THE COLLECTED WORKS OF

F. A. Hayek

VOLUME V

GOOD MONEY, PART I
The New World
The Fatal Conceit: The Errors of Socialism (1988)
The Sensory Order and Other Essays
Good Money, Part I: The New World
Good Money, Part II: The Standard
The Demons of Science: On the Uses and Abuses of Reason
The Demons of Science: Economics and Knowledge
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The Constitution of Liberty
Philosophy, Politics, and Economics
Law, Legislation, and Liberty
Essays on Liberty
John Stuart Mill and Harriet Taylor: Their Friendship and Subsequent Marriage

The plan is provisional. Minor alterations may occur in titles of individual books, and several additional volumes may be added.
THE COLLECTED WORKS OF F. A. HAYEK

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The essays collected in *Good Money, Part I: The New World* include the earliest pieces written by F. A. Hayek on any economic subject, but notably on the still-unresolved controversies to which he made a significant contribution: on monetary theory and policy, trade cycles, and the theory of intertemporal equilibrium. The essays have lost none of their original interest; if anything, the resistance to fixed answers to the questions Hayek addresses—for example, what should determine the level of interest rates set by central bankers—leaves extensive portions of these essays as timely as tomorrow’s headlines in the financial press.

Published here for the first time is Hayek’s first essay on the subject, “Exchange Rate Stabilization or Price Stabilization?” Two other essays are published here for the first time in English translation, as is the complete text of his meticulous investigation into the formation of US monetary policy, “Monetary Policy in the United States after the Recovery from the Crisis of 1920”. A revised English translation of his most original contribution to the theory of economic equilibrium, “Intertemporal Price Equilibrium and Movements in the Value of Money”, leaves no doubt as to the importance of this work and the visit to the United States in 1923 which provoked it.

Looking back on this visit to the New World (as he referred to it), Hayek recalled that what was new and troubling about the debate over monetary policy was the displacement of gold from its central role in the control of bank reserves. “Until some sixty years ago”, Hayek recalled in 1981, “monetary policy simply meant securing a gold equivalent or silver equivalent of a particular money in circulation. My interest in monetary policy began when I found in the 1923 Annual Report of the US Federal Reserve Bank a statement which said that the control of the quantity of money could be used to assure the stabilization of economic activity. At that time, that was a new idea”. Hayek challenged this idea in his subsequent work. But the predicament in which the US Federal Reserve found itself at the end of the First World War was unprecedented; so much gold had found its way to the United States that postwar move-
ments in gold between the United States and the rest of the world were not large enough to affect gold reserve requirements for money and credit. (Keynes accused the Federal Reserve of “burying” its gold.) Thus the question, If the gold reserve ratio could not be used as a guide to interest rate policy, what should take its place?

To the present generation of economists, this may seem like a purely historical question. It is not. The displacement of gold during the First World War was a Humpty-Dumpty predicament which led to destructive nationalistic economic and trade policies in the 1930s. When the gold standard was abandoned, the world gave up not only the physical use of gold for measuring the relative value of separate currencies; the world lost the use of a standard for comparing the monetary value of everything. Without a common standard, central bankers of the world are left to pore over data without end, searching for some consistent link between the issuance of credit and what the recipients of that credit do with it to make things better or worse for everyone else, most urgently for their political servants or masters.

The New World and the Federal Reserve System were still in the process of inventing themselves when Hayek arrived for his first visit—changing “the rules of our own making”, as W. C. Mitchell characterized the process. The process was both promising and alarming: “constructivism” was the term which Hayek later used to describe this approach to institutional change. Is it possible, we may well ask along with Hayek, to have rules without standards? In the present disarray of the world’s currencies, with banks failing on almost every shore, this is not merely an academic question.

The essays collected in this volume are important for understanding the development of Hayek’s ideas. They are just as important for understanding the development of contemporary monetary policy.

The editor of this volume would like to express his great appreciation to Dr. Grete Heinz for her translations from the original German of most of the essays in this collection. To Alan Jarvis of Routledge, and Penelope Kaiserlian and Geoffrey J. Huck of the University of Chicago Press, my gratitude for their continuing enthusiasm for this project. I would like to thank Denis O’Brien for his careful reading and criticism of the text. Bruce Caldwell receives both my appreciation and my sympathy for his patient review and tactful help with both early and final versions of this volume. Without the resourceful effort of our research assistant Elisa Cooper and manuscript preparation by the assistant editor Gene Opton, this volume would not have materialized.
Finally, we would again like to express our gratitude for the financial support of the original sponsors, without which this project could not have been carried through.

*Stephen Kresge*

Big Sur, California
INTRODUCTION

One of F. A. Hayek's first discoveries in the New York Public Library in 1923 was that the war in which he had fought for Austria—the First World War—had been very different from the one reported in the censored Viennese press. Of the many delusions that led to that war, perhaps the most foolish was the assumption that it would be brief and that the vanquished would pay for it. The source of this delusion was the Franco-Prussian War of 1870, which had been quick and tidy, and the losing French had paid a sizable indemnity.

The delusion that the 'Great War' would not last long (had the European military leaders paid more attention to the Civil War in the United States they might not have been so eager to fight) meant that governments saw no reason to raise taxes, particularly if it meant upsetting labour parties that had vowed to resist any European war except, as it turned out, one against Czarist Russia.

Governments first drew upon their financial reserves, confiscating international assets of their citizens, shipping gold to neutral countries and borrowing abroad, particularly from the United States. When the United States market was closed to Germany and Austria, their governments raised money with domestic borrowing, providing reserves to banks to purchase bonds which were then sold to patriotic citizens.

Austria lost everything in the war; Vienna became a capital without an empire. The French were determined to make Germany pay reparations for the entire cost of the war; England as well wanted to pass the burden of its debt to the United States on to Germany; the United States refused to forgive any debt. The United States was the only country to remain on the gold standard; even neutral Sweden, fearing inflation from an influx of gold, abolished coinage privileges. At the end of the war there was no way to measure effectively the cost of all the conflicting financial claims; in effect, the world had moved from the gold standard to a dollar standard but with no recognition of what that meant.

The result was rampant inflation—hyperinflation in Germany and Austria which ruined the holders of bonds, particularly the class to which
GOOD MONEY, PART I

Hayek belonged—followed by a steep deflation, especially in the United States, which left commodity prices and costs of production in disarray throughout the world. ‘Stabilization’ became the elusive goal of both central bankers and economists.

Hayek later observed that “one of the first conclusions at which I remember I had arrived towards the end of 1923 was that stabilization of national price levels and stabilization of foreign exchange were conflicting aims. But before I could anywhere submit for publication the short article I had written on the subject, I found that [J. M.] Keynes had just stated the same contention in his Tract on Monetary Reform.”

Hayek had recognized a conflict in the need to stabilize both domestic price levels and foreign exchange rates. Most authorities believed that to stabilize one would more or less automatically stabilize the other. The degree of dependence on foreign trade would determine which variable should be dominant. But the emphasis on trade left out of account the weight of debts and the claims for reparations. The dislocations of war finance had created a high level of short-term borrowing financed by capital movements that were sensitive to currency and interest rate changes. While the real world economy recovered rapidly, albeit unevenly—indicators of production of most commodities were higher in 1928 than they were in 1914—the international financial structure remained shaky. Gold coins no longer circulated, and while the full return of the gold standard was a consummation devoutly to be wished, actual redemption of currencies for gold remained severely circumscribed except for the dollar.

The divergence of theory and practice in the 1920s and 1930s is a matter of more than passing interest. The conflict between domestic price levels and foreign exchange rates, which meant a disequilibrium between internal and external prices, having been observed by both Hayek and Keynes, was largely excluded from their controversy over monetary theory and trade cycles. And they were not the exceptions. Economists for the most part treated exchange rate problems only as cases of individual aberration caused by governmental intransigence or profligacy. But the difficulty of finding a determinant solution to the problem of achieving

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1An article by Hayek, “Exchange Rate Stabilization or Price Stabilization?” is translated and published here for the first time as an Addendum to chapter 1, this volume.

2Hayek on Hayek, Stephen Kresge and Leif Wenar, eds (Chicago: University of Chicago Press, and London: Routledge, 1994), p. 89. Hayek added that this disappointment did not lead to his later opposition to Keynes, as Keynes was then one of his heroes, as he was to many on the Continent because of his criticism of the peace settlement. See John Maynard Keynes, A Tract on Monetary Reform [1923], reprinted as vol. 4 of The Collected Writings of John Maynard Keynes (Cambridge: Macmillan for the Royal Economic Society, 1971).

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both stable domestic prices and foreign exchange rates, without resorting to limits on trade, comes from the inconvenient fact that capital transfers between economies can only be made through the transfer of real goods and services. This was the obstacle to the payment of reparations and debt after the war. Germany would be forced to export real goods; England and France were not prepared to accept imports at the expense of their own industries.

Currencies do not travel, they do not cross borders. Taxes paid in German marks could not be converted to British pounds without driving up the value of the pound, a conversion to which there were definite limits. Indeed, while other controversies of this period such as theories of the trade cycle have receded to the periphery of economic investigations, problems of reconciling internal price levels with external exchange rates have remained very much at the center of the choices facing central bankers. “[W]hen capital is free to move internationally, governments have to choose between an exchange-rate policy or an independent monetary policy; they cannot have both”.

In retrospect it is curious that the conflict did not occupy the center of attention of economists, since it was clear that what was at stake following the costly end of the war was the wealth of nations. A new virulent strain of nationalism threatened the old empires and their established links of trade and finance. Nationalism revived mercantilism which exposed the tenuous hold that economic principles had on bankers and politicians. In the event economic theory had little to offer beyond the first formulation of the mechanism of the gold (or silver) standard made by David Hume in 1752. This model, which came to be known as the “price-specie flow model”, assumed that coins of a common metal circulated in different countries which traded goods. The model also assumed free coinage so that coins received in payment in one country could be melted down and the metal shipped to another to be coined into that currency. This mechanism made possible a self-correcting process to balance trade: the

“Capital holds a unique position in one respect: It can move from one region to another only in the form of goods or services”. Bertil Ohlin, *Interregional and International Trade* (Cambridge, Mass.: Harvard University Press, 1953), p. 180.

“So sayeth The Economist, October 7, 1995, “Survey, the World Economy”, p. 10. Since the end of the First World War, US policy has consistently placed domestic concerns above exchange rate stability. As the World Economic Conference was informed in 1933, “We [the US delegation] are interested in American commodity prices. What is to be the value of the dollar in terms of foreign currencies is not and cannot be our immediate concern”. Quoted in Barry Eichengreen, *Golden Fetters, The Gold Standard and the Great Depression, 1919–1939* (New York and Oxford: Oxford University Press, 1992), p. 333. As the dollar became the dominant reserve currency for the world, this policy was certain to lead to difficulties.
increase or decrease of money led to price changes which attracted either imports or exports. In fact, the actual workings of international trade and finance were always more complex than the model suggests and governments always more devious in protecting national interests. Indeed, had the model worked with anything near its conceptual simplicity, England would have remained on a silver standard.

Hayek began his investigations of monetary effects with two firm beliefs: that an international gold standard (even with all its imperfections) was necessary, and that it would function essentially as Hume had described it. It was the self-correcting characteristic of the price-specie flow model that Hayek prized. He extended the self-correcting or self-reversing characteristic to all purely monetary phenomena and although he later revised or even abandoned many of his hypotheses—including his belief in the gold standard—the idea that all purely monetary effects in an economy are self-reversing remained with him to the end.

Hayek's decision to visit the United States in 1923 was prompted in part by a promise of employment he received from Professor Jeremiah W. Jenks of New York University, whom he had met when Jenks was in Europe to serve on a commission to advise the German government on budgetary difficulties. (Another member of the commission was John Maynard Keynes.) The work as a research assistant to Jenks left Hayek


6Hume assumed that "money is not, properly speaking, one of the subjects of commerce; but only the instrument which men have agreed upon to facilitate the exchange of one commodity for another". But silver and gold are traded as commodities; the overriding fact of England's trade with the Far East was the drain of silver whence it was largely hoarded. Hume observed this vexing predicament: "The skill and ingenuity of Europe in general surpasses perhaps that of China, with regard to manual arts and manufactures; yet are we never able to trade thither without great disadvantage. And were it not for the continual recruits, which we receive from America, money would soon sink in Europe and rise in China, till it came nearly to a level in both places". England replaced silver with gold and developed a system of banking and credit that would economize on the use of gold. Later controversies in monetary theory largely stemmed from the uncertain connection of credit to specie and its effect on prices and trade balances. Hayek addressed a number of the implications of this evolving controversy in the essays collected in Good Money, Part II: The Standard. (The first quotation from Hume is the first sentence of his celebrated essay, "Of Money" [1752]; the second is from "Of the Balance of Trade" [1752]. See David Hume, Essays, Eugene F. Miller, ed. (Indianapolis, Ind.: LibertyClassics, 1985), p. 281 and p. 313. —Ed.)
enough time to pursue his own studies. He registered at New York University for work towards a PhD (it would have been his third) in monetary theory and policy. The title of the thesis—never completed—was, “Is the function of money consistent with an artificial stabilization of its purchasing power?”

The subject matter was a complete departure from his preparatory studies at the University of Vienna, where the subject of the thesis for his second doctorate degree was the theory of Zurechnung, the imputation of value. His approach to economics was firmly rooted in the Austrian tradition of the subjective theory of value and marginal utility, where the value of any good was derived from the necessarily subjective demand of individuals. But, as Hayek wrote in an essay published in 1926, “The doctrine of marginal utility makes it possible to equate the subjective value of economic goods with a certain level of utility yielded by them if the good yields this utility directly and in isolation. . . . However, this principle is not immediately applicable to those goods which cannot by themselves satisfy certain needs and wants but which are able to do so only in combination with other economic goods. . . . [T]he problem of the derivation of the value of the individual producer goods from the jointly produced level of utility has entered into the economic literature under the name of Zurechnung (in English, imputation). . . .” And, not to underestimate the difficulty, Hayek announces, “Consequently, the whole of economic theory rests on the explanation of the value of producer goods and thus on the theory of imputation”. It is not then surprising that Hayek consistently finds the consequences of monetary imbalances in adverse changes in the relative prices of producer and consumer goods.

In this tradition the function of money remained problematical, since money must only serve as a proxy for the values of real goods that were the object of individual economic exchanges; thus the value of money as money was ambiguous since it was unclear how a standard of value would be maintained. Fluctuations in the supply of money could only muddy the pure stream from which the marginally preferable was sieved from the marginally inferior. Money was fool’s gold. An artificial stabilization of money’s purchasing power might reward the fool and punish the prudent.

Hayek brought to the stabilization debate the methodological impera-

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tives of the theory of subjective value and marginal utility. He also brought with him to America introductions provided by Joseph Schumpeter to many of the leading economists. The ideas of Austrian economists were not unknown in America; Schumpeter had lectured at Harvard in 1913 and John Bates Clark had engaged in controversy with Eugen Böhm-Bawerk over capital theory. (Hayek was privileged to read the last paper in Clark’s last seminar.)

For their part, the Austrians knew the work of some of the American economists, most notably Irving Fisher, whose revival and extension of the quantity theory of money was at the core of the debate over stabilization. But the one man whom Hayek had not heard of until he was given a letter of introduction to him was Wesley Clair Mitchell. A somewhat perplexed Hayek observed that Mitchell, whose path-breaking work on business cycles had been published in 1913, was the center of attention of most of the younger economists. They were drawn by the research possibilities opened up by Mitchell’s statistical work which made empirical observations of economic activity comparable over varying time periods.

By 1926 Schumpeter observed that among these young economists a new *Methodenstreit* was brewing. "Change the relative emphasis put upon statistical and historical materials in this picture", Schumpeter summed up, "and we have, even to details, the position that Schmoller held throughout his life". Mitchell did not agree. His argument rested on the obser-

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1 For a full account of Schumpeter and of his elegant letters of introduction, as well as Hayek’s obituary note on John Bates Clark, see *The Fortunes of Liberalism* (1992), ed. Peter G. Klein, being vol. 4 of *The Collected Works of F. A. Hayek*, op. cit.

2 Wesley Clair Mitchell (1874–1948), whose *Business Cycles* (Berkeley: University of California Press, 1913) was considered by many to be the most influential work of its time on economic thinking, was one of the founders of the National Bureau of Economic Research, where in 1920, in addition to teaching at Columbia University, he assumed the position of Director of Research, which he held until 1945.

3 Quoted by Mitchell in W. C. Mitchell, "The Present Status and Future Prospects of Quantitative Economics", Round Table discussion at American Economic Association meeting, December 1927. Reprinted in W. C. Mitchell, *The Backward Art of Spending Money* (New York and London: McGraw-Hill, 1957), pp. 37–38. Gustav von Schmoller (1838–1917), Professor at the Universities of Halle, Strasbourg, and Berlin, was the leader of the German ‘younger historical school’ with whom Carl Menger (1840–1921), the founder of the school of Austrian economics, engaged in heated controversy about the methodology of economic theories. Of the German school Hayek wrote, "Through the study of historical development it hoped to arrive at the laws of development of social wholes, from which, in turn, could be deduced the historical necessities governing each phase of this development. This was the sort of positivist-empiricist approach which was later adopted by American institutionalists (differing from similar more recent efforts only in that it made little use of statistical..."
vation that there was more uncertainty in economic behaviour than 'qualitative' theories—neo-classical theories relying on concepts of marginal utility and equilibrium—could account for. "Our qualitative theory has followed the logic of Newtonian mechanics; our quantitative work rests on statistical conceptions. . . . The mechanical view involved the notions of sameness, of certainty, of invariant laws; the statistical view involves the notions of variety, of probability, of approximations. . . . Hence, we must put our ultimate trust in observation. And as fast as we can raise our observations to a scientific level we must drop the cruder, yet not wholly valueless, approximations attained by the mechanical type of work".11

Hayek attended many of Mitchell's lectures, primarily on the history of economics, at Columbia University. When he returned to Vienna he used his newly acquired knowledge of time series to establish, with the help of Ludwig von Mises, the Österreichisches Institut für Konjunkturforschung (the Austrian Institute for Business Cycle Research), which earned him a mention in Mitchell's 1927 opus.12 Still, Hayek was not convinced of the value of Mitchell's methods. In 1926 he wrote to Mitchell about the new direction of his work:

The other thing that I take the liberty to ask from you [after politely requesting the return of a book by Wieser13] is whether you could help me in some way to get—at least for some time—a copy of your article on "The Role of Money in Economic Theory". The wartime issues of all

13Friedrich von Wieser (1851–1926), who is credited with bringing the term "marginal utility" and the concept of opportunity cost to the Austrian theory of subjective value, was Hayek's teacher at the University of Vienna. For Hayek's appreciation of Wieser, see chapter 3 of The Fortunes of Liberalism, op. cit. Mitchell published a sympathetic review of Wieser's Theorie der Gesellschaftliche Wirtschaft in 1915 (reprinted in The Backward Art of Spending Money, op. cit.) and also wrote a preface, for which Hayek provided some assistance, to the English translation, Social Economics, trans. A. Ford Hinrichs (New York: Greenberg, 1927, and London: Allen & Unwin, 1928).
American periodicals are yet missing in our libraries and a request to the AEA has remained without answer.

I need this article of yours in connection with my present work which shall embody some of the slowly ripening fruits of my sojourn in the United States. It is only now that I feel how much I have really learnt during that year. While my theoretical predilections have remained unchanged, I realize now the weak points of abstract economic theory which seem to most of you to make the pure theory more or less useless for the explanation of the more complex phenomena of the money economy. It seems to me now as if pure theory had actually neglected in a shameful way the essential differences between a barter economy and a money economy and that especially the existing theory of distribution needs a thorough overhauling as soon as we drop the assumption of barter and pay sufficient regard to time. I hope however to be on the way to supply some of the missing links between orthodox economic theory and one applicable to the explanation of the processes of modern economic life. If my memory is correct, you have already pointed out some of the discrepancies in your article mentioned above which I read when in New York. Since then I have studied with the greatest interest Foster and Catchings's *Money*, who certainly deserve credit for insisting in their admirable book on this point.  

It is not too extreme to say that the encounter with Wesley Clair Mitchell shaped the direction of much of Hayek’s later work. An inductive methodology allowed Mitchell to reintroduce historical processes and institutional constraints into economic relationships to show that individual behaviour was as much determined by institutional effects as vice versa. In attempting to counter the generalizations of statistical inference, Hayek realized that “complex phenomena” (which makes its appearance in the above quoted letter) was not just a descriptive term but the locus of the problems which characterized the social sciences.

**Discrediting Stabilization**

Hayek surveyed some of the more important writing in the stabilization effort in an omnibus review for an Austrian audience which is now translated for the first time in chapter one of this volume. The debate had begun with Irving Fisher’s proposal for a “compensated dollar”, first pre-

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sented in 1911. Fisher's argument rested on the contention that the dollar was fixed by weight and not by purchasing power and that what was desirable for the economy was a fixed measure of value in terms of purchasing power.

Prices in the United States had suffered a long decline from the end of the Civil War until 1896; prices then rose—following a new surge of gold production—until 1914. The war brought more inflation, the recession of 1920 brought deflation. Much of the controversy centered on what was responsible for the fluctuations in prices. Fisher provided empirical evidence for the quantity theory of money by constructing indices which demonstrated that only changes in the quantity of money could account for fluctuations in the general price level. Prices of individual commodities might fluctuate in response to changes in supply and demand, but changes that affected all commodities at once could come only from changes in the supply of money.

The success of Fisher's demonstration depended on surmounting the logical limitations of the quantity theory of money, of which more below, and on the reliability of his indices. His objective was to stabilize the purchasing power of the dollar, which meant attempting to maintain some sort of constant value for money over time. But the only truly constant value of money as measured in exchange for any commodity or service would require unchanged prices for each commodity. An index is only a means of comparing an average of selected prices obtained at one instant with an average of the same selection of prices at another instant of time. The question is, how might such a comparison be used to regulate the supply of money? The justification for its use is entirely practical. There are no theoretical grounds for any of the choices which have to be made in order to reduce the myriad of transactions which take place over time to a fixed number of prices obtainable at any one time. Fisher and Mitchell could not agree, for example, on the selection of formulas. Fisher rejected Mitchell's claim that the purpose "to which an index number is put" would influence the choice of the formula used to compute the number, arguing that a good formula "which will not be freakish" is good for any purpose. But part of Mitchell's concern was that the choice of a formula should not merely displace the problem of finding a standard


for measuring the value of money to a choice of base periods and the weighting of components.18

Given that there are no logical or empirical tests for the selection of items in any index, any given index must reflect an institutional bias which may favor some producers or consumers over others. Fisher proposed, on little more than an ad hoc basis, annual changes in the components and their weighting, thus weakening the claim that indices could measure changes in the value of money over time. The problem continues unresolved into the present.19 Milton Friedman has noted, in another context, "the impossibility of a complete solution of the index-number problem".20

In the interwar period, the choice of a base period for stabilization was particularly contentious and in the end was left undetermined. Agricultural producers wanted prices to return to 1913 levels, and the British were at loggerheads over whether the pound-dollar parity should be returned to its prewar value.

Hayek reviewed Fisher’s—and Mitchell’s—proposals for the usefulness of index numbers in the omnibus review in chapter one of this volume. He was clearly impressed by Fisher’s technical achievement and did not on this occasion express the reservations about the use of averages and aggregates in economic theory that would become prominent in his later thinking. Those reservations had less to do with the continuing degree of bias in the construction of any index and more to do with the conclusions that might be drawn about individual behavior from statistical averages. For as Mitchell observed, “More important still was the discovery by statis-
ticians that social phenomena of most kinds, though seeming to result from the uncontrolled choice of individuals, yet reveal a striking regularity when studied in large numbers."21 Were this to prove correct in a way that made future behaviour predictable, the institutionalists would have a powerful weapon to use in their Methodenstreit.

Fisher, having disposed at least to his own satisfaction of all objections to his price index, advanced a specific proposal to stabilize the value of money. His specific proposal was to replace gold dollars of a fixed weight with certificates representing gold dollars that would be redeemed by the United States Treasury with amounts of gold that varied with changes in the price index. Some difficulties were immediately apparent: Fisher did not pretend to know just how much the gold in each dollar would have to vary to bring the price index back to ‘par’. The adjustment would have to be made by trial and error. That raised the spectre of speculation. To prevent that, Fisher would charge a fee called “brassage” to depositors of gold, and no single change in the dollar’s weight would exceed that fee. But would not such a fee limit the usefulness of the varying gold content on the price index? Keynes criticized the proposal for placing the burden of change on the exchange rate.22 And overall there was the concern that because the system operated with long lags it would be useless in times of rapid changes.

More troubling was the revelation of how the scheme was to be paid for. As Fisher owned up in a footnote: “It will be noted that, if gold is depreciating, the value of the gold reserve diminishes and taxation (or other financing) is required to keep it up to 100 per cent. . . . It taxes the public to provide for the depreciation. . . . Under our present system the loss falls on the individual holder of gold certificates. . . . The same principle applies to the opposite case. . . .”23

This admission by Fisher that the taxpayer would have to assume the cost, or realize any benefit, from changes in the price level driven by external events betrays an uncertainty about the use of gold in the international financial system. Gold was relied upon to perform two functions which were not always compatible, and therein lay the difficulty. Having currencies fixed by weight of gold provided a common standard for exchange, but the actual transfer of gold was used as the final balancing

21Wesley C. Mitchell, ibid., p. 11.
22"In particular, the proposals of Professor Irving Fisher for a compensated dollar amounted, unless all countries adopted the same plan, to putting into practice a preference for stability of internal price level over stability of external exchange”. J. M. Keynes, A Tract on Monetary Reform, op. cit., p. 126. Of course, if all countries did adopt the same plan, it would mean the equivalent of floating exchange rates.
item of international payments, thus affecting reserve positions of central banks and through this reserve the availability of credit. Any attempt to alter either function of gold, as Fisher proposed, would shift international capital transfers to other commodities and revive arbitrage and speculation. This in turn would render the use of a general price index based on a “composite commodity” unreliable as a guide to stabilization.

The germ of what would be Hayek’s continuing criticism of the use of the quantity theory of money appeared in his review of Fisher’s proposal and in the outline of his proposed thesis on stabilization. The key question which appears both in the outline and his review is: “Are not sometimes changes in the price level necessary to re-establish the equilibrium between demand and supply?” And in the review Hayek also wondered, “Should the aim not be, instead, to have the share of the social product assigned to each entity of the money in circulation vary in line with the expansion or contraction of the social product?”

This question reveals that Hayek was not prepared to separate value theory from monetary theory, certainly not with an ad hoc proposal that relied on indices.

There were logical difficulties with the quantity theory as well. Although Mitchell and Fisher were methodological mates, Mitchell found the tautological character of the quantity theory less than informative:

Time, then, is of the utmost consequence in considering the relations between prices and ‘the quantity of money’. Relations which hold in long periods do not hold in short ones. . . . Nor is the present discussion inconsistent with the celebrated theorem: ‘Other things being equal, prices vary directly as the quantity of money in circulation.’ That theory is formally valid. Equally valid are a number of other theorems similar in form: for example, ‘Other things being equal, the quantity of the circulating medium varies directly as prices.’ ‘Other things being equal, the quantity of the circulating medium varies directly as the physical volume of trade.’ Any of these propositions can be developed into an adequate theory of the ‘relations between money and prices’ by analyzing the ‘other things’ which are supposed to remain equal. Yet it is an awkward way of working to start with a proposition which suggests so limited a view of the problem, and it is misleading to end with a proposition which contains so limited a version of the truth. The orthodox formulation of the quantity theory owes its prominence to the fact that economists have given most attention to the long-period relations between gold-supply and prices at wholesale. For that particular problem, the proposition ‘other things being equal, prices vary directly as the quantity of money

24See chapter I, this volume, p. 43. The outline for the thesis Hayek began at New York University in 1923 but never completed may be found in the Hayek papers at the Hoover Institution Archives, Stanford University.
in circulation' is both valid and important. But for the periods with which the theory of business cycles is concerned, we need a far more discriminating statement of the relations among prices, the physical volume of trade, the quantity and the velocity of the circulating medium—a statement which takes into account changes in these relations produced by depression, revival, prosperity, and recession.25

In short, the trade cycle was to be moved to the center of concern.

At this point it would not be inappropriate to wonder just how it came about that monetary theory became intertwined with the notion of trade cycles. The historical concern over money was with distributional effects, the gain or loss to debtors and creditors from inflation and deflation. Prices rose and fell, but there had been no agreement that fluctuations occurred with the regularity of a cycle. Central banks were obliged only to secure a banking system that could sustain commerce and provide a market for government debt. As Hayek later recalled, "Until some sixty years ago, monetary policy simply meant securing a gold equivalent or silver equivalent of a particular money in circulation. My interest in monetary policy began when I found in the 1923 Annual Report of the US Federal Reserve Bank a statement which said that the control of the quantity of money could be used to assure the stabilization of economic activity. At that time, that was a new idea. It is only over the last sixty years that money has come to be regarded as one of the prime instruments of economic policy in general and a useful way by which political authority could contribute to prosperity".26

The idea did not originate with the central bankers. Even more peculiar was the thought that the bankers would entertain such a prospect. Although some economists may have argued for modifications to the apparatus of the gold standard, in 1923 no one seriously expected that the standard itself would be abandoned. Only the timing of its return and the parities of the individual currencies were uncertain.

Equally peculiar is the lack of concern on the part of the stabilization advocates for the distributional effects of their proposals. Fisher acknowledged that US taxpayers would be at risk for any losses to the Treasury from the costs of his 'compensated' dollar. But that this might affect the Treasury's borrowing requirement—and thus interest rates—or that poli-

26F. A. Hayek, "The Future Unit of Value" [1981], now reprinted in Good Money, Part II, being vol. 6 of The Collected Works of F. A. Hayek. The statement is not actually in the report but was inferred by some observers, notably J. R. Commons. See chapter 2, this volume, p. 126.
The return of a universal gold standard would once again place money beyond the control of individual central banks. At that point, central bankers would once again have to choose between domestic monetary policy and the stability of the foreign exchange rate. It was the political inability to make that choice that led to the debacle of the 1930s. In his article "The Fate of the Gold Standard", which appears as chapter 3, this volume, Hayek accused Keynes of the primary responsibility for the belief that the choice could be evaded. However, it was not only Keynes, but the whole of the economic literature devoted to the concept of the trade cycle that encouraged the belief that somehow or other the cycle could be minimized through monetary policy.

The business cycle had come to the fore of economists' investigations largely through the efforts of W. C. Mitchell. That there were fluctuations in business activity was undeniable; that these fluctuations sometimes resulted in financial crises was also undeniable; but that these fluctuations constituted a recurring cycle was not, and is not, undeniable.27 The concept of a cycle requires a high degree of regularity; that, in turn, raises the troubling question of inevitability. Was there some sort of natural event—like sunspots—whose regular occurrence drove the economic cycle?28 Sunspots and other weather-related phenomena, because of effects on agricultural production, had been identified as possible causes of trade cycles since the nineteenth century, notably in the work of W. S. Jevons. Or was it that people regularly made the same mistakes which led to boom and bust?

Financial panics and business crises had been a prominent feature of European economics since the eighteenth century and earlier. But the theory that a succession of periods of prosperity followed by crises and de-

27 As Hayek points out, "Perceptive observations about the alternation of periods of prosperity and stagnation had already been made nearly a hundred years ago to proponents of the 'currency school'; but it was only in the last decade that economists, especially in English-speaking countries, shifted their focus from isolated recession phenomena to these fluctuations". See this volume, chapter 2, page 101.

28 Hayek's review of a contemporary thesis, H. L. Moore's Generating Economic Cycles, appears in chapter 1, this volume. Moore was one of the first economists to appreciate the general equilibrium theory of Leon Walras and he set himself the task of producing inductive verification of that theory. Ironically, his statistical studies produced a theory of cycles, not equilibrium, based on the rise and fall of agricultural production which he traced to changes in rainfall caused by sunspots. It is a lesson in the difficulty of introducing causality into the equations of exchange. On Moore's life and work see George J. Stigler, "Henry L. Moore and Statistical Economics", Essays in the History of Economics (Chicago and London: The University of Chicago Press, 1963).
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pression constituted a recurring cycle did not receive much attention un­
til late in the nineteenth century, and then, as Mitchell points out, it was
forced into prominence by men who were largely critics of the orthodox
economics which had been shaped by Smith, Ricardo, Mill, and Marshall.
The first writer to whom Mitchell gives credit for addressing the cycle in
what was to become its recognized form was J. C. L. Simonde de Sismondi,
who put forth several suggestions to explain the phenomenon, one of
which was that commercial organization was somehow at fault. “The busi­
ness man, as Sismondi phrases it, caters to a ‘metaphysical public’—cus­
tomers whose numbers, tastes, consumption, and purchasing power are
all unknown to him, and all variable. The only guide he has in planning
how much to produce is prices. By comparing present prices with costs,
he decides whether to increase or restrict his output in the near future.
‘Unfortunately this comparison is made by all the producers at the same
time . . . and all of them together, ignorant of how much their competitors
will undertake, nearly always exceed the limit which they had in view” .29

Fisher challenged the concept of a cycle: “I see no more reason to be­
lieve in ‘the’ business cycle. It is simply fluctuations about its own mean.
And yet the cycle idea is supposed to have more content than mere vari­
ability. It implies a regular succession of similar fluctuations, constituting
some sort of recurrence, so that, as in the case of the phases of the moon,
the tides of the sea, wave motion, or pendulum swing, we can forecast
the future on the basis of a pattern worked out from past experience, and
which we have reason to think will be copied in the future. We certainly
cannot do that in predicting the weather, or Monte Carlo luck. Can we
do so as to business? Not so long as business is dominated by changes in
the price level!”30

Mitchell responded with a defence of his statistical methodology that
conceded more than it gained. The time series which he relied upon to
demonstrate the cyclical nature of business fluctuation s could not provide
empirical evidence that similar causes were at work in all cases.31 Without

quotes from J. C. L. Simonde de Sismondi, Nouveaux Principes d’Economic Politique [1819],
31The use of indices, particularly of average price and production levels, provides no
explanation for any rate of change from one level to another. Mitchell was aware of the
difficulties. “Economic theorists, like economic statisticians, have been prone to argue from
chronological priority to causal relationships, without intensive analysis of the way in which
the causal influence is exerted. To illustrate the danger of drawing hasty conclusions: A
decline in one activity generally precedes, and so seems to cause, a decline in a second
activity; but changes in the volume of the first activity may be controlled by changes in the
rate of growth in the second. In that case, throwing the second time series into the form of
first derivatives will show that changes in its rate of growth regularly precede the changes
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this evidence, one could not be sure that the observed fluctuations were not each one a unique event—here a crop failure, there an insurrection; here the discovery of gold mines, there a bank failure. Mitchell's investigations rested on ad hoc assumptions—largely about institutions—which resisted critical scrutiny from a coherent theory. In this his work is very much in the tradition of the German historical school. “We must be ready”, he pleaded, “to consider concrete events such as historians treat; but we must array them in groups after the fashion of statisticians, and interpret them in the light of what we know about economic behaviour, after the fashion of economic theorists. Similarly, we must be ready to apply the mathematical technique of statisticians; but we must guide our statistical investigations by rational hypotheses, and eke out our statistical investigations by recourse to historical records. So, too, while we must be ready on occasion to analyze imaginary cases with the theorists, these cases should be arranged whenever possible with an eye upon the historical and statistical data by which speculative conclusions may be tested”. 32

The case for trade cycles remained unproven, yet the possibility of an alternate explanation of fluctuation is observable even in Mitchell's own work. Mitchell observed that fluctuations spread from one community to another and from one country to another—but not always, and rarely with the same intensity. This observation ought to have led to an investigation of the means by which fluctuations are transmitted and to the hypothesis that the means might itself be the cause of fluctuations. Instead, Mitchell was content to suggest a parallel development in separate economies. “Whatever the causes of the recurrent fluctuations in economic activity may be, the annals suggest that these causes become active in all communities where there has developed an economic organization approximating that of Western Europe. There appears to be a rough parallelism between the stage attained in the evolution of this organization by different countries, and the prominence of business cycles as a factor in their fortunes”. 33 A “rough parallelism” is in fact all that Mitchell's inductive methodology would ever discover. Without an understanding of the transmission of economic effects from one community to another, central bankers and monetary policy makers could well end up behaving like the leaders of a cargo cult. 34

observed in the first series, and reverse the inference concerning cause and effect. No feature of business cycles presents more misleading cues than does the apparent chronological order among the cyclical fluctuations of different processes, and no other feature requires from the investigator a finer blend of theoretical insight with statistical skill”. Ibid., p. 289.

32Ibid., p. 470.

33Ibid., p. 446.

34The cargo cults were apocalyptic millennial religious movements of Melanesia that appeared following the two world wars; the millennium would arrive with cargo from ships.
Designing a Credible Monetary Policy

Mitchell had criticized Fisher’s use of the quantity theory and Fisher had challenged Mitchell’s concept of the trade cycle. Yet the Federal Reserve Board was expected to navigate with the assumption that the effects of their decisions would conform to both. The Annual Report of the Federal Reserve Board for 1923 acknowledged that the Board had departed from traditional discount policy governed by the level of the gold reserve to attempt to manage the money supply with respect to changes in business activity. Hayek’s extended review of the 1923 report and the controversy it provoked appears as chapter two of this volume, translated in full for the first time. The review was written to acquaint an Austrian and German audience with the new departure in banking and monetary policy taking place in the United States. It was intended to be the centerpiece of a larger work on the Federal Reserve system. The description in the report of how the US economy actually responded to changes in monetary policy stimulated Hayek’s theoretical investigations into the interaction of interest rates, prices, and production. It should have been read in the context of the essays in the history of monetary theory which were begun during the same period.35

Much of the world’s gold had found its way to the United States during and after the war for two reasons, neither of which had been factors in the international movement of gold since the end of the Napoleonic wars. The first was to pay for the means of waging war. The second reason was to obtain dollar credits; the United States was the only country prepared to accept gold at par for dollars throughout the war.

This predicament exposed the Achilles’s heel of the gold standard: Gold was not money. To become money, gold needed to be coined at a fixed weight per unit. However much it was regarded as a ‘store of value’, and though it might be used as the common measure—by weight—of the value of coins, it was still not money. Whatever money was—and dollars, pounds, and kronen might all be money, but they were not interchangeable—it was in the control of governments. Capital might move in the airplanes, or sometimes just washed up on the beach. Faith in the arrival of the cargo was demanded “and in many cases it is held to show sinful disbelief in the coming to work or cultivate or even to continue to hold stocks of food. Therefore the movement often is accompanied by a rapid squandering, or even deliberate destruction, of stocks of food, goods, and money to demonstrate faith in, and to prepare for, the millennium”. See I. C. Jarvie, The Revolution in Anthropology (London: Routledge & Kegan Paul, 1964), p. 58. It will not escape notice that the cargo cult is the antithesis of the Protestant ethic which Max Weber found at the heart of capitalism.

35Unfortunately these were not published until their translation for The Collected Works of F. A. Hayek. See The Trend of Economic Thinking, op. cit., Part 3.
form of gold, but it still needed to be exchanged for money. It was a lesson the United States had learned well before their independence from England but had apparently forgotten sometime between the panic of 1907 and the establishment of the Federal Reserve system in 1913.

It was an anomalous historical development that the United States, a country which had been mostly ambivalent and at times actively hostile to gold, should end up with the lion’s share of the world’s monetary gold. The currency in use when the Europeans arrived in North America was wampum. Later, in Virginia, tobacco was used for money. After the Dutch made an adventitious trade of wampum for the real estate later to be called New York, coins of all sorts began to circulate in the colonies. The move towards autonomy was forced on the colonies when Charles II in 1652 forbade the establishment of a mint in Massachusetts. Forced to rely on local resources, the colonists began to appropriate Spanish gold, as the English had before them. In thus insisting on a monopoly that was a royal prerogative—there is a lesson here—Charles forced the colonies onto a dollar currency, the beginning of a separation the consequences of which need not be elaborated.

From the beginning there was never enough money to meet the demand. Most of the difficulties in the US banking system came from the seasonal nature of the financing for agricultural and other commodities. Local banks could not afford to keep idle the reserves necessary to handle the seasonal shifts from loans to deposits and cash. Thus by the end of the nineteenth century the US banking system found its liquidity largely in the New York call money market, where local bank reserves could earn interest. Periodic tightness in this market led to repeated demands for an ‘elastic’ currency that could meet the seasonal demands of trade, preventing the ruin that filled so much nineteenth-century literature.

The rapid growth of the US economy combined with an inefficient distribution of gold meant that the United States was commanding an ever-increasing percentage of the world’s gold reserves. London had been hard pressed to find the gold to relieve the panic of 1907 in the United

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36“Another grievance [in the American colonies] was the near-critical shortage of currency: England was constantly besieged with complaints on this score from her American colonies. No steps were taken to remedy the situation: The mother-country intended to maintain a positive trade balance with the colonies and therefore to extract currency from them, not to dispatch it to them”. Fernand Braudel, The Perspective of the World, vol. 3, Civilization and Capitalism 15th–18th Century, trans. Sian Reynolds (New York: Harper, 1984), p. 401.

37“[I]t was the market for short-term loans on securities, the call money market, that served as the central reservoir for credit, not the discount market, which predominated in Europe. It was the call money market in which changes in supply and demand initially worked themselves out and which the various segments of the credit market used for inter-communication”. F. A. Hayek, this volume, chapter 2, p. 149.
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States. This brush with disaster provided the motivation for the reform of 1913–14 which established the Federal Reserve system.

The structure of the Federal Reserve system was an uneasy compromise: District banks with the power to set individual discount rates were established to prevent New York (and London) from dictating rates; hard-money advocates were pacified with regulations that required a minimum percentage of gold ‘cover’ for the issuance of notes. Thus responsibility for liquidity of the monetary reserve was both dispersed and restricted, a tension that was to prove calamitous in 1932-33. 38

With a more efficient use of reserves, credit might well multiply. As Hayek observed, “[T]he reform of 1913–14 deserves to be reevaluated from a different aspect, which has hardly ever been brought out in the entire discussion on this matter. While it is true that the banking reform facilitated the development of a systematic credit policy by a central authority, it also created the very situation that made such a credit control indispensable as a counterweight to the increased inflationary potential arising from the existence of such an institution”. 39

The Federal Reserve banks had accommodated monetary demand during the war largely with the issue of Federal Reserve notes. After the war, member (commercial) banks used the influx of gold to repay their borrowings from the reserve banks. The reserve banks replaced Federal Reserve notes with gold certificates. Thus a de facto replacement of gold by certificates was accomplished which absorbed the influx of gold without expanding the issue of notes.

At the end of the First World War, the United States ceased to be a debtor nation, but no one then expected that the influx of gold could continue. American bankers assumed that sooner or later gold would return to Europe and the United States would manage its reserves much as it had before. Thus the policy shift which was required of a creditor nation did not take place—particularly to develop a domestic money market that could accommodate foreign lending. 40 The debate over Fed-

38Walter Bagehot had earlier pointed out the dangers of a fixed percentage of reserves even in the dispersed system of the US national banks which preceded the Federal Reserve system. "It will waste profits by over-provision against ordinary danger, and yet it may not always save the banks; for this provision is often likely enough to be insufficient against rare and unusual dangers. . . . If you say that the Bank shall always hold one-third of its liabilities as a reserve, you say in fact that this one-third shall always be useless, for out of it the Bank cannot make advances, cannot give extra help, cannot do what we have seen the holders of the ultimate reserve ought to do and must do”. *Lombard Street* (New York: Charles Scribner’s Sons, 1883), pp. 332–334.

39Chapter 2, this volume, p. 109.

40Keynes did understand this difference, which provoked much of his irritation with US policies. As he wrote in his first book about an earlier and parallel situation with Britain, “To guard against a possible drain of gold abroad, a complicated mechanism has been de-
eral Reserve policy that took place after the publication of the 1923 report assumed both historical relationships that no longer applied and a freedom of action on the part of the Federal Reserve that was an historical accident. It was not understood that at times of financial crisis the strength of the reserve position of a creditor nation may be more necessary and more vulnerable than the position of a debtor nation.

The American demand for an elastic currency that led to the organization of the Federal Reserve system arose from the conflict over the maintenance of reserves by individual banks and the varying demands for cash by the whole financial system. No one thought it unreasonable to demand cash for immediate payments; no one found it profitable to maintain a reserve of cash that earned no interest simply to meet that demand. Thus what appeared to be an organizational problem overlay the more difficult problem of the value of money.

The notion of elasticity applied to currency is in its own way as problematical as the concept of a cycle applied to fluctuations. If money were taken to be a standard of value and prices the measure of the value of goods, then, in its most rigid form, asking for an elastic currency would be akin to asking for the hours of the day to vary depending on the demand for more time. Hayek approached the matter of an elastic currency with all due scepticism; the criticism of this notion occupied the center of his developing theory of economic fluctuations.11

The First World War had made plain that gold was not money; yet little effort had been made to reconsider a system where credit could fluctuate.

11Hayek's full statement of the problem is to be found in Lecture 4 of *Prices and Production*, 2nd ed. (London: Routledge & Kegan Paul, 1955), p. 108. "I suppose that, to most economists, the idea of a circulating medium which does not vary in amount will seem perfectly absurd. We have all been brought up upon the idea that an elastic currency is something highly to be desired, and it is considered a great achievement of modern monetary organization, particularly of the recent American Federal Reserve system, to have secured it."
but the issuance of currency was fixed at two points: a 40 per cent gold reserve backing and a fixed weight of gold per dollar. Banking crises in the United States had almost always occurred when businesses needed to convert bank deposits into cash, thus forcing banks to increase reserves by liquidating loans.

Consider the following conditions as enunciated in the Tenth Annual Report of the Federal Reserve Board:

Gold is the tangible and conventional basis of bank lending and currency issuing power. . . . Gold received by a member bank is in ordinary course deposited with its reserve bank. Its first effect is to add both to the reserve balance of the member banks and to the gold reserves of Federal reserve banks. The reserve bank has no control over the use made of its free reserve balance by its member banks. . . . In the experience under the reserve system, changes in the demand for currency in the absence of gold imports have been the principal factor accounting for fluctuations in the total volume of borrowing.

And, as though the picture were not yet coming into focus, “Federal Reserve banks, therefore, from the point of view of the chief use made

As Hayek observed, “The main weakness of the old system in the United States was that favourable economic prospects could trigger unrestricted creation of bank credit, which could proceed at a feverish pace until this limit was reached and credit expansion was forced to a sudden halt only then. There was no way in which individual banks could, by their own restraint, forestall the unavoidable negative consequences for the whole economy”. But he raises the important question: “Did the adoption of the central banking system really offer the best possible remedy for the known weaknesses of the credit organization in the United States, as was asserted at the time, or did its adoption actually conjure up new dangers to economic stability?” See this volume, chapter 2, pp. 145–146.

Tenth Annual Report of the Federal Reserve Board, covering operations for the year 1923 (Washington, D.C.: Government Printing Office, 1924), pp. 18–19. Continuing, the Report reads (p. 24): “While the Federal Reserve banks during 1923 continued to function as the source from which the public obtained the currency required to transact the larger volume of business, the increased use of currency did not result in an increased use of Federal Reserve bank credit. The reason for this was that the gold received from abroad and deposited with the reserve banks furnished member banks with funds to meet the increased currency demand. The relation between gold imports and currency demand in 1923 was similar to that in 1915 and 1916, which was also a period of gold imports and increasing currency requirements. In those years also the inflow of gold from abroad supplied member banks with credit in sufficient volume to finance a business expansion with little resort to the Federal Reserve banks. The experience of 1923 is in contrast, however, to that of 1919–20, when there were no net gold imports and when business expansion led to heavy borrowing at the reserve banks to meet the large and increasing demand for currency”.

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of their credit, may be regarded as currency supplying banks". And "[c]hanges in deposit liabilities, on the other hand, have been but a minor influence in their effect upon the reserve ratio". What is important to note here—because the link was later abandoned and plays no part in our present monetary system—is the direct link between gold and currency, whereas the link between gold and credit was indirect; liquidity needs played the major part in member banks borrowing from reserve banks.

The reason why all this deserves attention is that we now know that the Titanic of the US financial system in 1923 was even then on course for the iceberg of 1929. Something had gone wrong with the steering mechanism of Federal Reserve policy and it behooves us to know why. At several points in his review of US monetary policy in the early 1920s (chapter 2, this volume), Hayek raised warning flags, particularly in section six, which points to the lack of a coherent theoretical foundation.

What went wrong? The Reserve Board was no longer able to use changes in the reserve ratio as the steering mechanism. "Under the present conditions, with gold embargoes in force in most foreign countries and the United States practically the only free gold market of the world, the movement of gold to this country does not reflect the relative position of the money markets nor does the movement give rise to corrective influences, working through exchanges, money rates, and price levels, which tend to reverse the flow. The significance which movements in the reserve ratios formerly possessed rested upon the fact that they were the visible indicators of the operation of the nicely adjusted mechanism of international finance. With this mechanism now inoperative, the ratios have lost much of their value as administrative guides. It has therefore been necessary for banking administration even in those countries that have been most successful in maintaining a connection with the gold standard to develop or devise other working bases".

In short, what the Federal Reserve now had in the place of the reserve ratio, that "visible indicator", was the invisible effect of a badly maladjusted mechanism of international finance. But instead of ignoring the inadequacy of the gold reserve ratios, the Board ought to have given it increased attention. Gold moved internationally in lieu of the transfer of real capital; which meant that, as the final balancing item, it would only be transferred when other forms of capital transfers would or could incur a loss. It is at this point that the use of capital as money and the use of

44 Ibid., p. 28.
45 Ibid., p. 29.
46 Ibid., p. 30.
capital for trade meet and potentially conflict. The old problem that had plagued the call money market had not really gone away: How could a demand for liquidity be anticipated and who would bear the cost of maintaining the cash reserve? But instead of looking for the effects of trade and currency account balances where they might be found, the Federal Reserve chose to look where the light was, at various indices of production and consumption.

All of these indices suffered from the same flaw: They recorded only past activity. Thus the report concludes that "No statistical analysis can ever be a substitute for judgement in matters of credit administration, but such analyses of economic conditions are indispensable as furnishing the factual basis for credit judgement and for the development of credit policy".

In so many words: Since the (gold) reserve ratio is no longer reliable, we are forced to rely on our own judgement. But the report does not say on what assumptions—theoretical or even rule of thumb—their judgement rests; that is, in what way the Board understands the consequences of their decisions.

Hayek criticized the Board for adopting a passive stance towards credit demand that relied too much on what he believed to be discredited arguments of the Banking School; that is, that credit could not be harmful as long as it financed real business transactions.

On the need for timely action there was no dispute. On this matter the report did not equivocate: "Good credit administration in times of active business expansion should not encourage or assist the excessive accumulation of credit."
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lation of forward commitments in business and banking which only later on will definitely reflect the rate at which they have been taking place in resulting changes of credit volume and changes of price levels; and in times of business reaction should discourage enforced liquidation of past commitments which also will only later on reflect the rate at which it has been taking place in altered credit volume and price levels. The problem of efficient credit administration is, therefore, largely a question of timeliness of action".

Thus began the search for 'leading indicators' that could signal the right moment for changes in the discount rate. Even Hayek in his review of the 1923 report joined in the effort to find a reliable replacement for the reserve ratio, though with a critical difference: He rejected the usefulness of a general price index, indicating once again his reluctance to separate monetary theory from value theory. "The fact that the phases of the business cycle manifest themselves much more clearly in the relative movement of the prices of different types of commodities than in the fluctuations of the general price level strikes us as a much more serious objection, since under these circumstances the general price index could not possibly be a suitable and, above all, a timely indicator of economic trends". Thus, "From the welter of statistical observations, a manageable, unambiguous, and simple method must be derived for determining automatically what are the most effective credit policy measures at any given time. Since there is general agreement in the United States that the most important task of any credit policy geared to prevent recessions is to restrict credit just when its further expansion would lead to a disproportionality between the creation of capital goods and the demand for consumer goods, the most urgent goal is to find the right indicator for determining at which precise moment credit restrictions should be put into effect".

Hayek focused on finding a balance of employment and inventories with the output of finished products and consumption. With that ap-

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51 Tenth Annual Report, 1923, op. cit., p. 32. See chapter 2, p. 134, note 75, this volume.
52 The search still continues. It is reported that the favorite indicators of the present Chairman of the Federal Reserve Board, Alan Greenspan, are inventory levels, supplier delivery times, and a measure that relates wages and benefits to productivity. Business Week, July 14, 1997, p. 48.
53 Chapter 2, this volume, p. 115.
54 Suppose that capital goods industries, manufacturers of semi-finished products, and wholesalers are generally expanding their output and inventories, while no corresponding expansion occurs in the output of finished products, retail trade, and consumption; suppose that at the same time, savings do not grow vigorously enough to justify such an increase in the economy's capital equipment. This constellation would then be the surest possible indication that excessive bank credit is redistributing the available productive re-

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pears to come a full endorsement: “Self-regulating currencies secured by their convertibility into a precious metal often bring their compensatory mechanisms into play too slowly to prevent severe economic fluctuations and create additional disturbances in the economy because of frequent variations (due to extra-monetar y factors) in the value of their underlying metallic standard. The utilization of suitable statistical data on the current economic situation may prove to be the first step in solving this old problem and in creating a more stable exchange medium. This is at present the problem whose solution holds the greatest promise and also offers the greatest interest in the field of monetary theory”.55

However, elsewhere in the review, Hayek expresses considerable ambivalence about the possibility of using statistics towards any desirable end; a revival of the Methodenstreit is not far beneath the surface. “A serious obstacle from the statistical point of view is the fact that the theoretical categories that must be applied in explaining economic fluctuations do not always coincide with the customary demarcations between the different economic sectors, not even with the way in which various activities are reported in the individual enterprises. Consequently even the most accurate production statistics cannot provide reliable information about the way balance shifts between the production of higher-order and lower-order goods, nor can they prove that this relationship corresponds to the capital accumulation that is actually taking place. . . . The naive optimism on the subject shared even by many of the most eminent American scholars can best be explained by their frequently derogatory attitude towards theory, which deprives them of insights into the inescapable interactions of economic phenomena revealed only by theory”. For an example, Hayek cites a passage from Mitchell which he had previously quoted in his omnibus review, which contains the offending sentiment: “For since the money economy is a complex human institution, it is subject to amendment. What we have to do is to find out just how the rules of our own making thwart our wishes and to change them in detail or change them drastically as the case may require”.56

[^55]: sources between current and future production of commodities in a way that threatens the stability of production, and it would make a restriction of credit seem advisable. Conversely, if employment in the basic industries (raw material production, construction, machine manufacturing, etc.) is below average, inventories are shrinking, demand for bank credit is declining, and the price of capital goods is falling below the general price level, this combination of circumstances, unless it comes right on the heels of a sharp downturn, is a sure indication that the easing of credit conditions is appropriate". F. A. Hayek, this volume, chapter 2, pp. 138–139.

[^56]: ibid., p. 139.

[^57]: ibid., p. 118. For the complete passage from Mitchell, see chapter 1, this volume, p. 40.

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As Hayek continued to reflect on this proposition he came to see it as something more than "naive optimism". It was an expression of the belief that society could be shaped to satisfy our own desires, an attitude which he later termed 'constructivism'. Hayek's growing objections to this belief went beyond economic theory, but his theoretical 'predilections' were grounded in the fundamental proposition that only individuals could have values and that the expression of these values in society as a whole were not amenable to the sort of control implied by Mitchell's invitation to change the rules 'of our own making'. As Hayek noted, "It becomes obvious, at the same time, that the practical questions arising in this context cannot be solved in any unequivocal fashion by science alone. To some extent they are also philosophical questions and their solution is, in the broadest sense, a matter of judgement, as to which opinions can sharply diverge."\(^5\)

**On Intertemporal Price Equilibrium**

Hayek produced his first response to the pragmatic approach of Mitchell and the institutionalists of the Federal Reserve Board in his remarkable essay of 1928, "Das intertemporale Gleichgewichssystem der Preise und die Bewegungen des 'Geldwertes'," which is translated as "Intertemporal Price Equilibrium and Movements in the Value of Money", chapter 5, this volume. At the outset we are alerted to the need for what was then an unprecedented undertaking: "As soon as we abandon the elementary but fictitious presentation of simultaneously formed prices and turn to the actual monetary economy, where prices are necessarily set at successive points in time, a problem arises for whose solution it is vain to seek in the existing corpus of economic theory".

Hayek's view of prices and their function in an economy did not sharply diverge from Mitchell's in so far as both accepted the interdependence of all prices. Mitchell's statement is the more explicit: "The prices ruling at any moment for the infinite variety of commodities, services, and rights which are being bought and sold constitute a system in the full meaning of that term. That is, the prices paid for goods of all sorts are so related to each as to make a regular and connected whole."\(^5\) Hayek uses

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\(^5\)He later wrote that he "first heard and was greatly impressed by this formula in a lecture by W. C. Mitchell at Columbia University in New York during the year 1923. If I had even then some reservations about this statement it was mainly due to the discussion of the effects of 'non-reflected action' in Carl Menger, Untersuchungen über die Methoden der Sozialwissenschaften und der politischen Ökonomie insbesondere (Leipzig, 1883)". See New Studies in Philosophy, Politics, Economics and the History of Ideas (London: Routledge, and Chicago: University of Chicago Press, 1978), p. 3 & note 3.

\(^5\)This volume, chapter 2, p. 119.

the term Abstufung to describe the interconnection of prices, which has the sense of differentials, a spectrum as well as a system. Where they differ is in their views of how this system of prices is formed and how it responds to changes. Mitchell had discarded any attempt to measure utility, and to take account of any divergence between prices and utility, maintaining that the economist has no choice but to begin with prices as they are formed in markets over time. Mitchell believed that changes generated cycles; Hayek clung to the concept of an equilibrium.

Hayek's direct criticism of Mitchell came later in Prices and Production: "If we want to explain fluctuations of production, we have to give a complete explanation. Of course this does not mean that we have to start for that purpose ab ovo with an explanation of the whole economic process. But it does mean that we have to start where general economic theory stops; that is to say, at a condition of equilibrium when no unused resources exist. The existence of such unused resources is itself a fact which needs explanation. It is not explained by static analysis and, accordingly, we are not entitled to take it for granted. For this reason I cannot agree that Professor Wesley Mitchell is justified when he states that he considers it not part of his task 'to determine how the fact of cyclical oscillations in economic activity can be reconciled with the general theory of equilibrium or how that theory can be reconciled with facts.' On the contrary, it is my conviction that if we want to explain economic phenomena at all, we have no means available but to build on the foundations given by the concept of a tendency towards an equilibrium". 61

But Mitchell's argument against the applicability of equilibrium theo-

60 Part of Mitchell's presentation is worth quoting as it succinctly reveals the strengths and weaknesses of the Paretian system: "It is clear, at once, that this type of theory eliminates the problem of valuation from economics. That is, it does not concern itself with the way in which men find out what relative importance different goods have for their purposes. Instead, it assumes that this process of valuation has been completed before they come to market by each of the men with reference to each of the goods, and furthermore that the process has yielded in each man's mind definite quantitative results. Not until that state has been reached does the pure theorist begin his work. His first step is to cast the finished individual valuations into the form of indifference curves, scales of preference, objective expressions of choice, or value functions. That gives him a set of what [P. H.] Wicksteed terms 'ideal prices' as data for analysis. Then the theorist develops a logical scheme of conceiving the process by which mutually interdependent market prices result from the 'ideal prices'. He does not, of course, profess to show what the market prices will be (for 1) the 'value functions' are as yet arbitrarily assumed, (2) the whole discussion presupposes static conditions, and (3) when many men and many goods are involved the number of equations to be handled becomes too great for solution), but he does demonstrate more adequately than any other type of economist the complex interrelationships logically involved in the determination of prices in modern markets". W. C. Mitchell, "The Role of Money in Economic Theory," in The Backward Art of Spending Money, op. cit., pp. 162-163.

61 F. A. Hayek, Prices and Production, op. cit., p. 34.
ries pushed Hayek to attempt a revision of the concept, to concede, as Mitchell had argued, that static analysis was inadequate. Mitchell wrote: "Doubtless it was a mechanical analogy which gave its vogue to the notion of economic equilibria. Everyone admits that analogies, though often most suggestive in scientific inquiries, are dangerous guides. The usefulness of the analogy in question was greatest and its danger least when economists were treating what they called 'static' problems. Such problems can be given a quasi-mechanical character, for they are not taken from life, but made in an inquirer's head to suit his purposes, and mechanical analogies are appropriate to mechanical problems. But the problems of business cycles are the opposite of 'static'."

Hayek's departure is logically unassailable: An equilibrium conceived of as static may persist for any length of time as long as the initial conditions are known at the outset and continue as expected. "Hence, to conclude that an economy can persist in a static condition it is not at all necessary to assume that, at every point of time within the economic period under consideration, wants and production possibilities remain the same. All that needs to be assumed for such a static equilibrium to occur is that the wants and the means of production existing at every point in time are known to the individual economic subjects at the time at which they frame their economic plan for the period as a whole". A static equilibrium need not result in an unvarying economy; but whatever variations do occur must be foreseeable at the outset.

If this were the full extent of Hayek's insight, the essay would provide only a modest, though not trivial, extension of the concept of equilibrium.

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63 Hayek's evolving conception of equilibrium has been the subject of controversy. Hayek's emphasis here on the link between knowledge of means and the desired ends of individual plans foreshadows the later development of the concept of equilibrium in his 1937 essay, "Economics and Knowledge". This view can find its antecedents in Wieser. As Mitchell wrote, approvingly, "For the mathematical economists and their theory of static equilibria, on the contrary, Wieser has little use. He will not allow his system of logic to be turned into a system of mechanics. To him the central element in economics is man's planning, and he becomes uneasy when a mathematician replaces human nature by a set of equations. Besides, he argues, nature yields some goods abundantly, some moderately, some scantily; while this fact remains it is vain to talk about establishing an equilibrium in all branches of production. Similarly, the differences between the satiation scales of various wants prevents our reaching an equilibrium in all branches of consumption. Marginal boundaries, not equilibria, represent the facts and should therefore be represented by the theory . . . " W. C. Mitchell, "Wieser's Theory of Social Economics", in The Backward Art of Spending Money, op. cit., p. 252. For some perspective on the development of Hayek's conception of equilibrium, see Bruce Caldwell, "Hayek's Transformation", History of Political Economy, vol. 10, Winter 1988, pp. 513–541.
beyond the abstraction of simultaneity. What Hayek was at pains to demonstrate, and thereby to argue against an artificial stabilization of the purchasing power of money, was that even though the conditions of intertemporal exchanges could be foreseen, the terms of future exchanges, the marginal utilities involved, would have to change from those of otherwise identical present exchanges. This insight opens the door to a revision of value theory that verges on the radical.

Hayek's departure is the easily grasped logical equivalence of exchanges which are separated by space and those which are separated by time. "Strictly speaking, goods which are technically equivalent but available only at different points in time ought to be considered different goods in an economic sense, just as can be said of goods which are technically the same located at different places". However, Hayek does not isolate the logical inference that the equilibrium conditions for goods separated in space may be reduced to an intertemporal equilibrium, which follows from the inescapable limitation that time is required to move goods from one place to another. Nonetheless, he demonstrates the primacy of intertemporal equilibria:

In summary, it may therefore be concluded that what follows from the difference in conditions that must always exist at different points in time at least so far as it involves the supply of a number of goods, together with what is only a limited possibility of transferring goods from one point in time to another, must be the formation of definite exchange

64 "More specifically, we are interested in whether the intertemporal differential in money prices generally has a definite and necessary function and—in the affirmative case—what will be the effect of any deviation from the 'natural level' of the price differential caused by external interventions". F.A. Hayek, this volume, chapter 5, p. 198.

65 On this point Hayek offers a reference to Mises: "It has already been mentioned that two economic goods, which are of similar constitution in all other respects, are not to be regarded as members of the same species if they are not both ready for consumption at the same place. . . . No institution can make it possible for coffee in Brazil to be consumed in Europe. Before the consumption good 'coffee in Europe' can be made out of the production good 'coffee in Brazil', this production good must first be combined with the complementary good 'means of transport". Ludwig von Mises, The Theory of Money and Credit, op. cit., pp. 195–196.

66 To do so clarifies what Hayek means when he refers to the "structure of production". As Ohlin points out, "Production, of course, always includes much transportation—in a sense is nothing else. . . ." (Bertil Ohlin, Interregional and International Trade, op. cit., p. 231.) The economic problem to be solved in any given structure of production is to find the intertemporal equilibrium of the marginal utilities of the more or less durable; or, to use a later abstraction of Hayek's, labour which is invested for relatively long or short periods. See Contra Keynes and Cambridge (1995), Bruce Caldwell, ed., being vol. 9 of The Collected Works of F.A. Hayek, op. cit., p. 215.
GOOD MONEY, PART I

ratios for intertemporal exchange between goods of all kinds available at separate points in time, in the same way as exchange ratios are formed between goods which are simultaneously available. Moreover, neither of these two groups of exchange relationships is explicable in isolation from the other; both can be understood only as component parts of a unitary system, which must incorporate intertemporal exchange ratios. The exchange ratios for goods which are simultaneously available thereby constitute at most a subordinate system of limited independence, in the same way as this can be asserted of prices ruling at one point in space as compared to the price system which prevails for the country as a whole, or of the latter in relation to international prices.\(^67\)

Hayek’s objective in this 1928 essay was to provide a theoretical argument against a monetary policy of stabilization, to provide an affirmative answer to the question he raised in his review of Fisher’s stabilization proposal: Are not sometimes changes in the price level necessary to reestablish the equilibrium between demand and supply? He identifies three intertemporal conditions for which he believes price changes would be necessary to establish equilibrium: “Such changes in data as are predictable, which can as such be taken account of in the economic plan, and whose effects can therefore be handled with equilibrium analysis, can be divided essentially into three groups: those which recur with precise periodicity; those which are of uniform tendency in both direction and extent; and finally, those whose unique occurrence can be confidently expected for a definite point in time, as the result of developments which are currently observable or of known human decisions”.\(^68\) An example of the first would be the price of a tramway ticket during the day and the price of the same ticket for travel at night; the seasonal nature of agricultural crops is a further example. The other two situations arise from an expected increase in productivity, one example being improved soil fertility owing to the drainage of a swamp; but inventions—unspecified—that increase productivity would have the same effect.\(^69\)

\(^67\)This volume, chapter 5, p. 197.
\(^68\)This volume, chapter 5, p. 200.
\(^69\)There is a certain difficulty in Hayek’s contention that technically equivalent goods may have varying economic values at separate points in time. Whether night travel on a tramway is equivalent to the same trip during the day depends on the nature of the travel undertaken by each passenger; those who are indifferent as to the time of travel would consider the day and night tickets technically equivalent, thus opting for the less expensive. The traveller who must make the trip by a certain time would suffer entirely different opportunity costs, as does the tram operator, who can never recover the loss of a ticket unsold. The problem of the economic and technical equivalence of time-dependent services is very different from
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Hayek contends that these conditions require an intertemporal price differential without which production would shift either to an increase in present or future output for which demand would be lacking. "[A]n attempt is made to prove that ... only one quite particular relative level of prices at successive points in time ensures the maintenance of equilibrium, and that any other pattern of prices leads to shifts in the structure of production which ultimately must call forth a disparity between supply and demand and thereby induce further price changes which as a rule involve losses. This conclusion constitutes the essential point of the present analysis and provides the most important basis for the thesis as to the relations between movements in the 'value of money' and the natural gradation of prices..." 70 This proposition is the core of Hayek's later theory of the trade cycle.

Hayek would maintain that there will be both spot and future prices for the same good where future demand and supply is as certain as that in the present, and that these prices will nonetheless differ; even stronger is his claim that these prices must differ if equilibrium of supply and demand is to be maintained. This assumption rests on a contention that the cost of supplying technically equivalent goods at separate times may rise or fall owing to predictable changes in production possibilities. With this new assumption about costs, Hayek is introducing a quite different condition into the static equilibrium model which had assumed a given, stable production constraint. For Hayek, the difference between a spot and future price is accounted for by an opportunity cost which will be measured not in terms of present alternatives but in terms of the utility of present versus future alternatives. However, it is not immediately obvious how this intertemporal utility is to be determined; Hayek assumes the continuation of subjective evaluations, but the opportunity cost which accounts for the difference between spot and future prices arises from a real change in the cost of production. "Here as elsewhere, of course, exchanges between individuals presuppose that the persons participating in the trade have a relatively different valuation of the commodities at hand. Such a situation can arise because differential valuations with respect to time are of a subjective nature, so that different persons may well have opposite valuations. Thus some persons will be prepared to ex-

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70 This volume, chapter 5, p. 205.
change goods available at a given point in time for goods of the same type available at another point in time, and in general they will find that there are others who are willing to undertake this exchange with them. The difficulty here is the degree of foresight that would be required to make these assumptions logically defensible, since at this stage Hayek does not justify opposing valuations with any appeal to risk or uncertainty.

Hayek’s fundamental insight, that an increase in productivity must result in falling prices if equilibrium between supply and demand is to be maintained, can be demonstrated by abundant empirical evidence for individual industries. But to claim that a fall in the price level must take place to preserve equilibrium in conditions of increasing productivity is more difficult to prove. One would have to revisit all of the hazards of attempting to use an index of prices to measure changes in the value of money, particularly if entirely new products or services came to market to absorb the purchasing power obtained from increasing productivity. When the inertia of an economic system is disturbed by inventions which increase productivity, any weighting given to individual components of an index becomes entirely arbitrary unless and until inertia resumes.

Even more disquieting is the latent implication in Hayek’s thesis that increases in productivity, by affecting prices, may lead to ‘imperfect’ compe-

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71 This volume, chapter 5, p. 194.
72 Hayek wrestled with the complexity of the problem in later works. In The Pure Theory of Capital he retained the concept of equilibrium but conceded that all that could be covered by general equilibrium analysis were “actions based on the knowledge possessed at one moment of time”. Thus in order to find the conditions of intertemporal equilibrium of values, “We shall have to conceive of a structure of n-dimensional indifference surfaces where n includes the number of commodities considered plus the number of different points of time (or periods) for which the person plans. Similarly the different rates of transformation between the different commodities, or between commodities at different points of time, can be represented by a corresponding system of n-dimensional displacement surfaces. The relative values of the commodities, and their individual time rates of increase, will then be formally determined on exactly the same principles as those determining the relative values of a number of commodities that are assumed to be simultaneously available”. F.A. Hayek, The Pure Theory of Capital (Chicago: The University of Chicago Press, 1941), pp. 243–244.
73 The outstanding contemporary example is known as “Moore’s Law” (after Gordon Moore, one of the founders of the Intel Company) which held that the capacity of semiconductors—the number of transistors that could be placed on a silicon chip—would double every eighteen months. But there is also the concept familiarly known as ‘the learning curve’ which occurs in any new process or project.
74 A cogent argument that this should be so is made by George Selgin, Less Than Zero, The Case for a Falling Price Level in a Growing Economy (London: The Institute for Economic Affairs, 1997).
tution, thus vitiating the simultaneous solution to finding equilibrium.\textsuperscript{75} If, on the other hand, the measure of intertemporal utility could be made in terms of a standard good or commodity the utility of which does not change at different points of time, opportunity cost could be determined without engendering either the circularity or contradiction that arises from an attempt to directly compare the cost of spot and future prices of the same good.\textsuperscript{76}

Hayek does not argue for the need for such a standard; indeed, the point of the essay is to argue that money cannot be that standard and any attempt to make it serve as a standard of value will only make matters worse. His conclusion is that the use of money—any money—makes intertemporal disequilibrium inevitable. “Any currency policy which seeks to arbitrarily influence the ‘value of money’ will prevent the establishment


\textsuperscript{76}Later attempts to produce a formalized solution to the problem of intertemporal equilibrium such as those by Arrow and Debreu do not escape certain of the same dilemmas found in Hayek; indeed, Hayek’s presentation is the more informative in that it attempts to preserve a link between individual values and prices. While an equilibrium solution may be found through simultaneous equations lacking a standard of value—any commodity may serve—it is improbable that a finite set of axioms can be found that would permit both simultaneous and intertemporal prices that are different for the same good without engendering a contradiction (the value of a good cannot be both higher and lower than another at the same time) or the fallacy of composition (to say that there must be some value which will equilibrate the supply and demand of any good is not to say that values can simultaneously be found for all goods; further, a high degree of specificity must be attained in order to demonstrate that no trader would be simultaneously buying and selling from himself). Debreu displaces the problem to the enumeration of lists: commodities, consumers, producers, resources, events, with the difficulty of transforming lists into indices without producing false identities. “A commodity”, so Debreu stipulates, “is characterized by its physical properties, the date at which it will be available and the location at which it will be available. . . . It is assumed that there is only a finite number \textit{l} of commodities; these are indicated by an index \textit{h} running from 1 to \textit{l}”. See Gerard Debreu, \textit{Theory of Value, An Axiomatic Analysis of Economic Equilibrium} (New York: John Wiley, and London: Chapman & Hall, 1959). Here we approach one of Zeno’s paradoxes: Every event is separable from every other event by an infinite number of events. At some level of discrimination any comparison of utilities becomes impossible, and recourse to some sort of ‘technical unit’ for common measurement a la Walras or Wicksell will not do. For further explication, see George J. Stigler, “The Development of Utility Theory” [1950], \textit{Essays in the History of Economics}, op. cit.
of that natural structure of prices through time corresponding to the intertemporal exchange relations originating from barter, and alone able to ensure undisturbed self-reproduction in a monetary economy as well. Furthermore, the same is true of the mechanism of any monetary system at all, either actually existing or merely conceivable”. Hayek argues that as long as there is any elasticity at all in the money supply—and this he contends cannot be prevented—price changes, even of non-monetary origin, will call forth changes in the supply of money that will exaggerate the direction of change until some point of inevitable reaction. Although a gold standard will in his estimation do the least damage, it will not prevent some disequilibrium.

This view of the disturbing role of money led Hayek in later work to argue in terms of 'neutral' money; he did not advocate a policy of neutral money as is sometimes supposed so much as he recognized the virtual impossibility of fixing the quantity of money to some unvarying measure. By 1933 he had begun to distance himself from the more radical implications of his 1928 essay. In the brief essay “On Neutral Money”, chapter 6, this volume, he wrote in a footnote, “The concept of changes in the value of money would then have to be replaced by that of deviations from the problematic intertemporal prices equilibrium. Although I

78In particular, it must be assumed that the immanent tendency of the gold currency towards stabilization in fact also administers an excessive stimulus to the expansion of output as costs of production fall and thus regularly makes a later fall in prices with a simultaneous contraction of output unavoidable”. F.A. Hayek, this volume, chapter 5, p. 216. Hayek believed that the effect of a managed monetary policy would be much worse than gold, thus he deplored the abandonment of the gold standard and the arguments which encouraged it. See chapters 3 and 4, this volume.

79The harshest criticism came from Piero Sraffa, who argued that an economy employing Hayek's neutral money would be equivalent to an economy without the use of money at all. This does not necessarily follow, though Sraffa raised a legitimate question, that if money were not used, would not one or several commodities function in the same respect, thus leading to the same effects Hayek deplored. (See Sraffa and Hayek's reply in Contra Keynes and Cambridge, op. cit.) Yet Hayek's neutral money is in fact one of the theorems which follows from the identity or tautology of the quantity theory of money. As with any theory which takes this form, its explanatory content is zero when all factors of the equation may vary independently and simultaneously. If, however, one or another of the factors is held constant, the explanatory content rises. In the conventional expression of $MV = PQ$, Hayek proposes to hold M constant; this would require that all changes in PQ be expressed by changes in V, the velocity of circulation. This is not only entirely possible but is consistent with Hayek's view that shifts in prices and production reflect changes in the preferences of individuals for current or future consumption; without an increase in M, changes in V could only occur through saving or dissaving. However, Hayek's model of neutral money stands in opposition to the conventional 'monetarist' view, which holds V constant in order to demonstrate the effect of changes in M.
can no longer adhere to all that I wrote on that occasion, I still believe that an approach to a solution of the problems arising in this context is to be found in my [1928 essay]”. When Hayek included an English version of the brief essay on neutral money as an appendix in the second edition of Prices and Production, he omitted the final paragraph of the original essay containing this footnote.

“Das intertemporale Gleichgewichtssystem der Preise und die Bewegungen des ‘Geldwertes’” (“Intertemporal Equilibrium”) did not find its audience." In retrospect one can understand why it failed to attract the attention it deserved but also in retrospect observe that this was a great pity. It is an original and pioneering attempt to address the limits of equilibrium theory and much of what is difficult or inadequate in Hayek’s essay derives not from Hayek’s own contribution but from the limits of the theory he was attempting to rescue.81

In a brief appendix to the essay Hayek raises the question as to why interest rates alone would not be sufficient to maintain intertemporal equilibrium. The answer, that interest rates and prices affect different aspects of equilibrium adjustments, is all too brief and by his own admission hardly more than an invitation to further study. In the event, ‘stabilization’ as both a theoretical prospect and an international condition was, in the decade of the 1930s, proving to be all too chimerical; the rough beast of monetary nationalism was by then slouching towards Berlin.

Hayek continued to insist on the need for some concept of equilibrium in his investigations of the trade cycle, particularly in Geldtheorie und Konjunkturtheorie, written in 1929. A full discussion of this work belongs to another chapter in Hayek’s career; what may be said here is that the emphasis Hayek gave to the concept of equilibrium in the 1929 essay was to provide content for his primary assertion that theory must play the leading

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80Hayek sent a copy of the essay to Keynes, but there is no record of any response. Keynes’s German would probably not have been up to the task. Only John Hicks appears to have been influenced by it, though he quickly rejected any notion of neutral money and he was not satisfied by the requirement in Hayek’s model of perfect foresight. See John R. Hicks, “The Formation of an Economist”, Banca Nationale del Lavoro Quarterly Review, no. 130, September 1979, p. 199.

role in the investigation of economic phenomena rather than statistics. Thus it was a theory of equilibrium that would have to explain the anomalies revealed by statistical investigation, but the very presence of anomalies—which present simultaneous confirming and disconfirming evidence—meant that some revision of the theory of static equilibrium would be necessary.

Hayek's first statement of the direction the revision would take came in a lecture delivered in 1933, included in this volume as the final chapter. He returned to the difficulty of reconciling static equilibrium with processes which take place in time; the solution of assuming foresight of future conditions which he presented in “Intertemporal Equilibrium” is now questioned, though on grounds that he had already introduced in “Intertemporal Equilibrium”:

In addition, if there is any change in the external conditions for the whole of the period within which it falls there is naturally only one way of allocating the goods available. . . which offers . . . the highest satisfaction. If the individual could foresee the change in question, he would make the appropriate decisions at the very outset of the period. If he could not have foreseen it, he will become aware only subsequently that he could have achieved a better result through carrying out a different allocation of his resources, and so he has in comparison suffered a loss. Only in the former case will the outcome of the allocation of resources among individual uses be successful in the sense that it corresponds to the expectations which gave rise to them, and hence there is no occasion to change the decisions that have already been made.

In his 1933 lecture Hayek expands the role of expectations to include other individuals:

It is evident that the various expectations on which different individuals base their decisions at a particular moment either will or will not be mutually compatible; and that if these expectations are not compatible those of some people at least must be disappointed. It is probably clear also that expectations existing at a particular moment will to a large extent be based on prices existing at that moment and that we can con-

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83 This volume, chapter 5, p. 191.
In this first sketch of the new model of equilibrium Hayek had begun to develop, the strict condition of foresight that characterized "Intertemporal Equilibrium" has given way to the more realistic existence of expectations which individuals must coordinate through the "constellations" of prices. Thus some expectations may be disappointed by prices which are unreliable: an anomaly within a framework of static equilibrium, but not within a framework of monetary uncertainties.

In his later work on monetary theory, collected in Good Money, Part II, Hayek appeared to adopt the very stance he had criticized in his early work; securing the stability of the value of money became the object of a radical proposal to admit competing currencies into circulation. It is important to note the way in which the early and late work do not stand in opposition. Most of this discussion must wait for the context of the work collected in Part II of Good Money; but the important point is that Hayek's new model of equilibrium introduces the role of knowledge into economic processes, a knowledge that is subject to change. In this context, competition plays an active and critical role and it was in this new context of competition that Hayek argued for the desirability of a stable value of money. The way was prepared in his lecture of 1968, "Competition as a Discovery Procedure". For "it is salutary to remember that, wherever the use of competition can be rationally justified, it is on the ground that we do not know in advance the facts that determine the actions of competitors. . . . I propose to consider competition as a procedure for the discovery of such facts as, without resort to it, would not be known to anyone, or at least would not be utilized".

Two adjustments—and there are obstacles to a formal presentation—

84 This volume, chapter 7, p. 235.
85 Reprinted in F. A. Hayek, New Studies In Philosophy, Politics, Economics and the History of Ideas (Chicago: University of Chicago Press, and London: Routledge, 1978). The theory and methodology of Hayek's early work on equilibrium was contained for the most part within the context of the Methodenstreit, the debate between the Austrian theorists and the German—and by proxy, American—institutionalists. In the 1930s, Hayek's thinking took a new direction, stimulated by his participation in the 'socialist calculation debate' and his editing of Menger's work. For more on these influences, see Socialism and War, Bruce Caldwell, ed., being vol. 10 of The Collected Works of F. A. Hayek.
86 Ibid., p. 179.
are required to place the new concept of competition within the framework of a monetary intertemporal equilibrium model. Unforeseen discoveries may lead to the increases in productivity which require lower prices to ensure the equilibrium of supply and demand; but those prices will be expressed in a currency, the standard for which will itself be subject to competition. Thus opportunity cost acquires yet a further dimension in its crucial role in the decisions individuals must make in weighing present versus future utility of both money and goods. Hayek would leave us with no easy measure for the value of money; that is, perhaps, how it must be.

Seventy years after Hayek's first visit to New York and the Annual Report of the Federal Reserve system which caught his interest, much has changed in the world and little has changed in the conduct of monetary policy. One line of succession remained in place: W. C. Mitchell's student, Arthur Burns, was Chairman of the Federal Reserve Board in the 1970s when the decision was made to suspend all convertibility of the dollar into gold; the present chairman, Alan Greenspan, is a student of Arthur Burns. Greenspan has been luckier; the end of the so-called Cold War has opened the financial borders of many formerly closed economies and the dollar circulates as the preferred currency of 'off the books' markets everywhere. On the official side, the books of all central banks are studies in circularities. Who or what determines the value of money? That is the question for *Good Money, Part II: The Standard*.

*Stephen Kresge*