

1996

American Macroeconomics Between World War I and the Depression

David Laidler

Follow this and additional works at: <https://ir.lib.uwo.ca/economicsresrpt>

 Part of the [Economics Commons](#)

Citation of this paper:

Laidler, David. "American Macroeconomics Between World War I and the Depression." Department of Economics Research Reports, 9606. London, ON: Department of Economics, University of Western Ontario (1996).

45716

ISSN:0318-725X

ISBN:0-7714-1924-4

RESEARCH REPORT 9606

**American Macroeconomics Between
World War I and the Depression**

by

David Laidler

October 1996

Department of Economics
Social Science Centre
University of Western Ontario
London, Ontario, Canada
N6A 5C2
econref@sscl.uwo.ca

**AMERICAN MACROECONOMICS BETWEEN
WORLD WAR I AND THE DEPRESSION**

by

David Laidler

Paper presented at a conference in honour of Robert Clower held at the University of Trento, May 9 - 10 1996. This paper forms part of a larger study of the development of macroeconomics in the inter-war years. Correspondence with Perry Mehrling, Roger Sandilands and George Tavlas has significantly influenced the contents of this paper, and their advice, if not always followed, is nevertheless gratefully acknowledged, as is the financial support of the Bradley Foundation and of the SSHRCC and the invaluable research and bibliographic assistance of Loretta Nott. Much of this draft was written while the author was a guest of the Centre for Economic Studies at the University of Munich whose hospitality was much appreciated.

I. THE ECONOMIC BACKGROUND

In the 1920s and early 30s there existed a vigorous, diverse, and distinctly American literature dealing with monetary theory and policy, as well as the business cycle. The contributors to this literature did not work in isolation: they drew freely upon European sources, and Europeans in turn drew freely upon American contributions. Economics in the United States was certainly distinct at this time, but it was anything but provincial. Its distinctiveness was partly a matter of the originality of individual contributors, but in the macroeconomic field in particular, it also stemmed from the fact that, in the 1920s, the economic climate in the United States was very different from that prevailing in Europe.

The United States had done without a central bank until 1913 and, perhaps related to this fact, financial crises associated with the upper turning point of the cycle were much fresher in the memory there. Indeed, according to Sprague (1910), *ad hoc* responses to crisis in the banking system by such bodies as the New York Clearing House Association had been markedly less adept in 1907 than on a number of earlier occasions, and the severity of this particular crisis had given a powerful impetus to the creation of the Federal Reserve System. In Britain, by way of comparison, financial panic and bank failures at the onset of a cyclical downturn had last been encountered on a large scale in the 1860s, and the Bank of England's handling of the Baring Crisis of 1893 had established, once and for all, its credibility as a lender of last resort. In Britain, therefore, by the 1920s financial panic was nothing more than a distant memory associated with a long ago superseded policy regime.

Moreover, World-War I had created much less economic trauma for the United States than for Europe, even though a large scale military commitment to a European conflict had marked a political turning point of enormous significance. For the United States, the war had lasted less than two years, and had been managed without continuing adherence to the gold standard ever coming into question. The United States economy had, to be sure, shared in the instability of the immediate post-war years, but recovery from the severe contraction of 1920-21 had been rapid and essentially complete. The serious secular unemployment that, for example, plagued Britain throughout the 1920s had no parallel in the United States. All this would in due course change with the onset of the Great Depression in 1929, but what in Europe looked like the worsening of a secular problem of a decade's standing, would be treated in the United States, particularly at first, as an unusually bad cyclical downturn.

There was considerable continuity in the policy problems that faced the United States before and after World War I. The cycle remained an issue, as did the role that could be played by a newly established central bank in coping with it. Questions about whether, and if so how, to restore the pre-war parity, and about how to deal with the apparently new phenomenon of high secular unemployment simply did not arise there in the 1920s. The war had injected one new element into the economic environment, however. The United States had emerged as the world's leading creditor nation and as the repository of a significant fraction of its monetary gold stock. In the 1920s, international constraints on the conduct of monetary policy were as loose in the United States as they were tight elsewhere in the world, and discussions of domestic monetary policy could proceed almost as if the economy were closed. As W. Randolph Burgess put it

". . . I think you would have to look through many pages of banking history to find a period in which a bank of issue in an important country has been in the position of the Federal Reserve System, with a reserve ratio so high that it could be neglected in the determination of credit policy." (Burgess 1927, p. 140)

American economists did not take it for granted that the Federal Reserve System should be merely a Bagehotian defender of gold convertibility and lender of last resort; they also debated the possibilities of giving that institution a much more ambitious role as a major instrument of counter-cyclical policy. There was nothing new about such a conception of central banking. As I have shown in Laidler (1991) the possibilities here had been widely discussed in the neo-classical literature from the 1880s onwards, a literature to which American economists had contributed, and with which, in the 1920s they were still thoroughly familiar. However, in the United States of the 1920s, these possibilities were practical politics in a way that they were not elsewhere. It is hardly surprising, then, to find that, in the 1920s, Irving Fisher, whose contributions to the pre-war literature had been of the first order of importance, was deeply involved in debates about the cycle and the conduct of monetary policy.

II. THE CYCLE AS A "DANCE OF THE DOLLAR"

The views that Fisher propagated about money, the cycle and monetary policy in the 1920s had their origins in his work of the pre-war years, notably *Appreciation and Interest* (1896), *The Rate of Interest* (1907), and *The Purchasing Power of Money* (1911). The central feature of Fisher's analysis was, of course the quantity theory of money, which taught that the price level was the

dependent variable of a system in which variations in the volume of transactions, the velocity of circulation, but above all in the quantity of money (defined to include bank deposits) could all induce changes in its value. In Fisher's pre-War analysis of the cycle, however, the distinction between real and nominal interest rates, and the hypothesis that expectations of inflation adapted to experience at differing speeds on the two sides of the market for bank loans, with business borrowers adjusting more rapidly than lenders, played central roles; and that analysis also allowed for feedbacks from inflation to monetary expansion through the market for bank credit.

Specifically, any shock, to the quantity of currency say, that set the price level rising, would put in motion a cumulative process of expanding bank lending, deposit creation, and hence further price increases. It would do so because the more rapid response of the business community's expectations to rising prices would create a perception of increased profit opportunities on projects financed by bank lending, a perception that would persist so long as bank interest rates failed to adjust fully to inflation. This process would eventually come to an end, however: inflation would erode the value of part of the collateral held by banks against business loans, and those institutions would, in any event, begin to encounter reserve shortages. Hence lending rates would in due course rise and indeed run ahead of expectations of further profit opportunities. When that occurred, a downswing would begin, driven by exactly the same mechanisms, now however working in reverse.(1)

This analysis of Fisher's is clearly similar, though by no means identical, to contemporary English monetary theories of the cycle, notably that of Ralph Hawtrey (e.g. 1913, 1919). That is because, as I showed in Laidler (1991) Fisher's work and Hawtrey's developed within the same Neo-classical tradition in monetary economics. Even so, Fisher's own variation on neo-classical monetary theory

took on a highly individual character in the 1920s, when it came to the question of aggregate economic fluctuations.

The title of his (1922-23) essay, "The Business Cycle - Largely a Dance of the Dollar" is nowadays better known than its contents. The paper itself is mainly statistical: it presents the results of correlating the rate of price inflation in the United States with "The Business Barometer of the American Telephone and Telegraph Company" over the 1914-1922 period, and finds that "... this one element, rapidity of price movements during the period 1914-1922 seems to account, almost completely for the ups and downs of business ..." (Fisher 1922-23, p. 1072). Less well known, but more revealing of the views that Fisher came to hold during the 1920s, is the title of a slightly later paper (Fisher 1925) "Our Unstable Dollar and the So-called Business Cycle". The results presented there are very similar to those of the earlier paper, though this time, Warren Person's "Index of Trade" was used as the dependent variable and the period studied was 1915-1923.

As Wesley C. Mitchell (1927, pp. 35, 465) noted at the time, Fisher interpreted these results as showing that the cycle was, in essence, a myth, as the following passage from Fisher (1925), quoted by Mitchell, demonstrates:

"... if by the business cycle is meant merely the statistical fact that business does *fluctuate* above and below its average trend, there is no denying the existence of a cycle--and not only in business but in any statistical series whatsoever! If we draw any smooth curve to represent the general trend of population, the actual population figures must necessarily rise sometimes above and sometimes below this mean trend

line ... In the same way weather conditions necessarily fluctuate about their own means; so does the luck at Monte Carlo. Must we then speak of "the population cycle," "the weather cycle" and "the Monte Carlo cycle?"

I see no more reason to believe in "the" business cycle. It is simply the fluctuation about its own mean. And yet the cycle idea is supposed to have more content than mere variability. It implies a regular succession of *similar* fluctuations, constituting a 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!" (Fisher 1925, pp. 191-192, as quoted by Mitchell (1927, pp. 465-466. Italics in original)

By the 1920s, Fisher's views of business fluctuations thus differed from those of Hawtrey who was by then recognised in his own right as a leading exponent of an exclusively monetary explanation of the phenomenon, in a number of important respects. First, as is apparent from the foregoing quotation, Fisher regarded price level behaviour *per se* as the key link in the causative chain running from money to economic activity, rather than, as with Hawtrey, flows of money income and expenditure which in turn induced real fluctuations in the presence of, and indeed because of, wage and price level stickiness; second, Fisher therefore regarded price level stabilisation as not merely helpful, but sufficient, for the stabilisation of business activity in general; and third, quite crucially, he believed that price level stabilisation was feasible, while Hawtrey was rather modest

in his beliefs about what monetary policy could accomplish in practice.

Hawtrey located the cycle's cause in exactly the same cumulative processes of money and credit creation and destruction as did Fisher, but he thought that central banks lacked the information needed to act so as to iron them out, and the phrase "inherent instability of credit" was ubiquitous in his writings(2). As far as Fisher was concerned, there was nothing "inherent" about it. The fact is that, by the early 1920s, Fisher was already beginning to display that simplicity and rigidity of viewpoint that would in due course earn him a reputation as something of a crank.

III. MONETARY POLICY RULES

In the years 1926 - 1928, the "Stable Money Association", whose organisation had owed a great deal to Fisher's efforts, succeeded in bringing two bills - The Strong Bills, so called, after Congressman James Strong who introduced them - before the House of Representatives(3). These bills sought to subject the Federal Reserve system to the pursuit of a price stability target by law. The first of them would simply have amended the Federal Reserve Act so that, in addition to "accommodating commerce", as the system's initial mandate required, discount policy would thereafter also be

"... promoting a stable price level for commodities in general. All of the powers of the Federal Reserve system shall be used for promoting stability in the price level."

(69 Cong. 1 sess. H.R. 7895, as quoted by Hardy 1932, p. 201, italics in original).

This first Strong Bill contained no provision for any changes in the system's powers or organisation, nor any recognition, even a purely ritual one, that its ability to control the price level might in any way be circumscribed. Not surprisingly, the bill failed, as indeed did its successor, which was "much less precise as to the specific nature of the responsibilities to be laid on the Federal Reserve authorities" (Hardy 1932 p. 202) as a result of attempts to deal with the second of these matters.

The Strong Bills nevertheless attracted some formidable academic support, and not only from within the United States: Gustav Cassel, for example, testified in their favour. Moreover, a few years later, in the early 1930s, the recommendations of Keynes's *Treatise on Money* on the use of Bank rate as a tool of price level, and hence business cycle, stabilisation seemed to put him in the same camp as their supporters, as Hardy (1932, p. 200) was to point out. A policy position with deep roots in the quantity theory of money, and which would make price stability monetary policy's principal aim was thus, beyond doubt, popular in the 1920s, on both sides of the Atlantic.

In the United States, that popularity led to serious discussion, far beyond the immediate debate surrounding the Strong Bills, about how that aim could be achieved. Systematic empirical work, which had long been a prominent feature of American monetary economics, played an important part in that discussion, not least in the contribution made to it by Carl Snyder of the Federal Reserve Bank of New York. In 1924, he published a short paper (Snyder 1924) setting out the results of an application of Fisher's transactions version of the Quantity Theory of Money to recent United States data.

The results in question were striking, for they appeared to show that fluctuations in the volume of transactions associated with the business cycle were essentially entirely accommodated by variations in the velocity of circulation around a trend value that was to all intents and purposes constant. It followed from this, however, that in order to stabilise the price level over time, it would suffice to keep the money supply expanding at the economy's long run rate of growth. As Thomas Humphrey (1971 rpr. 1993, p. 106) has noted, Snyder thus has a strong claim to be the original proponent of a money supply growth rule(4).

He elaborated and extended his empirical work further in a (1927) monograph, where he noted that

"It seems probable also that the trend of prices has a real influence on the amplitude and duration of business cycles. In the period of falling general prices through the '70s and '90s depressions were more severe, and of longer duration than in the following period of rising prices." (Snyder, 1927, p.204)

This result, which originated in a study by Willard Thorp (1926) was much noted in the American literature of the period (cf. also Mitchell, 1927, pp. 407-412 and Douglas and Director 1931, pp. 182-183), and it gave added strength to the case for maintaining secular price stability, or at least avoiding even slow secular deflation(5). Though nowadays we tend to think of price level and money growth rules as alternatives, that is not how they appeared in the 1920s. Exponents of stable money growth regarded it, not as a desirable alternative to the self-conscious pursuit of price stability, but rather as the best practicable means of achieving that end, and along with it, an automatic damping, though not perhaps total elimination, of the cycle as well.

Harold Reed (1930), who acknowledged Snyder's priority in advocating stable money growth (See Reed 1930. p. 199), expressed matters as follows:

"In our examination of special periods we have concluded that mistakes have usually been admitted whenever the aggregate credit supply of the country has been permitted to undergo pronounced fluctuations for any extended period of time. The stabilization of business seems to be very largely a matter of avoiding serious departures from a rate of credit enlargement corresponding roughly to the physical growth of the country's trade." (Reed 1930, p. 198)

Lionel Edie (1931), who was extremely doubtful about the feasibility of using the rate of interest as the principal tool of stabilisation policy ". . .for the reason that the elasticity of credit demand behaves in an unstable and often unpredictable manner" (Edie 1931, p. 102) - essentially the same reason as Hawtrey gave for believing credit to be "inherently unstable" - went a little further than Snyder or Reed in specifying just how money growth might be regulated, and advocated what we would nowadays call "base control".

"Central Banks should aim at so regulating the reserves of the banking system that the outstanding credit built upon those reserves will expand at the same rate as the long-term growth of production. There is enough credit when the curves of credit growth and production parallel each other. More than this is too much; less than this is too little." (Edie 1931, p. 117 original in italics)

Monetary rules of any type, however, were very much a minority taste at this time, particularly

among practitioners of monetary policy, as Edie explicitly pointed out.

"A symposium of central bank opinion in various countries revolves about such maxims as: 'Artificial interference with the natural commercial demand for credit is dangerous and unwarranted'; 'It is impossible to strike a bow at speculative excesses without at the same time cutting off the credit supply to meet the legitimate needs of trade'; 'We can make money easy but we cannot force people to borrow it. One can lead a horse to water but one cannot make him drink.'" (Edie 1931, pp.91-92)

Nowhere were ideas such as these more prevalent than in the Federal Reserve System itself, more particularly the Federal Reserve Board, and among some of its close associates in the American banking and academic communities.

IV. THE BANKING SCHOOL ELEMENT IN AMERICAN MONETARY ECONOMICS

The Federal Reserve system had been created in 1913, at a time when the Gold Standard was apparently at its zenith, largely in order to provide lender of last resort facilities to a banking system which, it was taken for granted, would operate against a background of gold convertibility. Though neo-classical monetary economics had by then long since moved beyond the point of regarding the price level in terms of gold as being determined independently of the configuration and operation of the monetary system, the belief that, under the gold standard, the price level would largely take care of itself so long as the central banks of the world observed the "rules of the game" was still widely held; and even though gold convertibility no longer placed any systematic constraint on

Federal Reserve policy in the 1920s, discussions of monetary policy in which price level behaviour was a subsidiary issue were still common at that time, particularly in the above-mentioned circles.

The provision of lender of last resort facilities had not, however, been the only aim of the founders of the Federal Reserve system. As one of its principal architects, H. Parker Willis, who in the 1920s and 1930s held a professorship at the Columbia University School of Business, had noted in 1915

"The Federal reserve system is ... not simply an insurance against panic, but a regular working part of the banking mechanism of the country with given functions to be steadily and continuously performed ..." (Willis 1915, p. 24)

Among those given and, be it said, rather modest functions, the system was required "To furnish an elastic currency" and "To afford means of rediscounting commercial paper" (Digest of the Federal Reserve Act, as reprinted in Willis 1915, p. 315.) Nothing as ambitious as the stabilisation of the price level, let alone the real economy, was expected of the System. There was in fact a rather strong overtone of what can properly be called a British Banking School viewpoint built into the Federal Reserve Act (6). This viewpoint treated the price level as largely exogenous to the behaviour of the banking system, and the cycle as mainly a consequence of real shocks of one sort or another; and for some of its exponents, it also encompassed what Lloyd Mints (1945) would later call the "real bills doctrine".

Those who espoused these views, notably Willis and Benjamin Anderson, who in the 1920s was chief economist of the Chase Bank and an influential contributor to monetary debates, were well

aware of their origins in the Banking School literature, as their relatively frequent references to these earlier writings make quite clear: and, like their formidable predecessor (and Willis's mentor) James Lawrence Laughlin of the University of Chicago, they were hostile to Fisher's version of the quantity theory, sometimes to the point of invoking what we nowadays call "reverse causation" between the quantity of money and the price level to make their case(7). For example, Anderson's treatise, *The Value of Money* (1917) should be read as an attempt systematically to rebut claims made on behalf of the quantity theory in Fisher's *Purchasing Power of Money*, and in it the following argument appears:

"The quantity theory is that, while particular prices may rise from causes affecting them, as compared with other prices, without a change in money, velocities etc., still there cannot be a rise in the general average, because other prices will be obliged to go down to compensate. The issue is as to the possibility of a rise in particular prices, uncompensated by a corresponding fall in other particular prices, without a *prior* increase in money, or velocities, or decrease in trade. ... I shall maintain that particular prices can, and do, rise, without a *prior* increase in money or bank deposits, or change in the volume of trade, or in velocity of money or deposits and also without compensating fall in other particular prices. Putting it in terms of Fisher's equation, I shall maintain, as against Fisher, that P can rise through the direct action of factors *outside* the equation of exchange, that *as a consequence of such rise* the other factors readjust themselves, and that a new equilibrium is reached which, in the absence of new disturbances from causes outside the equation, tends to be as permanent and stable as the old equilibrium was." (Anderson, 1917, p. 293,

italics in original)

Now some of the examples with which Anderson went on to illustrate this contention should in fact be acceptable to exponents of the quantity theory even in the form Fisher gave it, and to this extent they represented something of a straw man. They hinged on the effect on the price level of a small open economy (implicitly assumed to be on the gold standard or some other fixed exchange rate arrangement) of a rise in world prices(8). In such circumstances, Anderson argued, domestic prices would also rise, and the balance of payments would improve for so long as was necessary to bring the money supply up to a level that would validate this change. (cf. Anderson 1917, pp. 297-300). Other examples Anderson offered are less convincing, however, because, following Laughlin (whom he cites in his own support on this point) he was of the opinion that

"The trouble with Fisher's notion comes in his definition of the value of money in purely relative terms as the *reciprocal of the price-level*, and his contention that the study of the value of money is identical with the study of price-levels. Value is not a mere exchange relation. Rather, every exchange relation involves *two* values, the values of the two objects exchanged. These two values *causally* determine that exchange relation. In the case of particular prices, then, we must consider not only the value of goods, but also the value of money." (Anderson 1917, pp. 312-313, italics in original)

Anderson also followed Laughlin in arguing that the value of paper money derived from the prospect of its redemption in gold(9). As he told readers of the *Chase Economic Bulletin* of March

23 1925 (Anderson 1925)

"If the market believes that redemption is certain and is merely deferred for a very short time, the discount [on paper relative to gold] will be slight. If the market believes that redemption is uncertain or that the time of redemption is remote, the discount will be great." (Anderson 1925, p. 15-16)

There is no need to mount an elaborate critique of these doctrines here. What is important is that, erroneous though the first of them surely is (unless one maintains some variant of the labour theory of value), and extreme though the second may be in the way in which it implicitly assumes that money is nothing but a store of value, they formed part of the theoretical basis for a view of monetary policy that was extremely influential in the United States in the 1920s. Though Anderson explicitly left open the possibility that some fluctuations in the price level might originate on the side of money, as had Laughlin before him, (cf. Anderson 1917, p. 313, pp. 389-390), the overall tone of his argument was that their source was more commonly to be found in the real economy; and that, in those circumstances, if the quantity of money did not validate them, then velocity would adapt instead. In Anderson's words:

"'Velocity of circulation' is a blanket name for a complex and heterogenous set of activities of men The safest generalization possible concerning it is that it varies with the volume of trade and with prices" (Anderson 1917, p. 394)

Nor was this necessarily undesirable: ". . . the business cycle is not, by any means, an unmitigated

evil, and the important thing is to prevent the extreme fluctuations rather than to try and keep industry and prices on a dead level at all times. even if this were possible" (Anderson 1927, p. 121).

In any event, the views of those

". . . who see the whole explanation of the business cycle in the . . . movements of the general average of commodity prices. and. . . of the movements in the average of commodity prices in the phenomena of expanding and contracting money and bank credit" (Anderson 1927, p. 121)

were "unsound". Anderson believed that the quantity theory was superficial, and that monetary theory needed to move beyond questions about the inter-relations between money and the price level to those involving the influence of monetary arrangements in general. but banking in particular. on real variables.

"Production waits on trade. The problem of marketing in the modern world is often more important than the problems of production in the narrower sense'Volume of trade,' far from being dependent on 'physical capacities and technique.' is almost indefinitely flexible, with changing tone of the market, with changing values, and with other changes, including changes in the volume of money and credit."
(Anderson 1917, p. 393)

To gear monetary policy to the pursuit of a price level target required one to assume that the price level was, as Anderson termed it, "passive", and that the volume of transactions was independent of the quantity of money. Since he believed neither postulate to be true, it is hardly surprising that he also argued that "The proposal that the Federal Reserve Banks should stabilize commodity prices by varying their rediscount rates ... is thoroughly vicious and unsound." (Hepburn and Anderson 1921, p. 35), or that, with specific reference to Keynes's proposals, in the *Tract on Monetary Reform*, to put domestic price stabilisation ahead of exchange rate stability, he remarked

"These theories are dangerous as well as false. They represent a refined and subtle form of Greenbackism or fiat money doctrine. They are hard to confute if the quantity theory on which they rest is true." (Anderson 1925, p. 4)

Anderson, however, held a quite different view of the essential role played by "money and credit" in economic life to anything offered by the quantity theory.

The phrase "money and credit" requires some attention at this point. Anderson's European contemporaries usually used the word "money" to mean currency, and reserved "credit" for the chequable liabilities of commercial banks. Sometimes Anderson and other Americans such as Willis also used the word "credit" this way, but they frequently used it to denote the assets that lay on the other side of the banking system's balance sheet; and they paid a great deal of attention to the types of assets that commercial banks held, or to the *quality* of bank credit as the usage of the time had it(10). For them, this *quality* of credit was far more important for the conduct of monetary policy than the *quantity* of money, and meeting the needs of trade for means of exchange was a far more

important policy goal than stabilising the price level.

Just what meeting the needs of trade did and, equally important, did not involve was made clear by Willis:

"... a main function of banking is to enable persons who have debts to pay to get the funds with which to meet them. ... banking is a process of equalizing the supply of fluid funds among those who require them. The Federal reserve system is intended to provide just this means of liquefying and equalizing resources. It is not a method of supplying capital to borrowers for investment" (Willis 1915, p. 190)

For Willis, as for Anderson, bank lending that facilitated trade in goods and services made an indirect, but appropriate, contribution to the economy's productivity by helping to maintain an equilibrium structure of relative prices. The central role of commercial banks was to provide the means of exchange necessary to facilitate trade, and in normal times, it was believed that such provision would be close to automatic. Anderson warned, however, that

"... in a period when idle bank funds are seeking employment, and when bankers must compete with one another for the opportunity to place their funds in capital uses ... there is obvious danger of substantial diversion of loanable funds from productive to speculative uses." (Anderson, 1926, p. 27)

There is no need here to do more than note the difficulties involved in giving operational content

to such distinctions among the qualities of bank assets, in tracing the proceeds of particular loans through the financial system from their primary lender to ultimate user, and in deciding whether their ultimate use has been productive or speculative. The important point is that the influential economists whose work we are here discussing believed that such distinctions as these could become a basis for practical policy guidelines. Willis, this time writing in collaboration with George W. Edwards, may again be allowed to speak for them on the matter:

"... banking tends to create a condition of exchange in which it is easier to dispose of goods, or in which goods are enabled to command the widest possible market ... the effect of banking is to bring about an equalization of the demand for and supply of goods ... If banking credit be freely extended to borrowers the effect of it is that of rendering the borrowers' wealth, whatever it might be, more readily available as purchasing power. ... When banks are overconfident in their estimates of future value and grant to each applicant an undue proportion of credit ... they place in the hands of the borrowers purchasing power which the latter are not entitled to--that is to say, purchasing power which [they] ... really do not possess. In this case the borrowers are given a control over the commodities of others which they ought not to have, and if they exercise or apply it they are able to make an artificial demand for the commodities of others. The effect of such action ... is to raise prices, and the resulting condition is called inflation." (Willis and Edwards 1926, pp. 492-494)

Willis and Edwards went on to note that "... this danger is limited or largely avoided if banks are constantly compelled to redeem their outstanding credits in money" (Willis and Edwards 1926, p.

494)(11). A drain of reserves into circulation would, under such circumstances, eventually prompt credit contraction. In the absence of convertibility, however.

"... bank credit becomes an independent factor in the equation.

The question properly to be asked in this connection relates to the standards or measures which banks can or should apply in determining whether the credit extensions they make are likely to have the moderating influence already spoken of or the disturbing influence. It seems to be assumed by some writers that there is no definite means by which the banker can assure himself of the effect of the credit he grants, so that as a matter of fact he can never be certain of the social influence produced by his work. This is an erroneous view of the situation. There is one perfectly safe and reliable guide which can almost invariably be applied by the banker. If the credit that he grants is for a period not longer on the average than the period of commercial credit in his community, his extension of credit will tend to bring about a steadier, smoother flow of goods from producer to consumer, and so will tend to 'even up' prices. If, on the other hand, the period of credit allowed by the banker is much longer than that which is necessary to bring about the transfer of goods from producer to consumer, the banker is practically supplying the producer with capital, or in other words is enabling him to keep turning over his operations. In this case the counter effect of credit already spoken of sets in." (Willis and Edwards 1926, p. 494-495)

Here we have an absolutely clearcut statement of the "real bills doctrine": the proposition that, even

in the absence of convertibility, a banking system which confines itself to lending on the security of good quality short term commercial loans will automatically act so as to stabilise the price level(12). The fact that the doctrine in question had been exposed as fallacious as long ago as (1802) by Henry Thornton, and that writing about the early 1800s, Bagehot (1873) had described statements of it by certain directors of the Bank of England as "almost classic in their nonsense" quite evidently did nothing to prevent it from being espoused by some very influential monetary economists in America during the first two decades of the Federal Reserve system's operation.

V. MIDDLE GROUND

This is not to say that so clearcut a version of the doctrine as we find in Willis's writings was an undisputed touchstone for American monetary policy in the 1920s, let alone that the Strong Bills were rejected on its basis. Matters were more complicated, even ambiguous, than that, for there existed what Perry Mehrling (1994) has called a "middle ground" between the advocates of monetary rules such as were embodied in those bills, and the exponents of Banking School ideas, and it was well occupied.

Charles O. Hardy (1932) quoted from the 1923 *Annual Report of the Federal Reserve Board* as follows

"... Administratively, therefore, the solution of the economic problem of keeping the volume of credit issuing from the Federal Reserve Banks from becoming either excessive or deficient is found in maintaining it in due relation to the volume of

credit needs as these are derived from the operating requirements of agriculture, industry, and trade, and the prevention of the uses of Federal Reserve credit for purposes not warranted by the terms or spirit of the Federal Reserve Act.' " (Federal Reserve Board, 1923, pp. 34-35, as quoted by Hardy 1932, p. 78)

He went on to note that this argument, which is essentially the same as that of Willis and Edwards (1926) just quoted, seemed to imply that the System should not engage in stabilisation policies, "... but merely ... adapt itself to conditions as it finds them" (Hardy 1932, p. 79). As Hardy then pointed out. "The logical outcome of this policy would be to make stability of interest rates the primary test of policy" (Hardy 1932, p.79, fn.). However, he also quoted another passage from the same Report which led in another direction, and concluded that

"[The] view, that it is the business of the Reserve system to work against the extremes either of deflation or inflation and not merely to adapt itself passively to the ups and downs of business. nor to confine itself to guarding against the inflow of credit into non-productive uses, is the view which in general has seemed to dominate Reserve system policy." (Hardy 1932, p. 80)

Hardy attributes this moderate position, which lies between the extremes espoused by, say, Willis on the one hand and Fisher on the other, to no individual in particular, but it was certainly held by Burgess of the Federal Reserve Bank of New York, who in (1927) actually managed to subsume such activities under the rubric of "meeting the needs of trade". It was also held by Allyn Young, whose influence on American monetary economics in the 1920s was far greater than his current

reputation would suggest(13).

Until 1927, Young was Professor of Economics at Harvard, where according to his obituarist Oskar Morgenstern (1929, p. 488) his ideas had become " a matter of oral tradition just as [had] - according to Keynes - Marshall's theory of money in Cambridge"; and (surely not co-incidentally in the light of Burgess' just cited views) he was also an advisor to Governor Benjamin Strong of the Federal Reserve Bank of New York(14). It was Young's position that

"No central bank could assume its necessary responsibilities and pursue a purely passive policy. If it did, sooner or later its reserves would be drained dry by gold exports or by a flow of currency into hand-to-hand circulation. There are two ways in which it can protect itself. First, by advancing its discount rate ... Second ... by selling some of its earning assets ... Under different conditions, of course, the central bank may safely adopt the opposite policy, reducing its rates and increasing the amount of its cash liabilities, so as to permit a general expansion of credit." (Young 1927, p. 79)

and he noted with approval that

"Since the war new importance has been attached to the effects which the operations of central banks have on the general condition of business, and it is quite generally held that their policies should be determined with primary reference to the securing of the maximum practicable degree of business stability." (Young, 1927, p. 80)

On the evidence of this 1927 paper, then, Young's attitude to monetary policy was very different from that of Anderson, Willis, or indeed any other exponent of the real bills doctrine. At the same time however, Young was opposed to subjecting the Federal Reserve System to any legislated rule, such as that embodied in the Strong Bills. When it came to laying down criteria for central bank behaviour, he was adamant that "... we can be certain that reliance upon any simple rule or set of rules would be dangerous." (Young 1927, p. 81). On the contrary.

"What the Federal Reserve Banks need most ... is not more power or less power, or doctrinaire formulations of what their policy ought to be, but merely an opportunity to develop a sound tradition, and to establish it firmly." (Young, 1927, p. 82)

If, therefore, the failure of the Strong Bills in particular, and indeed of the case for monetary rules in general to make any political headway, represented a defeat for Irving Fisher's view of the policy implications of the quantity theory of money, that failure by no means implied an unequivocal triumph for the real bills doctrine, influential though this remained into the early 1930s.

The passages from Young just quoted are, as the reader will have noted, very reminiscent of Hawtrey. They canvass the possibilities of discount rate policy and open market operations as instruments of counter-cyclical policy, they are cautious about what can be expected from such measures, and they stress that central banking is an "art" whose practice cannot be codified in simple legislated rules. This resemblance is no accident. Young was a great admirer of Hawtrey, and had reviewed *Currency and Credit* twice in the early 1920s, calling its second edition "... one of the most significant - possibly *the* most significant - of modern treatises on money". (Young

1924, p. 349, italics in original). He utilised the book extensively in his teaching at Harvard, and was also instrumental in arranging Hawtrey's only academic appointment as a visitor at Harvard in 1928-29)(15).

Young was also the author of a monograph, essentially a sophisticated exercise in descriptive statistics, entitled *Analysis of Bank Statistics for the United States* (1928), which was first published as a series of four articles in the *Review of Economic Statistics*. Although these articles utilise data for National Banks only, and although only the last of them deals with post 1914 data - 1915-1926 to be precise - they nevertheless document those pronounced seasonal movements of currency out of New York in the autumn that, when combined with the propensity of New York Banks to hold call loans to financial markets as secondary reserves did much to contribute to the fragility of the the National banking system; and they also document New York's central place in what (perhaps with the exception of California) had become an integrated nationwide monetary system even before 1914.

Significantly in the current context, Young remarked with respect to the movements of funds into New York banks from the hinterland, and thence through financial markets and out to the hinterland again, and the fluctuations in reserve-and-currency/deposit ratios that accompanied them, that

"I have little doubt but that the relations we are now considering lie at the very heart of the problem of the instability of the modern mechanism of bank credit and of those business activities that depend upon credit." (Young 1928, p. 28)

and to this remark he appended a footnote: "I know of no better analysis of the essential instability of the volume of bank credit than is to be found in R. G. Hawtrey's work *Currency and Credit*" (Young 1928, p. 28. fn.1)

Hawtrey therefore quite evidently exercised considerable influence on the middle ground of American monetary economics in the 1920s, as indeed such diverse commentators as Schumpeter (1954), Deutscher (1990) and Mehrling (1994) have pointed out, but, as Mehrling has particularly stressed, there was a good deal more to that middle ground than the adaptation of Hawtrey's ideas to local conditions. Young was no adherent of a purely monetary theory of the cycle, and he was also, and quite unlike Hawtrey, a supporter of using public works expenditures for stabilisation purposes. His eclecticism in these matters reflected that fact that, as Mehrling has noted, his work belonged to the American Institutional tradition(16). The business cycle theory which that tradition generated in the 1920s, found its most influential exponent in Wesley C. Mitchell, but Alvin Hansen, who was later to become America's leading exponent of Keynes' *General Theory*, also made an important contribution to this body of literature in the 1920s

VI. MITCHELL AND HANSEN ON THE CYCLE

It was no accident that Fisher's skepticism, discussed earlier, about the existence of a systematic phenomenon that could be referred to as *the business cycle* should have attracted the attention of Mitchell. That skepticism, as Fisher expressed it in (1925), was in large measure directed at Mitchell's own research agenda, which had already received a comprehensive statement in his 1913 monograph *Business Cycles*, written in California just prior to his move to Columbia University in

New York where, in 1920, he would assume the directorship of the National Bureau of Economic Research.

Mitchell's work on business cycles is nowadays usually thought of as primarily descriptive-- "measurement without theory" to borrow a famous phrase from Tjalling Koopmans (1947), a later critic of the NBER approach which Mitchell pioneered--but this is unfair(17). Mitchell was certainly an empiricist, but he was well aware that one needed theory in order to select and organise the facts to be studied. That is why his (1927) NBER book on the topic, *Business Cycles The Problem and its Setting* began with a lengthy (over 40 pages) survey of then current theoretical explanations of the cycle, which he motivated in the following terms:

"It is not advisable to attack the statistical data until we have made this survey of theories. For while the statistics will come to seem scanty as our demands develop, they are sufficiently abundant and diverse, susceptible of enough transformations and combinations, to make hopeless a purely empirical investigation. At every turn, we shall need working hypotheses to guide our selection of data, and to suggest ways of analyzing and combining them. Our survey of theories will provide us with the most promising hypotheses which have been invented. Not until we are thus equipped can we begin constructive work upon the problem of business cycles, confident that we are not overlooking elements already proved to be important."
(Mitchell 1927, p. 3)

What Mitchell found uncongenial, that is to say, was not theory, but monocausal theorising about

the cycle uninformed by careful empirical investigation of the phenomenon. Thus, though it would be possible to

"... take up the theories one by one, make a critical examination of the evidence offered in support of each, at need devise new tests, and treat conclusions regarding the validity of each theory as our main objective" (Mitchell 1927, p. 58)

Mitchell preferred instead to study one by one the successive phases of the cycle - revival, prosperity, crisis, depression, revival, etc., to use his (1923) vocabulary - making "... conclusions regarding the fluctuations our main objective, treating verdicts upon the theories as by-products to be turned out when convenient." (Mitchell 1927, p. 58)

The closeness to data implicit in this method meant that Mitchell paid a great deal of attention to the individual features of specific cycles, but he nevertheless, and unlike Fisher, regarded each one as an example of a general phenomenon. As he put it in 1923, "Instead of a 'normal' state of business interrupted by occasional crises, men look for a continually changing state of business - continually changing in a *fairly regular* way" (Mitchell, 1923, p. 6, italics added)(18). Furthermore, though he was eclectic, Mitchell was anything but agnostic when it came to theory. The very fact that he regarded the cycle as a recurring phenomenon, whose analysis could "... start with any phase ... we choose" (Mitchell, 1923, p. 7) set him apart from those theorists who saw some essentially exogenous shock, perhaps one which, once discovered, could be removed, as the source of fluctuations: Fisher with his "dance of the dollar" provides a clear example of this alternative approach. Moreover, Mitchell had an extremely clear idea of where the vital link in the mechanism

which kept the cycle in motion was to be found:

"To keep from getting lost in a maze of complications, it is necessary to follow constantly the chief clue to business transactions. Every business establishment is supposed to aim primarily at making money. When the prospects of profits improve, business becomes more active. When these prospects grow darker, business becomes dull." (Mitchell 1923, p. 6)

He returned to the same theme, which had also figured prominently in Thorstein Veblen's pre-war writings on the cycle (e.g. 1904), in 1927 (e.g. pp 105-107), and made it clear that this emphasis on profits also implied

"... that an account of economic fluctuations in a business economy must deal primarily ... with the pecuniary aspect of economic activity. This conclusion runs counter to one of the traditions of economic theory The classical masters and the masters of utility analysis thought that they were delving deeper into the secrets of behaviour when, with scarcely a glance at the 'money surface of things', they took up the labor and commodities, or the sacrifices and utilities, which they held to be the controlling factors. When followed in the present field of study, this practice diverts attention from the way in which business cycles come about, and concentrates attention upon alleged non-business causes of fluctuation." (Mitchell 1927, p. 106-107)

The non-business causes to which Mitchell referred - "changes in crops, and in methods of manufacturing, storing, shipping and distributing goods - as well as ... changes in politics, fashion, education, recreation and health" (Mitchell 1927, p.107) did have a role to play in driving the cycle in his view, but only to the extent that they "affect[ed] the prospects of making money" (Mitchell 1927, p. 107). For Mitchell, then, the monetary element was critically important to any satisfactory account of the cycle, but it was far from all important as it was in Fisher's (or indeed Hawtrey's) analyses. One matter which attracted particular attention from him, for example, was the accelerator mechanism, particularly in his 1923 essay where it was the main topic of a complete section entitled "How Prosperity Breeds a Crisis" (Cf. Mitchell 1923, pp. 10-15)(19). Mitchell illustrated the operation of this "relationship" as J. M. Clark (1917) called it, with an explicit numerical example showing how

"During depression and early revival the equipment-building trades get little business except what is provided by the replacement demand. When the demand for products has reached the stage where it promises soon to exceed the capacity of existing facilities, however, the equipment trades experience a sudden and intense boom. But their business falls off again before prosperity has reached its maximum, provided the *increase* in the physical quantity of products slackens before it stops. Hence the seeming anomalies pointed out by J. Maurice Clark:

'The demand for equipment may decrease ... even though the demand for the finished product is still growing. The total demand for [equipment] tends to vary more sharply than the demand for finished products The maximum and minimum points in the demand for [equipment] tend to precede the maximum and

minimum points in the demand for finished products, the effect being that the change may appear to precede its own cause" (Mitchell 1923, p. 13. italics. and all deletions and additions, in original)

Mitchell nevertheless regarded the accelerator mechanism as only one factor at work during the cycle's upswing and at its upper turning point. The same (1923) essay from which the above quotation is taken gives overall pride of place to the role of the monetary system. Mitchell emphasised the influence of monetary expansion on the profitability of business during the upswing, and its subsequent tightening at the upper turning point, and noted that, as far as capital goods industries were concerned, this general tendency "... intensifies the check which ... [they have] already begun to suffer from an earlier-acting cause" (Mitchell 1923, p. 12): namely, the accelerator.

All in all, Mitchell's view of business cycles defies any simple summary. This is hardly surprising, given that his overall research agenda was empirical, and given the importance he attached to guarding "... against the besetting sin of theorists in this field - neglecting phenomena which do not fit neatly into preconceived schemes" (Mitchell 1927, p. 48-49). And yet an emphasis on profit seeking behaviour within an economic system in which money was a good deal more than a veil was a central theme of his eclecticism. That theme, as we shall now see, was not unique to Mitchell's work. It also occupied a prominent place in Alvin Hansen's (1927) exposition of business cycle theory, where it was, as in Mitchell's work, supplemented by careful consideration of the accelerator mechanism. This similarity between Hansen's approach and that of Mitchell is surely due to the fact that he was very much a product of that same American Institutional tradition in

cycle theory whose leading exponent was Mitchell.

It is worth noting, nevertheless, that in a (1921) monograph, Hansen had come down firmly on the side of a purely monetary explanation of the cycle, similar in broad outline to that of Hawtrey, though apparently at that time he was unaware of Hawtrey's work. He had, to be sure, considered the accelerator as a central feature of the cycle in that study, but had rejected its significance after considering evidence on the cyclical behaviour, not of *volumes* of consumption and investment, but of the *prices* of investment and consumption goods. The fact that the rate of change of the latter did not systematically lead the level of the former had seemed to him inconsistent with the accelerator's operation.

By 1927, however, Hansen had become altogether less single minded. He was by then, and very much like Mitchell, willing to countenance the possibility that a wide variety of mechanisms could be at work in the cycle, not least, the accelerator: in the analysis of which he had come to lay less emphasis on price behaviour *per se*, and more on the purely technical links, between the rate of flow of current production and the stocks of capital goods required to sustain it, that underlay the the relationship in question(20).

"But we must not blame the thermometer - price and profits - too much. Even though these were abolished by a socialistic or communistic order, there would still remain the difficulty of adjusting the capitalistic, or roundabout, process of production to social wants. It is the *need* itself which misleads and deludes the producers. It is doubtful if leaders in any regime would be able to make a more

satisfactory adjustment then entrepreneurs make in the individualistic order.

Now an increase in the demand for consumer's goods gives rise to far greater fluctuations in the demand for fixed capital." (Hansen 1927, p. 111. italics in original)

The accelerator, however, supplemented the workings of the monetary system in Hansen's 1927 analysis, very much as it did in Mitchell's. The basic principle at work as far as the monetary element in the cycle was concerned

"... may be stated as follows: If for any reason the prospective profit rate deviates from the rate of interest charged in the loan market, the discrepancy between them tends to develop into an expansion or contraction of business, depending upon whether the profit rate is above or below the loan rate." (Hansen 1927, p. 191)

This mechanism, supplemented by the effects of a lag in production costs behind prices, and the accelerator, served to ensure that the consequences of exogenous shocks to the system stemming from "... changes in the arts, changes in consumers' demand, and changes in the bounties of nature" (Hansen 1927, p. 192) would initially be cumulative but eventually cyclical in nature as what he termed "limiting or restraining forces" (e.g. Hansen 1927 p. 194) came into play. Among the latter were a variety of resource constraints on the level of economic activity, a tendency for the rate of growth of consumption to slow down, inducing a fall in investment, not to mention the tendency of interest rates to catch up with profits as the upswing progressed.

It is worth noting that, in 1927, Hansen explicitly denied that the cycle was inherently self-generating and self-perpetuating. One reason for this was that "... were there no new disturbing factors business men would gradually learn to adjust themselves to the situation in such a manner that, bit by bit, the oscillations would tone down." (Hansen 1927 p. 198) He agreed, referring explicitly to technical accelerator and monetary mechanisms, that such learning processes would be slow and unreliable.

"In an individualistic, competitive economy there is good ground for believing, with Aftalion and Hawtrey, that society cannot adjust itself to the time lags inherent in our capitalistic and money economy, and so the oscillations, once started, tend to perpetuate themselves." (Hansen 1927, p. 200)

But, ultimately, he argued, they would die away in the absence of new shocks:

"If we pull a twig and let it snap back, we set up a swaying movement back and forth; but the twig, once deflected and then left to itself, soon stops swaying. Friction brings it to rest. So in business: we must assume that the effect of any initial disturbance would soon wear off after a very few oscillations of rapidly diminishing amplitude." (Hansen 1927, pp. 202-203)

Because he believed that the cycle was inherently damped, Hansen also believed that new exogenous shocks were needed to keep it going, and this made him optimistic about the future prospects for economic stability. New resource discoveries and technical innovations were, he

thought, unlikely to be as significant in the future as they had been in the past: agricultural output was less susceptible to weather conditions than it had been; and once "the whole world is brought into the industrial system, when economic imperialism has run its course" (Hansen 1927, p.205) wars would be less likely too. Moreover, and perhaps crucially,

"... business men are gradually accumulating experiences which help them to meet and evade the disturbing factors inherent in the modern system of production. The organization of industry, says Spiethoff, will more and more fit itself to the requirements of the capitalistic manner of industry. The modern means of gaining information, the growing publicity with respect to new opportunities, make for better insight into and control over economic conditions Social control, trade associations, and Kartells, and the control exercised by centralized banking systems are illustrations of an increasing social adjustment to the capitalistic method of production and the money economy. Laissez-faire is gradually being displaced more and more by purposeful and scientific control, not only with respect to discount policies but also with respect to trade competition and intertrade relations. Voluntary associations, even more than governmental regulations, are working in the direction of greater business stability." (Hansen 1927, p. 205)

Though the specifically cited inspiration for the foregoing passage of Hansen's was the German economist Erich Spiethoff, there is nothing about its tone to place it outside the mainstream of the American Institutionalist business cycle literature of the 1920s. A similarly pragmatic tone, based on guarded optimism about the likely fruits of increasing knowledge, permeates Mitchell et al. (1923), not to mention Mitchell (1927) and is explicitly expressed in the Foreword to Mitchell *et*

al. (1923) written by no less a figure than Herbert Hoover, then Secretary of Commerce. He pointed out that, in addition to making "constructive suggestions" about the use of public works expenditures to stabilise employment over the cycle, the contributors to the volume in question had concluded that

"... the strategic point of attack [on the cycle] ... is mainly through the provision for such current economic information as will show the signs of danger, and its more general understanding and use by producers, distributors, and banks, including more constructive and safer policies." (Hoover 1923, p. vi)

We have seen that Allyn Young firmly occupied the middle ground in American debates about the stabilising capacity of monetary policy in the 1920s. In the current context, it is therefore worth noting that it was he who prepared the chapter on "Business Cycles" for the 1925 edition of Richard T. Ely's widely used textbook *Outlines of Economics*, a chapter which, in addition to endorsing public works policies, and the judicious use of monetary policies, particularly at cyclical extremes, also suggested that

"Methods of *forecasting* the probable movement of business conditions have already become important and promise to acquire yet greater importance With the further perfecting and increasing use of such methods, the major oscillations of the business cycle are likely to be anticipated and discounted. Paradoxically, anticipating such fluctuations will tend to diminish them.

Individual firms and, in some measure, trade associations in different industries, are

giving increased attention to the scientific analysis of the particular conditions that particularly affect their own industries. The federal government, also, has made praiseworthy beginning in the work of collecting, publishing, and supplying to bankers and business men some of the fundamental current economic facts upon which intelligent business planning must be based." (Ely 1925, p. 336)

Though none of these authors, Hansen included, looked forward to the immediate elimination of the cycle, the overall tone of their contributions to the American literature of the 1920s was one of optimism about the prospects for significantly mitigating it. Growing knowledge, improved public policies, and modified private sector behaviour too, based upon that knowledge were likely to make things better in future than they had been in the past.

VII. UNDERCONSUMPTIONISM IN AMERICAN MACROECONOMICS

Not every American economist writing in the 1920s was optimistic about the future prospects for the smooth functioning of the economy. Just as in England at this time J. A. Hobson (eg.1923) was keeping alive the so-called underconsumptionist critique of orthodox economic analysis, so in America too did this theme find articulate exponents in the persons of William Truffant Foster and Waddill Catchings. Their particular version of underconsumptionism differed from Hobson's inasmuch as they stressed the workings of the monetary system, rather than the mechanisms driving the distribution of income, as the source of the basic flaw in the operations of the market economy, but their analysis was nevertheless clearly in the same tradition as Hobson's.

Foster and Catchings were neither academics nor bankers, but published their work under the auspices of the privately sponsored Pollak Foundation for Economic Research. The seriousness of purpose that marked this foundation's work, however, can be gauged from the fact that its first publication was no less a work than Irving Fisher's (1922) *Making of Index Numbers*; and a wide academic readership for Foster and Catchings' work was further guaranteed by the foundation's offer of a generous prize for the best essay criticising that work, which was developed at considerable length in two books *Money* (1923) and *Profits* (1925). The central theme to which they returned again and again in these two books was that

"Our modern economic life is founded on money. Our whole industrial order is based on production of goods for sale at a money profit. The economic value of virtually everything, except consumers' goods already in the hands of consumers, is based on the expectation that it can be sold for money, or will have a part in producing something that can be sold for money." (Foster and Catchings 1923, p. 5)

The trouble was, they thought, that there existed a flaw in the mechanism of monetary exchange which, in the absence of appropriate policy, made it impossible for those expectations systematically to be realised in an economy that simultaneously realised its full productive potential. The incomes of consumers, on which the demand for goods depended, originated in the incomes paid out to them in their capacity as producers of those same goods. But because firms would retain some of their earnings, and because households would devote part of their incomes to saving, consumption expenditure was bound to fall short of the amount necessary to purchase current output at a price

sufficient to yield a profit to producers(21). Therefore,

"... periodic business depressions, with the inevitable accompaniment of unemployment, reduced production, and lower standards of living, are caused fundamentally by the failure of consumers' income to keep pace with output."

(Foster and Catchings 1925, p. 350)

The theoretical basis of this message was worked out in *Money* with the aid of an early version of a circular flow of income and expenditure diagram and further developed in terms of numerous special case examples, and illustrated with copious statistics, in *Profits*. The details of these examples need not concern us, for they add nothing to Foster and Catchings' central message that thrift is potentially destructive, that, in their colourful phrase "a penny saved is sometimes a penny lost" (Foster and Catchings 1925, p.400); nor are they necessary to an understanding of the broad policy implication of their theory, namely that the key to high employment lies in maintaining the level of consumer expenditure.

There was of course nothing particularly new or original in this broad message: as Alvin Hansen (1927) noted, it fits in to a theoretical tradition dating back to Malthus and Lauderdale, and to which Hobson in England and Veblen in the United States had more recently contributed(22). However, unlike Veblen in particular, Foster and Catchings did not see their work as forming part of a comprehensive dissenting critique of the nature of modern capitalism. Their dismissal of Veblen's attack on conspicuous consumption makes this abundantly clear.

"So when Thorstein Veblen lashes, with all the thongs of his far-flung vocabulary, the conspicuous waste of the leisure class ... we should bear in mind, however tempted we may be to join in the flaying, that every consumer is the sole judge of what he really wants" (Foster and Catchings 1925, pp. 201-202)

Consumption of any kind was, in their view desirable, so long as it was sustained at an adequate aggregate level.

Unlike the vast majority of their contemporaries, both American and British, Foster and Catchings saw little help to be had from public works expenditures if these were either debt or tax financed.

"Merely adjusting Government expenditures to business fluctuations ..., although it tends toward stability, does not permanently increase consumer purchasing power. Since it merely distributes a given outlay more evenly over a series of years, it does not in the long run offset deficiencies in demand." (Foster and Catchings 1925 p. 340)

This because " ... Government loans, as well as taxes, in so far as they cause no changes in the volume of money in circulation, can neither offset a deficiency in consumer demand nor create one." (Foster and Catchings 1925, p. 338) This sounds very much like Hawtrey, but it is important to recall that for the latter, *any* change in the quantity of money, or its velocity of circulation, would, given a modicum of price stickiness, affect income and employment(23). Not so for Foster and Catchings: for them the point in the circular flow of money income and expenditure at which

new money was injected was all important.

"The chief economic need, therefore, is a flow of money to consumers sufficient to provide for the necessary growth in their savings, and yet enable them to buy, and to continue to buy at an approximately stable price level, all the goods that are *actually* ready for final consumption." (Foster and Catchings 1925, p. 364)

Bank lending to business would not inject new money in the right place, and indeed, Foster and Catchings remain remarkably, albeit self-consciously, vague about how this central policy issue might be solved in practice - "What is the way out? ... most readers ... will be disappointed, no doubt, because we do not offer a definite answer." (Foster and Catchings 1925, p. vi) - but they do give one tantalising hint in the course of their discussion of deficit finance

"When ... the money wherewith to buy government securities is obtained by means of the expansion of bank credit, the result is an increase on the consumer side of the volume of money in circulation. This is what happened during the World War. In fact, the slogan of the Liberty Bond campaigns was 'Borrow and Buy Bonds'; and the use of the bonds themselves, as security for bank loans wherewith to buy more bonds, caused an expansion of money which was first used to take goods off the markets. This would have helped to offset deficiencies in demand had there been any deficiencies; but since at that time demand was outrunning supply, the result was a rising price-level.

It should be observed, incidentally, that it makes no difference to the annual

equation how effectively the Government spends the money which it receives as loans and taxes. All we have said so far applies as well to money usefully employed by governments as to money wasted What we have said does not apply, however, to that exceedingly small proportion of Government expenditure which actually brings about an increase in the volume of goods which are sold to consumers." (Foster and Catchings 1925, pp. 338-339)

In short the important thing was to increase the quantity of money flowing through the hands of consumers without increasing the quantity of consumer goods being offered for sale.

This analysis of Foster and Catchings attracted one supporter in the 1920s, who was to continue to propagate a version of it well into the 1930s, namely Paul Douglas of the University of Chicago. Pointing out that J.B.Say had long ago argued that "[s]ince ultimately goods are exchanged for goods, . . .to increase production is merely to give producers more commodities with which to barter" (Douglas 1927 pp.36-37) and that "[t]his reasoning. . .ever since. . .has been accepted in the main by economists of the orthodox tradition" Douglas went on to credit Foster and Catchings with detecting "an extraordinary error of logic" in this position in their "brilliant and suggestive writings" (Douglas 1927, p. 37). He then proceeded to elaborate on the policy measures which might ensure that ". . .monetary purchasing power be augmented sufficiently to prevent prices from falling", the key factor in avoiding contractions in Foster and Catchings' (and his own) view, and concluded that

"Perhaps the best way would be for the government to expend purchasing power for the

construction of public works which would thus give purchasing power to the workers and stabilize the price level. Since the services of these public works would later largely be offered gratuitously to the public, they would not enter into the volume of commodities offered for sale and hence would not cause a fall in the price level." (Douglas 1927, p. 41)

Douglas considered a variety of ways of financing such expenditure, including government borrowing from the banks, but

"If proper safeguards could be provided to prevent inflation instead of such borrowing, I would personally favor an issue of paper money on the part of the government to pay for the materials and the labor utilized. In this way society could get needed public works constructed without any added cost to itself. Labor which would otherwise be largely unemployed would be used instead to construct needed roads, buildings, playgrounds, etc.

. . . The issue should be so limited as: (1) to prevent the index of unemployment . . . from rising above, let us say five per cent; (2) to prevent the general price level from rising by more than two or three per percent; (3) to prevent the foreign exchanges from being dislocated." (Douglas 1927, p. 42)

Such proposals were to become popular, not to say immediately relevant, in the 1930s; but in the 1920s, even though Foster and Catchings received considerable attention from commentators other than Douglas, including Mitchell (1927) and Hansen (1927), the type of unequivocal support which he gave to their position was somewhat unusual(24). The monocausal nature of their analysis meant

that their immediate influence on the mainstream of American business cycle analysis was relatively minor. The exponents of that mainstream shared Foster and Catching's conviction that the institutional fact of monetary exchange was central to the nature of economic fluctuations, but they were also eclectic when it came to the details of the causative mechanisms at work in both generating and perpetuating them. The monocausal nature of Foster and Catchings' analysis was too much for them to swallow. Hansen (1927) was quite representative in characterising Foster and Catchings' analysis of "... the conditions necessary for economic equilibrium [as] satisfactory as far as it goes, but ... too simple for an adequate analysis of the complex forces at work in the business cycle." (Hansen 1927, p. 57).

VIII. CONCLUDING COMMENT

It was remarked at the outset of this paper that, in the 1920s, there existed a vigorous, diverse, and distinctly American literature dealing with monetary economics and the business cycle. That has surely now been amply demonstrated. By the 1940s, however, so-called Keynesian macroeconomics was well on its way to becoming dominant in the United States, and in the usual story, this doctrine was an import from Britain, welcomed with open arms by at least the younger generation of American economists desperate to understand the Great Depression, an event with which inherited wisdom was utterly unable to explain and for which it was equally unable to prescribe a cure. It is well beyond the scope of this paper to examine this story in any detail, but a few comments on what the foregoing commentary implies about its accuracy are surely in order.

First, there can be no doubt that the depression thoroughly discredited what I have termed the

Banking School tradition in American monetary economics. The exponents of that tradition put the collapse of 1929-1933 down to what they believed to have been a previous overexpansion of credit on the part of the Federal Reserve system, and advised that the only viable way of coping with the Great Depression was to wait it out. (25) In this, the views of Anderson and Willis bore some resemblance to those of such contemporaries as Friedrich von Hayek (1931) and Lionel Robbins (1934), albeit without any well developed theoretical apparatus such as that deployed by these Austrians to underpin their policy position. Be that as it may, they suffered the same fate as the Austrians, becoming widely regarded as irrelevant.

Not that their quantity theorist opponents from the 1920s fared much better in the short term. Though the latter could, and some did, claim that adherence to a monetary rule might have helped avert the collapse that began in 1929, the immediate problem after 1933 was to cope with the consequences of the 53 per cent fall in money income (36 per cent in real income, and the balance in the price level) that had taken place since 1929. Monetary policy rules still had their exponents in the 1930s, Henry Simons (1936) nowadays being the best known, but in the 1930s, rules were advocated as something to be adopted after full employment had been restored, and not as an immediate remedy for the then current situation. Here too then, after 1929 there was an absence of immediate relevance in the legacy of the 1920s. In this case though, it should be noted that Simons and his associates also advocated vigorous monetary expansion as an answer to the short-term, but no less serious, problem of restoring something approaching full employment, as well as deficit spending financed by money creation as the most reliable means of bringing about monetary expansion in the depressed conditions of the early 1930s.(26)

But the economics of the 1920s had more than this to offer in the early 1930s. There was, as I have remarked, a well occupied middle ground between the Banking School and the quantity theorists, as well as a flourishing underconsumptionist tradition. It was from the latter that Paul Douglas' (1935) vigorous advocacy of deficit spending on unemployment relief and public works derived, and, as J. Ronnie Davis (1971) has documented, he was anything but alone in taking such a stance.(27) Douglas (1935) also interpreted the failure of open market operations in 1932 to generate monetary expansion as evidence confirming his own long held skepticism about the efficacy of orthodox monetary policy to mitigate cyclical downturns in general and the Depression in particular, and here too he was far from alone - Keynes himself (1936, pp.207-208) was later to cite this episode as one in which the liquidity trap might have been operative.

Here, however, it is worth noting that one heir to the middle ground of the 1920s, namely Allyn Young's student Lauchlin Currie, applying an analysis of the money supply process which essentially quantified Hawtrey's notion of the "inherent instability of credit" using a statistical framework derived from Young (1928) had, by (1934b), anticipated not only Friedman and Schwartz's (1963) explanation of the failure of the open market policy of 1932 as stemming from its being pursued with insufficient vigour, but also their monetary explanation of the Great Contraction itself. These findings of Currie's had less immediate impact on American macroeconomics that they might have had, because even by the time he published them in 1934, he was himself beginning to have doubts about the efficacy of orthodox monetary policy in the *current* situation and was already developing his own case for using fiscal expansion as the key to recovery, a case that would be very influential in Washington after his move there in 1934, and particularly after his appointment to the staff of the Federal Reserve Board in 1935.

None of this is to say that, because of underconsumptionists and others, the analysis of Keynes' *General Theory* had, after all, nothing to offer to American economics in 1936. Clearly it did, for even Alvin Hansen, so much the optimist in the 1920s, had by (1932) under the influence of Joseph Schumpeter taken up an essentially "wait it out" approach to the depression, while Mitchell (1935) expressed broad agreement with Lionel Robbins' (1934) Austrian diagnosis of its causes, and Hansen was after all to become the principal American exponent of Keynes' *General Theory*.

It is, however, to say that there already existed long before 1936, and indeed before 1929, a body of American literature which: proved quite capable of evolving its own case for what we now (quite inaccurately) call Keynesian policy doctrines; gave prominence to at least one theoretical notion that was central to Keynes' (1936) work, namely that the institution of monetary exchange was fundamental to the study of what we now call macroeconomics, and to one mechanism, namely the accelerator, which would be easily assimilated into what we now call (if not quite inaccurately, then certainly too narrowly) Keynesian theory; and encompassed a tradition of careful empirical work which had no real parallel elsewhere, but which would play an important role in the subsequent development of the discipline. Evidently the macroeconomics of the 1940s and after, in America as elsewhere, had more sources than the *General Theory*, and the American literature of the 1920s surveyed in this essay was one of them.

FOOTNOTES

1. Note however that the cycle described in Fisher (1911) is a cycle in the price level. (On this matter see Laidler 1991, pp. 93-95) It was only after World War 1 that Fisher began to consider fluctuations in real variables.
2. This is not to say that Hawtrey thought that central banks were powerless to influence the economy. On the contrary, he was to argue in 1932 that sufficiently vigorous open market operations could have significant effect on the depressed American economy. He did, however, have a keen appreciation of the difficulties of getting the timing of policy right over the cycle.
3. The following account draws heavily on Hardy (1932) Chapter X, pp.199-226.
4. It is also the case that Snyder (1935) was later to be an exponent of a monetary explanation of the Great Depression, though he was anticipated here by Lauchlin Currie (1934a)
5. It is interesting to note that Keynes (1923, pp. 32-34) presented a theoretical argument as to why deflation would depress real activity, based upon the idea that, with falling prices, firms would have difficulty in selling output at a price that would cover earlier incurred production costs. He did not ignore the effect of expectations on interest rates in this book, but rather questioned their ability to adjust sufficiently to eliminate problems of this sort (See Keynes 1923, p. 20).

6. This is not to say that Willis and his colleagues simply repeated arguments to be found in the writings of, for example Thomas Tooke and James Fullarton, but they did often refer to these authors and clearly thought of themselves as developing their ideas. I am indebted to Maria Cristina Marcuzzo for a discussion of this point.

7. On the debate between Laughlin and Fisher see Laidler (1991, pp.75-76)

8. Fisher himself considers this case in (1911, p. 91) arguing that it is sometimes convenient to treat the price level in an open economy as determined exogenously, just as it is sometimes convenient to describe the level of water in a lagoon as determined by that of the sea. He was not always consistent on this matter, however.

9. One can make sense of the above description of the determination of the price level in terms of a cost of production theory of value. In this matter, as in stressing the prospects of money's redemption in terms of gold as affecting its purchasing power, Anderson is closer to Adam Smith (1776, Book II, Ch. 2) than to Tooke and the Banking School.

10. This ambiguity in vocabulary often led to outright confusion when propositions about the influence of the deposit liabilities of the banking system were wrongly applied in discussing the effects of bank lending per se. See Currie (1933) for a masterly contemporary account of this matter.

11. There is therefore some resemblance between the views of Willis and Anderson and those that underpinned Austrian business cycle theory, as epitomised by, for example Hayek (1931). However,

the resemblance is far from complete, since these Americans showed no particular interest in the abstract capital-theoretic analysis on which Hayek based his analysis.

12. Note that what I am here, following Mints (1945) calling the real bills doctrine is a proposition about the consequences for the price level of a particular rule for bank lending. Sargent and Wallace (1982) use the phrase to describe the rule itself, but correctly do not claim (unlike Willis and other advocates of its adoption), that if it is followed, price level stability is guaranteed.

13. Young's monetary economics is thoroughly and perceptively discussed by Mehrling (1994). See also Laidler (1993) for a briefer discussion, on which the following few paragraphs draw.

14. It is well known that many of the difficulties encountered by the United States monetary authorities in the late 1920s and early 1930s stemmed from conflicts between the Federal Reserve Board in Washington and the Federal Reserve Bank of New York. It is a good first approximation to describe this conflict as one stemming from the different views on monetary theory propounded by Willis and Anderson on the one hand and Young on the other.

15. The influence of Hawtrey's views on Young and on Lauchlin Currie too, and the relationship of his analysis to what is often called "The Chicago Tradition" in monetary economics is explored in Laidler (1993).

16. The American institutionalist tradition was not entirely home grown, having been influenced by the German Historical School. However, by the 1920s, its influence was being re-exported to

Europe, not least to Germany, under the auspices of the Rockefeller Foundation. On this matter see Earlene Kraver (1986)

17. On this matter, see the perceptive discussion of Mary Morgan (1990) pp.44-48

18. On this point, but only on this point, I am inclined to differ with Morgan. I think that Mitchell saw a little more uniformity among individual cycles than she is willing to concede.

19. Probably the single most important source in persuading American economists to pay attention to the accelerator was Aftalion (1913)

20. Mehrling (1995) provides a perceptive overview of Hansen's contributions to macroeconomics, stressing the extent to which his emphasis on the accelerator in the 1920s derived from the influence of such continental European writers as Aftalion.

21. Thus there is some relationship between Foster and Catchings underconsumptionism and the analysis of Keynes (1923) discussed in fn. 5 above. Unlike them, however, Keynes did not single out consumption goods industries for special attention.

22. It is worth noting that Hansen (1927) was initially written as an entry to the Pollak Foundation competition for the best critique of Foster and Catching's ideas, which is why those ideas occupy such a prominent place in its pages.

23. That is to say, Foster and Catchings' ideas differ from those of Hawtrey, just as they differ from those of Keynes (1923) in singling out the market for consumption goods for special attention.

24. George Tavlas (1976) has argued that Douglas was an important pioneer of the Chicago Tradition out of which Milton Friedman's work developed. I find this argument unconvincing in the light of Douglas's underconsumptionism, which, after going into abeyance during his collaboration with Aaron Director (Douglas and Director 1931) re-emerged as a prominent feature of his work in the 1930s. See, eg. Douglas (1935)

25 See for example, Willis, Chapman and Robey (1933) as a source of arguments along these lines.

26. The policy position outlined here is essentially that of the Chicago tradition, as documented by Patinkin (1969). Note that this tradition, though it obviously influenced Friedman, is not the source, in the literature of the 1930s, of those positions vis a vis the monetary explanation of business cycles in general and the Great Depression in particular which, through Friedman's work, are nowadays associated with Chicago. Here one must look to Hawtrey (eg 1932) and Lauchlin Currie (1934). On Currie as a predecessor of Friedman, see Humphrey (1971, rpr. 1993, pp. 106-108). On the links among Hawtrey, Currie and the Chicago tradition, see Laidler (1993)

27. At this point it is worth re-iterating my view that Douglas' work should not be placed in any Chicago tradition that relates to Friedman's work, as Tavlas (1976) would have us do. It is interesting to note that, in writing about influences on his work, Friedman himself has never, to the best of my knowledge, mentioned Douglas.

REFERENCES

- Aftalion A. (1913) *Les Crises Periodique de Surproduction* Paris. Riviere.
- Anderson B. M. (1917) *The Value of Money* New York, Macmillan.
- (1925) The Gold Standard versus 'A Managed Currency' *Chase Economic Bulletin* 5, March 23.
- (1926) Bank money and the Supply of Capital *Chase Economic Bulletin* 6, Nov. 8.
- (1927) State and Municipal Borrowing in Relation to the Business Cycle *Proceedings of the Academy of Political Science Stabilizing Business* 12 (July) 1.
- Bagehot W. (1873) *Lombard Street - a Description of the Money Market* London P. S. King.
- Burgess W. R. (1927) What the Federal Reserve System is Doing to Promote Business Stability *Proceedings of the Academy of Political Sciences* 12, (5) *Stabilizing Business* (July) 139-47.
- Clark J M. (1917) Business Acceleration and the Law of Demand: A Technical factor in Business Cycles *JPE* 25 (March) 217-35.
- Craver E. (1986) Patronage and the Direction of Research in Economics: The Rockefeller Foundation in Europe, 1924-1938. *Minerva* 24 (Summer-Autumn) 205-21.
- Currie L. (1933) Treatment of Credit in Contemporary Monetary Theory *JPE* 41 (Feb.) 58-79.
- (1934a) The Failure of Monetary Policy to Prevent the Depression of 1929-32 *JPE* 42 (April) 145-77.
- (1934b) *The Supply and Control of Money in the United States* Cambridge Mass., Harvard Univ. Press.
- Deutscher P. (1990) *R. G. Hawtrey and the Development of Macroeconomics* London, Macmillan.
- Davis J. R. (1971) *The New Economics and the Old Economists* Ames Iowa, Iowa Univ. Press.

- Douglas P. H. (1927) *The Modern Technique of Mass Production and its Relation to Wages*
Proceedings of the Academy of Political Science 12 (3) *Stabilizing Business* (July) 17-42.
- (1935) *Controlling Depressions* New York, Norton.
- and Director A. (1931) *The Problem of Unemployment* New York, Macmillan.
- Edie L. (1931) *The Banks and Prosperity* New York, Harper Bros.
- Ely R. T. (1925) *Outlines of Economics* (4th ed.) New York Macmillan.
- Fisher I. (1896) *Appreciation and Interest* *Publications of the AEA* 3 (Aug.) 331-442.
- (1907) *The Rate of Interest* New York, Macmillan.
- (1911) *The Purchasing Power of Money* New York, Macmillan.
- (1922) *The Making of Index Numbers* Boston, Houghton Mifflin.
- (1922-23) *The Business Cycle - Largely a Dance of the Dollar* *JASA* 18 (Dec.) 1024-28.
- (1925) *Our Unstable Dollar and the So-called Business Cycle* *JASA* 20 June pp. 191-192.
- Foster W. T. and Catchings W. (1923) *Money* Boston, Houghton Mifflin.
- (1925) *Profits* Boston, Houghton Mifflin.
- Friedman M. and Schwartz A. J. (1963) *A Monetary history of the United States 1867-1960*
 Princeton N.J., Princeton Univ. Press for the NBER.
- Hansen A. H. (1921) *Cycles of Prosperity and Depression in the United States, Great Britain and*
Germany: a Study of Monthly Data Madison, Univ. of Wisconsin Press.
- (1927) *Business Cycle Theory: Its Development and Present Status* Boston, Ginn.
- (1932) *Economic Stabilization in an Unbalanced World* New York, Harcourt Brace.
- Hardy C. O. (1932) *Credit Policies of the Federal Reserve System* Washington, Brookings Inst.
- Hawtrey R. G. (1913) *Good and Bad Trade* London, Constable.
- (1919) *Currency and Credit* London, Longmans Green.

- (1932) *The Art of Central Banking* London, Longmans Green.
- Hayek F. A. von (1931) *Prices and Production* London. Routledge.
- Hepburn J. and Anderson B. M. (1921) The Gold and Rediscount Policy of the Federal Reserve
Banks *Chase Economic Bulletin* 5 (July 20).
- Hobson J. A. (1922) *The Economics of Unemployment* London, Macmillan.
- Hoover H. (1923) "Foreword" to Mitchell et al. *Business Cycles and Unemployment* New York,
N.Y. McGraw Hill.
- Humphrey T. M. (1971) Role of Non-Chicago Economists in the Evolution of the Quantity Theory
in America 1930-1950, as reprinted in Humphrey T. M. *Money, Banking, and Inflation*
Aldershot, Edward Elgar, 1993.
- Keynes J. M. (1923) *A Tract on Monetary Reform* as reprinted in *Collected Works of JMK* Vol. 4.
- Koopmans T. J. (1947) Measurement without Theory *Review of Economic Statistics* 29, 161-172.
- Laidler D. (1991) *The Golden Age of the Quantity Theory* Princeton N.J. Princeton Univ. Press.
- (1993) Hawtrey, Harvard and the Origins of the Chicago Tradition *JPE* (101) Dec. 1068-
1103.
- Mehrling P. (1994) The Monetary Thought of Allyn Abbott Young, *Working Paper 94-04* Dept.
of Economics, Barnard College, New York.
- (1995) Alvin Harvey Hansen Barnard College, New York (mimeo).
- Mints L. W. (1945) *A History of Banking Theory in Great Britain and the United States* Chicago,
Univ. of Chicago Press.
- Mitchell W. C. (1913) *Business Cycles* Berkeley, Univ. of California Press.
- (1923) Business Cycles in Mitchell et.al. *Business Cycles and Unemployment* New York,
N.Y. McGraw Hill.

- (1927) *The Business Cycle - The Problem and Its Setting* New York, NBER.
- (1935) Review of Lionel Robbins *The Great Depression*. *QJE*.
- Morgan M (1990) *The History of Econometric Ideas* Cambridge, Cambridge Univ. Press.
- Morgenstern O. (1929) Allyn Abbot Young (as tr. and reprinted in A. Schotter (ed.) *Selected Economic Writings of Oskar Morgenstern* New York, N.Y. New York Univ. Press 1976).
- Patinkin D. (1969) The Chicago Tradition, the Quantity Theory, and Friedman *JMCB* 1 (Feb.) 46-70.
- Reed H. L. (1930) *Federal Reserve Policy 1921-1930* New York. McGraw Hill Book Co.
- Robbins L. C. (1934) *The Great Depression* London, Macmillan.
- Sargent T. J. and Wallace N. (1982) The Real Bills Doctrine versus the Quantity Theory: A Reconsideration *JPE* 90 (Dec.) 1212-36.
- Schumpeter J. A. (1954) *A History of Economic Analysis* New York, Oxford Univ. Press.
- Simons H. C. (1936) Rules versus Authorities in Monetary Policy *JPE* 44 (Feb.) 1-30.
- Smith A. (1776) *An Inquiry into the Nature and Causes of the Wealth of Nations* London.
- Snyder C. (1924) New Measures in the Equation of Exchange *AER* 14 (Dec.) 699-713.
- (1927) *Business Cycles and Business Measurements* New York, N.Y., Macmillan.
- (1935) "The Problem of Monetary and Economic Stability" *QJE* 49 (Feb.) 173-205.
- Sprague. O. M. W. (1910) *History of Crises under the National Banking System* Washington. Government Printing Office.
- Tavlas G. (1976) The Chicago Tradition Revisited: Some Neglected Contributions: Senator Paul Douglas (1892-1976) *JMCB* 9 (Nov.) 529-38.
- Thornton H. (1802) *An Inquiry into the Nature and Effects of the Paper Credit of Great Britain* London.

- Thorp W. (1926) *Business Annals* Publications of the NBER No.8, New York, NBER.
- Veblen T. (1904) *The Theory of Business Enterprise* New York, N.Y. Charles Scribner's Sons.
- Willis H.P. (1915) *The Federal Reserve: A Study of the Banking System of the United States*
Garden City, New York, Doubleday.
- Chapman J. M. and Robey R. W. (1933) *Contemporary Banking* New York, Harper &
Brothers.
- and Edwards G. W. (1926) *Banking and Business* New York, Harper and Brothers.
- Young A. A. (1924) Review of *Currency and Credit* (2nd ed.) and *Monetary Reconstruction* by
Ralph G. Hawtrey *AER* 14 (June) 349-51.
- (1927) *Economic Problems New and Old* Cambridge Mass. Riverside.
- (1928) *An Analysis of Bank Statistics for the United States* Cambridge Mass. Harvard
Univ. Press.