisis; the apparent excess of the latter is actually a case of inappropriate capital form. Inventories, even of consumers' goods, can be too great for present interest rates.

The distinction between crises engendered by overinvestment in plant and those engendered by a conspicuous excess of working capital has prompted certain writers to draw a supposedly parallel distinction between shortages of long term and short term capital. Robertson, for example, would differentiate between crises arising from shortages of "Long Lacking" and "Short Lacking." Both the definition of Lacking as the "activity of providing Capital"¹ and the discussion of the two types of cycles represent *saving* for short and long term as two quite separable phenomena. But from a social angle it is evident that this means little or nothing. Individuals may be classified according as they save permanently to build up a fortune upon the income on which they or their heirs may live, or as

¹ *Banking Policy*, p. 40.

they save temporarily to provide a principle for use in sickness, unemployment, or old age. To the degree to which individuals on the average overestimate their requirements for these purposes, a residuum of unconsumed accumulation results. From a social angle this residual quantity is just as permanent as the other type of capital. What meaning, then, could be attached to Short Lacking in connection with business cycles? If voluntary saving is implied, we must suppose (1) that it is economically advisable in the particular circumstances to increase working, but not fixed, capital; (2) that individuals or corporations actually operate plant beyond least cost ratio by adding merely to working capital because they *know* that the favorable circumstances are temporary; (3) that for the sake of temporary but large gains these agents are willing to increase their rate of abstinence *temporarily* on the condition that later they may return to the old rate of consumption by liquidating a part of working capital. Granting for the sake of argument the existence of "Appropriate Fluctuations in Output," what is the likelihood that the second and third requirements will ever be fulfilled? But if Short Lacking implies forced saving, what meaning can be given to the adjective "Short"? Does the banking system, if it is conscious of the process at all, benevolently intend to reimburse the victims of forced saving by a future compensatory deflation?

The distinction between shortages of Long and Short Lacking simply confuses the *source* of capital with quite separate matters. One is the *employment* of the funds. Inconsistently with his description of Lacking as the activity of saving, Robertson himself defines the two varieties as being, respectively, "directed toward providing society with the use . . . of fixed and durable instruments of production," and that directed toward "enabling society to carry on production."¹ This merely restates the accepted distinction between fixed and working capital, but these categories have nothing to do with saving permanently or for short term. German writers have fortunately avoided this confusion, save perhaps those writers,² who attribute crises to a shortage specifically in the "subsistence fund." But this phraseology need not pertain to kinds of saving but only to a relative shortage of consumers' as against producers' goods.

¹ *Ibid.*, p. 41.

² Ludwig Mises, *Geldwertstabilisierung und Konjunkturpolitik* (Jena, 1928), p. 49; Siegfried Budge, *Grundsätze der theoretischen Nationalökonomie* (Jena, 1925); cf. p. 366, above. The idea is also developed by Hayek and Strigl.

Beside the conventional distinction in theory between fixed and working capital another reinterpretation of Long and Short Lacking might be the ordinary commercial contrast between long term and short term loans. This pertains neither to the activity of saving nor the purpose to which funds are applied, but to the legal period of the contract. Upon this interpretation it is difficult to imagine a shortage of Short Lacking, since funds lent for long term can always be used in temporary employments. But a shortage of long term funds may exist. Not only may this be a source of continued economic uncertainty, as the history of Germany since the War attests, but it may render a borrowing country singularly vulnerable to conjunctural variations in the lending country.

The conclusions from this protracted treatment of overinvestment or capital shortage from the purely deductive side may be restated. The phenomenon is not only theoretically imaginable but, in the estimation of the body of current writers, real and important. Overinvestment may take on the form either of plant which is inappropriate to higher interest rates or stores of liquid capital which are excessive upon the same criterion. The distinction rests upon the uses of capital, not upon its sources, though the period for which loans are advanced also assumes significance for cyclical variations in particular cases.

C. The Desirability of Reducing Cyclical Variations to a Minimum

The close correlation of industrial ebb and flow with cycles of investment, and the intimate association of the latter with economic progress, raise the fundamental question whether business cycles can be eliminated, or even if they can be, whether that would be desirable. Non-monetary theorists are generally inclined to a somewhat fatalistic view of the matter: socialists such as Lederer and Tugan-Baronowski believe periodic upheavals to be rooted in capitalistic inequality; Dietzel and Sombart believe that natural phenomena are the underlying cause; Lampe, Marzell, and Schmitt, that the very process of accumulation precipitates crises; and the eclectic theorists, such as Cassel, Mitchell, and Wagemann, that the cycle is self-propagating. Monetary theorists, on the other hand, are inclined to take a more optimistic view, believing that by appropriate manipulations central banks are able either to remove

the most important cause of conjunctural movements or even very largely to offset the combined effect of monetary and real causes.

Amongst those who maintain the possibility of a substantial degree of control through the credit mechanism, not everyone agrees that a vigorous policy of economic stabilization should be prosecuted. The notable champions of cycles are Robertson and Schumpeter. Although Robertson explains at length how boom periods easily, indeed almost inevitably, run off into "Inappropriate Fluctuations," he adduces circumstances giving rise to "Appropriate Fluctuations" and concludes that "the remedy . . . might be worse than the disease." Variations in demand for labor on the part of an intelligent representative citizen would be somewhat greater than variations on the part of the individual entrepreneur, and much greater than variations called for in the laborer's own interest; nevertheless, "if all business men always made, and acted upon, true judgments about their own self-interest," fairly rhythmic industrial fluctuations would not disappear.¹ That this conclusion does not follow appears clearly from the fact that Robertson nowhere appraises the *net* effect of a complete cycle, but instead contents himself with demonstrating the salutary effect merely of an *upswing* partly financed by forced saving, so that Keynes may protest against his complete neglect of the "great loss of wealth during a Deflation."² Schumpeter's case, on the contrary, cannot be dismissed as a *non sequitur*, for he explicitly argues that the depression "fulfills what the upswing promised";³ it restores equilibrium and realizes the reduction in unit costs of production which the innovations of the prosperity phase have brought to pass. Depreciating the extent of unemployment in the "normal" depressions of the pre-War period, he argues that total real income would actually be enhanced in depression *were it not* for the closing down of plants through uncertainty, the difficulty of transferring resources from obsolescent lines of production, etc., so that the real gains of depression are postponed and concealed in the next period of prosperity.⁴ To many students of the problem the fulfillment will not seem as

¹ *Banking Policy*, pp. 2-3; cf. also p. 19.

² *Treatise*, I, 295.

³ Joseph Schumpeter, *Theorie der wirtschaftlichen Entwicklung*, 2nd ed. (Munich, 1926), p. 358.

⁴ *Ibid.*, pp. 362-365.

palatable as it is to Schumpeter: the restoration of equilibrium will appear less conspicuous a feature of depressions than the cumulative downward spiral, dwelt upon by Hawtrey and Keynes, of sagging prices, unemployment, further deflation, restriction of production, liquidation of stocks, etc., with the additional possibility, suggested by Ohlin, that the exaggerated pessimism of depression may misdirect production, quite as well as the roseate psychology of boom times.¹ To refer to the selective effect upon entrepreneurs as an apology for depression is similar to championing war as a "refreshing bath of steel."² Quite aside from doubts as to the outcome of cycles from the angle of social dividend, the human suffering produced by the convulsive periods of contraction suffices to decide the case. In reality the apologetic attitude would constitute the most severe indictment imaginable against the system of competitive enterprise.

It may be set down as a third conclusion from the review of recent German study that a virtual consensus prevails against the apologetic attitude.³ With Budge, Reisch, and Strigl the adverse judgment is indeed only implicit, but with Haberler, Hayek, Lampe, Mises, Neisser, and Röpke a stable evolution in prices is explicitly demanded. Subsequent sections treating the productivity of credit expansion and the desirable monetary standard do not reopen this question.

III. UNSETTLED ISSUES

That business cycles are an unsolved problem is as unprofitable an utterance as the truth that medical knowledge has not yet mastered the problem of disease. Certain features of the complex phenomenon are known, others remain mysteries. The precise course of real wages, the behavior of stores of commodities, the part played by monopoly and by fixed and free markets, the relation of segments of the capital market, the degree to which bank rate influences short term rates generally, the extent of credit absorption in security speculation, the difference between cyclical and structural change — all these are important unknowns. Many of them are being vigor-

¹ *Welt. Arch.* 36, p. 2.

² Wagemann, *op. cit.*, p. 231.

³ Stucken reports such a conclusion from the deliberations of the *Verein für Sozialpolitik* at Zurich in 1929. Rudolf Stucken, "Neue deutsche Konjunkturliteratur," *Ztsch. für d. ges. Staats.* 86, pp. 148-149.

ously attacked in the various institutes and centers for cycle research in Germany and Austria which have sprung up under the impetus given by the Harvard University Committee of Economic Research and the London and Cambridge Economic Service. Publications by these agencies¹ will certainly soften the contemporary contrast between such highly abstract theorists as Hayek and such purely statistical analysts as Wagemann. Amongst the problems soluble only by a conjunction of abstract and empiric study are three especially significant to the monetary approach: the channels through which bank rate operates, the "productivity" of bank credit, and central bank policy regarding price levels.

A. Three Aspects of the Bank Rate

Prior to the publication of Keynes' monumental work it may fairly be said that the literature on business cycles did not sharply distinguish the operation of interest as a cost of production from its rôle in capitalization, nor that in turn from its bearing upon volume of credit. Certain writers were well aware of three aspects of the matter, admitting them on equal footing or stressing one above others; the vast majority, however, gave exclusive attention to quantity of credit, ignoring or depreciating the cost and capitalization viewpoints. In no single case was much significance attached to the question, however important interest variations or interest differentials were thought to be *per se*.

Wicksell's statement of capitalization at so early a juncture in the history of bank rate theory arrests the attention, but there is no clear evidence that he assigned it a precedence either causally or temporally over cost and quantity of credit.² In his description of the emergence of interest in a dynamic society, Schumpeter makes the point that all incomes from non-human factors of production come to be regarded by a natural fiction as interest incomes, but that capitalization, when applied to merely transitory revenues, is in-

¹ The *Deutsches Institut für Konjunkturforschung* at Berlin publishes the *Vierteljahrsheft zur Konjunkturforschung*, with occasional supplements, and the *Wochenberichte*. From the *Frankfurter Gesellschaft für Konjunkturforschung* appears a series of *Veröffentlichungen* at irregular intervals in monograph form. (The Kiel seminar in *Weltwirtschaft und Seeverkehr* contributes to the periodical literature, especially to the *Weltwirtschaftliches Archiv*.) The *Österreichisches Institut für Konjunkturforschung* publishes a series of special studies and the *Monatsberichte*.

² Cf. pp. 303-304, above.

herently dangerous.¹ But he does not introduce this consideration directly into the analysis of cycles. Mention is made of low interest costs as inducing speculative holding of stocks of goods; but chiefly the upswing is initiated by forced saving imposed by the impact of a new volume of credit upon commodity prices. Hahn similarly notices the reduction in costs of production from low discount rates, but like Schumpeter he bases the cycle upon quantity of credit and its unequal incidence.² In Cassel's analysis, high-capitalized values upon durable instruments are an underlying cause of investment booms, though volume of purchasing power seems to figure as a necessary complement.³ Strigl and Röpke assign to cost and capitalization positions coordinate with quantity.⁴ In England, Hawtrey presents the classical case for interest as a cost, not to producers in a narrow sense nor to speculators, but to "dealers."⁵

On the other hand a larger number of monetary explanations rest directly upon quantitative moments: volume and velocity of money and credit. Interest-differential or simply bank rate figures, in most of these cases, as the ultimate basis of quantitative variations; but it operates *not directly* upon prices, but *vicariously* through quantity. Mises, Hayek, and their followers represent this approach, and it is probably the ordinary view amongst monetary theorists in England and America.⁶ The quantitative viewpoint includes also several writers, of whom Eucken and Stucken are the German representatives, who reject the correlation of quantity and cost of credit.⁷

Is the question of the relative importance and sequence of the three phenomena connected with bank rate merely a hen-and-egg riddle, or are the effects disparate, the points of incidence distinguishable? Let us weigh the affirmative answer given by Keynes, with whom the analysis is most complete.

If "quantity" of money and credit is taken in its narrow sense, capitalized values may of course move disproportionately through the increase or decrease of monetary velocity. Many writers beside Keynes — Hawtrey and Robertson in England, and Eucken, Neisser, and Stucken in Germany — have dwelt upon the reduction of

¹ Cf. p. 318, above.

² Cf. pp. 328-329, above.

³ Cf. pp. 310, 311, above.

⁴ Cf. pp. 358, 368, above.

⁵ R. G. Hawtrey, *Currency and Credit*, *passim*; *idem*, *The Art of Central Banking* (London, 1932), pp. 155, 367, 383.

⁶ Keynes, *Treatise*, vol. 1, ch. xiii, sec. 1, "The Traditional Doctrine"; cf. Alvin Hansen, *Business Cycle Theory* (Boston, 1927), pp. 138, 156.

⁷ Cf. pp. 372-373, above.

unspent margins in the upswing and upon hoarding in depression. The factor may well be given paramount significance with quantity, especially as it affords a definite mode, by no means the only one, of linking monetary elements with the "real" factor of waves of optimism and pessimism. Furthermore, to the degree to which credit attains an especially high velocity upon the stock exchanges, one important set of capitalized values may advance with a relatively small increase in total volume of credit.

But Keynes would apparently press the matter farther. In direct opposition to the ordinary conviction, he argues that even aside from the "monetary" factor, the prices of consumers' and producers' goods advance and decline together. A proposition so diametrically opposed to what seems to be required on an equation of exchange basis would seem to require extensive elaboration. Instead we have to be content with the exiguous statements made in connection with an allegorical likening of profits to the "widow's cruse" and of losses to a Danaid jar, the latter case being slightly amplified in the "banana plantation" illustration. The widow's cruse aspect of profits is supposed to lie in the fact that no matter how much profits are spent consumptively, "the effect is to *increase* the profit on the sale of liquid consumption goods by an amount exactly equal to the amount of profits which have been thus expended."¹ But as Robertson protests, this means simply that profits are transferred from one entrepreneur to another;² indeed Keynes himself, despite the use of the word "increase," proceeds immediately to say that "the increment of wealth belonging to entrepreneurs remains the same as before." And in the banana saga, where, if ever, we should expect a demonstration of a parallel decline in the prices of consumers' and producers' goods, quantity and velocity of money remaining the same, he contents himself finally with the proposition that the losses upon current production cannot be escaped by reducing wages.³

The implication, however, of the latter illustration may be that, because the total money requirements in the production of bananas are not decreased, carrying through the transfer of securities from losing entrepreneurs to saving public requires arithmetically a compensatory decline in security prices. No one would deny that, with a fixed effective volume of money (MV), an increase in T is com-

¹ *Treatise*, I, 139. (Italics Keynes'.)

² D. H. Robertson, "Mr. Keynes' Theory of Money," *Ec. Jour.* 41, pp. 408-409.

³ *Treatise*, I, 176-178.

patible only with a fall in P . But are we required, in order to apply this to the period of declining security values in the business cycle, not only to abstract from the actual shrinkage in both money and velocity, but also to suppose that prices fall from an expansion in the volume of transactions? Or in a boom period are we to imagine that money and velocity remain constant, and that security prices rise through a shrinkage in the quantity bought and sold?

Such an interpretation is probably foreign to Keynes' meaning; but it results from an effort to discover how both sets of prices, those of producers' and consumers' goods alike, could progress and decline together without the cooperation of the monetary factor. Aside from some such bizarre hypothesis, it is difficult to apprehend how capitalized values upon fixed capital goods or securities could persist at a high level without a parallel increase in the effective volume of money to carry through trading at these prices, or conversely with low prices, "profits" and "losses" in Keynes' sense to the contrary notwithstanding.

But there is an important way in which the capitalization process may take on a significance independent of quantity of money (in addition to the inclusion of velocity in the former, its exclusion in the latter). Rising prices for producers' goods during the prosperity phase may be envisaged as "drawing out" more credit from the banking system or inducing a higher velocity, as against the increase in quantity or velocity of money "driving" prices upward. Here the contrast turns rather upon causation than upon divergent magnitudes. That the lead may be taken causally by prices established more or less independently of money and credit, and that the latter then merely conform so as to satisfy an equation of exchange, appeared with dramatic force in the complaint of a shortage of money during the German inflation.¹ Cyclical variations in prices probably reveal the same characteristic. Even upon the basis of a *monetary* explanation in which capitalization rate appears simply as determined by bank rate, a significant distinction may thus be drawn between the quoting of prices at a higher level and the carrying-through of transactions at the higher level with more money. And if the emphasis is laid upon optimism and pessimism as something independent of what transpires in the sphere of money, the course of capitalized values, though necessarily paralleled by quantitative variations in credit, proceeds upon impulses which are unique.

¹ Cf. pp. 279-282, above.

Consider next capitalization in comparison with *cost* of credit. Low interest costs cannot stimulate production as a whole, Keynes argues, "inasmuch as the aggregate incomes of consumers, which are simply the aggregate costs of production under another name, available to purchase output, are also reduced to exactly the same extent."¹ The consequence of easier credit is merely a change-over from lines of production where interest is an unimportant cost to those in which it figures heavily. A general increase in production of capital goods transpires, not from a fall in costs of production, but from a rise in their demand prices.

To argue in this wise is certainly to propound a riddle. Although it is admitted that producers change over to lines involving a relatively heavy proportion of costs as interest, and this change is represented as a consequence of the low interest rate, it is denied that the production of capital goods increases. Inasmuch, however, as the market rate of interest is the factor which divides production into the present and future employment categories, an increase in producers' goods is inevitable upon *any* assumption as to monetary policy — whether aggregate consumer incomes rise, fall, or remain constant. Even in the latter cases, demand prices for producers' goods would necessarily give a temporary differential advantage to production in this field, for whatever the general drift of prices, the *value* of producers' goods for the time being must rise *relatively* to the *value* of consumers' goods to express the reduced rate of time-preference or capitalization.² No doubt the stimulus to production of capital goods would be stronger if the banking system carried through a mild amount of commodity price inflation by lending to producers. But price differentials, not the absolute heights of prices, allocate resources to competing lines of production.

Expunging the erroneous connection which Keynes makes between the increase of demand prices for producers' goods relatively to consumers' goods and the absolute aggregate of consumer income in money, his argument as to the lesser significance of cost and demand may be given a certain meaning. Suppose that 10 per cent of the cost of production of a certain good is interest: then reproduction costs or price would be lowered by one-tenth of one per cent by a fall of interest from 3 per cent to 2 per cent, whereas capitalized

¹ *Treatise*, I, 211.

² Equally valid for voluntary saving, forced saving through inflation, or compulsory saving through governments and corporations.

value advances by 50 per cent, whatever their absolute height in dollars may be. This phenomenon warrants greater emphasis upon demand than costs from the short-run angle,¹ if by "costs" is meant the cost of producing producers' goods. But if cost is extended to include all the cases where interest does figure as a cost, i. e. not only producing but utilizing the capital good once it is produced, the contrast disappears, since the higher capitalization merely sums up the series of expected future installments of interest "savings," i. e. the continuing reduction in outlay from the low rate. In other words, the only reason why the interest rate appears as the capitalization factor upon investment goods is that interest is the opportunity cost of investment. Reduced interest cost and increased capitalization then contrast only as current low interest cost and present expectation of continued low cost.

It may be worth while to emphasize this contrast merely to be certain of including the psychological factor of anticipation under the workings of bank rate. But there are other and more important reasons. Capitalization and cost may be the concave and convex sides of the same shield for fixed capital goods, but not for working capital items, to which capitalization is inapplicable by reason of their transitory character. The problem then comes into an empiric character: whether interest variations have more pronounced repercussions in the field of fixed or of working capital investment. Hawtrey presents the credit cycle largely in terms of working capital; Keynes believes the upswing to be commonly ushered in by a growth of fixed investment, followed by a working capital boom; Robertson, that there may be various combinations of the two, or the latter in isolation. At present the issue is fairly joined, but not settled.

A second real contrast might well be made by admitting into capitalization other factors than low bank rate. Keynes is, of course, quite aware that capitalized values may rise either from a lowering of the rate applied or a rise in the series of yields discounted.² Occasionally, by stressing the latter, he leaves room for something really

¹ Between the upper or demand limit given by capitalization and the lower limit given by cost of reproduction, the price of capital goods would depend chiefly upon the rate at which reproduction takes place. Upon this basis, Robertson's objection to capitalization for short run value scarcely seems justified (cf. *Ec. Jour.* 41, p. 403). In the long run the upper and lower limits coincide. If we assume constant opportunity costs between investment and consumption, changes in the rate of interest do not affect the long run relation of prices for producers' and consumers' goods.

² *Treatise*, I, 154, 180, 202.

independent of low credit costs.¹ But as frequently the matter turns solely upon bank rate as the capitalization factor; indeed, this seems to be *the* distinctive contribution of Wicksell which the *Treatise* proposes to elaborate.² Real separateness of cost and capitalization, aside from the point mentioned in the preceding paragraph, cannot rest upon an identification of interest cost with capitalization rate on the one hand, and of future yields generically with future yields as the product of bank rate. This objection seems to be what Robertson has in mind when he objects to Keynes' regarding "the effect of interest changes on the price of machines as *arithmetical* and *mechanical*."³ Capitalization is simple arithmetic, but the magnitude involved upon the yield side, which is the more important variable in the ordinary business man's calculation, is not mechanically given. First, the yields are those *expected*, and expectation is a subjective phenomenon. Secondly, future yields may be more intimately related to other factors than the behavior of the bank rate. Finally, and this trenches upon the next topic, expected yields may show a closer correlation with quantity and velocity of credit than with the interest differential.

The third comparison amongst the several facets of interest rate concerns the relation between bank rate and quantity of money, i. e. between cost of credit and its volume. It is precisely here that a sharp fission appears between Keynes and other writers. The ordinary viewpoint in Germany has been to regard capitalization, cost, and quantities as natural correlates, simply as different modes of apprehending the same thing. If anything, the emphasis has fallen upon quantity, with the interest differential in the position of the chief or exclusive regulator thereof. Eucken and Stucken even refuse to go back of quantity. Against all such interpretations Keynes declares:

It is not useful to say that a change in bank-rate changes price levels *because* it is associated with changes in the quantity of bank-money — especially if this statement carries any suggestion that the price levels will change more or less in the same proportion as the change in the quantity of bank money.⁴ . . . It is, rather, the other way round. A change in the quantity affects the price level in the first instance, because, other things being equal, this means a bank rate which will change the market rate of interest relatively to the natural rate.⁵

¹ *Ibid.*, I, 194; II, 262.

² *Ec. Jour.* 41, p. 404. (Italics mine.)

⁴ *Treatise*, I, 217. (Italics Keynes'.)

³ *Ibid.*, I, 191, 198-199, 203, 208.

⁵ *Ibid.*, I, 219.

In these statements evidently *two* theses are involved: (1) that it is the interest differential and not quantity of credit which *causes* variations in price levels; (2) that variations in quantity of credit do not produce *proportionate* variations in price levels. It is clear from Keynes' mode of statement that the former is the more important; but it is not clear whether he apprehends the distinctness of the two. Arguments bearing on the one or the other are mixed together indiscriminately in the "following points" adduced to support the ambiguous thesis. Furthermore, all arguments to prove a lack of parallel between "quantity" as Keynes understands it and "price levels" in his analysis may readily be granted by the old-fashioned quantity theorist without his being obliged to accept the new-fangled trailing bank rate doctrine.

Instead of proceeding *seriatim* with the "points" as they stand, let us attempt a rearrangement under logical headings. Point *b* proves to be merely a reassertion of the statement concerning causation and no proof. Of the remaining five, points *d* and *e* pertain solely to proportionality, and points *a*, *c*, and *f* are a mixture. Under *d* it is said that a rise in bank rate associated with brisk trade may prompt the reduction of balances and so bring a more than proportionate rise of prices to quantity of credit. To this the old-fashioned quantity theorist responds that by quantity he means "effective quantity," i. e. *V* as well as *M*. Point *e* calls attention to the fact that a given change in bank rate may affect the Financial and Industrial Circulations either in the same or in opposite directions. An earlier chapter¹ in the present book agrees with Keynes as to the practical importance of this phenomenon and the *impasse* with which it may confront the central banker. Furthermore, there can be no doubt that Keynes has advanced monetary science by furthering the separation of "the" quantity of money into "conceptions hitherto held as one," and that he "thus paves the way for a detailed scrutiny of every unitary conception," in Sir Josiah Stamp's phrase.² In the case under consideration that is exactly what is called for. But that does not make the price level of securities in comparison to prices in the field of production *disproportionate* to the relative effective volumes of credit in Financial and Industrial Circulations. Indeed it is relative quantities which Keynes himself deals with in discussing the

¹ Cf. pp. 386-387, above.

² *The Present Position of Monetary Science* (Manchester, 1932), p. 25.

"two opinions" on a booming market;¹ and even in the present connection the *same* bank rate is shown to have unlike effects on prices in the two spheres. The argument confirms rather than refutes the quantitative approach.

The three remaining points involve price variations presumably neither proportional to nor caused by changes in volume of credit. The first of these, *a*, adverts to the smaller quantity of bank money required to finance a profit inflation than an earnings inflation, i. e. a rise in the nominal level of money rents, wages, and other cost elements; it indicates also the possibility of a reaction in commodity prices in case earnings increase without further bank credit expansion. Here again price indices in the two spheres would seem to move proportionately to quantity, if that magnitude is resolved into two divisions paralleling the specific price levels measured. Regarding causation nothing is said, but the implication of the phrase "quantity of money *adequate to support* a rise of prices" is probably that the force driving prices upward has been the higher capitalization of future incomes provoked by lower bank rate. To the degree to which this occurs, causation runs from right to left in the Fisher type of equation. But the quantity theorist might take considerable satisfaction in Keynes' reference to a reaction of prices when credit proves to be "inadequate," cherishing the *arrière-pensée* that the "reaction" would occur so early as to be practically synchronous with the "action" started by capitalization. Substantially the same criticisms may be applied to the argument under *c*, that a divergence of bank and natural rates induced by saving "requires" a smaller change in the quantity of money than an equal divergence through a rise of natural rate. The only addition would be to inquire whether, aside from quantity in the broad sense of *MV*, prices might advance in the latter circumstance and decline in the former merely out of Profits and Losses; but it scarcely seems requisite to enter again into these Eleusinian concepts. The last point, *f*, may be translated to this effect: during the progress of an investment boom, advancing bank rate toward natural rate may promote a capital inflow of such magnitude as more than to offset the unfavorable commodity balance involved in the process of extensive construction. The consequence is then an *inflow* of gold at a time when a consideration merely of the production of capital goods would lead to the opposite

¹ Cf. p. 385, above.

expectation. However noteworthy this phenomenon, — it can scarcely be thought of as paradoxical, — Keynes offers nothing contrary to the most orthodox quantitative explanation: the interest differential may afford a deductive explanation of *why* gold imports make their appearance at this juncture, but if they are simply “fodder for the rise of price at home,” they would seem to be the proximate cause of that advance.

Outside its reaffirming the importance of capitalization, the foregoing argument accomplishes nothing toward exalting bank and natural interest rates over money and its velocity as determinants of price levels. But elsewhere Keynes himself supplies a piece of evidence which to most readers will appear devastating to his thesis. That fact is the “unsatisfied fringe of borrowers” which makes it impossible to assume that “a given level of bank rate, taken in conjunction with all relevant factors, must be uniquely correlated, *if it is to be effective*, with a given quantity of bank money.”¹ The second volume presents an excellent description of the “fringe” and the necessity it imposes upon the banking system of rationing out credit, but nowhere is the earlier promise fulfilled that the general theory of bank rate may be easily adapted to include these circumstances.² We should therefore be obliged to accept the truth of the italicized phrase, that if any discrepancy appears in the inverse variation of quantity and cost of credit, it is quantity which controls prices.

In retrospect it is patent that capitalization, cost, and quantity are distinct matters, not only in logic, but in magnitude and effect. But it is almost equally certain that the distinctions are largely old wine in new bottles: they give new captions to old and as yet unsettled issues. Whether capitalization or quantity plays a more important rôle in conjunctural variations depends upon the old question as to whether banks merely respond to price advances or precipitate them by inflation, and this in turn reopens the whole issue of psychological and other “real” factors against monetary elements. Whether capitalization or cost is paramount depends again upon this same issue; and so far as market interest rates are admitted as bearing on the problem, depends upon the relative importance of cycles in fixed investment against those in working capital. Whether credit cost or credit volume dominates price movements is a question which is probably answered fairly generally in favor of the latter. But the

¹ *Treatise I*, 212, 216. (Italics mine.)

² *Ibid.*, I, 213; II, 364-367.

solution will be different in various national economies, some of which rely rather heavily on rationing, others on the impersonal rule of price; some of which possess strongly centralized banking systems imposing their decisions upon industry through the instrument of bank rate, others which do not.

B. The "Productivity" of Bank Credit

Theoretical opinion in German and English literature alike varies from blackest foreboding to roseate optimism regarding the process of bank credit expansion. To put the problem upon a discussable footing, inflation may be defined *for the present purpose* as any monetary policy which produces a positive margin between commodity prices and costs of production, whether the differential rests upon a rise of the former with the latter constant or lagging, or from constant commodity prices with wage and other costs per unit of output declining. Let us consider the matter first solely from the angle of volume of output, without reference to effect upon social welfare through changed distribution. Upon this basis the case in favor of credit inflation rests upon its supposed tendencies, (1) to increase the current supply of productive services, (2) to bring about a better or greater utilization of available goods. This division has only a pragmatic justification. It is possible to reduce all current flows to capital values and conversely, and to identify supply and demand; but it is desirable to separate an increase in capital resulting from abstinence (under 1) from that proceeding from appreciation (under 2); and in cyclical analysis, at least, it seems better to regard profit as a rent (under 2) than as a cost (under 1).

How does an inflationary increase of purchasing power affect the volume of current saving? Contemporary writers have fairly generally¹ abandoned such euphemisms as "anticipating saving," and have recognized that the contribution of banks to capital accumulation rests upon expropriation. To the degree to which inflation passes from commodity prices to cost items, the forcing ceases; and to the degree to which voluntary accumulation reacts negatively, forced saving ceases to augment the total. That expropriation necessarily attends inflation for the bond holder, annuitant, pensioner,

¹ But one may still read that "although the equipment may be eventually paid for out of savings, the savings may occur six months or a year or more after the equipment was constructed" (S. H. Slichter, *Modern Economic Society* [New York, 1931], p. 695).

and other fixed income receivers goes without saying. Whether it strikes upon the broad class of laborers without contracts or with very short term agreements, and how important the sum extracted from them may be, are matters of speculation. Cassel does not believe it possible to determine the answer from available data; but so conservative an investigator as Wagemann believes that wage rates lag in the upswing, though "no entirely satisfactory statistical proof of this can be offered."¹ More commonly, writers simply assume a reduction of real wages in the early stages of expansion.²

The next question turns on the response of voluntary savings. At one extreme stands the (perhaps unguarded) statement of Cassel that inflation will eventually bring the natural rate down to the level of bank rate;³ at the other, Hayek's thesis that finally people return to their old rate of accumulation,⁴ so that the market rates of interest rise to the unchanged level of natural rate. Both conclusions are too categorical. The former contention involves the absurdity of making capital as abundant as one chooses by the simple expedient of printing fiat money. The second involves a *non sequitur*: no doubt the ordinary citizen may in the course of time scale down his savings to their old *proportion* of total income, but to conclude from the persistence of the former time-preference schedules that the *amount* of savings remains the same is to neglect the *possibility* of augmented income out of which saving is done. Some writers have referred to the dissipation of the proceeds of forced saving through extravagance on the part of windfall profit receivers;⁵ there would seem to be great difficulty in trying to discover what this might amount to. On the other hand, it is conceded, even by the opponents of credit productivity, that so far as the persons expropriated are concerned, inflation is a "means by which a bigger aggregate of floating capital is made available."⁶ The individual's comparison of utilities at the margin prevents all of the decrease in his income from falling upon one line of expenditure, investment included. Furthermore, many *rentiers* and laborers would not save anything except through the forcing process. Finally, to the degree to which such persons try to

¹ *Economic Rhythm*, p. 227.

² "As is well known" is Robertson's phrase. *Banking Policy*, p. 21.

³ Cf. pp. 312-313, above.

⁴ Cf. pp. 344-345, above.

⁵ E. g. Reisch, p. 357, above; Robertson, *op. cit.*, p. 73.

⁶ A. C. Pigou, *Industrial Fluctuations* (London, 1927), p. 133. With this Neisser agrees completely and Mises with reservations. Cf. pp. 336, 363, above.

escape depreciation upon their holdings of money and claims in monetary terms by a flight into "real values," there may be some preference for capital over consumers' goods. Corporations and governments also force saving by their practices respectively of reinvesting earnings and extending public works through taxation. But there is no reason for connecting either with bank credit expansion. For corporations it is rather the attempt to provide for depressions which accounts for the observed tendency of dividends to rise less than earnings. Maintaining dividends during recessions militates against an aggregate increase of capital when the course of the entire cycle is considered.

Amongst other factors of production beside saving, land is subject to the condition of fixed supply, and the entrepreneurial function does not lend itself with theoretical elegance to the calculus of quantitative increments. But most optimists regarding credit inflation place a great deal of reliance upon its efficacy in drawing into active use the "industrial reserve army" of labor.¹ Keynes believes it appropriate to call such a forced redistribution of income as increases working capital through extending employment a substitution of productive for unproductive consumption.² Inasmuch as, before the redistribution had transpired, purchasing power would have fallen upon certain productive agents in the form of quasi-rents without evoking an increase in their output, the "substitution" actually means more as against less consumption. The gain to society is undeniable, especially when it is remembered that labor constitutes a fixed overhead charge. Countervailing considerations, however, are these. It would be wrong to set down as a clear credit to bank expansion the absorption of idle labor if the unemployment may itself be ascribed to a crisis based upon a preceding period of inflation. Alternatively, unemployment ascribable to normal frictional losses inhering in the competitive process could only be eliminated by inflation at the cost of a subsequent lapse toward this normal unemployment quota. In the second place, to the degree to which forced saving goes merely to raising the *rate* of money wages and not the number of persons employed and hours of labor supplied, it is dissipated again in "unproductive consumption." Sooner or later inflation comes into a stage where no more productive effort is elicited from the laboring members of the community.

¹ E. g., Cassel and Hahn, pp. 308, 328, above; and even Budge, Neisser, and Wicksell, pp. 366, 364, 305, above.

² *Treatise*, II, 124-126.

So far the entrepreneur has been treated merely as a neutral agent through which the enhanced savings of society have been transmitted to increases in fixed and working capital. But a main thesis of the school favoring the administration of doses of inflation to the economic organism is that the quantity or quality of entrepreneurial service is forwarded by the process. Even those who are dubious as to the net outcome incline toward conceding benefits from the animating effect of easy credit upon enterprise. The case upon this head probably should be conceded, though it would be easy to err by a sort of double counting, and that in two respects. So far as windfall profits are supposed to be transferred by their recipients into investment, we cannot suppose also that the entrepreneurial group is persuaded to keener effort by a larger flow of *consumption*. The motivation must come through subtler forms of psychic income, such as mere joy in possession, love of power, and "happy exercise" on the part of the captains of industry. Secondly, no reliance can be placed upon a selective process amongst different grades of entrepreneurial ability, for the effect of easy money is the opposite. It is deflation and slump which does the weeding out, or else the slow-moving "natural" forces of competition under relative stability, as Keynes concedes.¹ Boom times mean keen competition on the part of entrepreneurs for the factors of production, but it is a gentlemanly sport with weapons supplied by the quarry, not a war for survival.

Intimately associated with increased entrepreneurial activity, which is more easily conceived as increased efficiency in utilizing factors than as a larger supply of entrepreneurship, is the effect of up-swings in industrial activity upon plant utilization. It may be laid down as a general principle that the optimum condition of productive activity requires all industries to be operating at the least cost combination of factors. A boom which carries the application of variable factors past this point in certain lines may appear advantageous to the particular industry, but it entails either an under-utilization of plant elsewhere or a too low general valuation upon the variable relatively to the fixed factor. Whether "fuller plant utilization" is desirable depends upon whether it is accompanied by a decline or a rise in the weighted average of costs for industry in general, figures being corrected for price level variation. There may be force in Strigl's contention that inflationary credit, by raising the value of fixed capital and cheapening labor, purchases fuller utiliza-

¹ *Treatise*, I, 296.

tion at the cost of an inevitable revulsion later when inflation "plays out" and factor prices come to their correct relative levels.¹ On the other hand, the "artificial" stimulus might remove undue depression psychology and bring about market values upon the factors more nearly corresponding to ultimate "real" determinants: the effort demand of consumers for goods, the supply schedules of labor, waiting, and risk-bearing, in conjunction with available natural resources and capital goods. Here the appreciation of fixed capital instruments is not merely a matter of an inflationary price rise; in Hahn's striking phrase, credit "produces goods out of nothing." A further powerful argument for gradual inflation might be adduced from the tendency of competition toward undue plant extension. Dr. Chamberlin of Harvard University has also explained how competition prevailing upon the supply side where "products" are differentiated results in an equilibrium with excess capacity.² In these cases it would not seem impossible to imagine that a "forced levy" upon the public through inflation and a cheapening of cost factors should reduce per unit costs of production by more than the subsidy.

The conservative school adduces cogent reasons, on the other hand, for believing that the very process of attempting to bring labor and plant into a higher operating rate by credit injections entails losses sufficient to outweigh the gains. One powerful line of argument rests upon the enhanced effect of money upon prices through velocity. Even with working capital advances, as Neisser points out,³ it is conceivable that the period of circulation for money should be shorter than that of the goods it was called into being to finance, and Robertson believes that this will characteristically be the case.⁴ Fixed capital, still more notably, as Hayek points out, does not yield a flow of product until the end of construction, and even then the output within a given period bears a small ratio to original investment. Most students of the problem conclude from these circumstances that a rise of prices disproportionate to the credit created is inevitable.⁵ Once prices begin to rise, this very fact tends to accelerate monetary velocity. Both producers and consumers reduce un-

¹ Cf. p. 358, above.

² E. H. Chamberlin, *The Theory of Monopolistic Competition* (Cambridge, Massachusetts, 1933), pp. 104-109, 171-172.

³ Cf. p. 364, above.

⁴ *Banking Policy*, pp. 57-59, 72.

⁵ Beside the conservative German school and the English writers referred to here, Slichter (*op. cit.*, p. 696) reaches this conclusion.

spent margins to escape depreciation and to purchase securities and commodities speculatively for a rise. This phase of enhanced velocity has been expounded by Eucken and Stucken, and by Hawtrey and Robertson.¹ Robertson also adverts to the probability that *rentiers*, who suffer most by a depreciation of the purchasing-power unit, are the very ones who hold large margins and may therefore be counted upon most to retaliate by dishoarding. Against this there stands, it is true, "automatic lacking," the restoration of depreciated balances purposively by their possessors to provide the old magnitude of contingency reserve. A previous examination of this subject concluded, however, that the offset to increased velocity is negligible, inasmuch as the phenomenon appears only when commodity inflation passes over to incomes.² Finally, as Keynes argues, when advancing bank rate attends inflation, the cost of holding cash and credit margins rises, and so velocity receives a further impetus.³

Disproportionate increase in the price level does not of course prove credit injections to be futile. Under favorable conditions, it may be imagined that the quality of entrepreneurial direction realized, the amount of labor and saving evoked, and the plant capacity drawn into use should combine to bring production from the level of stagnation or depression into accord with long run determinants of productivity: the available natural resources and capital goods set against "normal" or underlying schedules for the supply of human services. Natural or equilibrium interest would then decline to bank rate and Cassel's prognosis be fulfilled. But this happy outcome requires an overbalancing of the undesirable by-products of inflation: losses in lines of production where demand declines under the redistribution of income, dissipation of forced saving through consumption by excess profit receivers, business inefficiency through the ease of money-making, nepotism and corporate abuses, but most of all misdirected production through the general upsetting of price and cost calculations. The combined effect of these may be to offset the stimulus afforded by inflation; bank rate must be raised to natural rate, and overcapitalization and misdirection of production for consumers prevail. The outcome cannot be predicted on *a priori* or empiric calculations, even if statistics of prices and production were extended to many fields today unexplored. In certain cases bank

¹ Cf. pp. 372-373, above; *Central Banking*, p. 171; *Banking Policy*, pp. 74-75.

² Cf. pp. 364-366, above.

³ *Treatise*, II, 46.

credit expansion may prove "productive," in others destructive; but even the process of experimentation is always clouded by uncertainty as to whether credit really turned the scales, or whether another factor was not responsible. The only offset to this gloomy *ignoramus* is the fact that the intuition or judgment of informed observers often anticipates by long periods the outcome of scientific analysis.

C. *The Standard of Prices*

A third problem of stellar importance confronting monetary theory is the determination of a defensible price level policy for central banks. Any definite answer to this question involves, beside the issue concerning "productivity," conflicting opinions as to the ethics of various price policies and their practicability. Without prejudice to the view that certain cycles of prices would occur despite the efforts toward monetary stabilization, we may enquire as to what should be the goal within the range where bank rate, open market transactions, and credit rationing are effective. The three possibilities are stabilization of wage rates, stabilization of commodity prices, and the "gently rising" price level.

Consider the three standards as to social justice between employer and employee, creditor and debtor. If economic productivity increases through improved technique, the labor standard means constant wages in money terms and rising wages in real terms through a decline of commodity prices. Assuming that enterprise is not dampened by the secular fall of prices, the laborer it is who gains by the impact of improvements, the entrepreneur participating only as a consumer. Debtors repay more in commodities but the same in terms of earning effort, the creditor conversely receiving the same amount in effort but more in real goods. Those who sympathize with the laboring and *rentier* interests and believe also that progress comes from accumulation more than from enterprise¹ favor this policy. So far as the employer-employee relationship is involved, however, the same effect is achieved by commodity price stabilization with an advance of wages in money terms exactly reciprocal to the fall in real or effort costs per unit of output. But the other relationship is affected differently: creditors do not share in progress through increased real purchasing power. Although a rising interest rate may

¹ Cf. Haberler, pp. 359, 361, above.

conceivably partly compensate them, this is a paltry offset to their *relatively* less favorable position, as Hawtrey observes.¹ Finally, under the "gently rising" price level, the *rentier* group suffers and the entrepreneurial community benefits from the lighter burden of debts. Whether or not the laborer is similarly adversely affected depends upon the rapidity or degree of credit injection. Hahn, Schumpeter, and Robertson evidently think of a lag of real wages as an integral part of the process, excusing the expropriation on the ground that it is not unethical if ultimately the laborer consumes more absolutely, even if he continues to undergo a certain amount of forced saving. Keynes, whose "tabular standard"² does not signify the Marshallian idea for debt adjustment but an even rise of commodity prices, evidently conceives of nominal wages as advancing faster than prices, so that the stimulus to enterprise would proceed solely from the ease of repaying debts. For this forced abstinence on the part of savers, annuitants, etc. he apologizes in this wise, that "so long as wealth and its fruits are not consumed by the nominal owner, but are accumulated, the evils of an unjust distribution may not be so great as they appear."³

Each school also believes that its own particular standard helps to eliminate economic friction. In favor of the labor standard Haberler argues that it would obviate the upward revision of obligations which would be necessary on the basis of other policies to secure for the creditor class some of the gains of progress. The most common contention concerning frictional resistance favors the commodity standard: that laborers do not respond to the stimulus of reduced costs of living, that rising money wages and constant commodity prices diminish the likelihood of strikes; and Keynes brings forward the same contention in support of his "tabular standard."⁴

Upon the not unrealistic assumption that wages and other cost items move more slowly than commodity prices, the earnings standard gives the least promise of conjunctural gains to entrepreneurs, since here the inertia of contractual incomes is on the side of the laborer. If commodity prices are held approximately stable, on the other hand, wage rates have continually to be revised upward to prevent windfalls to employers; and under the "gently rising" price level policy, there is added to this the gain to enterprise from "loosening the grip of the dead hand" of debt. Those who mistrust the

¹ *Central Banking*, p. 317.

² *Ibid.*, p. 163. (Author's italics omitted.)

³ *Treatise*, II, 393.

⁴ *Ibid.*, p. 393.

outcome upon economic productivity of any artificial stimulation would range the standards in the order named, while the writers who glorify "Enterprise" as against mere thrift and the "automatic" workings of free competition would reverse the order of desirableness.

Final judgment must rest upon an appraisal of incommensurate aspects of monetary policies, the ethical implications, the relative frictions, and the effects upon productivity. So far as concerns abstract justice, there is much to recommend Haberler's conclusion that, since the claims of creditors and debtors are fairly evenly matched, and since, moreover, both groups belong to the upper half of income receivers, the chief question is the effect upon laborers. The major consideration under this head is not wage rates, but volume of employment, and this is primarily a matter of economic *friction*. The same may be said of the question of the credit stimulus to enterprise: its efficacy, either positive or negative, rests upon *frictions*, utilizing some of them, breaking down others. Simply because the whole matter may be reduced to these terms, it is impossible to deal with questions of monetary standards in a setting of equilibrium prices and full utilization of factors. It was emphasized in connection with Hayek that *any* price level policy announced and adhered to strictly would be consonant with equilibrium, since it would be perfectly discounted into the present in a freely competitive and rationalistic society. In a society where many monopolies and quasi-monopolies exist, where competition is loosely articulated, and where human beings err in information and judgment, it would be unreasonable to expect a definition of monetary policy which produces equilibrium. The likelihood of injustices and misdirected production from any pronounced lag of costs behind prices during inflation and deflation appears clearly enough from deductive analysis and the evidence of economic history. For the rest the monetary authority must rely upon trial and error.

BIBLIOGRAPHY

ABBREVIATIONS OF TITLES — PERIODICALS AND SERIES

<i>Am. Ec. Rev.</i>	American Economic Review.
<i>Archiv</i>	Archiv für Sozialwissenschaft und Sozialpolitik.
<i>Ec. Jour.</i>	Economic Journal.
<i>Hdwb. der Staats.</i>	Handwörterbuch der Staatswissenschaften.
<i>Schm. Jhrb.</i>	Schmollers Jahrbuch, or Jahrbuch für Gesetzgebung.
<i>Jhrb. für N. & S.</i>	Jahrbuch für Nationalökonomie und Statistik.
<i>J. P. E.</i>	Journal of Political Economy.
<i>Q. J. E.</i>	Quarterly Journal of Economics.
<i>Verein</i>	Veröffentlichungen des Vereins für Sozialpolitik.
<i>Welt. Arch.</i>	Weltwirtschaftliches Archiv.
<i>Ztsch. für d. ges. Staats.</i>	Zeitschrift für die gesamte Staatswissenschaft.
<i>Ztsch. für Sozialw.</i>	Zeitschrift für Sozialwissenschaft.
<i>Ztsch. für Volksw. und Sozialp.</i>	Zeitschrift für Volkswirtschaft und Sozialpolitik.

BIBLIOGRAPHY

- ALTMANN, S. P. "Irving Fishers 'Die Kaufkraft des Geldes,'" *Jhrb. für N. & S.* 112, pp. 467-471.
- "Zur deutschen Geldlehre des XIX Jahrhunderts," *Die Entwicklung des deutschen Volkswirtschaftslehre im XIX Jahrhundert, Festgabe für Schmoller.* Leipzig, 1908, vol. 1, sec. 6.
- AMONN, ALFRED. *Objekt und Grundbegriffe der theoretischen Nationalökonomie.* 2nd ed., Leipzig, 1927.
- "Cassels System der theoretischen Nationalökonomie," *Archiv* 51, pp. 1-87, 322-341.
- "Wiesers Theorie der gesellschaftlichen Wirtschaft," *Archiv* 53, pp. 289-369, 653-701.
- ANDERSON, B. M. *The Value of Money.* New York, 1917.
- "Brokers' Loans and Bank Credit," *Chase Economic Bulletin*, vol. VIII, no. 4.
- ANDRÉADÈS, A. *History of the Bank of England.* London, 1909.
- ANGELL, J. W. *The Theory of International Prices.* Cambridge, Massachusetts, 1926.
- "Monetary Theory and Monetary Policy: Some Recent Discussions," *Q. J. E.* 39, pp. 266-299.
- ARISTOTLE. *Nicomachean Ethics.* Tr. by F. H. Peters, 15th ed., London, 1893.
- *Politics.* Tr. by Benjamin Jowett, Oxford, 1920.
- BALOGH, THOMAS. "Absorption of Credit by the Stock Exchange," *Am. Ec. Rev.* 20, pp. 658-663.
- BARBON, NICHOLAS. *A Discourse of Trade (1690).* A Reprint of Economic Tracts. Ed. by Jacob H. Hollander, Johns Hopkins Press, Baltimore, 1905.
- BASSETT, J. S. *A Short History of the United States.* New York, 1918.
- BECKERATH, HERBERT. *Die Markvaluta.* Jena, 1920.
- BEHNSEN, HENRY, and GENZMER, WERNER. *Die Folgen der Markentwertung für uns und die anderen.* Leipzig, 1921.
- BEHRENS, WALTER G. *Das Geldschöpfungsproblem.* Jena, 1928.
- BENDECKEN, FRIEDRICH. *Das Inflationsproblem.* Stuttgart, 1917.
- *Das Wesen des Geldes.* 4th ed., Munich, 1926.
- *Geld und Kapital, Gesammelte Aufsätze.* 3rd ed., Jena, 1922.
- *Kriegsanleihen und Finanznot.* Jena, 1919.

- BENDIXEN (*continued*). *Währungspolitik und Geldtheorie im Lichte des Weltkrieges*. 2nd ed., Munich, 1919.
- "Bemerkungen zur Geldschöpfungslehre," *Jhrb. für N. & S.* 113, p. 133 ff.
- "Der Kampf um den Geldwert," *Ztsch. für Soz. u. N. F.* 4, pp. 583-590.
- "Fünf Jahre Geldtheorie," *Bankarchiv*, vol. x, no. 10, pp. 145-148.
- "Nominalismus und Metallismus," *Jhrb. für N. & S.* 113, pp. 217-228.
- "Vom theoretischen Metallismus (Kritik der Lehren von Karl Diehl)," *Jhrb. für N. & S.* 112, pp. 497-534.
- BIEL, GABRIEL. *Treatise on the Power and Utility of Money*. Reprinted by the University of Pennsylvania Press, Philadelphia, 1930.
- BIRCK, LAURITS V. *The Theory of Marginal Value*. London, 1922.
- BLOCH, HERBERT. *Die Marxsche Geldtheorie*. Jena, 1926.
- BOBER, M. M. *Karl Marx's Interpretation of History*. Cambridge, Massachusetts, 1927.
- BONAR, J. "Knapp's Theory of Money," *Ec. Jour.* 32, pp. 39-47.
- BONN, M. J. *The Stabilization of the Mark*. Chicago, 1922.
- "The Fall in the German Exchange," *Q. J. E.* 31, pp. 108-127.
- BORTKIEWICZ, LUDWIG. "Das währungspolitische Programm Otto Heyns," *Schm. Jhrb.* 42, pp. 735-752.
- "Der subjektive Geldwert," *Schm. Jhrb.* 44, pp. 153-190.
- "Die geldtheoretischen und währungspolitischen Konsequenzen des Nominalismus," *Schm. Jhrb.* 30, pp. 1311-1344.
- "Die Ursachen einer potenzierten Wirkung des vermehrten Geldumlaufs auf das Preisniveau," *Verein* 170, pp. 256-274.
- "Neue Schriften über die Natur und die Zukunft des Geldes," *Schm. Jhrb.* 45, pp. 621-647, 957-1000.
- "Valutapolitik auf neuer Grundlage," *Bankarchiv* 19, no. 8, p. 98 ff.
- BOSANQUET, CHARLES. *Practical Observations on the Report of the Bullion-Committee*. London, 1810.
- BRADFORD, F. A. *Money*. New York, 1928.
- BRAUN, FR. EDLER VON. *Wiedereinführung der Goldwährung*. Berlin, 1920.
- BROCK, FRITZ. "Zur Theorie der Konjunkturschwankungen," *Welt. Arch.* 35, pp. 417-444.
- BUDGE, SIEGFRIED. *Grundzüge der theoretischen Nationalökonomie*. Jena, 1925.
- "Zur Frage der Bankrate und des Geldwertes," *Archiv* 44, pp. 214-231.
- BURAWAY, JACOB. *Der Knappsche Nominalismus und seine Rechtfertigung*. Leipzig, 1929.

- BURCHARDT, FRITZ. "Entwicklungsgeschichte der monetären Konjunkturtheorie," *Welt. Arch.* 28, pp. 77-144.
- CANNAN, EDWIN. *Money*. 5th ed., London, 1926.
- "Knapp's State Theory of Money," *Economica* 14, pp. 212-216.
- CANTILLON, RICHARD: *Essai sur la Nature du Commerce en General*. Reprinted from the 1st ed. of 1755, Boston, 1892.
- CARVER, T. N. "The Concept of an Economic Quantity," *Q. J. E.* 21, pp. 426-448.
- CASSEL, GUSTAV. *Das Stabilisierungsproblem*. Leipzig, 1926.
- *Fundamental Thoughts in Economics*. New York, 1925.
- *Germany's Power of Resistance*. New York, 1916.
- *Money and Foreign Exchange after 1914*. New York, 1923.
- *Theoretische Nationalökonomie*. 1st ed., Leipzig, 1918; 2nd ed. 1921.
- *The Theory of Social Economy*. 1st ed., New York, 1924; 2nd ed., London, 1932.
- *The World's Monetary Problems*. London, 1921.
- "Abnormal Deviations in International Exchanges," *Ec. Jour.* 28, pp. 413-415.
- "International Trade, Capital Movements, and Exchanges," *Harris Foundation Lectures: Foreign Investments*. Chicago, 1928.
- "The Depreciation of the German Mark," *Ec. Jour.* 29, pp. 492-496.
- "The Depreciation of Gold," *Ec. Jour.* 27, pp. 346-354.
- "The Present Situation of the Foreign Exchanges," *Ec. Jour.* 26, pp. 62-65, 319-323.
- CHAMBERLIN, E. H. *The Theory of Monopolistic Competition*. Cambridge, Massachusetts, 1933.
- COPELAND, M. A. "Money, Trade, and Prices — A Test of Causal Primacy," *Q. J. E.* 43, pp. 648-666.
- "Some Problems in the Theory of National Income," *J. P. E.* 40, pp. 1-51.
- D'ABERNON, VISCOUNT. "German Currency: its Collapse and Recovery, 1920-1926." *Jour. Royal Statistical Society* 90, pp. 1-40.
- DALBERG, RUDOLF. *Die Entthronung des Goldes*. Stuttgart, 1916.
- *Die Entwertung des Geldes*. 2nd ed., Berlin, 1919.
- *Finanzgesundungs aus Währungsnot*. Berlin, 1920.
- DEL MAR, ALEXANDER. *The Science of Money*. New York, 1896.
- Die Kredit-Wirtschaft*. Leipzig, 1927.

- DIEHL, KARL. *Theoretische Nationalökonomie*. Jena, 1927.
- *Über Fragen des Geldwesens und der Valuta während des Krieges und nach dem Kriege*. Jena, 1918.
- "Bendixens 'Währungspolitik,'" *Bankarchiv* 16, pp. 6-13.
- "Dalbergs 'Die Entwertung des Geldes,'" *Jhrb. für N. & S.* 115, pp. 1-17.
- "Über Cassels System der theoretischen Sozialökonomie," *Welt. Arch.* 28, pp. 161-185.
- "Unser Geldwesen nach dem Kriege," *Jhrb. für N. & S.* 107, pp. 721-741.
- "Wagemanns 'Allgemeine Geldlehre,'" *Welt. Arch.* 21, pp. 1-10.
- DOBLER, FRITZ. *Kritische Untersuchungen zur Theorie der Kaufkraftparitäten*. Tübingen, 1928.
- DÖRING, HERBERT. *Die Geldtheorien seit Knapp*. 2nd ed., Greifswald, 1922.
- DULLES, ELEANOR L. *The French Franc, 1914-1928*. New York, 1929.
- EGGENSCHWYLER, W. "Die Kaufkraft des Geldes, Ein Versuch mit untauglichen Mitteln," *Archiv* 36, pp. 213-233, 548-576.
- EGNER, ERICH. *Versuch einer autonomen Lehre der Währungspolitik*. Leipzig, 1928.
- EITEMAN, W. J. "Economics of Brokers' Loans," *Am. Ec. Rev.* 22, pp. 66-77.
- ELSTER, KARL. *Die deutsche Not im Lichte der Währungstheorie*. Jena, 1921.
- *Die deutsche Valutapolitik nach dem Kriege*. Stuttgart, 1919.
- *Die Seele des Geldes*. Jena, 1920.
- "Die Grundgleichung der Geldtheorie," *Jhrb. für N. & S.* 115, pp. 1-17.
- "Die Staatliche Theorie des Geldes," *Jhrb. für N. & S.* 111, pp. 80-93.
- "'Kaufkraft' und 'Geltung' des Geldes," *Jhrb. für N. & S.* 115, pp. 243-249.
- "Vom Werte, den das Geld nicht hat," *Jhrb. für N. & S.* 116, pp. 507-526.
- "Wertmesser und Einheit," *Jhrb. für N. & S.* 117, pp. 322-330.
- "Zur Theorie des Paritätsvertrages," *Jhrb. für N. & S.* 116, pp. 414-425.
- ENGLÄNDER, OSKAR. *Theorie der Volkswirtschaft*, vol. II, "Geld und Kapital," Vienna, 1930.
- EPPICH, ERICH. *Geld: eine sozialpsychologische Studie*. Munich, 1921.
- ESSLEN, JOSEPH. *Die Valutazölle der Gegenwart*. Jena, 1922.
- EUCKEN, WALTER. *Kritische Betrachtungen zum deutschen Geldproblem*. Jena, 1923.
- "Die Ursachen der potenzierten Wirkung des vermehrten Geldumlaufs auf das Preisniveau," *Jhrb. für N. & S.* 125, pp. 289-309.
- "Kredit und Konjunktur," *Verein* 175, pp. 287-305.

- EULENBURG, FRANZ. *Das Geld im Kriege und Deutschlands finanzielle Rüstung.* Leipzig, 1915.
- "Die Preisrevolution seit dem Kriege," *Jhrb. für N. & S.* 116, pp. 289-338.
- "Inflation," *Archiv* 45, pp. 477-526.
- FETTER, F. W. "Some Neglected Aspects of Gresham's Law," *Q. J. E.* 46, pp. 480-495.
- FISHER, IRVING. *The Purchasing Power of Money.* 2nd ed., New York, 1922.
- FLUX, A. W. *The Foreign Exchanges.* London, 1924.
- FOSTER, W. T., and CATCHINGS, W. *Money.* Boston, 1927.
- FULLARTON, JOHN. *On the Regulation of Currencies.* 2nd ed., London, 1845.
- FURNESS, W. H. *The Island of the Stone Money.* Philadelphia, 1910.
- GAERTNER, FRIEDRICH. *Vom Gelde und der Geldentwertung.* 2nd ed., Munich, 1922.
- GARVER, F. B., and HANSEN, A. H. *Principles of Economics.* Boston, 1928.
- GEILER, HANS. "Geld und Recht," *Ztsch. für d. ges. Staats.* 81, pp. 320-322.
- GENZMER, WERNER. *Kritische Betrachtungen zur Nominalistischen Geldtheorie.* Dresden, 1917.
- GENZMER, W., and BEHNSEN, HENRY. *Die Folgen der Markentwertung für uns und die anderen.* Leipzig, 1921.
- GERBER, HANS. *Geld und Staat.* Jena, 1926.
- GERNGROSS, PAUL. *Beiträge zu einer wirtschaftlichen Theorie des Geldes.* Vienna, 1913.
- GONNARD, RENÉ. *Précis d'économie monétaire.* Paris, 1930.
- GRAHAM, F. D. *Exchange, Prices, and Production in Hyper-inflation: Germany, 1920-1923.* Princeton, 1930.
- GREGORY, T. E. *Foreign Exchange before, during, and after the War.* 3rd ed., London, 1925.
- GREIDANUS, TJARDUS. *The Value of Money.* London, 1932.
- GRUNTZEL, JOSEF. *Der Geldwert.* Stuttgart, 1919.
- *Wert und Preis.* Munich, 1916.
- GUTMANN, FRANZ. "Staatliche Geldtheorie," *Händb. der Staats.*, 4th ed., vol. IV, Jena, 1927, pp. 752-762.
- HABER, FRANZ. *Untersuchungen über Irrtümer moderner Geldverbesserer.* Jena, 1926.
- HABERLER, GOTTFRIED. "Albert Hahns 'Volkswirtschaftliche Theorie des Bankkredits,'" *Archiv* 56, pp. 803-820.

- HABERLER (*continued*). "Die Kaufkraft des Geldes und die Stabilisierung der Wirtschaft," *Schm. Jhrb.* 55, pp. 993-1023.
- "Die Kredittheorie der Cambriger Schule," *Archiv* 62, pp. 251-270.
- "Kritische Bemerkungen zu Schumpeters Geldtheorie," *Ztsch. für Volksw. und Sozialp. N. F.* 4, pp. 645-668.
- "Money and the Business Cycle," *Harris Foundation Lectures: Gold and Monetary Stabilization*. Chicago, 1932, pp. 43-74.
- HAHN, L. ALBERT. *Geld und Kredit*. Tübingen, 1924.
- *Geld und Kredit, Neue Folge*. Tübingen, 1929.
- *Goldvorteil und Goldvorurteil*. Frankfurt, 1924.
- *Volkswirtschaftliche Theorie des Bankkredits*. 1st ed., Tübingen, 1920; 2nd ed., Tübingen, 1924; 3rd ed., Tübingen, 1930.
- "Die Goldpolitik der Bank von Schweden während des Krieges," *Schm. Jhrb.* 41, pp. 615-628.
- "Handelsbilanz, Zahlungsbilanz, Valuta, Güterpreise," *Archiv* 48, pp. 596-614.
- "Heyns 'Zur Valutafrage,'" *Archiv* 49, pp. 225-227.
- "Kredit," *Hdwb. der Staats*. 4th ed., vol. v, Jena, 1923, pp. 944-953.
- "Mises 'Theorie des Geldes und der Umlaufmittel,'" *Archiv* 53, pp. 509-516.
- "Statische und dynamische Wechselkurse," *Archiv* 49, pp. 761-779.
- "Von der Kriegs- zur Friedenswährung," *Archiv, Ergänzungsheft* 14, pp. 1-64.
- "Zur Frage des sogenannten 'Vertrauens in die Währung,'" *Archiv* 52, pp. 289-316.
- "Zur Theorie des Geldmarktes," *Archiv* 51, pp. 289-321.
- HALES, JOHN (W. S.), *A Discourse of the Common Weal of this Realm of England*. Reprinted, Cambridge, England, 1893.
- HALM, GEORG. "Das Zinsproblem am Geld- und Kapitalmarkt," *Jhrb. für N. & S.* 125, pp. 1-34, 97-112.
- HANSEN, ALVIN. *Business Cycle Theory*. Boston, 1927.
- HANTOS, ELEMÉR. *Das Geldproblem in Mitteleuropa*. Jena, 1925.
- *Die Zukunft des Geldes*. Stuttgart, 1921.
- HARDY, C. O. *Credit Policies of the Federal Reserve System*. Washington, 1932.
- "Savings, Investment, and Business Cycles," *J. P. E.* 39, pp. 390-400.
- HAWTREY, R. G. *Currency and Credit*. 2nd ed., London, 1923; 3rd ed., London, 1930.

- *Monetary Reconstruction*. London, 1923.
- *The Art of Central Banking*. London, 1932.
- "The State Theory of Money," *Ec. Jour.* 35, pp. 251-255.
- HAYEK, FRIEDRICH A. *Geldtheorie und Konjunkturtheorie*. Vienna, 1929.
- *Prices and Production*. London, 1931.
- "A Rejoinder to Mr. Keynes," *Economica* 34, pp. 398-403.
- "Das intertemporale Gleichgewichtssystem und die Bewegungen des 'Geldwertes,'" *Welt. Arch.* 28, pp. 33-76.
- "Einige Bemerkungen über das Verhältnis der Geldtheorie zur Konjunkturtheorie," *Verein* 173, ii, 247, 295.
- "Kapitalaufzehrung," *Welt. Arch.* 36, pp. 86-108.
- "Reflections on the Pure Theory of Money of Mr. J. M. Keynes," *Economica* 33, pp. 270-295.
- "The Paradox of Saving," *Economica* 32, pp. 125-169.
- HELFFERICH, KARL. *Das Geld*. 4th ed., Leipzig, 1919.
- *Money*. New York, 1927.
- "Aussenhandel und Valutaschwankungen," *Schm. Jhrb.* 22, pp. 353-408.
- HENDERSON, H. D. *Supply and Demand*. New York, 1922.
- HEPBURN, A. B. *A History of the Currency in the United States*. New York, 1915.
- HERZFELDER, EDMUND. *Kreditkontrolle*. Berlin, 1930.
- HEYN, OTTO, *Erfordernisse des Geldes*. Leipzig, 1912.
- *Über Geldschöpfung und Inflation*. Stuttgart, 1921.
- *Unser Geldwesen nach dem Kriege*. Stuttgart, 1916.
- "Der Goldschatz der Reichsbank und seine Bedeutung im Kriege und nach dem Kriege," *Ztsch. für Sozialw. N. F.* 7, pp. 27-40.
- "Erwiderung zu Bendixens 'Der Kampf um den Geldwert,'" *Ztsch. für Sozialw. N. F.* 4, pp. 591-593.
- "Visserings Währungsreformvorschläge," *Bankarchiv* 19, nos. 12-13.
- "Wertbasis und Deckung des Papiergeldes," *Bankarchiv* 19, no. 18, pp. 209-213, 221-224.
- "Zur Frage der Eliminierung des Wertproblems aus der Geldtheorie," *Ztsch. für Sozialw. N. F.* 4, pp. 29-39.
- "Zur Verteidigung der Chartalthorie des Geldes," *Jhrb. für N. & S.* 106, pp. 776-804.
- HILDEBRAND, RICHARD. *Über das Wesen des Geldes*. Jena, 1914.
- HILFERDING, RUDOLPH. *Das Finanzkapital*. Vienna, 1927.

- HIRSCH, JULIUS. *Die deutsche Währungsfrage*. Jena, 1924.
- HIRSCH, WILLY. *Grenznutzentheorie und Geldwerttheorie unter besonderen Berücksichtigung der "österreichischen" Schule*. Jena, 1928.
- HOLDSWORTH, J. T. *Money and Banking*. 3rd ed., New York, 1923.
- HOLTROP, M. W., "Theories of the Velocity of Circulation of Money in Earlier Economic Literature," *Ec. Jour., Economic History Series*, vol. iv, no. 1, pp. 502-524.
- HONEGGER, HANS. *Der schöpferische Kredit*. Jena, 1929.
- HOOVER, C. B. "Brokers' Loans and Bank Deposits," *J. P. E.* 37, pp. 713-727.
- JANKOVICH, BELA VON. *Beiträge zur Theorie des Geldes*. Vienna, 1926.
- JEVONS, W. S. *Money and the Mechanism of Exchange*. New York, 1893.
- *The Theory of Political Economy*. London, 1871.
- JÖHR, ADOLF. "Kredit und Konjunktur," *Verein* 175, pp. 306-316.
- KÄMMERER, G. H. *Geld: Eine genetische Studie*. Berlin, 1921.
- KATZENELLENBAUM, S. S. *Russian Currency and Banking, 1914-1924*. London, 1925.
- KAULLA, RUDOLPH. *Die Grundlagen des Geldwerts*. Stuttgart, 1920.
- KEILHAU, WILHELM. "The Valuation Theory of Exchange," *Ec. Jour.* 35, pp. 221-232.
- KEMÉNY, GEORG. *Die fremden Wechselkurse und die Umwälzung der internationalen Wirtschaftsbeziehungen*. Essen, 1921.
- KERSCHAGL, RICHARD. *Die Geldprobleme von heute*. Munich, 1922.
- *Die Lehre vom Geld in der Wirtschaft*. Vienna, 1921.
- *Theorie des Geldes und der Geldwirtschaft*. Jena, 1923.
- "Überblick über das Schrifttum des Geldwesens von 1914 bis 1920," *Ztsch. für Volksw. und Socialp. N. F.* 1, pp. 126-127.
- "Universalismus und Individualismus in der Methodik der Geldtheorie," *Jhrb. für N. & S.* 117, pp. 211-223.
- KEYNES, J. M. *A Tract on Monetary Reform*. New York, 1924.
- *A Treatise on Money*. New York, 1930.
- "A Rejoinder [to Mr. Robertson]," *Ec. Jour.* 41, pp. 412-423.
- "A Reply to Dr. Hayek," *Economica* 34, pp. 387-398.
- KINLEY, DAVID. *Money*. New York, 1904.
- KNAPP, G. F. *Staatliche Theorie des Geldes*. 4th ed., Munich, 1923.
- *The State Theory of Money*. London, 1924.
- "Die Währungsfrage vom Staate aus betrachtet," *Schm. Jhrb.* 31, pp. 1527-1538.

- Discussion, *Verein* 132, pp. 559-560.
- "Erläuterungen zur Staatlichen Theorie des Geldes," *Schm. Jhrb.* 30, pp. 1691-1703.
- "Staatliche Geldtheorie," *Hdwb. der Staats.* 4th ed., vol. IV, Jena, 1927, pp. 752-762.
- KNIGHT, F. H. *Risk, Uncertainty and Profit.* Boston, 1921.
- "Professor Fisher's Interest Theory: A Case in Point," *J. P. E.* 39, pp. 176-212.
- KÖNIG, HEINRICH. *Die Befestigung der Kaufkraft des Geldes.* Bonn, 1922.
- KORANYI, KARL. "Zahlungsbilanz, Kaufkraft, und Wechselkurse," *Welt. Arch.* 26, pp. 260-293.
- LAMPE, ADOLF. *Zur Theorie des Sparprozesses und der Kreditschöpfung.* Jena, 1926.
- LANGELÜTKE, H. *Tauschbank und Schwundgeld als Wege zur einslosen Wirtschaft.* Jena, 1928.
- LANSBURGH, ALFRED. *Die Kriegskostendeckung und ihre Quellen.* Berlin, 1915.
- *Vom Golde: Briefe eines Bankdirektors an seinen Sohn.* Berlin, 1921.
- "Das Gold im Kriege," *Die Bank*, 1916, pp. 185-195, 371-383.
- "Das Schicksal der deutschen Währung," *Die Bank*, 1919, pp. 635-665.
- "Die Politik der Reichsbank und die Reichsschatzanweisungen nach dem Kriege," *Verein* 166.
- "Die Weltgeldeigenschaft des Goldes," *Die Bank*, 1919, pp. 833-849, 923-935.
- "Die Wiederherstellung der Landeswährung," *Die Bank*, 1918, pp. 699-711, 781-795.
- LAUGHLIN, J. L. *Money and Prices.* New York, 1919.
- LAWRENCE, J. S. *The Stabilization of Prices.* New York, 1928.
- LEAGUE OF NATIONS, Series of Publications, II. Economic and Financial 1931. II. A. 21; Official No.: A. 22. 1931 II. A. *Course and Phases of the World Economic Depression.* Geneva, Switzerland, and Boston, Massachusetts, 1931.
- LEDERER, EMIL. "Der Zirkulationsprozess als zentrales Problem der ökonomischen Theorie," *Archiv* 56, pp. 1-25.
- LEDERER, EMIL, and MARSCHAK, JAKOB. "Größenordnungen des deutschen Geldsystems," *Archiv* 67, pp. 385-402.
- LEHFELDT, R. A. *Money.* London, 1926.
- LEXIS, WILHELM. "Die Knapp'sche Geldtheorie," *Jhrb. für N. & S.* 87, pp. 534-545.

- LIEFMANN, ROBERT. *Die Geldvermehrung im Weltkrieg und die Beseitigung ihrer Folgen*, Stuttgart, 1918.
- *Geld und Gold*. Stuttgart, 1916.
- *Grundsätze der Volkswirtschaftslehre*. Stuttgart, 1919.
- "Die Entstehung des Preises aus subjektiven Wertschätzungen," *Archiv* 34, pp. 1-54, 406-469.
- LÖWE, ADOLF. "Über den Einfluss monetärer Faktoren auf den Konjunkturzyklus," *Verein* 173, ii, 355-370.
- LOTZ, WALTER. *Das Papiergeld*. Berlin, 1920.
- "Diskonto und Diskontopolitik," *Hdwb. der Staats.*, 4th ed., vol. III, Jena, 1926, pp. 247-258.
- "G. F. Knapps neue Geldtheorie," *Schm. Jhrb.* 30, pp. 777-793, 1213-1252.
- "Valutafrage und öffentliche Finanzen in Deutschland," *Verein* 164.
- LOUNSBURY, R. H. "Velocity Concepts and Prices," *Q. J. E.* 46, pp. 34-67.
- MACHLUP, FRITZ. *Börsenkredit, Industriekredit, und Kapitalbildung*. Vienna, 1931.
- *Die Goldkernwährung*. Halberstadt, 1925.
- MAHR, ALEXANDER. "Zur Theorie der Wechselkurse," *Welt. Arch.* 26, pp. 223-259.
- MAKAI, ERNST. *Währungsstudien mit besonderer Rücksicht auf Österreich-Ungarn*. Stuttgart, 1917.
- MANNSTAEDT, HEINRICH. *Ein kritischer Beitrag zur Theorie des Bankkredits*. Jena, 1927.
- MARGET, A. W. "A Further Note on Holtrop's Formula for the 'Coefficient of Differentiation' and Related Concepts," *J. P. E.* 41, pp. 237-241.
- "Hawtrey's 'Gold Standard in Theory and Practice,'" *Q. J. E.* 42, pp. 140-152.
- "Leon Walras and the 'Cash-Balance' Approach to the Problem of the Value of Money," *J. P. E.* 39, pp. 569-600.
- "The Relation between the Velocity of Circulation of Money and the 'Velocity of Circulation of Goods,'" *J. P. E.* 40, pp. 289-313, 477-512.
- MARSCHAK, JAKOB. "Die Verkehrsgleichung," *Archiv* 52, pp. 244-284.
- "Volksvermögen und Kassenbedarf," *Archiv* 68, pp. 385-419.
- MARSCHAK, JAKOB, and LEDERER, EML. "Größenordnungen des deutschen Geldsystems," *Archiv* 67, pp. 385-402.
- MARSHALL, ALFRED. *Money, Credit, and Commerce*. London, 1923.
- *Official Papers*. London, 1926.

- MARX, KARL. *Capital*. Tr. by Moore and Aveling, London, 1887.
- MARZELL, HANS. *Das Kapitalkinsproblem im Lichte des Kreislaufs der Waren und des Geldes*. Jena, 1927.
- MENANDIER, J. "Knapps Staatliche Theorie des Geldes," *Zeitschrift für Numismatik* 26, p. 677.
- MILDSCHUE, WILIBALD. "Geschichtliche Entwicklung der Geldtheorie," *Hdwb. der Staats.* 4th ed., vol. IV, Jena, 1927, pp. 718-729.
- MILL, J. STUART. *Principles of Political Economy*. Ed. by Ashley, London, 1909.
- MISES, LUDWIG. *Die Ursachen der Wirtschaftskrise*. Tübingen, 1931.
- *Geldwertstabilisierung und Konjunkturpolitik*. Jena, 1928.
- *Nation, Staat und Wirtschaft*. Vienna, 1919.
- *Theorie des Geldes und der Umlaufsmittel*. 1st ed., Munich, 1912; 2nd ed., Munich, 1924.
- "Die allgemeine Teuerung im Lichte der theoretischen Nationalökonomie," *Archiv* 37, pp. 557-577.
- "Die geldtheoretische Seite des Stabilisierungsproblems," *Verein* 164, Pt. II.
- Discussion, *Verein* 170, pp. 275-280.
- "The Foreign Exchange Policy of the Austro-Hungarian Bank," *Ec. Jour.* 19, pp. 201-211.
- "Zur Klassifikation der Geldtheorien," *Archiv* 44, pp. 198-212.
- MOELLER, HERO. *Die Lehre vom Gelde*. Leipzig, 1925.
- MOLL, BRUNO. *Die Logik des Geldes*. 2nd ed., Munich, 1922.
- *Die modernen Geldtheorien und die Politik der Reichsbank*. Stuttgart, 1917.
- MONROE, A. E. *Early Economic Thought*. Cambridge, Massachusetts, 1927.
- *Monetary Theory before Adam Smith*. Cambridge, Massachusetts, 1923.
- MOULTON, H. G. "Commercial Banking and Capital Formation," *J. P. E.* 26, pp. 705-731.
- MOULTON, H. G., and MCGUIRE, CONSTANTINE E. *Germany's Capacity to Pay*. New York, 1923.
- MÜLLER, HUGO. *Wechselkurs und Güterpreise*. Jena, 1926.
- NEISSER, HANS. *Der Tauschwert des Geldes*. Jena, 1928.
- "Der Kreislauf des Geldes," *Welt. Arch.* 33, pp. 365-408.
- "Die alte und die neue Reichsbank," *Strukturwandelungen der deutschen Volkswirtschaft*, 2nd ed., Berlin, 1929, ii, 297-331.
- "Notenbankfreiheit." *Welt. Arch.* 32, pp. 446-461.

- NEUSTÄTTER, HANNA. *Schwedische Währung während des Weltkrieges*. Munich, 1920.
- NICHOLSON, J. S. *A Treatise on Money and Essays on Monetary Problems*. 3rd ed., London, 1895.
- NOGARO, BERTRAND. *Modern Monetary Systems*. London, 1927.
- NUSSBAUM, ARTHUR. *Das Geld in Theorie und Praxis des deutschen und ausländischen Rechts*. Tübingen, 1925.
- OHLIN, BERTIL. "Ungelöste Probleme der gegenwärtigen Krisis," *Welt. Arch.* 36, pp. 1-23.
- PALXI, MELCHIOR. *Romantische Geldtheorie*. Tübingen, 1916.
- "Das Zahlungsbilanzausgleich bei einseitigen Wertübertragungen," *Archiv* 56, pp. 302-338.
- "Der Streit um die Staatliche Theorie des Geldes," *Schm. Jhrb.* 45, pp. 533-578, 649-694.
- "Die Zahlungsbilanz der V. S. von Amerika als Gläubigerland," *Verein* 174, pp. 223-300.
- "Diehls 'Über Fragen,'" *Ztsch. für Sozialw. N. F.* 10, pp. 484-485.
- "Heyns 'Die deutsche Valuta,'" *Archiv* 50, p. 269.
- "Molls 'Logik des Geldes,'" *Archiv* 42, pp. 981-984.
- Referat, *Verein* 170, pp. 249-255, 320 ff.
- "Ungelöste Fragen der Geldtheorie," *Festgabe für Lujo Brentano*, vol. II, *Der Stand der Forschung*, Munich, 1925, pp. 457-517.
- PHILIPPOVICH, EUGEN. *Grundriss der politischen Ökonomie*. 18th ed., Tübingen, 1923.
- PHILLIPS, C. A. *Bank Credit*. New York, 1920.
- PIGOU, A. C. *Essays in Applied Economics*. London, 1923.
- *Industrial Fluctuations*. London, 1927.
- PLATO. *Laws*. Tr. by Benjamin Jowett, Oxford, 1892.
- *The Republic*. Tr. by Benjamin Jowett. 3rd ed., Oxford, 1908.
- POHLE, LUDWIG. *Das Problem der Valuta-Entwertung*. Dresden, 1919.
- *Geldentwertung, Valutafrage, und Währungsreform*. Leipzig, 1920.
- PRION, WILLI. *Inflation und Geldentwertung*. Berlin, 1919.
- REED, H. L. *Federal Reserve Policy, 1921-1930*. New York, 1930.
- REICHSBANK. *Die Reichsbank, 1901-1925*. Berlin, 1926.
- REISCH, RICHARD. "Das Kreditproblem in der Volkswirtschaft," *Zeitschrift für Nationalökonomie* 3, pp. 1-22.
- "Rückwirkungen der Börsenspekulation auf den Kreditmarkt," *Zeitschrift für Nationalökonomie* 1, pp. 205-221.

- RICARDO, DAVID. *Economic Essays*. Edited by A. C. K. Gonner, London, 1923.
- RICHTER-ALTSCHAEFFER, HANS. "Some Theoretical Aspects of Stock Market Speculation," *J. P. E.* 39, p. 231.
- ROBERTSON, D. H. *Banking Policy and the Price Level*. London, 1926.
- *Money*. 1st ed., New York, 1922; 2nd ed., New York, 1929.
- "A Note on the Theory of Money," *Economica* 41, pp. 243-247.
- "Mr. Keynes' Theory of Money," *Ec. Jour.* 41, pp. 395-411.
- RÖMER, GEORG. *Die Lehre vom Wesen des Geldes nach Knapp und Bendixen*. Giessen, 1925.
- RÖPKE, WILHELM. "Auslandskredite und Konjunktur," *Verein* 173, ii, 213-247.
- *Die Konjunktur*. Jena, 1922.
- *Die Theorie der Kapitalbildung*. Tübingen, 1929.
- "Kredit und Konjunktur," *Jhrb. für N. & S.* 126, pp. 243-285.
- ROGERS, JAMES H. *Stock Speculation and the Money Market*. Columbia, Missouri, 1927.
- *The Process of Inflation in France, 1914-1927*. New York, 1929.
- ROSCH, CARL. *Kreditinflation und Wirtschaftskrisen*. Jena, 1927.
- SALIN, EDGAR. *Staatliche Kreditpolitik*. Tübingen, 1928.
- "Die Entthronung des Geldes: Bemerkungen zu Keynes' 'A Tract on Monetary Reform,'" *Schm. Jhrb.* 48, pp. 95-112.
- SANGER, C. P. "Staatliche Theorie des Geldes," *Ec. Jour.* 16, pp. 266-267.
- SCHACHT, HJALMAR. *The Stabilization of the Mark*. London, 1927.
- SCHLESINGER, KARL. *Die Veränderungen des Geldwertes im Kriege*. Vienna, 1916.
- *Theorie der Geld- und Kreditwirtschaft*. Munich, 1914.
- SCHMITT, ALFONS. *Kreditpolitik und Konjunkturpolitik in Theorie und Praxis*. Jena, 1932.
- SCHUMPETER, JOSEPH. *Das Wesen und der Hauptinhalt der theoretischen Nationalökonomie*. Leipzig, 1908.
- *Theorie der wirtschaftlichen Entwicklung*. 1st ed., Munich, 1912; 2nd ed., Munich, 1926; 3rd ed., Munich, 1931.
- "Das Sozialprodukt und die Rechenpfennige," *Archiv* 44, pp. 627-715.
- "Die Wellenbewegung des Wirtschaftslebens," *Archiv* 39, pp. 1-32.
- "Kreditkontrolle," *Archiv* 54, pp. 288-328.
- "The Explanation of the Business Cycle," *Economica* 21, pp. 286-312.

- SCHWIEDLAND, E. "Kerschagls 'Die Geldproblem von heute,'" *Ec. Jour.* 32, pp. 368-369.
- "Kerschagls 'Die Lehre vom Gelde in der Wirtschaft,'" *Ec. Jour.* 32, p. 529.
- SCOTT, W. A. *Money and Banking*. 5th ed., New York, 1916; 6th ed., New York, 1926.
- SENIOR, N. W. *Three Lectures on the Value of Money*, delivered before the University of Oxford in 1829. London, 1840.
- SEWELL, HANNAH R. "The Theory of Value before Adam Smith," *Publ. of the Am. Ec. Ass.*, Third Series, vol. II, no. 3.
- SHAW, WILLIAM A. *History of Currency*. London, 1895.
- SIMMEL, GEORG. *Philosophie des Geldes*. 4th ed., Leipzig, 1922.
- SINGER, KURT. *Das Geld als Zeichen*. Jena, 1920.
- SLICHTER, SUMNER H. *Modern Economic Society*. New York, 1931.
- SMITH, ADAM. *An Inquiry into the Nature and Causes of the Wealth of Nations*. Ed. by Cannan, London, 1904.
- SODA, KIICHIRO. *Geld und Wert*. Tübingen, 1909.
- "Die neue Knapp'sche Geldtheorie und das Wesen des Geldes," *Jhrb. für N. & S.* 89, pp. 336-355, 620-655.
- SOMARY, FELIX. *Bankpolitik*. Tübingen, 1915.
- Referat, *Verein* 170, pp. 244-249.
- Sozialisierungskommission, Verhandlungen über Reparationsfragen*, vol. III, "Stabilisierung der Währung," Berlin, 1922.
- SPANN, OTHMAR. *Theorie der Preisverschiebung als Grundlage zur Erklärung der Teuerung*. Vienna, 1913.
- "Bemerkungen zu Fishers Geldlehre," *Schm. Jhrb.* 41, p. 449.
- SPIETHOFF, ARTHUR. "Krisen," *Hdwb. der Staats.* 4th ed., vol. VI, Jena, 1925, pp. 8-90.
- SPRAGUE, O. M. W. *History of Crises under the National Bank System*. National Monetary Commission Reports, vol. v, Washington, 1911.
- SRAFFA, PIERO. "Dr. Hayek on Money and Capital," *Ec. Jour.* 42, pp. 42-54.
- STAMP, JOSIAH. *The Present Position of Monetary Science*. Manchester, 1932.
- STEPHINGER, LUDWIG. *Wert und Geld*. Tübingen, 1918.
- STEUART, JAMES. *Works*. London, 1805.
- STRIGL, RICHARD. "Die Produktion unter dem Einflusse einer Kreditexpansion," *Verein* 173, II, 185-213.
- STUCKEN, RUDOLF. *Die Konjunktoren im Wirtschaftsleben*. Jena, 1932.
- *Theorie der Konjunkturschwankungen*. Jena, 1926.

- "Neue deutsche Konjunkturliteratur," *Ztsch. für d. ges. Staats.* 86, pp. 143-150.
- "Weitere deutsche Konjunkturliteratur," *Ztsch. für d. ges. Staats.* 87, pp. 556-562.
- TAUSSIG, F. W. *International Trade.* New York, 1927.
- *Principles of Economics.* 2nd ed., New York, 1917; 3rd ed., New York, 1922.
- "International Trade under Depreciated Paper," *Q. J. E.* 31, pp. 380-404.
- TAYLOR, F. M. *Chapters on Money.* Ann Arbor, Michigan, 1906.
- *Principles of Economics.* 9th ed., New York, 1925.
- *Some Leading Problems in Economic Theory.* 3rd ed., Ann Arbor, Michigan, 1921.
- TIMOSHENKO, V. P. *The Role of Agricultural Fluctuations in the Business Cycle.* Ann Arbor, Michigan, 1930.
- TURGOT, A. R. J. *The Formation and Distribution of Riches.* (1770). Ed. by Ashley, New York, 1898.
- UNITED STATES DIRECTOR OF THE MINT. *Annual Report.* Washington, 1914.
- UNITED STATES SENATE, Commission of Gold and Silver Inquiry, Foreign Currency and Exchange Investigation, Serial 9, vol. 1, *European Currency and Finance.* Washington, 1925.
- VAN SICKLE, JOHN. "The Fallacy of a Capital Levy," *J. P. E.* 34, pp. 181-195.
- VEREIN FÜR SOZIALPOLITIK, "Beiträge zur Wirtschaftstheorie," Pt. II. "Konjunkturforschung und Konjunkturtheorie," *Schriften*, vol. 173, Munich, 1928.
- "Kredit und Konjunktur," *Schriften*, vol. 175, Munich, 1929.
- "Verhandlung über die theoretische und ökonomisch-technische Seite des Währungsproblems," *Schriften*, vol. 170, Munich, 1925, pp. 242-326.
- VOIGT, ANDREAS. "Die Staatliche Theorie des Geldes," *Ztsch. für d. ges. Staats.* 62, pp. 317-340.
- WAGEMANN, ERNST. *Allgemeine Geldlehre.* Berlin, 1923.
- *Economic Rhythm.* New York, 1930.
- WALKER, F. A. *Money, Trade and Industry.* New York, 1878.
- WALRÉ DE BODES, J. VAN. *The Austrian Crown.* London, 1924.
- WENLEY, R. M. *Kant and his Philosophical Revolution.* Edinburgh, 1910.
- WHALE, P. BARRETT. *Joint Stock Banking in Germany.* London, 1930.
- "Helfferich's 'Money,'" *Economica* 21, pp. 369-373.
- WHITE, HORACE. *Money and Banking.* 5th ed., Boston, 1914.

- WICKSELL, KNUT. *Geldzins und Güterpreise*. Jena, 1898.
- *Vorlesungen über Nationalökonomie auf Grundlage des Marginalprinzipes*, vol. II, "Geld und Kredit," Jena, 1922.
- "Der Bankzins als Regulator der Warenpreise," *Jhrb. für N. & S.* 68, pp. 228-243.
- "Gold after the War in Relation to Inflation and the Foreign Exchanges," *Ec. Jour.* 28, pp. 409-412.
- "Hinauf mit dem Bankraten!" *Archiv* 41, pp. 745-757.
- "International Freights and Prices," *Q. J. E.* 32, pp. 404-410.
- "Professor Cassels nationalökonomisches System," *Schm. Jhrb.* 52, pp. 771-808.
- "The Influence of the Rate of Interest on Prices," *Ec. Jour.* 17, pp. 213-220.
- WIESER, FRIEDRICH. *Natural Value*. London, 1893.
- *Social Economics*. New York, 1927.
- "Der Geldwert und seine Veränderungen," *Verein* 132.
- "Geld: Theorie des Geldes, Allgemeine Theorie des Geldes," *Hdwb. der Staats.*, 4th ed., vol. IV, Jena, 1927, pp. 681-717.
- "Über die Messung der Veränderungen des Geldwertes," *Verein* 132.
- WILLIAMS, J. H. "Foreign Exchange, Prices, and the Course of International Trade," *Annals of the American Academy* 89, pp. 197-210.
- "Foreign Exchange under Depreciated Paper," *Jour. Am. Bankers' Ass.* 14, pp. 492-494.
- "German Foreign Trade and the Reparation Payments," *Q. J. E.* 36, pp. 482-503.
- "The Monetary Doctrines of J. M. Keynes," *Q. J. E.* 45, pp. 547-587.
- WILLIS, H. P. *A History of the Latin Monetary Union*. Chicago, 1901.
- WOLF, JULIUS. *Nationalökonomie als exakte Wissenschaft*. Leipzig, 1908. *Valuta und Finanznot in Deutschland*. Stuttgart, 1920.
- YOUNG, ALLYN A. "War Debts, External and Internal," *Foreign Affairs*, vol. II, no. 3, pp. 397-409.
- ZIMMERMANN, KURT. *Das Krisenproblem in der neuern nationalökonomischen Theorie*. Halberstadt, 1926.

INDICES

INDEX OF NAMES

- Aftalion, 116, 176
 Altmann, 35, 56, 93, 177, 182
 Amonn, 46-48, 85, 139, 140, 179, 312, 314
 Anderson, 19, 74, 81, 85, 109, 114-116,
 141, *et passim*
 Andréadès, 42
 Angell, 159, 200, 230, 241, 268, 286, 292,
 293, *et passim*
 Aquinas, 7
 Aristotle, 7, 39

 Balogh, 382, 384
 Barbon, 8
 Bassett, 27
 Beckerath, 247, 251, 266, 285, 292
 Behnsen, 285
 Behrens, 90
 Bellerby, 407
 Bendixen, 18, 34, 40, 107, 238
 Biel, 10
 Birk, 99
 Block, 102-103
 Bober, 103, 171
 Bodin, 179
 Bonar, 20, 27, 28, 241
 Bonn, 248-251, 266, 285, 292
 Bortkiewicz, 81, 88, 134, 235, 278-280, *et*
 passim
 Bosanquet, 9
 Bradford, 74, 75
 Braun, 98
 Budge, 366-367, 397-398, 411, 427
 Buraway, 36
 Burchardt, 302, 331-332, 401
 Buridan, 8

 Cannan, 22, 23, 122, 190, 241, 242
 Cantillon, 10
 Carver, 112
 Cassel, 40, 52-54, 139-148, 207-215, 265,
 286, 308-314, 381, 403, 426, *et passim*
 Chamberlin, 429
 Clark, 353
 Conring, 8
 Copeland, 110, 145

 D'Abernon, 292
 Dalberg, 40, 180, 230, 237, 279, 293
 Davanzati, 10
 Del Mar, 105
 Diehl, 91-92, 245-247, 312, 321, 332, 400
 Dobler, 234-238
 Döring, 12, 20, 50, 96, 120
 Dulles, 279, 293

 Eggenschwyler, 182-183
 Eiteman, 382
 Elster, 34, 36, 40, 00, 237
 Engländer, 89, 175, 184
 Eppich, 43
 Eucken, 215, 224-230, 235, 278, 280, 372-
 373, 416, 430
 Eulenberg, 98, 245, 277

 Fetter, 27
 Fichte, 9
 Fisher, 89, 120, 128, 129, 137, 139, 192,
 197
 Flux, 265, 275, 278, 286
 Foster, 369, 409
 Fullarton, 10
 Furness, 24

 Gaertner, 259
 Galiani, 10
 Garver, 183
 Genzmer, 18, 34, 43, 285
 Gerber, 19, 39
 Gerngross, 39-40
 Gonnard, 4, 8
 Graham, 214, 217, 238, 252, 279, 284, 289,
 293, 294, *et passim*
 Gregory, 19, 264
 Greidanus, 96-97, 109-110, 112, 156, 190
 Gruntzel, 71-73
 Gutmann, 16, 20, 36

 Haber, 232
 Haberier, 327, 329, 332, 359-362, 395-
 396, 431
 Hahn, 51-52, 165-169, 220-224, 327-334,
 382, 395, *et passim*

- Hales, 10
 Halm, 313
 Hansen, 183, 416
 Hantos, 283
 Hardy, 306, 307, 383, 386, 389
 Hawtrey, 32, 105, 106, 121, 242, 268, 269,
 273, 323-326, 362, 382, 387, 407, 416,
 430, 432, *et passim*
 Hayek, 119, 163, 327, 338, 339-356, 395-
 398, 426
 Helfferich, 25, 60-71, 160-162, 253-256,
 269, 280, 292, *et passim*
 Hepburn, 27
 Herzfelder, 371
 Heyn, 71-72, 285
 Hildebrand, 93-95
 Hilferding, 99-103
 Hirsch, J., 230, 262-263
 Hirsch, W., 89
 Holdsworth, 122
 Holtrop, 89, 150, 190, 194
 Honegger, 334
 Hoover, 382, 383

 Jankovich, 277
 Jevons, 73
 Jöhr, 396
 Johannsen, 408-409

 Kämmerer, 92
 Katzenellenbaum, 215, 273, 277
 Kauilla, 11, 14, 38-39, 237
 Keilhan, 265, 293
 Kemény, 231-232, 265
 Kerschagl, 88, 180, 232, 285
 Keynes, 85, 90, 105, 137, 146, 156, 159,
 263, 271, 273, 275, 278, 286, 303, 306,
 307, 323-325, 365-366, 385-387, 393-
 394, 402-409, 416-425, 427, 428,
 430, 432, *et passim*
 Kinley, 109, 122
 Knapp, 4, 13-38, 239-242
 Knight, 73, 374
 König, 182
 Koranyi, 234, 238

 Lampe, 179, 329, 331, 332, 369-372
 Langelütke, 103
 Lansburgh, 43, 218, 247
 Laughlin, 122, 182
 Lawrence, 14
 Le Bret, 8
 Lederer, 89, 151, 172, 412
 Lehfeldt, 105, 106, 190

 Lescure, 305
 Lexis, 18
 Liefmann, 42-43, 180, 252, 261-262
 Locke, 10
 Löwe, 401
 Lotz, 93, 242, 259, 280
 Lounsbury, 198

 Machlup, 177, 230, 313, 338, 375-391, 393
 Mahr, 259
 Makai, 259
 Mangoldt, 305
 Mannstaedt, 329, 332
 Marget, 132, 136, 153, 190
 Marschak, 89, 148-153, 172, 192
 Marshall, 63, 67, 142, 190, 191, 265, 287
 Marx, 101-103
 Marzell, 369, 409
 Menandier, 24
 Miksch, 396
 Mildschuh, 183
 Mill, 73, 184
 Mises, 77-81, 113, 116, 126, 162-165, 191,
 215-217, 242-244, 280, 293, 294, 335-
 339, *et passim*
 Mitchell, 317, 399
 Moeller, 56, 231
 Moll, 95-97
 Monroe, 7, 8, 10, 29
 Montanari, 10
 Moulton, 284-285, 389
 Müller, A., 9
 Müller, H., 234, 265

 Neisser, 90, 116, 134, 169-175, 232-233,
 235, 278-279, 338, 362-366, 381, 391,
 393, 429, *et passim*
 Nicholson, 78
 Nogaro, 137, 241, 286, 292
 Nussbaum, 23, 32, 44-46

 Ohlin, 127, 312, 393, 399, 403, 405, 408,
 414
 Oresme, 10

 Palyi, 9, 20, 28, 33, 80, 96, 128, 159, 257-
 258, *et passim*
 Philippovich, 56, 259
 Phillips, 158
 Pigou, 147, 198, 203, 211, 223-224, 263,
 269-271, 273, 278, 293, 312, 356, 363,
 426, *et passim*
 Plato, 7
 Plenge, 381

- Pohle, 218-220, 266, 285
 Pothier, 8
 Prion, 263, 285

 Reed, 382, 385, 388
 Reisch, 357, 387, 426
 Ricardo, 9, 156
 Richter-Altschaeffer, 382, 383
 Robertson, 105, 146, 167, 251, 261, 273,
 312, 325, 361, 363-365, 399, 403, 410-
 413, 417, 420-421, 429, *et passim*
 Römer, 60, 99
 Röpke, 332, 367-369, 392-394, 396, 416
 Rogers, 215, 279, 291, 292, 382, 383
 Rosch, 107, 391-394
 Roscher, 3

 Schacht, 19, 26, 32, 392
 Schlesinger, 175, 190, 217-218
 Schmitt, 412
 Schultz-Kiesow, 175
 Schumpeter, 3, 50-51, 61, 126-129, 176,
 177, 279, 285, 317-326, 413
 Scott, 81, 122
 Senior, 29, 76
 Sewall, 11
 Shaw, 94
 Simmel, 60-61
 Singer, 40, 243
 Slichter, 425, 429
 Smith, 9
 Soda, 18, 105
 Somary, 395
 Spann, 88, 180-181
 Spiethoff, 300, 397, 400
 Sprague, 26

 Sraffa, 356
 Stamp, 422
 Stephinger, 97-98
 Steuart, 9
 Strigl, 338, 358-359, 416, 428-429
 Stucken, 314, 338, 373-374, 395, 414, 416,
 430

 Taussig, 65, 143, 147, 242, 267, 274, 278,
 286, *et passim*
 Taylor, 22, 23, 27, 30, 43, 73, 74, 105
 Timoshenko, 312
 Tugan-Baranowsky, 305, 412
 Turgot, 10, 127

 Van Sickle, 273, 278, 286, 291
 Voigt, 14, 24, 26, 27

 Wagemann, 48-50, 88, 260-261, 306, 314,
 384, 407, 426, *et passim*
 Walker, 73, 104
 Walré de Bordea, 215, 239, 262, 277, 287
 Weber, 381
 Wenley, 95
 Whale, 167, 397
 White, 122
 Wicksell, 54-56, 144, 154-162, 278, 300-
 308, 311, 427
 Wieser, 81-87, 176-180, 243-245
 Williams, 217, 262, 266, 293, 382
 Willis, 94
 Wolf, 56

 Young, 293

 Zimmermann, 313, 321

INDEX OF SUBJECTS

- Abstract money, *see* Unit of money
- Balance of payments
 meaning of "unfavorable" balance, 220, 223, 238-239, 283
 behavior of German balance during inflation, 219, 224, 246, 250, 262, 283-287
- Balance of payments theory
 types, 204
 formulations, *see* "varieties," below
 adverse criticisms by opponents, 207, 216, 220, 225-226
 general appraisal, 268-269, 285-295
 truistic variety, 237-239
 independent variety, 239-248
 causal variety and its subdivisions, —
 veritable balance of payments theory, 248-256; a second variety, 291-292;
 direct action, 292-293
- Bank rate, as cost of production, regulator of quantity of credit, or capitalization factor (*see also* Savings, Trailing bank rate theory)
 with Wicksell, 156-157, 303-304;
 Keynes, 417-424; and others, 415-417
 conclusions, 417-425
- Bank reserves, their relation to the equation of exchange, 128
 quantity theory, 130, 140-141, 158-159
 precipitation of crises, 337, 343-344, 373
- Banking-school theory
 Hahn's attempted *rapprochement*, 166
 adherents in German literature, 178, 180-181, 371, 395-397
- Bimetallism, its significance for Knapp's theory, 17, 27-29, 31-32
- Capital movements, their significance for theories of foreign exchange rates, 205, 214-215, 217, 233, 265-268, 273-275, 284
- Cash balance approach to the quantity theory
 prevalence in Europe, 125-126
 utilized by Marschak, 150-153; Wicksell, 154-160; Helfferich, 160-162; Mises, 162-165; Hahn, 165-169; and Neisser, 169-175
 relation to transactions approach, 145-146, 191-194, 197-200
- Cash balances (*see also* Velocity)
 identity with total circulating money, 129, 153, 155, 163
 determinants of real size, 134, 150, 155, 157-158, 167, 169-175, 190-194, 197-200
 utility curve not a rectangular hyperbola, 160-161
 necessity of real value calculus, 67-68, 153, 155, 157, 160-163, 189-190
 process of bringing balances to equilibrium, 157-158, 191-194
 "balance reserves" and "operating funds," 169-175, 234-236
- Causation as a concept in monetary theory, 195, 233, 268-269, 294, 400-401
- Chartalism
 origin of the term, 4
 early theories, 7-9, 11
 formulation by Knapp, 13-38; and others, 38-41
 relation to nominalism, 34-35
 importance of the state denied by Mises, 78; and Diehl, 92
 money not always created by the state, 23-29
 appraisal of the doctrine, 37-38, 106-107
- Circuit flow or efficiency of money
 with Schumpeter, 130-137, 152-153
 relation to other types of velocity, 131, 135-136
 rejected, 137, 199
- Coefficient of money transactions, 348
- Coinage
 viewed as the origin of money, 7, 93, 97
 opposition to this view, 7, 8, 14, 38, 44

- Commodity theory of money (*see also* Supply and demand theory, Marginal utility theory, Metallism)
described, 4-6, 11-12
in early theory, 7, 10
types, 12, 59, 77, 92
rejected, 119-120
- Confidence, *see* Irredeemable paper money, Velocity
- Consumers' equation of exchange
adopted by Schumpeter, 126, 129;
Wieser, 176; and the income theorists, 180
adversely criticized, 126-127, 138-139, 187
- Cost of production theory of purchasing power, 99, 120
- Currency export and import under inflation (*see also* Flight of capital), 210, 213, 216, 225-226, 228, 247, 250, 251, 285-287
- Equation of exchange (*see also* Money, Velocity, Price indices, Trade)
relation to nominalism, 122
adequacy, — generally, 186-187; in inflation, 294-295
period and field included, 187
types, *see* Consumers' equation
- Exchange equilibrium theory
erroneously identified with the purchasing-power parity theory, 232-234
the doctrine defended, 269-276, 289-295
- Fiat theory of money value, 8, 11, 13-16, 106
- Flight of capital (*see also* Currency export and import), 210, 214-217, 247, 249, 285-287
- Functions of money, *see* Medium of exchange, Unit of money
- Gibson paradox, Wicksell's solution, 158; Keynes', 306-307
- Gresham's law and the chartal theory, 27-29
- "Historic back-reference"
with Knapp, 14, 16, 24-25, 30-32;
Hawtrey, 32; Nussbaum, 45-46; and Cassel, 53
significance, 56-57
- Hoarding and dishoarding (*see also* Cash balances, Velocity)
automatic, in Marxian theory, 100-103
hoards and the equation of exchange, 128, 157, 188
- Income theory
formulated by Schumpeter, 126-139; and Wieser, 176-180
appraisal, 184
- Inflation theory, its forms, 203
- Innovation
as a cause of cycles, 309, 317-326, 343, 349, 398-399, 402
and stabilization of prices, 412-414
- Integration, differentiation, and the velocity of money, *see* Velocity
- Interest rate and money, *see* Trailing bank rate theory, Savings, Cash balances
- Investment cycles (*see also* Savings)
in fixed and working capital categories, 308-316, 319, 420
- Irredeemable paper money
as "pure" money, 5, 13, 64
significance for Knapp's theory, 27, 32, 37
existence denied by Mises, 78-79; and Diehl, 92
its value and the "prospects of redemption," 92-93, 96-98, 222, 246, 254, 258-259, 288-289
- Labor cost theory of purchasing power, 99-103
- Lacking
induced lacking restricted to "balance reserves," 170, 363, 430
long and short lacking examined, 410-412
- Liquidity of commercial loans
denied by Machlup, 378-380
correctness of his view, 388-391
related to quantity of credit, 391
- Marginal utility theory applied to money
Mises' attempt to escape circularity, 77
abandonment of the doctrine by Wieser, 86-89
adverse criticisms by various writers, 48, 51, 55, 57, 61, 65
rejected when applied to money units, 81, 88-90, 119

- Medium of exchange**
 in the commodity theories, 5, 12, 61-62
 in the nominalist theories, 5, 44-55
 conclusions as to the medium of exchange function, 2
- Metallism**
 described, 4
 presentation of the theories, 91-103
 appraisal, 98, 99, 120-121, 288-289
 decline of the school, 91, 122
- Metaphysics of money, its importance, 1, 107-108, 114-120, 187**
- Monetary commodity**
 importance, denied by nominalists, 4, 5, 13, 45, 49, 50, 52, 54, 61; maintained by metallists, 77, 92, 93, 95, 97, 100
 nominalist view accepted, 75, 80-81, 121
- Monetary (credit) theories of cyclical variation**
 endogenous type with Mises, 335-336; and Machlup, 379-380, 391
 exogenous type with Wicksell, 302, 315; and others, 340-341, 343-344, 366
 real and monetary factors, 395-401
- Monetary standards (see also Neutral money, Stabilization of prices)**
 in the chartal theory, 27-34
 commodity and labor standards, — described, 359-362; relative merits, 431-433
- Money and its nature**
 types of theories, 1-12
 conclusions, 104-122
 definition by essential functions, 105; definition utilized, 128
- Money in the equation of exchange**
 Schumpeter's description, 127-128
 the criterion of *M*, 187-188
- Money substitutes in metallism, 5, 92, 94**
- Natural rate of interest**
 concept described by various writers, 300-301, 336, 368
 absence in static state according to Schumpeter, 317, 321
 practical usefulness of the concept, 305-308
- Neutral money**
 with Mises, 337-338; Hayek, 341-349; and others, 357-367
 critical remarks, 118, 349-356, 425-433
- Neutral rate of exchange**
 supplants *mint par* as equilibrium for metallic currencies, 118, 273
 in Pigou's exchange equilibrium doctrine, 269-276, 289-295
- Nominalism**
 described, 4-5
 in early theory, 7-11
 relation to chartalism, 34
 varieties, — orthodox, 5; idealistic, 42-44; materialistic, 44-58
 connection with the equation of exchange, 52, 122
 accepted, — here, 120-122; and by contemporary writers in England and America, 122
- Note issue and internal prices under inflation, 209, 216, 219, 227, 235-236, 246, 254-255, 276-279**
- Overinvestment as cause of crises**
 naive types of theory, 305, 403
 "distributional" variety rejected, 403, 404
 "technical" variety analyzed, 325-326, 404-412
- Period of production**
 in first sense, correlated with length of boom, 319-320, 322-325
 in second sense, over-extension through credit inflation, 336, 343-345, 366
- Person-turnover of money, 131, 135-136, 152-153**
- Price groups**
 consumers' and producers' good in the cycle, 303, 310, 319, 336, 343-355, 358-359, 366
 export, import, and internal prices under inflation, 203-206, 212, 216, 243-245, 251-252, 260, 264-268, 282-287
- Price indices**
 significance for Knapp, 17
 peculiar objection by the adherents to the "inner" value of money, 117-118
 specific indices necessary, 127, 187
- Productivity of bank credit**
 Wicksell's opinion, 304-305
 basis of division into schools, 315-316
 denied, by Mises, 337; Hayek, 342-345; and others, 357-374
 affirmed, by Cassel, 312-313; Schum-

- peter, 320-322; Hahn, 327-334; and others, 357-373
 appraisal, 330, 332-334, 425-431
 Purchasing power
 as the only value of money, 35-37, 49, 51, 54, 55; error of this view, 87, 118, 120
 objective character, 118 (*see also* Value of money)
 relation to other values of money, 108-113
 determination, *see* Tax-foundation, Labor cost, Cost of production, and Quantity theories
 Purchasing-power parity theory (*see also* Exchange equilibrium theory)
 types, 203
 absolute form of the doctrine, 207-208, 211, 264-265
 relative form of the doctrine, 208-209, 211, 265-268
 deviations of market rate from parity, 209, 210, 222, 228, 230-231
 development of the theory, by Cassel, 207-215; Mises, 215-217; Pohle, 218-220; Hahn, 220-224; Eucken, 224-230; and others, 217-218, 230-234
 conclusions, 212-213, 223, 229-230, 233, 264-268, 289-295
 Quantity theory causation
 defense, by Schumpeter, 137-138; Cassel, 147-148; Marschak, 149; Wicksell, 155-156; Mises, 162; Hahn, 166
 various qualifications, 137-144, 146-147, 154-155, 162-163
 under inflation, 258, 282, 289, 295
 relation to the "Trailing bank rate theory," 421-425
 opposition by German writers, 164-165, 176-185
 observations, 195-199
 Reciprocal demand, changes in international trade, 205, 233, 265-268, 273-275, 284
 Rectangular hyperbola concept of the demand for money, 63-66, 74, 160-161
 Savings (*see also* Trailing bank rate theory)
 relation to investment in the course of cycles, 299, 402-412; under static conditions, 345-348, 353-356, 369-370
 spontaneous variations not a cause of - cycles, 367-371, 373-374
 voluntary and forced savings in cycles, 304-305, 309-311, 318-319, 327-329, 331-332, 336-337, 343-345, 356, 358-359, 363-364, 366, 369-370, 372, 378, 391
 Schwarzeplettertheorie of velocity under inflation, 234-236, 278
 Short term loans, their danger to international markets, 391-394
 Shortage of money in inflation, 217, 223-224, 229, 279-282
 Social value of money, *see* Value of money
 Stabilization of prices
 adverse arguments, *see* Neutral money, Monetary standards
 defense by its proponents, 367-371
 the case considered, 425-433
 State theory of money, *see* Chartalism
 Stock exchange and the absorption of credit
 idea rejected by certain writers, 375-377, 381-382
 reasons for supposing the existence of the phenomenon, 382-386
 economic consequences, 378, 380-381, 386-388
 Stocks of commodities and their behavior in cycles, 304, 323-324, 368, 370-372, 407-408
 Supply and demand theory applied to money
 adversely criticized by German writers, 48, 51, 55, 57-58, 68, 85
 formulations, 59-62, 71-73
 four conceptions of the demand for money, 63-68
 reason for rejecting the device, 63-71, 73-76, 119-120
 Synthesizing theories of causation under inflation
 varieties, 206, 257
 the truly bilateral theory, 260-263
 confidence as the basic factor, 257-260, 283, 292-295
 Tax-foundation theory of purchasing power, 9, 11, 38-40

- Trade in the equation of exchange
 resolution into component parts, 188-189
 supposed effect on *V*, *see* Velocity of money
- Trailing bank rate theory
 with Wicksell, 155-156, 300-308;
 Cassel, 310-314; Schumpeter, 317-326; Hahn, 327-334; Mises, 335-338;
 Hayek, 339-348; and others, 357-373, 378
 appraisal, *see* Natural rate of interest, Monetary theories, Savings
- Transactions approach to the quantity theory
 prevalence in America, 125
 utilized by Schumpeter, 126-139; Cassel, 139-148; Marschak, 148-153
 relation to the cash balance approach, 145-146, 191-194, 197-200
- Unemployed factors, their rôle in business revival, 305, 308, 312, 328, 358, 366, 427-429
- Unit of money (*see also* Coinage, Medium of exchange, Monetary commodity) importance, — emphasized by materialistic nominalists, 45, 47, 49-50, 52-53; denied by others, 54, 60, 93 identified with money by Knapp's followers, 40-42; and the idealistic nominalists, 42-45 its actual importance, 56-57, 105, 121
- Validity of money
 with Knapp, 13-16; and others, 48
 connection with state action, 21-23, 29-34, 37
 examples outside state action, 23-29
 connection with the unit of value, 15
 basis in mass psychology, 45-46, 56, 106-107
- Value of money
 conflicting views of its character, 3, 4, 11
 various senses of the term, 63-64, 108-113
 "inner" or absolute value, — defended by the commodity theorists, 3-12, 71-75, 82-87, 92, 93; denied by others, 36, 48, 54, 55; here rejected, 72-76, 85, 90, 113-114
 subjective value, 63, 73-74, 82-87, 108, 116-117, 164
 social value, 63, 73-74, 109-111
 unspent margin value, 66, 74, 108-109
 purchasing power value, *see* Purchasing power
- Velocity of money
 sometimes defined to include credit, 144, 155, 160, 304; and other elements, 141-142, 144; these practices adversely criticized, 144-145, 156-157, 188
 sometimes related to changes in industrial integration, 130-134, 149-152; error of this view, 134-137, 152-153, 173-174, 197-199
 relation of velocity concepts, 131, 135-136, 152-153
 relation to cash balances, 145-146, 191-194, 197-300
 maximum or "ceiling" velocity, 168-169, 172, 224
 behavior in inflation, 222-224, 234-236, 278-282
 behavior in cycles, 305, 363-366, 371, 429-430

CHECKED
 2003-04

X61.55

41678

G7

Ellis (Howard S.)

German monetary theory

1905-1933.

Res.

Name of borrower

Lent on

Received

NOV 3

**SERVANTS OF INDIA SOCIETY'S LIBRARY
POONA 4.**

1. Books drawn from the library may not be retained for longer than a fortnight.
2. Borrowers will be held strictly responsible for any damage done to books while they are in their possession.