

The "Paradox" of Saving¹

F. A. von Hayek, *Economica*, N° 32 (May 1931), pp. 125-169²

Gibt es einen "Widersinn des Sparens"?

The assertion that saving renders the purchasing power of the consumer insufficient to take up the volume of current production, although made more often by members of the lay public than by professional economists, is almost as old as the science of political economy itself. The question of the utility of "unproductive" expenditure was first raised by the Mercantilists, who were thinking chiefly of luxury expenditure. The idea recurs in those writings of Lauderdale and Malthus, which gave rise to the celebrated *Théorie des Débouchés* of James Mill and J. B. Say, and, in spite of many attempts to refute it, it permeates the main doctrines of Socialist economics -- right up to Tougan-Baranowsky, Th. Veblen, and Mr. J. A. Hobson. But while in this way the idea has found a greater popularity in quasi-scientific and propagandist literature than perhaps any other economic doctrine hitherto, fortunately it has not succeeded as yet in depriving saving of its general respectability, and we have yet to learn that any of the numerous monetary measures intended to counteract its supposedly harmful effects have been put into practice. On the contrary, we have recently witnessed the edifying spectacle of a "World Saving Day," on which central bank governors and ministers of finance vied with each other in attempting to disseminate the virtue of saving as widely as possible throughout their respective nations. And even though there are those who demand an increase in the [p. 126] currency on the grounds that there is an increased tendency to save, it is hard to believe that the presidents of central banks at any rate will prove very ready listeners.

This state of affairs, however, may yet be endangered by a new theory of under-consumption now current in the United States and in England. Its authors are people who spare neither money nor time in the propagation of their ideas. Their doctrine is no less fallacious than all

¹ The following article is a translation of an essay by Dr. Hayek, which has already appeared in the *Zeitschrift für Nationalökonomie*, Bd. I, Heft III, under the title, "[Gibt es einen Widersinn des Sparens?](#) " In view of the great contemporary interest in the subject it deals with and its high degree of relevance to current discussions of monetary theory here and in America, it has been thought desirable to render it available for English-speaking readers.

² The translation is the work of Mr. Nicholas Kaldor and Dr. Georg Tugendhat. Certain minor alterations have been made in the text and a few passages incidental to the main discussion have been omitted and some further explanations added by the author.

the previous theories of under- consumption, but it is not impossible that with able exposition and extensive financial backing it may exert a certain influence on policy in Anglo-Saxon countries. For this reason it seems worthwhile subjecting this theory to detailed and exhaustive criticism.

II

The teachings of Messrs. Foster and Catchings, with which I am primarily concerned in this study, attained their widest circulation in the United States where they have achieved considerable repute not only among members of the public, but also among professional economists.

To understand this success it is necessary to know something of the background of the theory and the very able means by which it has been and still is being propagated.

Quite apart from its analytical significance, for European observers at any rate the story has a certain spectacular interest. I propose, therefore, to deal with it at some length.

Let us start with the two authors. The history of their joint careers provides certain points which give a clue to the origin of their teaching.

Waddill Catchings was born in the south; he had a successful career as a lawyer and banker, finally reaching a high position in the iron and steel industry. In 1920 he, and a number of fellow-students from Harvard, decided to commemorate a deceased friend. For this purpose they founded the "Pollak Foundation for Economic Research." They appointed as director another Harvard friend; William Trufant Foster, a pedagogue, at one time a college president. The Foundation had an annual income of \$25,000 and it soon began to be responsible for the publication of important books on economic subjects, some of them by well-known economists, such as Irving Fisher's *Making of Index Numbers*, others by members of the Foundation, such as A. B. Hasting's *Costs and Profits*, and, above all, *Money* by Messrs. Foster and Catchings themselves.

In this [p. 127] latter work, although it is primarily a very able and instructive exposition of the theory of money, the authors laid the basis of their theory of trade depression later to be fully expounded in their work on *Profits*. In *Money*, they emphasise especially those parts dealing with the circulation of money and the effects on markets of changes in the rate of flow. After describing how circulation starts from the market for consumption goods, from which it passes into the market for production goods, and finally returns to its original source, they discuss the conditions under which this process creates a steady demand for the goods offered for sale, and the factors which influence the circulation of money either by accelerating or retarding it.

While, in a barter economy, supply and demand are necessarily identical, the appearance of money is shown to be capable of disturbing this equilibrium, since it is only possible to maintain production at the existing level if the producers spend money at the same rate as that at which they receive it. Thus the circulation of money between the various stages of

the economic process becomes the central problem of all investigation, not only of changes in the value of money, but also of the influences affecting cyclical fluctuations. Indeed they even go so far as to lay it down that:

"Money spent in the consumption of commodities is the force that moves all the wheels of industry. When this force remains in the right relation to the volume of commodities offered for sale, business proceeds steadily. When money is spent faster than the commodities reach the retail markets, business booms forward. When commodities continue to reach the retail markets faster than money is spent, business slackens. To move -commodities year after year without disturbing business, enough money must be spent by consumers, and no more than enough, to match all the commodities, dollar for dollar."³

It is this theory which forms the basis of the trade cycle theory, which is set forth in great detail in *Profits*,⁴ published three years later. In this voluminous work, with which we shall be concerned in the next sections, Messrs. Foster and Catchings give the most elaborate and careful exposition of their theory. But, despite the clear and entertaining exposition, it failed to secure for the theory the wide circulation desired by its authors.

They pro[p. 128]ceeded, therefore, to restate the main principles in popular language, first in their *Business without a Buyer*,⁵ and later in abridged form in an essay in the *Atlantic Monthly*, which was distributed freely as a reprint in hundreds of thousands of copies.⁶ Most effective, however, in advertising their ideas was the peculiar competition held in connection with the publication of *Profits*. By offering a prize of \$5,000 for the best adverse criticism of the theory contained in this work, the promoters invited the whole world to refute them. But before dealing with the results of this competition it is necessary to consider the general principles of their work.

III

³ W. T. Foster and W. V. Catchings: *Money*. Publications of the Pollak Foundation for Economic Research, N° 2, Boston and New York, Houghton Mifflin, 1923 (p. 277). (A third edition was published in 1928.)

⁴ W. T. Foster and W. Catchings: *Profits*, Publications of the Pollak Foundation, N° 8, Boston and New York, Houghton Mifflin, 1925.

⁵ W. T. Foster and W. Catchings: *Business without a Buyer*, Pollak Foundation, Boston and New York, Houghton Mifflin, 1927, second revised edition, N° 10, 1928.

⁶ W. T. Foster and W. Catchings: *The Dilemma of Thrift*, reprinted from an article in the *Atlantic Monthly* under the title: Progress and Plenty, a Way out of the Dilemma of Thrift; together with another article published in the *Century Magazine*. The pamphlet was published by the Pollak Foundation (Newton 58, Mass., U.S.A.) which supplies copies free on request. A German translation also appeared in the *Finanzpolitische Korrespondenz*, copies of which could also be obtained freely.

The theory of crises advanced by Messrs. Foster and Catchings in *Profits* is preceded by a detailed explanation of the organization of the present economic structure. This justification of the existing "Money and Profit System," as it is called by the authors, fills about one-half of the volume of four hundred pages. For our purpose, it is sufficient to mention that in this part the function of entrepreneur's profit as a factor determining the direction and extent of production is investigated; but it is worth remarking even at this juncture that the authors succeed in completing this investigation without at any point making clear the real function of capital as a factor of production.

Our main concern in this article, however, is confined to the fifth and last part of *Profits* which deals with "Money and Profits in Relation to Consumption," and which, according to the authors themselves, represents a more or less independent object for critical study.⁷ It will be necessary in this connection also to refer in some detail to the short essay entitled The Dilemma of Thrift. The main thesis of the book is stated as follows:

"The one thing that is needed above all others to sustain a forward move[p. 129]ment of business is enough money in the hands of consumers" (p. ii).

Now in the present state of affairs a situation arises from time to time when the buying power in the hands of the consumers is insufficient to purchase the whole industrial output at prices which cover costs. The consequent diminution in sales in the market for consumption goods results in unemployment of factories and plant, that is to say, in crises and trade depressions.

The question is: Where does the deficit in the consumers' income originate?

The earlier exposition in *Money and Profits* affords no explanation of this phenomenon, since it does not take into account the three principal factors upon which the velocity of circulation, and therefore the "annual production-consumption equation" depend: i.e. the influence of saving, of profits, and of changes in the volume of currency.

The most important of these factors is saving, both individual and corporate. To elucidate this point the authors proceed to examine a series of numerical examples and, in the course of this examination, they introduce a number of fictitious assumptions, which, as we shall see later, have an important bearing upon their conclusions. They assume, namely, that by a process of vertical and horizontal integration, the whole industry of the isolated country considered has been united into one single enterprise, payments from which in the form of wages, dividends and salaries form the only source of the community's income.

(There are no taxes or Government expenditure of any kind.)

It is assumed further that the price level, the volume of currency and the velocity of circulation remain constant, and that wages are received and spent during the same economic period in which the goods are manufactured, while these goods are only sold in the following period, and the profits earned on them are also distributed and spent

⁷ Cf. Pollak Prize Essays, criticism of *Profits*, a book by W. T. Foster and W. Catchings, Pollak Foundation, Newton, 1927.

by the recipients during this same period.⁸

With the aid of numerical examples of this sort, the authors demonstrate that, under these conditions, there can be no difficulty in selling the goods manufactured, either in the case of a constant volume of production or of a rising volume per wage-unit, so long as

"industry continues to return to consumers in some way all the money that it took from consumers in the sales price of its product, and as long as consumers spend all that they receive."⁹

But as soon as the company retains part of the profits in the business, not for the purpose of carrying larger stocks, financing the sale of an increased product, or in unsuccessful attempts to improve equipment for these things [p. 130] are comparatively harmless-but in order to improve "capital facilities," which puts it in the position to increase the volume of production, this happy state of affairs changes. As soon as the increased volume of products reaches the market, it is inevitable that the means of payment in the hands of the consumer should prove insufficient to take up the product at remunerative prices. So long as the process of investment is going on no difficulty arises, since the rise in the total wage bill resulting from the increased number of workmen necessary to carry out the extension equals the loss in the shareholders' income resulting from the reduction in dividends, and thus the relation between the volume of production and the money spent on it remains unaltered.

The crisis sets in with the appearance on the market of the surplus output. The money in the hands of the consumer does not increase any further (the sums necessary for the extension of production having already been spent by the wage-earners in the previous period to take up the smaller volume) and, since it is assumed that there is no fall in prices, a proportion of the enlarged product must therefore remain unsold.

In *The Dilemma of Thrift*, Messrs., Foster and Catchings provide the following description of the events leading up to this crisis¹⁰

"Suppose, however, it (the corporation) uses the remaining one million dollars of profits to build additional cars, in such a way that all this money goes directly or indirectly to consumers. The company has now disbursed exactly enough money to cover the full sales-price of the cars it has already marketed; but where are the consumers to obtain enough money to buy the additional cars? The corporation has given them nothing with which to buy these cars."

The new cars, therefore, must remain unsold,

⁸ *Profits*, p. 268.

⁹ *Op. cit.*, p. 273.

¹⁰ *Dilemma of Thrift*, p. 15.

"unless the deficiency (in consumers' income) is made up from outside sources."¹¹

According to Messrs. Foster and Catchings the significant difference between the money spent upon consumption goods and money invested rests upon the fact that money of the former kind is

"used first to take away consumers' goods, whereas in many cases money invested is used first to produce more consumers' goods."¹²

"Money that is once used to bring about the production of goods is again used to bring about the production of goods, [p. 131] before it is used to bring about the consumption of goods. In other words, it is used twice in succession to create supply; whereas if the \$100,000 in question, instead of having been invested in the production of additional goods, had been paid out as dividends and spent by the recipients, the \$100,000 would have been used alternately to bring goods to the markets and to take goods off the markets."¹³

Statements of this sort, which are repeatedly used by the authors, have led even so acute a thinker as Mr. D. H. Robertson to remark that he could not attach any sense to them whatever.¹⁴

It therefore seems worthwhile attempting to restate this part of the theory in more familiar language. *Granting the initial presuppositions of the authors* it is, I think, unassailable. So long as the total disbursements during the course of production are spent on consumption goods, the expenses of production are necessarily equal to the proceeds of the sale of the goods purchased. If, however, certain amounts, such as interest earned on capital, or profit, which could be spent on consumption goods without reducing the existing capital stock, are applied to purchasing additional means of production, the sum total spent on production rises without being accompanied by an equivalent increase in the sums available to buy the final product.

¹¹ *Profits*, p. 281, where the following remark is appended to that qualification :

"We here make that qualification, once and for all, with respect to every case in this and the following chapters,"

which later gave the authors' critics an opportunity to accuse them (*Prize Essays*, p. 12) of misunderstanding the main point of their argument.

¹² *Profits*, p. 284.

¹³ *Profits*, p. 279.

¹⁴ D. H. Robertson: The Monetary Doctrines of Messrs. Foster and Catchings, *Quarterly Journal of Economics*, Vol. XLIII, p. 483, May 1929.

It is in this "short-circuit " in the circulation of money, as Mr. P. W. Martin,¹⁵ whose ideas are closely related to those of Messrs. Foster and Catchings, describes it, that we find the alleged cause of the deficiency in the buying power of the consumer. Now since the results of corporate saving and of individual saving must be alike, since individuals as well as corporations must save if they are to progress, but since, if this theory is correct, they cannot save at present without frustrating to a certain extent the social purpose of saving, the "Dilemma of Thrift" is unescapable.

"From the standpoint of society, therefore, it is impossible to save intelligently without first solving the problem of adequate consumer income. As it is to-day, certain individuals can save at the expense of other individuals; certain corporations can save at the expense of other corporations; and, from the standpoint of the individual and of the corporation, these savings are real. But society as a whole can[p. 132]not save anything worth saving at the expense of consumers as a whole, for the capacity of consumers to benefit by what is saved is the sole test of its worth."¹⁶

After the main thesis of the theory has thus been expounded the authors drop a number of artificial assumptions, and attempt to bring the theory nearer to reality.

The first assumption to be abandoned is that of a stable price-level (this assumption, by the way, was never consistent with their other assumptions). They then examine the effects of falling prices, which alone make it possible to sell the whole of the enlarged product. But falling prices, they argue, make it impossible for industry to maintain production at the new level. The fall of prices causes profits to disappear, and with profits every incentive to the continuation of production.¹⁷

Moreover, it is argued, it is a matter of experience that falling prices render an extension of production impossible.

"If there is any fact concerning which our statistical evidence fully supports our reasoning, it is the fact that falling prices put a damper on productive activity."¹⁸

Only on paper is it possible, in spite of falling prices, to carry out productive extensions by means of falling costs, because only on paper can you regulate the diminution of cost so that even the enlarged product can be sold with sufficient profits. In the existing economic system, with the many independent units

¹⁵ P. W. Martin: *The Flaw in the Price System*, London, 1924; *The Limited Market*, London, 1926, and *Unemployment and Purchasing Power*, London, 1929.

¹⁶ *Profits*, p, 294.

¹⁷ *Op. cit.*, p. 299.

¹⁸ *Op. cit.*

composing it, such a development is not to be expected. On the contrary, we should rather expect price movements in the wrong direction. A fall in the price of consumption goods, therefore, must always bring about a diminution of production."¹⁹

Having thus attempted to show that a general fall in prices can never bring about a solution of the problem, the authors next proceed to consider changes in the volume of money. After all that has been said, it is argued, it should be clear that even changes in the volume of money can only solve the problem insofar as they influence the "production-consumption equation".

"It is not sufficient for this purpose that the total volume of money be increased. The money must go into circulation in such a way that the flow of new money into the hands of the consumers is equal in value, at the current retail price-level, to the flow of new goods into consumers' markets. The question is not, then, whether currency or bank credit, or both, should be increased year after year, but in what way the new money should be introduced into the circuit flow."²⁰

[p. 133] Now unhappily, under the existing system of money and credit, additional money gets into circulation, not on the side of the consumers but on the side of the producers, and thus only aggravates the evil of the discrepancy between producers' disbursements and consumers' money expenditure. Moreover, this system of increasing the money supply through productive credits has the further effect that additions to the money supply take place when they are least necessary. The extension of production which they finance is a response to a lively demand. But when a falling off of consumers' demand is noticeable then credit is restricted and the trouble is aggravated. Thus the modern claim to restrict credit at the first sign of increasing warehouse stocks, and vice versa, is thoroughly pernicious.

"In this way... every advance towards higher standards of living would promptly be checked; for whenever it appeared that consumer income was too small, it would be made smaller still through wage reductions, and under-production would follow promptly."²¹

Nevertheless, it would be easy to arrange an increase in consumers' credits, and it is only in this way that the deficiency in the purchasing power of the consumer, and thus the cause of the depression, can be removed.

¹⁹ *Op. cit.*, pp. 302, 303.

²⁰ *Op. cit.*, p. 307.

²¹ *Profits*, p. 324.

"Theoretically, then, it is always possible to add to the money circulation in such a way as to benefit the community... In any conceivable situation... an all-wise despot could make a net gain to the community by increasing the volume of money in circulation...

If any safe and practicable means could be devised, in connection with increased public works and decreased taxes, or in any other connection, of issuing just enough money to consumers to provide for individual savings and to enable them to buy an enlarged output, and businessmen were confident that issues to consumers would continue at this rate and at no other rate, there would be no drop in the price-level and no reason for curtailing production, but, on the contrary, the most powerful incentive for increasing production."²²

In *Profits*, the authors do not go further than to hint at these proposals. After a necessarily unsuccessful attempt at statistical verification -- a quite unnecessary deference to prevalent fashions -- they conclude that, under the present order of things, every attempt at increasing production must be checked by the fact that the demand of the consumer cannot keep pace with the supply. To remove the causes of this under-consumption is one of the most promising and most urgent problems for the [p. 134] present generation.

"Indeed, it is doubtful whether any other way of helping humanity holds out such large immediate possibilities."²³

But before such reforms can be achieved professional economists will have to admit the inadequacy of their present theories.

"If the main contentions of *Money* and *Profits* are sound, much of our traditional economic teaching is unsound, and overlooks some of the fundamentals which must be better understood before it will be possible to solve the economic problem."²⁴

Conversion of professional economists was therefore the main purpose of the campaign which was launched by the famous prize competition.

IV

The result of this competition for the best adverse criticism of their theory was the most remarkable success achieved by Messrs. Foster and Catchings.

²² *Op. cit.*, pp. 330-331.

²³ *Profits*, p. 417.

²⁴ *Op. cit.*, p. 416.

The three members of the jury, Professor Wesley C. Mitchell, the well-known business-cycle theorist, the late Allyn A. Young, a most distinguished theoretical economist, and Mr. Owen D. Young, the President of the General Electric Company, of "Young Plan" fame, had no less than four hundred and thirty-five essays to examine.

In the introduction to the little volume in which the prize essay and others were published,²⁵ Messrs. Foster and Catchings relate, with some pride, that at least fifty universities, forty-two American States, and twenty-five foreign countries were represented.

Among the authors were at least forty authors of books on economics, fifty professors of political economy, sixty accounting experts, bankers, editors, statisticians, directors of large companies, etc.-among them "some of the ablest men in the Federal Reserve System," a functionary of the American Economic Association, a former President of that Society, and "several of the most highly-reputed economists in the British Empire."

But despite this highly respectable mass-attack of adverse criticism, Messrs. Foster and Catchings remained convinced that their theory still held its own. Moreover, they were able to quote the opinion of one of the umpires,²⁶ that notwithstanding all that had been said against it, the substance of the theory [p. 135] remained untouched.

This sounds extraordinary. But what is more extraordinary is that a candid perusal of the various criticisms which have been published *forces one to admit that it is true*.

So far, the main theory, and what in my opinion is the fundamental misconception of Messrs. Foster and Catchings, has remained unanswered. The meritorious and readable works which were published in the Prize Essays, equally with criticisms published elsewhere,²⁷ direct their criticism only against details. They accept the main thesis of Messrs. Foster and Catchings.

Only the two essays of Novogilov and Adams, which we shall have occasion to mention later on, touch upon the critical points, and even here they do not make their respective objections the basic part of their criticism, or develop them into an independent refutation. In the case of Novogilov's work, it is possible that this is an injustice. In the Prize Essays it was only published in abridged form, and just that part dealing with the influence of varying quantities of product at the various stages of production on the level of profits was entirely left out.²⁸ It is to be hoped that one day it will be published in its entirety.

²⁵ Pollak Prize Essays: Criticisms of "Profits," a book by W. T. Foster and W. Catchings. Essays by R. W. Souter, Frederick Law Olmsted, C. F. Bickerdike, Victor Valentinovitch Novogilov. Newton, Mass., 1927. Cf. also the introduction to *Business without a Buyer*.

²⁶ *Op. cit.*, p. 6. See also the introduction to *Business without a Buyer*.

²⁷ To be mentioned especially are: A. B. Adams, *Profits, Progress and Prosperity*, New York, 1927; A. H. Hansen, *Business Cycle Theory, its Development and Present Statute*, Boston, New York, 1927 (a prize essay published separately); H. Neisser, "Theorie des wirtschaftlichen Gleichgewichtes", *Kölner sozialpolitische Vierteljahrschrift*, Vol. VI, 1927, especially pp. 124-35; D. H. Robertson, The Monetary Doctrines of Messrs. Foster and Catchings, *Quarterly Journal of Economics*, Vol. XLIII, N° 3, May 1929.

²⁸ Cf. Prize Essays, pp. 118-124.

Mr. A. B. Adams' essay, on the other hand, whose criticism on many points coincides with that developed in this essay, and which in an incidental remark foreshadows one of its main theses,²⁹ suffers from the fact that the author himself does not realise the full importance of his objections, and therefore only criticizes the application of Messrs. Foster and Catchings' theory to the case of investment in fixed capital, while admitting its correctness in the case of investment in circulating capital. But even Mr. Adams seems insufficiently to appreciate the function of capital and the conditions determining its utilization -- a deficiency which is common both to the authors of the theory and to all their critics.

As for the rest, they all endeavour to prove that the existing *currency* organisation suffices to increase the supply of money in the course of an extension of production so as to avoid a fall in the price-level. Some of them also point out that the extension of production can also bring about a diminution in costs per unit, so that falling prices need not always put a damper [p. 136] on production. But the alleged necessity to ease the sale of the enlarged product by an increase in the money supply is, in general, allowed, to pass unquestioned.

In doing this, however, the critics place themselves in a difficult position. For the contention of Messrs. Foster and Catchings that productive credits aggravate still more the deficiency in the purchasing power of the consumer is clearly a corollary of the fundamental concept on which the claim for increasing the volume of money by productive extensions is based. To meet this difficulty the critics resort to various expedients. Some make very ingenious investigations into the order of succession of various money movements. Some attempt to refute the rather shaky assumptions in regard to the formation of profits in the course of productive extensions. Correct as these objections may be, they miss the point. The main thesis remains untouched.

V

It is clear that this is the opinion of Messrs. Foster and Catchings, for in their *Business without a Buyer*, published after the close of the prize competition, they do not make any significant alterations in the exposition of their theory.

Fortified by the result of the competition, they then proceeded to develop the practical consequences of their theory. In *The Road to Plenty*,³⁰ which embodies the results of these further reflections, they make no attempt to appeal to economists.

Despite the extremely favorable reception of their former books, it appears they are far from satisfied with professional economists. Both in the introduction to the *Prize Essays* and

²⁹ See below, p. 159.

³⁰ W. T. Foster and W. Catchings: *The Road to Plenty* (Publications of Pollak Foundation, N° II), Boston and New York, Houghton Mifflin, 1928; second edition, revised, 1928. A popular edition of the *Road to Plenty* was published in 50,000 copies and sold (230 pp., in full cloth binding) for 25 cents!

in *Business without a Buyer* they dwelt with some sprightliness on the lack of enlightenment in such circles. Now they turn to the general public and cast their theory in the form of a novel.

The book records a conversation in the smoking compartment of a train where the complaints of a warm-hearted friend of humanity cause a genial businessman to explain the causes of crises and unemployment according to the theory of the authors, and then to defend the latter against the objections of a solicitor and a professor of economics (who, of course, comes out worst). Finally, all those present (including a member of the House of Repre[p. 137]sentatives) are roused to a great pitch of enthusiasm about the concrete proposals based upon it.

These proposals are formulated still more clearly in a further essay, *Progress and Plenty*,³¹ and before proceeding to examine the theory it is worth while setting them forth explicitly. The first demand of the authors, and the condition for the execution of their further proposals, is an extension of business statistics in the direction of a more exact knowledge of the sales of consumption goods in the first place, a complete and reliable index of retail prices; secondly, statistics of all factors influencing these prices (i.e. all possible economic data). These should be collected by public authorities and published promptly, in order to give information and orientation to the business world.

On the basis of such statistics, all public works and all financial operations of the Government should be directed in such a way as to even out fluctuations in the demand for consumption goods.

In *Progress and Plenty*,³² Messrs. Foster and Catchings recommend the delegation of the business of collecting data, and their application to the distribution of public works to a separate body, the "Federal Budget Board." Just as the Federal Reserve Board directs a system for the financing of production, the Federal Budget Board should direct the financing of consumption and prevent disturbances of the economic system arising from consumption lagging behind production.

So far, apart from the demand for a new Board, the proposal contains nothing beyond the much-discussed plan for distributing public works in time in such a way as to concentrate all those capable of being postponed to times of depression.

But Messrs. Foster and Catchings are not satisfied with this. They realize that such a plan would have undesirable effects if the necessary sums were collected and locked up in the public Treasury in times of prosperity and spent in case of need. On the other hand,

³¹ W. T. Foster and W. Catchings: *Progress and Plenty, A Way out of the Dilemma of Thrift* reprinted from the *Century Magazine*, July 1928. Reprinted also together with *The Dilemma of Thrift*. The second edition of *The Road to Plenty*, which I received after writing this article, takes over almost word for word the statements quoted here from *Progress and Plenty*.

³² P. 16 of the independent reprint, p. 37 of the reprint together with *The Dilemma of Thrift* (the reference to the latter will always be given in brackets below). Cf. also *The Road to Plenty*, second edition, p. 188.

to raise the money by taxation at the time when it is needed for public works would be still less likely to achieve the desired end. Only an increase in the volume of money for the purpose of consumption can solve the problem :

[p. 138] "Progress requires a constant flow of new money to consumers. If, therefore, business indexes show the need for a reinforced consumer demand which cannot be met without additional Government expenditure, the Board should bring about such expenditure, not only out of funds previously accumulated for that purpose, but at times out of loans which involve an expansion of bank credit."

This feature of the plan is essential.³³ It follows that the Government should borrow and spend the money whenever the indexes show that the needed flow of money will not come from other sources.³⁴ As might be expected, the authors protest³⁵ that all this is not to be regarded as inflationary. Before its publication they had promised that it should contain "nothing dangerous or even distasteful," and that it would not involve "unlimited issues of fiat money."³⁶ We shall deal critically with these proposals in the last section of this article. At present, it need only be re-marked that even critics who sympathise with Messrs. Foster and Catchings' theory have been unable to conceal their scruples on this point. Mr. D. H. Robertson³⁷ remarks very correctly that he has no doubts that

"they were born with a double dose of the inflation bacillus in their composition; and though they have done their best to exorcise it with prayer and fasting, so that they are able to look down with detached pity on more gravely affected sufferers, such as Major Douglas, yet at critical moments the bacillus is always apt to take charge of the argument."

It is, therefore, all the more astounding that they are able to quote in the advertisements to *The Road to Plenty* (it is true without mentioning the source) the opinion of no less an authority than the late Professor A. A. Young, that "on economic grounds, the plan for prosperity" proposed in *The Road to Plenty* "is soundly conceived," and that (according to the same source) Mr. W. V. M. Persons should have thought the plan "practicable and important." In wider circles, the proposals of Messrs. Foster and Catchings seem to have had an extraordinary effect. President Hoover's pledge to carry out, within practical limits, such a regulation of public works as would alleviate unemployment, has been a powerful

³³ My italics.

³⁴ *Progress and Plenty*, p. 22 (42), and almost in the same words in *The Road to Plenty*, second edition, p. 193.

³⁵ *The Road to Plenty*, second edition, p. 209.

³⁶ Prize Essays, p. 5.

³⁷ *Op. cit.*, p. 498.

lever to their argument.

[p. 139] In a recent pamphlet³⁸ they announce that Senator Wagner from New York has already brought a Bill before Congress for creating a "Federal Unemployment Stabilisation Board" with very similar functions to their "Federal Budget Board." But in America it takes some time for any Bill to become law; and up to the present I have not heard of the success of Senator Wagner's proposals. So far it has not been proposed that this Board should finance public works with additional bank money, and even Messrs. Foster and Catchings have guarded themselves from demanding the execution of this part of their proposals -- even in connection with the Hoover Plans.

Instead they have concentrated on a criticism of the policy of the Federal Reserve Board in raising its discount rate at a time of falling prices and falling employment.³⁹

It is pressure of this sort which constitutes a danger both in America and elsewhere if such theories gain further popularity. At this point, therefore, we may pass to a criticism of their validity.

VI

It is constantly assumed by Messrs. Foster and Catchings that the investment of savings for the extension of production necessarily increases the total costs of production by the full amount of the invested savings.

This follows clearly from their continual emphasis on the "fact" that the value of the increased product is raised by the amount invested, and that therefore it can only be sold profitably for a proportionately higher sum. It is implied by the examples, in which it is always assumed that the increase in the current outlay in wages, etc., exactly corresponds with the sums invested.

Now there is a certain initial obscurity in this assumption, since it is obvious that the costs of the product produced during an economic period cannot rise by the whole of the newly-invested sum if this is invested in durable instruments, but only in proportion to the depreciation of the new durable capital goods; a fact which is not made clear in their exposition.

My main objection, however, is not concerned with this circumstance -- which it is impossible to believe that the authors could entirely overlook -- but rather with their assumption that generally, over any length of time, the costs of production can increase by the whole of the newly-[p. 140] invested amount.

³⁸ W. T. Foster and W. Catchings: *Better Jobs and More of them. The Government's Part in Preventing Unemployment*. Reprinted from the *Century Magazine*, July 1929.

³⁹ *Op. Cit.*, p. 17. B

This view, which is based on a complete misunderstanding of the function of capital as a "carrying" agent, assumes that the increased volume of production brought about by the new investments must be undertaken with the same methods as the smaller volume produced before the new movement took place.

Such an assumption may be true for a single enterprise, but never for the industry as a whole. For in industry as a whole every increase in the available supply of capital always necessitates a change in the methods of production in the sense of a transition to more capitalistic, more "roundabout," processes. For in order that there may be an increase in the volume of production without a change in the methods of production, not only the available supply of capital, but also the supply of all other factors of production must be increased in similar proportion.

In regard to land, at any rate, this is practically impossible.

It is just as inadmissible to assume that the complementary factors which are necessary for the extension of production are previously unemployed, and find employment only with the appearance of the new savings.⁴⁰ A correct view of the reactions on production as a whole of the investment of new savings must be envisaged in this way:

At first the new savings will serve the purpose of transferring a portion of the original means of production previously employed in producing consumers' goods to the production of new producers' goods.⁴¹ The supply of consumers' goods must therefore temporarily fall off as an immediate consequence of the investment of new savings (a circumstance constantly overlooked by Messrs. Foster and Catchings). No unfavorable effects on the sales of consumption goods follow from this, for the demand for consumption goods and the amount of original means of

[p. 141] production employed in producing them decrease in similar proportions. And indeed

⁴⁰ Messrs. Foster and Catchings seem to avail themselves of the assumption of an "industrial reserve army" -- a notion much favoured in trade cycle theory -- from which the labour power necessary for a proportional extension of production can always be obtained at will. Quite apart from the incompatibility of this assumption with the known facts, it is theoretically inadmissible as a starting point for a theory which attempts, like Messrs. Foster and Catchings, to show the causes of crises, and thus of unemployment, on the basis of the modern "equilibrium theory" of price determination.

Only on the basis of an economic theory which, like the Marxian, tries to explain the existence of permanent unemployment of considerable proportions independently of crises would such an assumption be theoretically permissible.

⁴¹ Novogilov, who-as far as I can see is the only critic who emphasizes this circumstance (p. 120, *op. cit.*), puts a favorable interpretation on the exposition in *Profits*, namely that the authors assume that

"the population as a whole must increase its expenditure of labor, but consume not more than in the first years" (p. 108).

But how should savings occasion an increased expenditure of labour?

even Messrs. Foster and Catchings do not make any such assertion. Their difficulties begin only at the moment when the increased volume of consumption goods, brought about by the new investment, comes on to the market. Now this increase in the volume of consumption goods can only be effected through an increase in the volume of capital employed in production. Such capital, once it has been brought into existence, does not maintain itself automatically. This increase makes it necessary that, henceforward, a greater proportion of the existing means of production should be permanently devoted to the production of capital goods, and a smaller part to finishing consumption goods; and this shift in the immediate utilization of means of production must, under the conditions prevailing in the modern economic system, conform with a change in the relative amount of money expended in the various stages of production. But this question of the relation between the sums of money expended in any period on consumption goods on the one hand and on production goods on the other, brings us to the fundamental flaw in Messrs. Foster and Catchings' theory.

VII

Messrs. Foster and Catchings base the whole of their exposition on an hypothesis of what may be called *single-stage production*, in which, in a state of equilibrium the money received in every period from the sale of consumption goods must equal the amount of money expended on all kinds of production goods in the same period.⁴²

Hence they are incapable of conceiving an extension of production save, so to -speak, in the "width -an extension involving the expenditure of the new savings side by side with the sums which were already being spent on the ultimate factors of production, this is to say, the recipients of net income. It is easy to see how they arrive at this position. They

[p 142] assume a single enterprise in which all goods are produced from beginning to end (there will be much to say about this later), and because of this they entirely overlook the phenomenon of changes to more or less capitalistic methods of production. Let us for the time being avoid this assumption, and, instead, consider an economy in which the different stages and branches of production are divided into different independent

⁴² This conception, which is completely erroneous at any rate so far as it applies to a modern economic system, is very often met in economic literature, and may be traced back as far as Adam Smith, who wrote (*Wealth of Nations*, ed. Cannan, Vol. I, p. 305):

" The value of the goods circulated between the different dealers never can exceed the value of those circulated between dealers and consumers; whatever is bought by the dealer being ultimately destined to be sold to the consumer."

It is interesting to note that this statement of Smith is quoted by T. H. Tooke in support of the doctrines of the banking-school. Cf. *An Inquiry into the Currency Principle*, London, 1844, p. ii.

enterprises. We can return later to the special case of single- enterprise production considered by Messrs. Foster and Catchings. But we will adhere throughout to another assumption which they make: the assumption that the amount of money in circulation remains unchanged. It is especially important to do this because most of the criticisms of the theory which have been made up to the present have sought the solution of the alleged dilemma chiefly in a proportional adjustment of the supply of money to the enlarged volume of production.⁴³ To me, at any rate, the fundamental error of the theory seems to arise rather in the presentation of the origin of the dilemma, the supply of money remaining unchanged. I shall return to the question of the effects of a change in the supply of money in the last section, in which I deal with Messrs. Foster and Catchings' proposals for positive reform.

What happens, then, under the conditions assumed, when somebody saves a part of his income hitherto devoted to consumption, or when a company does not distribute its profits, and the sums thus saved are reinvested in production?

At first, clearly the demand which is directed to means of production increases, and that directed to consumption goods correspondingly decreases. Does that mean that the expenditure on production will now be greater than is justified by the sums of money which will be available for the purchase of consumption goods?

That this need not be the case is surely clear from the most superficial consideration of the modern capitalistic economy. For at every moment of time raw materials, semi-finished products, and other means of production are coming into the market, the value of which is several times greater than the value of the consumption goods which are simultaneously offered in the [p. 143] market for consumption goods.⁴⁴ It follows that *the sum spent on the purchase of means of production of all kinds at any period is several times greater than the sum spent on the purchase of consumption goods at the same time.* The fact that the total costs of production are, nevertheless, not greater than the value of the consumption goods produced is explained by the circumstance that every good on its way from raw material to finished product is exchanged against money as many times, on the average, as the amount of money expended on the purchase of means of production at every period exceeds the amount spent on consumption goods.

⁴³ Cf. the criticism of F. L. Olmsted (op. cit., p. 68), where it is expressly stated:

"This brings us back to the 'Dilemma,' and also brings us back to the obvious and only escape from the Dilemma; namely, the progressive increase, in relation to the price level of goods, of the scale of money compensation to individuals for their productive effort if that productive effort is progressively increasing in efficiency." (Italics mine.)

⁴⁴ M. W. Holtrop computes on the basis of statistical data taken from publications of Irving Fisher and the National Bureau of Economic Research that in the United States in the year 1912 the sum of all money payments was more than twelve times larger than the sum of all money incomes (*De omloopssnelheid van het geld*, Amsterdam, 1928, p. 181). Cf. also his further exposition which gives interesting figures in regard to the variations of this proportion in the course of the trade cycle.

And it is just a *lengthening* of this average process of production (which, on our assumption, shows itself in an increase of the number of independent stages of production) which makes it possible, when new savings are available, to produce a greater amount of consumption goods from the *same amount* of original means of production. The proposition that savings can only bring about an increase in the volume of production by enabling a greater and more productive "roundaboutness" in the methods of production has been demonstrated so fully by the classical analysis of Böhm-Bawerk that it does not require further examination.

It is necessary here only to go further into certain monetary aspects of the phenomenon. The questions which interest us are as follows: how does the increase in the money stream available for productive purposes following the investment of new savings distribute the additional demand for means of production through the economic system, and under what conditions is this distribution effected in such a way as to achieve the purpose of saving with the smallest possible disturbance? After what has been said already in this connection it will be of fundamental importance to distinguish between changes in the demand for original means of production, i.e. labour and land, and changes in the demand for means of production which are themselves products (intermediate products or capital' goods) such as semi-finished goods, machinery, implements, etc.

On the other hand it is not important for our present purpose to distinguish between durable and non-durable means of production because it is irrelevant, for instance, that a [p. 144] loom has only to be renewed after eight periods of time, since, in a continuous process of production, this amounts to the same thing as if every eighth loom has to be renewed in every period.

For the sake of simplicity, we may assume that the path from the original means of production to the final product is of equal length for all parts of the total money stream, although, in fact, this differs according to the moment when the particular original means of production are employed in the different stages of production; so that the assumed uniform length of the roundabout ways of production only corresponds to the average length of the various processes which lead to the production of a consumption good. The only case in real life strictly corresponding to this assumption would be the production of a good requiring expenditure of labour only at the beginning of the production process, the rest being left to nature; as, for example, in the case of the planting of a tree. But even this would only completely conform to our assumption if the saplings changed hands every year, i.e. if one man held one-year saplings, another two-year saplings, and so on. This difficulty only arises because, for purposes of exposition, it is easier to treat the average length of production as if it were uniform for all processes. In the real world, of course, it is the very fact that the period between the expenditure of the original means of production and the completion of the consumers' goods is different for every original means of production used, which makes it necessary that the goods should pass through several hands before they are ready for consumption. We assume, therefore, that, for example, the value of all means of production coming to the market during one period is eight times as great as the value of the consumption goods produced during the same period, and the latter is sold for 1,000 units of money, say

pounds sterling. We disregard the differences in value conditioned by interest, that is to say, we make the assumption that interest on capital employed, together with the remuneration of the original means of production, is paid out only in the highest stage of production. The whole process of production and the circulation of money connected with it can then be represented schematically in the following way:

[p. 145] SCHEME A⁴⁵

Demand for consumption goods

(= products of stage of production N° 1) ... £1,000

Demand for the products of the stages of production

N° 2 ... £1,000

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If it were desired, in order to bring the scheme closer to reality, to demonstrate, instead of the average length of the production process, the various lengths of its particular branches, it should be represented some- what as follows:

Demand for consumption goods

(= products of stage of production N° 1) ... £1,000

Demand for products of the stages of production

(From which we have to deduct £58.8 [at each stage]

for original means of production) N° 2 ... £941.2

N° 3 ... £882.4

N° 4 ... £823.5

N° 5 ... £764.8

N° 6 ... £705.9

N° 7 ... £647.6

N° 8 ... £588.2

N° 9 ... £529.4

N° 10... £470.6

N° 11... £411.8

N° 12... £352.9

N° 13... £294.1

N° 14... £235.3

N° 15... £176.5

N° 16... £117.6

N° 17 £58.8

Total demand for original means of production ... £1,000.0

Total demand for produced means of production ... £8,000.0

Relation of the demand for consumption goods to the demand for produced means of production = 1:8. Such an exposition, more complete than the former, alters nothing of its results, but complicates considerably the clarity of the presentation.

Those readers who find this mode of arithmetical illustration difficult to follow are referred to my forthcoming work on *Prices and Production*, shortly to be published by Messrs. Routledge, where the same thing is illustrated diagrammatically.

N° 3 ... £1,000
 N° 4 ... £1,000
 N° 5 ... £1,000
 N° 6 ... £1,000
 N° 7 ... £1,000
 N° 8 ... £1,000
 N° 9 ... £1,000

Total demand for produced means of production

$$8 \times 1,000 = £8,000$$

Relation of the demand for consumption goods to the demand for produced means of production = 1:8.

Such a table represents at once both the products of the various stages of production coming on to the market[s] simultaneously [p. 146] with the consumption goods and the successive intermediary products from which the actual product finally emerges, since, in a stationary economy, these are the same.

We exhibit, that is to say, the total supply of goods originating in one branch of production (or, if the scheme is applied to the whole economy, all branches of production), and coming on to the market in one period of time. The sums paid at the ninth stage of production for the original means of production correspond necessarily with the value of the consumption goods, and form the origin of the funds for which the consumption goods are sold.

Let us assume, then, that the owners of the original means of production spend from their total income of £1,000 only £900, and invest in production the remaining £100 thus saved. There is, therefore, £8,100 now available for the purchase of production goods, and the relation between the demand for consumption goods and the demand for production goods changes from 1:8 to 1:9.

In order that the increased sum of money now available for the purchase of means of production should be profitably utilized, the average number of stages of production must increase from eight to nine; the situation, represented in Scheme A, has therefore to be altered in the following way:

SCHEME B (£100 is saved and invested.)

Demand for consumption goods

(= products of stage of production N° 1) ... £900

Demand for the products of the stages of production

N° 2 ... £900
 N° 3 ... £900
 N° 4 ... £900
 N° 5 ... £900
 N° 6 ... £900

N° 7 ... £900

N° 8 ... £900

N° 9 ... £900

N° 10... £900

Total demand for produced means of production: $9 \times 900 = \dots \text{£}8,100$

Relation of the demand for consumption goods to the demand for produced means of production = 1:9.

[p. 147] In this case also, the total sum which is spent in the last stage for the original means of production, and which is therefore available as income for the purchase of the product coincides with the value of the product after the necessary adjustments have taken place. The allocation of the additional means of production has been effected by maintaining the equilibrium between costs of production and the prices of consumption goods in such a way that the money stream has been lengthened and narrowed down correspondingly, i.e. the average number of the successive turnovers during the productive process has risen in the same ratio as the demand for means of production in relation to the demand for consumption goods has increased.

If the supply of money remains unaltered this is necessarily connected with a fall in the prices of the factors of production, the unchanged amount of which (disregarding the increase of capital) has to be exchanged for £900; and a still greater fall in the prices of consumption goods, the volume of which has increased on account of the utilisation of more roundabout methods of production while their total money value has diminished from £1,000 to £900. This demonstrates at any rate the possibility that, by an increase in the money stream going to production and a diminution of that going to consumption, production can still be organised in such a way that the products can be sold at remunerative prices.

It remains to show that:

- (1) with an unchanged amount of money, production will be governed by prices so that such an adjustment does take place,
- (2) that by such an adjustment of production the purpose of saving is achieved in the most favorable way, and
- (3) that on the other hand every change in the volume of currency, especially every monetary policy aiming at the stability of the prices of consumption goods (or any other prices) renders the adaptation of production to the new supply of saving more difficult and indeed frustrates more or less the end of saving itself.

In order to remain as faithful as possible to the example which Messrs. Foster and Catchings have put in the foreground, let us consider the case of a joint stock company reinvesting a portion of its profits which was hitherto distributed. In what way will it utilize the additional capital? This utilization may be different in different individual cases, yet important conclusions may be drawn from a consideration of the general possibilities of additional investments.

In principle it is possible for a single enterprise -- in contrast to the whole industry -- to utilize the available amount of capital for extending production by retaining existing methods but employing larger quantities of all factors.⁴⁶ We can leave the possibility of this out of consideration for the moment, as our undertaking could only get additional labour and other original means of production by drawing them away from other undertakings, by outbidding them. And this process will change the relative proportion of capital to the other factors in the other enterprise, and thus a transition of production to new methods will become necessary. This is clearly the general economic effect of the increase of capital, and it is this in which we are interested. For the sake of simplicity let us assume, then, that the transition has already taken place in the first enterprise which undertook the savings.

But if a "linear" extension of production is ruled out, and the undertaking has to utilize its relative increase in capital supply for a transition to more capitalistic methods, there remain two main types of investment for the additional capital which have to be considered. These are usually distinguished as investment in fixed capital or durable producers' goods, and in *circulating* capital or non-durable producers' goods respectively. Up to now, in following Messrs. Foster and Catchings, we have only considered investment in circulating capital, in the future we shall have to distinguish between these two possibilities. Whether in any given case investment in fixed capital or in circulating capital is the more profitable, and is therefore undertaken, depends on the technical conditions of the concrete case, and therefore cannot be decided a priori. For analytical purposes it is desirable to treat these two cases separately, both as [p. 149] regards the conditions which must be given in order to render more capitalistic methods profitable, and also as regards the effect on prices.

⁴⁶ In practice, such a linear extension of production will be of importance in so far as, by an increase in the supply of capital, not only will the share of capital in every branch of production increase, but there will be an increase in the relative size of more capitalistic branches of production as compared with less capitalistic ones, i.e. the former will employ more labour, and this extension of the whole undertaking can so far overshadow the increase in the relative share of capital as to create the impression of a linear (proportional) extension of the more capitalistic undertakings. Even if the proportion between capital and the original means of production employed remains absolutely constant, but the more capitalistic undertakings were extended at the expense of the less capitalistic ones (as may be the case with undertakings of average roundaboutness), this implies, from the point of view of the whole industry, a transition to more capitalistic methods.

As regards investment in fixed capital (i.e. durable means of production), the case is relatively simple. Messrs. Foster and Catchings leave this case entirely out of account (a fact on which, as we have already mentioned, Mr. A. B. Adams bases his criticism) and Mr. P. W. Martin applies a similar theory of his own expressly to the case of investment in circulating capital only.⁴⁷

What we shall have to say here, therefore, will hardly meet with much opposition, and for this reason it will be easier in this connection to develop the analysis which is relevant also for the subsequent investigation. In order that new investment in fixed capital may be profitable, it is necessary that the increase in receipts from the increased product following the investment should be sufficient to cover the interest and depreciation of the invested capital. The rate of interest must be somewhat higher where the new investments are made than in the alternative employments which are open to them, but somewhat lower than the rate of interest paid hitherto. It is just the circumstance that the rate of interest has fallen and that the investment in question is the nearest in the scale of profitability which determines that it, and no other, shall be undertaken.

In judging its profitability, account must be taken of the fact that the enlarged product following the new investment can only be sold in the long run at *prices lower* relatively to the prices of original means of production than hitherto. This is partly because, owing to the co-operation of new capital, more consumption goods will be produced from a given quantity of original means of production; and also because a greater amount of consumption goods must be sold against the income of the original means of production and of capital, and the increase in the income from the latter (if it occurs at all-if the increase in capital is not more than compensated by the fall in the interest rate) must always be relatively less than the increase of consumption goods.⁴⁸

[p. 150]

If the quantity of money remains unchanged, the unavoidable fall in the relative prices of consumption goods will also manifest itself absolutely. It is in this way that the relative fall will establish itself at the moment when the new consumption goods come on to the market. If the supply of money is kept constant, this effect of every extension

⁴⁷ Cf. *Unemployment and Purchasing Power*, p. 15.

⁴⁸ The fall in the rate of interest necessitates *ipso facto* such a relative change in the prices of means of production and of products because, in a state of equilibrium, the rate of interest must exactly correspond with the difference between the two. With regard to the relation between changes in the rate of interest and changes in relative prices, cf. the appendix to my essay "Das intertemporale Gleichgewichtssystem der Preise und die Bewegungen des Geldwertes," *Weltwirtschaftliches Archiv*, Vol. XXVIII, July 1928.

of production will be well-known to producers and they will therefore only choose such employments for the investment of new savings as remain profitable *even if prices are expected to fall*.

But these employments -- and this, as we shall see presently, is the essential point -- are the only ones through which the social advantages of saving can be realized without loss. Even if the volume of money is increased so that the prices of consumption goods do not fall, a new equilibrium must inevitably be established between costs of production and the prices of products.

This can come about -- if a fall in the prices of consumption goods is excluded -- in two ways: either by a rise in the prices of means of production; or by a return to the previous, shorter, less productive methods of production; or by both of these ways together.

What actually happens depends on *where* and when the additional money is injected into the economic system. If the increase in the supply of money were only to take place at the time when the additional volume of consumption goods comes on to the market and in such a way as to render it directly available for the purchase of consumption goods,⁴⁹ the expectation of unchanged prices for products would result in a portion of the additional amount, rendered available for the purchase of means of production through saving, *not being utilized for a lengthening of the production process*, i.e. the formation of new capital; it would simply serve to drive up the prices of the means of production.

Because of the expectation of stable prices for the products, more openings for the new savings will appear profitable than can actually be exploited with their aid. The rate of interest is only sufficient to limit alternatives to those most profitable when price-relations are also in equilibrium with it.

Competitive selection must therefore take place in the market for the means of production-, i.e. the prices of means of production *must rise* until only so many extensions [p. 151] of the productive process appear profitable at those prices as can actually be carried out by the new savings. That simply means that a portion of the savings *will not be utilized for the creation of capital*, but merely for the purpose of *increasing the prices* of available means of production. But the assumption that the supply of money will only be increased when the enlarged volume of consumption goods comes on to the market has little probability.

In the first place, the fact that new savings offer possibilities for the extension of production will, as a rule (according to the prevalent opinion, quite justifiably), give rise to an *increase in the volume of money* in the form of *producers' credits*.

On the other hand, the fact that, in spite of the more capitalistic and more productive methods, the prices of the products do not fall, will provide an incentive to take up *additional loans* from the banks far beyond the sum voluntarily saved, and will thus increase the demand for means of production *much more than would be justified by the new savings*. The rise in the prices of these means of production conditioned by it, will gradually cause

⁴⁹ This is the suggestion made by Messrs. Foster and Catchings; we shall have occasion to go into this case more extensively in the last section, when we come to criticize their proposals for reform.

the excessive price-margin between these goods and consumption goods to disappear (and thus take away the incentive for further extensions of credit); at the same time, more means of production than are justified by the new savings will be transferred for use in longer processes (i.e. more lengthy processes will be undertaken than can be carried out). In other words, it will be possible, through an increase in the volume of money, to draw away as many factors from the consumption goods industries, over and above the quota voluntarily saved, as to enable at first the commencement of all enlargements of fixed capital which appear profitable at the lower rate of interest having regard to the unchanged prices. All these investments, however, can be carried on only so long as the new money used for extensions of production is not utilized by the owners of the factors of production, to whom it is paid, for the purchase of consumption goods or so long as the increase in the demand for consumption goods is offset by a progressive increase in the supply of new productive credits.⁵⁰

As soon as the increase in the volume of credits granted to producers is no longer sufficient to take away as many means of production from the provision of current consumption as would be required for the execution of all the projects which appear profitable under the lower rate of interest and the unchanged price [p. 152] relationship between consumption goods and means of production, then the increasing utilization of means of production for the provision of current needs through less lengthy processes of production will drive up the prices of means of production, both absolutely and relatively to consumption goods, and thus render unprofitable those extensions of production which only became possible through the policy of price stabilization.

As, in the case under consideration, we are dealing with extensions of durable plant, which as a rule must be left in their previous employments even if they become unprofitable (even if their quasi-rents fall to such a level as to drive their value much below the cost of production, and thus prevent their replacement) the adjustments necessary will only proceed very slowly and with great sacrifices of capital. But, apart from this loss of a portion of the savings, the final equilibrium of production will establish itself in that position where it would have been established right from the beginning had no increase in money supply intervened; that is to say, at that point where the diminution in the cost per unit of product brought about by the investment is just great enough to sell the larger quantity of the final product despite the fact that, owing to savings, only a smaller proportion of the total money stream goes to purchase it than hitherto.

Although the schematic representation given above is only completely applicable to the case (to which we shall return later) of investment in circulating capital, it is also true in the case of investment in fixed capital that the necessary fall in the price of the final product manifests itself not only in a fall of the price per unit (which must take place even if an unchanged money stream goes to buy a larger product) but also in a diminution in the proportion of the total money stream which is available for the purchase

⁵⁰ Cf. my work *Geldtheorie und Konjunkturtheorie*, Vienna, 1929.

of consumption goods.

The difference between this case and that of investment in circulating capital lies in the fact that in the former case the demand for means of production in relation to the demand for consumption goods does not, in the long run, increase by the whole of the newly invested sum, but only by the amount necessary to keep the additional capital intact. So long as the production of additional capital is going on, the demand for consumption goods diminishes by the whole of the amount newly saved and invested.⁵¹ The transference of factors of [p. 153] production for the production of new means of production which is conditioned by this diminution, is, however, partly temporary. As soon as the new durable means of production are ready, and the production of final products can be correspondingly increased with their aid, the sums available for their purchase in the hands of consumers are not diminished by the value of the newly-invested capital, but only by that amount which is necessary for their upkeep and amortization. But an amount of this magnitude will always have to be put aside by the entrepreneur, and thus withdrawn from consumption. Even if he can only proceed to a renewal of fixed capital (in the absence of new savings) when the old is fully amortized, the sums accumulating for amortization will increase the current demand for means of production in the meantime for the purpose of producing new means of production. The entrepreneur must try to invest these sums to the best advantage until he needs them himself, and thus will increase the supply of capital and exercise a further pressure on interest rates. Without going into the complicated processes which are conditioned by the temporary accommodation of sums accumulated for amortization, it may be said that they signify a temporary transformation of capital (mostly in circulating form), but they also form a current demand for the production of capital goods. As a result, an increase in fixed capital will have the same effects as if every single undertaking continuously renewed the wear and tear of its plant, i.e. spent uniformly a greater proportion of its receipts than before the investment in new capital on the purchase of intermediate products, and a smaller proportion on the purchase of original means of production. As this implies a corresponding diminution in the amounts available for the purchase of consumption goods, investment in fixed capital will therefore also have the effect of "stretching" the money stream, that is to say, it becomes longer and narrower; or, in the terminology of Messrs. Foster and Catchings, the circuit velocity of money diminishes.

X.

The same effects manifest themselves still more directly in the case of an investment of new savings in circulating capital. And yet, as the examples of Messrs. Foster and Catchings, [p. 154] Mr. P. W. V. Martin, and Mr. A. B. Adams show, this necessary concomitant

⁵¹ In order to avoid too much complication in the exposition I disregard the case of an increase in the supply of capital leading to a more than proportional increase in the supply of fixed capital (or vice versa) which may occur owing to the fact that a fall in the rate of interest may render it profitable to transform already existing investments in circulating capital into fixed capital.

phenomenon of every increase of capital, is, in just this case, very easily overlooked. The explanation lies in the fact that the case of a single enterprise, which can always utilize its increased circulating capital for a proportional increase of its laborers and other means of production, is applied directly to the economic system as a whole, although it should be clear that an increase in capital, whether fixed or circulating, can only show itself in the economic system as a whole in an increase in intermediate products in relation to original means of production.

One of the most frequent cases of an increase in circulating capital -- it is the case which led Messrs. Foster and Catchings and their adherents to overlook completely the capital function of the invested savings -- is the case which has already been mentioned⁵² of a relative extension of the more capitalistic branches of production at the expense of the less capitalistic ones.

In this case, original means of production will be taken away from the latter and utilized in the former, without an increase in their fixed capital, so that at first the original means of production employed there increase relatively to the fixed capital.

As has already been emphasized, it is not the increase in the volume of original means of production employed which is significant here, but the fact that they are now employed in a way which causes, on the average, a *longer period of time* to elapse between their employment and the emergence of their final product, and therefore more intermediary products to exist at any moment than before.

It is just because an increase in the supply of capital enables relatively more roundabout processes to be undertaken that the more capitalistic undertakings can now employ more labor (and possibly more land).

At first the increased capital supply will result in the more capitalistic undertakings demanding more original means of production than hitherto, acquiring these by overbidding other undertakings. As more units of factors can only be acquired at a higher cost per unit, the extent to which they are able to do so depends on their expectations of an increase in total receipts from an increase in the volume of the product. In no case, however, will they be able to spend the total amount of new capital on increased employment of original means of production. Even to the extent that capital is used for that purpose in a single enterprise, this does not imply that part of the new [p. 155] capital is definitely used to remunerate original means of production. By exactly the same amount by which this enterprise increases its expenditure on original means of production because it expects a corresponding increase of its receipts, other enterprises will have to cut down expenditure on original means of production because their receipts will have undergone a corresponding decrease, and will be able to invest that part as capital. On the assumption, which we still adhere to, that the products of every stage of production come on to the market and are acquired there by the entrepreneur of the next stage, it is evident that only a portion of the newly invested savings can be spent on original means of production, while another

⁵² See p. 148, note 45.

and, in the modern, highly developed, economy, much greater portion must be used to acquire additional quantities of the products of the previous stage of production. This portion will be all the larger, the greater the number of the stages of production (represented by independent enterprises) and, as a rule, several times as large as the portion spent on wages, etc.⁵³

It serves the purpose of providing all the stages of production (up to the last stage, where the final products of the original means of production now employed in the longer processes emerge) with a correspondingly larger amount of intermediate products; or, which means the same thing, it makes it possible for the additional original means of production to be paid for continuously, period by period, so long as their additional product has not yet reached the final stage. After what we have seen in the case of investment in fixed capital, we can formulate the problem before us by asking how, when new investment in circulating capital takes place, the price relations between production goods and consumption goods must adjust themselves in order that production will be extended to such, and only to such an extent that the new savings just suffice to carry out the enlarged processes? Again we can start by assuming that, in the long run, the new capital investment must bring about a fall of the price of the products in relation to the prices of the means of production.

If entrepreneurs expect -- as, if the volume of money were kept [p. 156] constant, they ought to expect from experience -- that the prices of the products will fall absolutely, then from the outset they will *only extend production in such proportions as to ensure profitableness* even if the relative prices of products (as opposed to the means of production) fall.

This means that the increase in production will be limited, right from the beginning, to that extent which can permanently be maintained.

If, however, unchanged prices are expected for the products, it would seem profitable at first to attempt a further extension of production; and that to the extent which would seem profitable at the present prices of the means of production. The latter will not increase at first by as much as will finally be necessary for the establishment of equilibrium; they will rise only gradually as the increased demand for original means- of production is passed on from the higher to the lower stages. With the progressive increase in the prices of the means of production, not only that portion of the additional production which would not have been undertaken if falling prices had been expected will become unprofitable; but also-since hitherto too many means of production were used up, a greater scarcity ensues, and their

⁵³ While, in assuming only one stage of production, the value of all products at the end of the production process equals the value of the means of production employed; on the other hand, on the assumption that equal quantities of original means of production are employed at every stage (the case represented in the footnote 46 at p. 145 above) the value of the latter is one and one-half times as great if two, two and one-half times if four, and five and one-half times if ten stages of production are assumed, and so on. (Cf. Böhm-Bawerk, *Positive Theory*, fourth German edition, Vol. I, p. 397.)

prices will increase more than they otherwise would--some part of the production which would have been profitable but for the dissipation of a part of the supply of means of production. Every attempt to prevent the fall of prices by increasing the volume of money will have the effect of increasing production to an extent that it is impossible to maintain, and thus part of the savings will be wasted.

XI

Let us now consider the case -- fundamental to Messrs. Foster and Catchings' analysis --in which production is completely integrated vertically, the case in which all stages of one branch of production are united in one undertaking.

In such circumstances there is no necessity to utilize certain parts of the money stream for the purchase of intermediate products; only consumption goods proper on the one hand, and the original means of production on the other are exchanged against money.

The examination of this case is essential to prove the validity of our thesis -- partly because, in the existing economic order, the various stages of production are not always divided into separate undertakings, and therefore an increase in the number of stages need not necessarily [p. 157] bring about an increase in the number of independent undertakings, but chiefly because the lengthening of the production process need not manifest itself in an increase in the number of distinguishable stages (as for the sake of clarity of exposition we have assumed up to the present), but simply in the *lengthening* of a continuous production process.

It is however impossible for reasons which are obvious, but which were overlooked by their critics, to follow Messrs. Foster and Catchings in their assumption that all the various branches of production are also united in a single enterprise.

If that were so, there would be no inducement for that undertaking to save money, or to take up the money savings of private individuals; and there would thus be no opportunity for private individuals to invest their savings.

If that undertaking is the only one of its kind, and therefore the only one using original means of production, it can -- just as the dictator of a Socialist economy can -- determine *at will* what proportion of the original means of production should go for the satisfaction of current consumption, and what proportion to the making or renewal of means of production. Only if, and *in so far as, there is competition* between the various branches of production for the supply of means of production, is it necessary, in order to obtain the additional means of production requisite for an enlargement of capital equipment, to have the disposal of additional amounts of money (either saved for that purpose or newly created). Only in such circumstances does there exist, accordingly, any inducement to save.

As it is clearly inadmissible to start from an assumption which renders the phenomenon to be

investigated (i.e. the saving of individuals and companies) totally meaningless,⁵⁴ we can go no further in our investigations than the case of the complete vertical integration of single branches of production. But here, after what has been demonstrated above, it can be shown without difficulty that, if a transformation of money savings into additional real capital is to come about, the investment must lead to a diminution in the money stream available for the purchase of consumption goods⁵⁵ (i.e. to that slowing down of the "circuit [p. 158] velocity of money " of which Messrs. Foster and Catchings are so afraid), and that savings can only be utilized to the best advantage when the supply of money remains unaltered and the price per unit of the enlarged volume of goods diminishes.

Let us assume, therefore, that such an undertaking comprising all stages of production in one branch extends its production by "corporate saving " so that during the extension of capital equipment the sums necessary for this purpose are raised from profits (i.e. interest on capital and earnings of management). In this way it will be able to keep its demand for original means of production constant, although, owing to the transformation of production, it can temporarily only bring a smaller volume of ready consumption goods on to the market, and its current receipts must fall. It is a necessary condition of the longer duration of the new production process that either the undertaking cannot for a short period bring any goods on to the market or, if it apportions its sales uniformly through time, it can offer only a smaller amount of the finished product for a longer period. The savings accumulated through individual profits serve just this very purpose of making good the diminution of receipts and enabling it to undertake the more productive, but more lengthy process. It must not, therefore, devote the whole sum to obtain more original means of production than before, for part must be used for bridging over the time during which its receipts will fall below current expenditure. The time during which it will be able to cover the difference between outgoings and receipts by saving forms the limit to the possible lengthening of the production process. As long as the new investment is going on, a larger sum of money will be expended on means of production than that which is received from the sale of consumption goods at the same time.

That occurs, as Messrs. Foster and Catchings repeatedly and correctly emphasize, by

"money that is once used to bring about the production of goods being again used to bring about the production of goods before it is used to bring about the consumption of goods,"

⁵⁴ Messrs. Foster and Catchings, it is true, expressly declare that their assumption about the number of undertakings is insignificant and in no way invalidates their reasoning (*Profits*, p. 270).

They did not put forward any proof, however, and the fact that, even in trying to justify it, they do not realize that *savings would be entirely meaningless under these circumstances*, is the best proof of how completely they misunderstand the real function of saving.

⁵⁵ At any rate for so long as the transition of production goes on.

i.e. that sums which represent the remuneration of capital and entrepreneurial services are utilized for the purchase of means of production *instead* of the purchase of consumption goods.

What Messrs. Foster and Catchings misunderstand is the function of and the necessity for this relative increase in the demand for production goods and the corresponding diminution in the sales of consumption goods. It is the natural and necessary corollary [p. 159] of saving, which, in terms of Crusoe economics, consists in the fact that less consumption goods are produced and consumed than could be produced from the means of production employed. The simultaneous increase in the demand for original means of production, i.e. the increase in the sums spent in the last stage of production (from which the original factors are remunerated) during one economic period, does not imply that at a later stage the money demand for consumption goods has to be increased by a similar amount in order to enable the sale of the enlarged volume of finished goods. The increase in the demand for means of production originates from the lengthening of the production process; so long as this is going on, more means of production are produced at every stage than are consumed at the next; production will serve the double purpose of satisfying current demand with the older (and shorter) process, and future demand with the new (longer) process.

The demand for means of production is therefore, so long as new saving is going on, greater in relation to the demand for consumption goods than in the absence of savings because (in contrast to the stationary economy where the product of the means of production used in every period equals the goods consumed in that period) the product of the means of production applied during the saving period will be consumed during a period which is longer than the saving period itself.⁵⁶

In order that the means saved should really bring about that extension of productive equipment for which they are just sufficient, the expected prices must make just that extension seem profitable. But that is (as should be clear by now, without a repetition of what has been said before) only the case when the money available for the purchase of the larger product is not greater than the part of the current outlays which served for its production. And since longer processes are more productive, in order that this may be the case, *the unit prices of the product must now be less.*

Every expectation of future receipts greater than those necessary to cover the smaller costs per unit will lead to such excessive extensions of production as will become unprofitable as soon as the relative prices are no longer disturbed by the injection of new money.

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⁵⁶ That is correctly recognized by Mr. A. B. Adams in his criticism mentioned above of Messrs. Foster and Catchings in *Profits, Progress and Prosperity*, where it is expressly stated (p. 18):

"If the physical volume of current output of consumers' goods should equal the physical volume of all goods produced currently -- there could be no accumulation of permanent capital -- there could be *no real savings.*"

There is no danger, therefore, that too much money will be spent on production in relation to the sums available for consumption so long as the relative diminution in the demand for consumption goods is of a permanent nature and the latter *does not*, as must be the case with changes in the relative demand brought about by changes in the volume of money, *increase again* and drive the prices of the original means of production to such a height that the completion of the more capitalistic processes becomes unprofitable. 7

As it is not the absolute level of the prices of the product, but only their *relative* level in comparisons with factor prices which determines the *remunerativeness* of production, it is, therefore, never the absolute size of the demand for consumption goods, but the relative size of the demands for the means of production to be used for the various methods of producing consumption goods that determines this relative profitableness. In principle, therefore, any portion, however small, of the total money stream ought to be sufficient to take up the consumption goods produced with the aid of the other portions, as long as, for any reason, the demand for consumption goods does not rise suddenly in relation to the demand for means of production, in which case the disproportionate amount of intermediate products (disproportionate in relation to the new distribution of demand) can no longer be sold at prices which cover costs.

The problem is therefore never the *absolute* amount of money spent for consumption goods, but only the question whether the relative demand for the consumption goods is not *greater* in relation to the money stream utilized for productive purposes than the current flow of consumption goods in relation to the simultaneous output of means of production. In this, and only in this case, will a disproportionate supply of means of production, and thus the impossibility of remunerative employment, arise, not because the demand for consumption goods is too small, but on the contrary because it is *too large* and too urgent to render the execution of lengthy roundabout processes profitable.

The idea of a general overproduction in relation to the money incomes of the consumers as Messrs. Foster and Catchings conceive it, is as untenable in a money economy as under barter. A crisis occurs only when the available supply of intermediate products in all stages of production in relation to the supply of consumers goods is greater than the demand for the former in relation to the demand for the latter. Apart from the case of spontaneous consumption of capital, this can only arise when either the supply of means of production, or the demand for consumption goods has been artificially and temporarily extended by credit policy.

In either case a price relation will arise between means of production and finished products which renders production unprofitable.

XIII

That concludes our criticism of the cases in which savings are supposed to involve

trade depression if the supply of money is not increased.

The whole question is very similar to the old problem whether, when productivity is increasing, prices should remain stable or fall.

As Mr. A. H. Hansen has pointed out, the argument of Messrs. Foster and Catchings is applicable not only to the effect of saving but also to all other cases of increasing productivity.⁵⁷

To this extent, both authors became the victims of that uncritical fear of any kind of fall in prices which is so widespread today, and which lends a cloak to all the more refined forms of inflationism -- a fashion which is all the more regrettable since many of the best economists, A. Marshall,⁵⁸ N. G. Pierson,⁵⁹ W. Lexis,⁶⁰ F. Y. Edgeworth,⁶¹ Professor Taussig⁶² in the past, and more recently Professor Mises,⁶³ Dr. Haberler,⁶⁴ Professor Pigou,⁶⁵ and Mr. D. H. Robertson,⁶⁶ have repeatedly emphasized the misconception underlying it.

But in the special case which Messrs. Foster and Catchings have made the basis of their proposals for stabilization, their [p. 162] argument is based on a different and less excusable misconception. What they entirely lack is any understanding of the function of capital and interest. The gap in their analytical equipment in this respect goes so far that, in their exposition of the theory of price, while most of the general problems are very thoroughly and adequately treated, any examination of *this* question is utterly lacking and, in the alphabetical index of *Profits*, "capital" is only mentioned as a source of income. I cannot help feeling that, if they had extended their investigations to this field, or even if they had merely thought it worth their while to make themselves familiar with the existing literature of a question so cogent to their problem, they would themselves have realized the untenable nature of their theory.

⁵⁷ *Business Cycle Theory*, p. 44 (see p. 135, note 26).

⁵⁸ Cf. his evidence before the Gold and Silver Commission of 1887, now reprinted in *Official Papers by Alfred Marshall*, London, 1926, especially p. 91.

⁵⁹ Cf. e.g. *Gold Scarcity* (translated into German by R. Reisch) in the *Zeitschrift für Volkswirtschaft, Sozialpolitik und Verwaltung*, Vol. IV, N° 1, Vienna, 1895, especially p. 23.

⁶⁰ On several occasions in connection with the bimetallist question, e.g. in the *Verhandlungen der deutschen Silberkommission*, Berlin, 1894. Similarly C. Helfferich, E. Nasse, and L. Bamberger.

⁶¹ Cf. Thoughts on Monetary Reform, *Economic Journal*, 1895, reprinted under *Questions connected with Bimetallism in Papers Relating to Political Economy*, Vol. I, p. 421.

⁶² Cf. *The Silver Situation in the United States*, New York, 1893, pp. 104-112.

⁶³ Cf. *Geldwertstabilisierung und Konjunkturpolitik*, Jena, 1928, p. 30.

⁶⁴ Cf. *Der Sinn der Indexzahlen*, Tübingen, 1927, pp. 112 *et seq.*

⁶⁵ Cf. *Industrial Fluctuations*, second edition, London, 1929, pp. 182 *et seq.* and 255 *et seq.*

⁶⁶ Cf. *Money*, second edition, London, 1928.

In the literature of monetary theory (with the exception of the works of Knut Wicksell and Professor Mises, which are probably inaccessible to them for linguistic reasons) they will, of course, look in vain for the necessary explanation, for so many writers on this subject still labour under the sway of the dogma of the necessity for a stable price level, and this makes recognition of these interconnections extraordinarily difficult. But just as Mr. R. W. Souter, their prize-winning critic, recommended them to read Marshall, so I would recommend them, still more urgently, to make a thorough study of Böhm-Bawerk, whose main work, if only in the first edition, is available in English translation.

XIV (*dernier*)

We have repeatedly had occasion, while examining the theory of Messrs. Foster and Catchings, to point to the effects which would ensue if the proposals based upon it were put into practice.

But it may well be that the contrast between the real effects of such proposals and the expectations based upon them may not yet be sufficiently clear. And, as similar demands are continually being brought forward everywhere for all kinds of reasons, it seems worthwhile finally attempting a systematic account of the actual consequences to be expected if they were really carried out.

It has already been explained that Messrs. Foster and Catchings' proposals for reform involve increasing the volume of money, either through consumers' credits or the financing of State expenditure, in order to bring about the sale at unchanged prices of a volume of products enlarged by an increase of [p. 163] saving. The effects of such increases of money spent on consumption can best be demonstrated by contrasting them with the effects of additional productive credits.

We shall work under the assumption used in the previous analysis, where the different stages of production are in the hands of different undertakings. The application of this reasoning to that of the completely integrated branch of production should follow more or less of itself.

We may take as a starting-point the result of our previous demonstration of the effect of saving, the volume of money remaining unchanged (Scheme B, p. 146).

According to this, the relation of the demand for consumers' goods to the demand for means of production changed from £1,000: £8,000 to £900:8,100, or from 1:8 to 1:9, so that the number of stages increased correspondingly from 9 to 10.

Now let us assume that, in accordance with the proposal of Messrs. Foster and Catchings, at the moment when the enlarged product comes on to the market, the volume of money is increased by the same sum as the sums spent on production, i.e. by £100 and that this additional sum is spent exclusively on consumption goods.

Because of this, the demand for consumption goods again increases from £900 to £1,000, while the sums available for means of production remain unchanged, so that the relation between the demand for the two groups of goods changes from £900:£8,100 to £1,000:£8,100, i.e. the relative size of the demand for means of production in comparison with the demand for consumption goods falls from 9 times to 8.1 times the latter. The transformation of production conditioned by this, in the form of a shortening of the productive process, comes about in the manner represented in Scheme C. As the number of stages of production, under our assumption, must then be 8:1, the last stage (N° 10) must be represented by a value which is only one-tenth of the rest.⁶⁷

[p. 164] SCHEME C (£100 is added to the circulation as credit to consumers.)

Demand for consumption goods

(= products of stage of production N° 1) ... £1,000

Demand for the products of the stages of production

N° 2 ... £1,000,

N° 3 ... £1,000

N° 4 ... £1,000

N° 5 ... £1,000

N° 6 ... £1,000

N° 7 ... £1,000

N° 8 ... £1,000

N° 9 ... £1,000

N° 10 ... £100

Total demand for produced means of production $8.1 \times 1,000 = 8,100$

Demand for consumption goods in relation to the demand for produced means of production:
1:8.

But this shortening of the production process to the point where it stood before the investment of new savings (cf. Scheme A, p. 145) need not be the final effect, if the increase in money occurs only once and is not repeated again and again.

The extension of production became possible because producers consumed, instead of one-ninth (Scheme A), only one-tenth (Scheme B) of their total receipts, and utilized the rest for the purpose of keeping their capital intact. In so far as they persist in their endeavor to keep their capital intact, in spite of the diminution of the purchasing power of those parts of their receipts which are conditioned by the appearance of new money, the demand

⁶⁷ In fact we ought to take an increase of £200, since, as a consequence of saving, the difference between the sums spent on production and on consumption goods increases by that amount. As by taking this larger amount the effect demonstrated will only become more pronounced, it will suffice to regard the more simple case given in the text.

for consumption goods in relation to that for means of production will again shift in favor of the latter as soon as the demand for the former is no longer artificially extended through additional spending power. To this extent, the shortening of the production process and the devaluation of fixed plant connected with it will only be *temporary*; but this is contingent upon a *cessation* of the flow of additional money.

What is important, however, is that (even in an expanding economic system) such an inflationist enlargement of the demand for consumption goods must, in itself, bring about at once similar phenomena of *crisis* to those which are necessarily brought about in -consequence of an increase in productive credits, as soon as the latter *cease* to [p. 165] increase or their rate of flow diminishes.⁶⁸ This will be best understood if we represent this case schematically also.

We again take Scheme B (p. 146) as our starting point, assuming that, in accordance with prevalent opinion, the extension of production is taken as a justification for an extension in money supply. This extension, however, takes the form of productive credits.

For simplicity, we assume that the additional money injected in the form of productive credits amounts to £900, and, therefore, the relation between the demand for consumption goods and the demand for production goods alters, as compared with the case represented in Scheme B, from £900:£8,100 to £900:£9,000, or from 1:9 to 1:10.

The proportional increase in the demand for means of production as compared with the demand for consumption goods enables an extension of the production process as compared with the position in Scheme B, thus:

SCHEME D

(In the situation depicted in Scheme B, £900 are added as *credits to producers*, first stage.)

Demand for consumption goods

(= products of stage of production N° 1) ... £900

⁶⁸ It would be a mistake to argue against the representation of the effect of consumptive credits above by saying that the War-inflation was also brought about by additional expenditure on consumption, and yet did not lead to crisis, but, on the contrary, to a boom.

The War inflation could never have led to such an extension of production as it actually did had the additional credits only been given to undertakings in the form of proceeds for the sale of products, and not -- whether in the form of pre-payments or directly in productive credits placed at their disposal in advance for the purpose of extending production.

One should visualize what would have happened had the increase in the demand for consumption goods always preceded the increase in the sums available for the purchase of means of production. And one would soon realize that this would only have rendered production of the present extent unprofitable, and would have led to a diminution of the productive apparatus in the form of a consumption of capital. During the War, this phenomenon was also rendered invisible through the appearance of specious profits following currency depreciation, which caused entrepreneurs to overlook that they were, in fact, consuming capital.

Demand for the products of the stages of production

N° 2	... £900
N° 3	... £900
N° 4	... £900
No 5	... £900
N° 6	... £900
N° 7	... £900
N° 8	... £900
N° 9	... £900
N° 10	...£900
N° 11	... £900

Total demand for produced means of production: $10 \times 900 = 9,000$

Demand for consumption goods in relation to the demand for produced means of production-1:10.

[p. 166] This lengthening of the productive process, however, can continue only so long as the demand for means of production is kept at the same relative level through still further additions of producers' credits; i.e. so long and so far as the durable production goods produced on account of the temporary increase in the demand for means of production suffice to carry on production of this extent.

As soon and insofar as neither of these two assumptions remains true, all consumers whose real income was diminished through the competition of the increased demand for means of production will attempt to bring their consumption up again to the previous level, and to utilize a corresponding portion of their money income for the purchase of consumption goods. But that means that the demand for consumption goods will increase again to more than one-tenth of the total demand for goods of every stage. Accordingly, only a smaller proportion of the total money stream goes to buy produced means of production, and the following changes in the structure of production will occur:

SCHEME E (Same as Scheme D, second stage.)

Demand for consumption goods (= products of stage of production

N° 1)... £1,000

Demand for the products of the stages of production

N° 2	... £1,000
N° 3	... £1,000
N° 4	... £1,000
N° 5	... £1,000
N° 6	... £1,000
N° 7	... £1,000

N° 8 ... £1,000

N° 9 ... £1,000

N° 10...£1,000

Total demand for produced means of production

$$9 \times 1,000 = £9,000$$

Demand for consumption goods in relation to the demand for produced means of production 1:9.

[p. 167] Without any further change in the volume of money, and only because the increase in the form of productive credits has ceased, the whole production process, and thus the length of the circuit velocity of money, tends again to contract to the old level.

This contraction, which naturally involves the loss of those means of production which are adapted to the longer processes, and which is directly occasioned by the rise in the price of the means of production brought about by an increase in the demand for consumption goods, which renders the longer processes unprofitable, is a typical phenomenon of any crisis.

As is easily seen, it is of the same nature as the effects of a relative increase in the demand for consumption goods brought about by consumers' credits. It is just because with every increase in the volume of money, whether it is made available first for consumption or first for production, the relative size of the demand for those means of production which already exists or which has been directly enlarged by an increase in money must eventually contract in relation to the demand for consumption goods, that a more or less severe reaction will follow.

This frantic game of now enlarging, now contracting the productive apparatus through increases in the volume of money injected, now on the production, now on the consumption side, is always going on under the present organization of currency. Both effects follow each other uninterruptedly and thus an extension or contraction of the productive process is brought about, according to whether credit creation for productive purposes is accelerated or retarded. So long as the volume of money in circulation is continually changing, we cannot get rid of industrial fluctuations. In particular, *every monetary policy which aims at stabilizing the value of money and involves, therefore, an increase of its supply with every increase of production, must bring about those very fluctuations which it is trying to prevent.*

But *least* of all is it possible to bring about stability by that "'financing of consumption" which Messrs. Foster and Catchings recommend, since there would be added to the contraction of the production process which automatically follows from increases of productive credits a still *further contraction* because of the consumptive credits, and thus crises would be rendered exceptionally severe. Only if administered with extraordinary caution and superhuman ability could it, perhaps, be made to prevent crises: if the artificial

increase in the demand for consumption goods brought about by those credits were made exactly to [p. 168] cancel the increase in the demand for means of production brought about by the investment of the current flow of savings, thus preserving constant the proportion between the two, this might happen. But such a policy would effectively prevent any increase in capital equipment and completely frustrate any saving whatever.⁶⁹

There can be no question, therefore, that in the long run, even a policy of this sort would bring about grave disturbances and the disorganization of- the economic system as a whole. So that, we may say, in conclusion, that the execution of Messrs. Foster and Catchings' proposals would not prevent, but considerably aggravate, crises; that is, it *would punish every attempt at capital creation* by a loss of a portion of the capital. Carried through to its logical conclusion, it would effectively prevent every real capital accumulation.

That this unavoidable, and, in my opinion, unquestionable effect has not as yet been emphasized in the discussion on Messrs. Foster and Catchings is a disturbing indication of the insight into the significance of these problems existing in expert circles. The effect of their teaching on popular opinion is less remarkable when it is considered that proposals of a more or less inflationist tendency -- less extreme, perhaps, but in substance exactly similar -- are put forward today by *economists* of very high repute.⁷⁰ They are the prevalent fashion of contemporary economics.

It is hoped that in exhibiting the objections to such proposals this essay will serve a purpose no less important than the refutation of Messrs. Foster and Catchings. Against the popular fallacy that a general crisis can be averted by extension of credit, the same arguments are valid as those used in refuting the theories we have been studying. For the same reasons the great expectations attached to a postponement of public works to times of depression seem to me fallacious. In so far as they are financed by additional credits -- and *only then can they form an additional demand* -- they must bring about all those evil effects which, as we have seen, arise when money is increased for consumptive purposes. Indeed the whole expediency of such attempts to alleviate unemployment by relief works and so on, is in the light of this analysis highly questionable. If an excessive extension of productive equipment has been once begun, and the impossibility of carrying it through has manifested itself in a crisis, the appearance of unemployment and the resulting diminution of the demand for consump[p. 169]tion goods may be the only way to set free the means necessary to complete at least a part of the enlarged productive equipment. This can only be mentioned as a possibility. It is by no means asserted as self-evident, nor is any examination of its validity here attempted.

⁶⁹ Cf. the remarks of A. B. Adams, quoted above, p. 159, note 55.

⁷⁰ This was written in 1929!