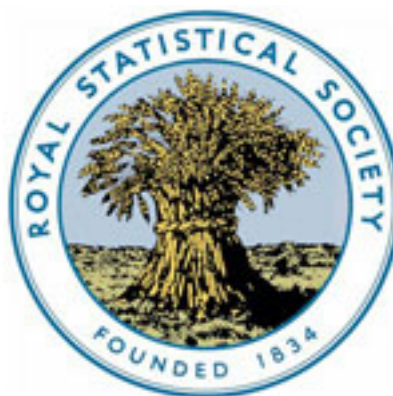


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Author(s): R. G. Hawtrey

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THE FEDERAL RESERVE SYSTEM OF THE UNITED STATES.

By R. G. HAWTREY.

[Read before the Royal Statistical Society, February 21, 1922,
the President, Sir R. HENRY REW, K.C.B., in the Chair.]

A COMBINATION of circumstances gives the banking system of the United States a special interest for us at the present time. Not only is the theoretical study of the working of the Federal Reserve Act, which was one of the most comprehensive measures of banking reform ever carried, facilitated by the wealth of statistics available, but American economic conditions have acquired a far greater importance in the world than before the war, and in particular, in that the dollar has been kept on a gold basis, the Americans are in a position to affect very materially the prospects of currency reform in the Old World.

The Banking System before the Act.

It is not possible to understand the Federal Reserve Act without some reference to the pre-existing banking system, and of this I must therefore interpose a very brief explanation. Among all the complexities of American banking, regulated, as it is, concurrently by Federal and State legislation, one or two salient principles emerge. In the first place, with unimportant exceptions, American banks are prohibited from having branches. The result is an amazing multiplication of banks, large and small, the total number in 1914 being 24,668 (exclusive of 2,100 savings banks). One consequence is that clearing operations are far more complicated than in a system of big banks with branches. A hierarchy of clearing centres is necessary. The banks in the smaller centres act as clearing agents for the neighbouring country banks, and in turn keep accounts with banks in the larger centres, which act as their agents. In some respects, though not in all, the relation of a bank to its clearing agent reproduces that of a branch to its head office. In the United States, before the passage of the Federal Reserve Act, the clearing organisations, and especially that of New York, which was the apex of all, had come to play a very prominent part. In any group of banks the signal that one of the group has been too liberal in

granting credit is an excessive balance against it at the clearing house. In times of crisis, when all banks were running short of cash, it had become the practice temporarily to relieve banks from meeting such balances in cash, provided they deposited adequate security with the clearing house. In return for that security they received "clearing house certificates," with which they were allowed to pay the balances due. This process was a rudimentary analogue of the rediscounting facilities given by the great European central banks. It was an expedient born of sheer necessity, and was itself evidence of the urgent need for reform.

One of the most characteristic features of the American banking system is the statutory reserve proportion. In the case of the national banks (that is to say, those with charters under Federal law, which alone are privileged to be banks of issue) this proportion depends upon the locality in which the bank is. New York, Chicago and St. Louis are central reserve cities. About fifty other towns (required to be of not less than 50,000 inhabitants) are classed as reserve cities. In the reserve and central reserve cities, before the change made by the Federal Reserve Act, every national bank had always to retain a cash reserve equal to 25 per cent. of its deposits; elsewhere the prescribed proportion was 15 per cent. But of this 15 per cent. three-fifths could be held in the form of deposits in national banks in the reserve or central reserve cities, while national banks in the reserve cities were allowed to keep half their 25 per cent. reserves in the form of deposits in the central reserve cities. In these last the whole 25 per cent. reserves had to be held in lawful money. Thus, in reality, the country banks had only to keep 6 per cent. of their deposits in actual cash, and banks in reserve cities $12\frac{1}{2}$ per cent. This arrangement, by which deposits could be counted as reserves, was designed to fit in with the clearing arrangements. It was recognised that a credit with a clearing agent might be as important to a non-central bank as actual cash.

The banks incorporated under State laws are not subject to the National Bank Act. But the State laws, though often less stringent than the federal, do not differ fundamentally from them, and, apart from the fact that they are precluded (not by an express prohibition, but by a prohibitive federal tax) from issuing bank notes, the State banks and the "trust companies" (which are only banks under another name) differ little in type from the national banks.

The provisions of the Federal Reserve Act.

The Federal Reserve Act may be described as a measure for introducing the rediscounting central bank system. It sets up not

one but twelve separate banks, but each is "central" in that it is alone in its own district, and all are subject to a co-ordinating body, the Federal Reserve Board, whose powers are sufficient to impose something like unity of policy on the whole." All national banks *must* and State banks and trust companies with the requisite capital *may* enter the system and become "member banks." By doing so the latter put themselves to that extent under federal banking law, and the old distinction between them and the national banks has become blurred. The capital of the Federal Reserve Banks is wholly subscribed by the member banks themselves, each subscribing an amount equal to 6 per cent. of its own capital.

Every member bank has the right of having "eligible paper" rediscounted by the federal reserve bank of its district. Eligible paper includes notes or bills drawn "for agricultural, industrial or "commercial purposes," but not those "covering merely investments or issued or drawn for the purpose of carrying or trading in "stocks, bonds or other investment securities, except bonds and "notes of the Government of the United States." Apart from the last-named ominous exception, the test of the eligibility of the paper is the surplus of "quick assets" possessed by the borrower who originally raised money on it. In America the banking accommodation given to internal trade takes the form neither of bills of exchange, such as are customary in Europe, nor of simple advances, such as we have in this country, but of promissory notes. These notes, while depending like a bank advance on the sole credit of the borrower, unsupported by any other name, resemble a bill, in that they can be rediscounted. And though efforts are being made to introduce bills of exchange, single-name notes still form far the greater part of the paper dealt with by the American banks. A large proportion, perhaps the majority, of the notes are eligible for rediscount, and the right of rediscount has made the position of the ordinary American bank far more liquid than before. This improved liquidity was regarded as a justification for a relaxation of the reserve provisions. In the Federal Reserve Act, as originally passed, the proportions were fixed at 18 per cent. instead of 25 in central reserve cities, 15 instead of 25 in reserve cities, and 12 instead of 15 elsewhere. But only *one-third* of the reserve in each case had to be in cash, and the remainder could be (and a prescribed portion had to be) on deposit in the Federal Reserve Bank. On the other hand, no portion of the reserve could (after the lapse of a preliminary interval) be held in any other bank. These provisions were entirely recast by an amending Act of June 22, 1917, soon after the entry of the United States into the war. Under this Act the *whole*

reserve has to be on deposit with the Federal Reserve Bank, the cash held by any member bank being left to its unfettered discretion, and the proportions are reduced to 13, 10 and 7 per cent.*

Thus, the statutory reserves have ceased altogether to be cash, and are now solely credit. When they fall below the prescribed proportion, they can be replenished by rediscounting eligible paper. Formerly the occurrence of a general shortage of cash led to a convulsive contraction of credit by all the banks, and in extreme cases to a general suspension of cash payments. A national bank, of which the reserve falls below the statutory proportion, is forbidden to make any new loans till the proportion is restored. When reserves meant cash, and there was no machinery for making good a general shortage of cash, the result of such a shortage was a general refusal to lend, which was only too likely to precipitate a crisis. Now, on the contrary, the material from which reserves are manufactured is eligible paper, and, so long as the supply of that is adequate, this *impasse* will not occur. Moreover, the Federal Reserve Board is given discretion to suspend any reserve requirement (subject to a graduated tax on the deficiency), so that even if a member bank's supply of eligible paper runs out, it can still be enabled to continue to accommodate its customers.

This elasticity of reserves has removed one of the gravest faults in the old national banking system, and one to which much of the virulence of past American crises has been due.

The substitution of reserves deposited with the Federal Reserve Banks for reserves held partly in cash and partly on deposit with other national banks, has been logically accompanied by a reform in the clearing system. An endeavour has been made, with a considerable measure of success, to concentrate the clearings in the Federal Reserve Banks which, it may be mentioned, have a number of branches. Subordinate centres still exist, and the less central national banks still carry balances in the more central. But these balances no longer count as reserves, and as all member banks in any case have balances with the Federal Reserve Banks, the old hierarchy of clearing centres has lost some of its importance. And the Federal Reserve Banks have established a system of clearing cheques from all over the country, as nearly as possible free of charge, even for non-member banks which choose to participate in it.

One of the purposes of the Federal Reserve Act is expressly

* These proportions apply only to demand deposits. For time deposits the proportion was originally 5 per cent., and was reduced by the Act of June, 1917, to 3 per cent. for all localities.

stated in its title to be “to furnish an elastic currency.” This is a function which is intimately related to that of rediscounting. A balance with a central bank can, of course, always be drawn out in legal tender money. The same rediscounting system which enables member banks to replenish their balances with the Federal Reserve Banks equally enables them to draw out currency. To meet such demands the Federal Reserve Banks are given certain powers of issue. They issue two different kinds of notes, Federal Reserve Notes and Federal Reserve *Bank Notes*. The latter are of quite secondary importance; they are merely intended to replace gradually the national bank notes, the notes issued by the national banks against United States Government Bonds.*

The important new issue is that of Federal Reserve notes. Federal Reserve notes are ultimately obligations of the United States Government, but they are issued through a Federal Reserve Bank, and they become liabilities of the issuing bank. They are not legal tender, but are convertible into lawful money† on presentation at the issuing bank, or into gold on presentation at the Treasury in Washington. They are issued to Federal Reserve Banks in exchange either for “eligible paper” or for gold. Eligible paper and gold are, of course, the principal assets of the Federal Reserve Banks, which are thus enabled to meet any demands which could possibly be made upon them for currency, provided (as may safely be assumed) that the Federal Reserve notes, though not legal tender, are as freely accepted as any other medium of payment.

The Federal Reserve Banks are thus fully equipped to supply their member banks both with the credits which constitute their statutory reserves and clearing-house balances, and also with currency to meet the demands of circulation. To ensure the maintenance of the gold standard, they are required to keep reserves against their liabilities. Against their deposits they must keep at least 35 per cent. in lawful money; against the Federal Reserve notes they issue they must keep at least 40 per cent. in gold. These reserve

* Only certain classes of bonds can be used for this purpose, and as the supply of them is limited, the note issue is correspondingly limited. The bonds, with the right of issue, are gradually to be surrendered by the National Banks to the Federal Reserve Banks, which will thus acquire the right to issue Federal Reserve Bank notes. A special additional issue of Federal Reserve Bank notes has been made under the Pittman Act of 1918 to take the place of the silver certificates withdrawn in consequence of the sale of silver under that Act in India.

† “Lawful money” includes, besides gold, gold certificates, standard dollars, silver certificates and United States notes (greenbacks), but all these latter are convertible into gold.

requirements, like all others, can be suspended, subject to the payment of a graduated tax, by the Federal Reserve Board.*

Working of the System during the War.

These, then, are the salient provisions of this great banking reform. From November 16, 1914, when the Act was inaugurated, till the entry of the United States into the war in 1917 the Federal Reserve Banks played quite a secondary part in American banking. The reason was twofold. In the first place the State banks were unwilling to join the system; and secondly, owing to the large inflow of gold from Europe, there was very little need for rediscounting. In March, 1917, when the deposits in the Federal Reserve Banks and the Federal Reserve notes in circulation together exceeded \$1,000 millions, rediscounts amounted to only \$20 millions. The gold reserves amounted to no less than \$938 millions. The Federal Reserve Banks could not really gain control till the need for rediscounts was felt.

It was the outbreak of war that made the system effective. First of all war finance placed upon the United States the tremendous burden of financing not only her own belligerent requirements, but the voracious needs of her allies. This meant inflation. The sums were too vast to be obtained exclusively from investible savings, and recourse was had to the banks.† Inflation soon stopped the influx of gold, and threatened an efflux. In September, 1917, the export of gold was prohibited. As the deposit liabilities of the banks grew, they were compelled to make up their reserve proportions by rediscounting. Meanwhile the amending Act of June 22, 1917, had required the *whole* of the statutory reserves (though reduced) to be on deposit with the Federal Reserve Banks. The effect is seen in the growth of the deposits from \$721 millions in May to \$1,262 millions in June. The same act facilitated the entry of State banks into the system, especially (1) by securing them the continuance as far as possible of the rights they enjoyed under their State charters, and (2) by enabling them to leave the system again on reasonable notice, should they desire to do so. The State bank and trust company membership, which included in June, 1917, only 3·56 per cent. of all the capital of such banks, had grown in June, 1918, to 23·82 per cent., and in June, 1919, to 29·62 per cent. (*see* Table II).

* For the reserve against Federal Reserve notes the graduated tax is expressly required not to be less than certain prescribed rates.

† From Table III it will be seen that the total investments of all the banks in the United States rose from \$4,663 millions in June, 1916, to \$9,441 millions in June, 1919. In March they are estimated to have reached \$10,000 millions.

Inflation also led to a rising demand for currency, which could only be supplied by the issue of Federal Reserve notes against eligible paper, that is to say by rediscounting. But this demand for currency was at first more than met by the cash released through the alteration in the reserve laws. The cash held by all the banks of the United States (other than Federal Reserve Banks) fell from \$1,442 millions in June, 1917, to \$839 millions in June, 1918. In the same period the total money in circulation in the country outside the Federal Reserve Banks, but including that in the other banks, rose from \$4,153 millions to \$4,283 millions. The apparently small increase of \$130 millions conceals a real increase exceeding \$700 millions in the hands of the public outside the banks. By the time of the armistice the cash in circulation had risen to \$5,000 millions, of which about \$1,000 millions was in the banks. The Federal Reserve notes in circulation were growing steadily all the time, from \$463 millions on June 1, 1917, to \$1,577 millions on June 1, 1918, and \$2,532 millions on November 1, 1918. Thus, by the time of the armistice half the currency in active circulation consisted of Federal Reserve notes. The combined effect of inflation and increased membership of the Federal Reserve system is seen in the rise of deposits in the Federal Reserve Banks to \$1,663 millions.

Up to this point the practical operation of the Federal Reserve system had been on the whole simply to facilitate inflation. Expansible reserve deposits and an expansible currency had enabled the banks to continue that augmentation of purchasing power which had depended till 1917 on the steady influx of gold from Europe. In November, 1918, the Federal Reserve Banks held a total cash reserve of \$2,105 millions, the statutory reserves (35 per cent. of deposits, *plus* 40 per cent. of notes) came to \$1,588 millions, and therefore they had a surplus reserve of \$517 millions. With so substantial a margin had they come through the period of war inflation.

After the Armistice.

In the months following the armistice no step was taken to contract credit. The reserve position being what it was, no such step seemed necessary. Nevertheless, the cessation of war conditions brought about spontaneously a pause in the inflationary process. Prices of commodities reacted a little, the expansion in bank deposits stopped, currency circulation fell. But the pause did not last long. By May the prices of commodities had recovered and (as measured by the Bureau of Labour index number) were as high as at any time during the war. May was the month in which the big "Victory

Loan " was subscribed, and about that time the banks' holdings of United States Government securities touched a maximum. The quarter ended September 30, 1919, was the last in which expenditure exceeded revenue. The pegging of the foreign exchanges had just ceased. The prohibition on the export of gold was removed on June 7. By June 30, 1919, the day of the usual annual returns from all the banks of the United States, the hesitancy which followed the armistice was over. Credit expansion was definitely re-started. In Table III will be found estimates of the deposits, loans, investments, and cash of all the banks in the United States for a number of dates between June 30, 1918, and June 30, 1920. The figures are calculated from the returns of member banks of the Federal Reserve system. From November 1, 1918, to March 4, 1919, deposits were practically stationary; investments increased from \$8,759 millions to \$10,082 millions; loans and discounts fell from \$19,974 to \$19,359 millions. The short interval from March to June saw both deposits and loans and discounts jump up by about \$2,000 millions.

Here is the turning point. Unlike those of the preceding two years, this was a credit expansion arising from purely commercial causes, and not from the expedients of Government finance. Credit was expanded by the banks in response to trade demands. This situation raised the question of the responsibility of the Federal Reserve Board for controlling credit. The new system was on its trial. It had been put forward as a remedy for financial crises. Panic had come time after time in the past as the catastrophic termination of a period of credit expansion. The immediate occasion for it had then been the depletion of cash reserves. The Federal Reserve system was planned to meet this danger by giving almost unlimited rediscounting facilities, as well as a discretion to suspend reserve requirements temporarily. To the practical banker approaching the problems of credit from the point of view of one institution among 30,000, these powers solved the problem. But the same forces which had depleted cash reserves in 1907, in 1893 or in 1873, remained ever ready to operate. Credit expansion would still lead to an increased internal demand for currency and to an export of gold. And the Federal Reserve system took account of this part of the problem of credit control in that it prescribed the reserve proportions for notes and deposits. If the Federal Reserve Board, conscious of its duty not merely to help every individual bank, but to deal with the credit situation as a whole, asked for guidance, here was the answer. The signal for a contraction of credit was to be the fall of the reserve proportions towards the limit.

At the last return in June, 1919, the reserve position of the Federal Reserve Banks was a little stronger than at the armistice, the surplus being \$604 millions. The amount was ample. The signal for contraction had not been given. Six months later the situation had changed profoundly. At the end of December the surplus reserve had fallen to \$315 millions. This was due partly to a drop of \$80 millions in cash reserves, but mainly to an increase of \$558 millions in the circulation of Federal Reserve notes. The money actually in the hands of the public had increased by \$470 millions, so that \$88 millions had been needed to replace other money lost from circulation. In fact, there had been net exports of gold to the amount of no less than \$187 millions.*

Few as the remaining gold standard countries were, their demands were still important enough to occasion a drain of gold exceeding all precedent.

The Rediscount Rate.

In November the Federal Reserve Board had taken a first practical step towards controlling credit. In order to facilitate the absorption of Government securities the rate of discount on paper secured by them had till then been fixed low (usually 4 or $4\frac{1}{4}$ per cent., as compared with $4\frac{1}{2}$ or $4\frac{3}{4}$ in most other cases). Far the greater part of the rediscounts were at these preferential rates, and in fact the average rate for all rediscount transactions by the Federal Reserve Banks in October, 1919, was 4.19 per cent. Early in November this preference was discontinued, and the rate was put up to $4\frac{1}{2}$ per cent., the average for November being 4.54 per cent. Some further slight rises in December brought the average to 4.67.

Meanwhile the Federal Reserve Board, being fully aware of the inflationary tendencies at work, repeatedly exhorted the banking community to be cautious in lending, and in particular to refuse accommodation for speculation or for transactions in non-essential commodities.

Neither exhortation nor the rise in the rediscount rate had any visible effects. The decline in the reserve position at the end of December, however, was not in itself a decisive sign. A drain of cash into circulation during the autumn months and up to the end

* The recorded net exports were \$321 millions, but gold to the amount of \$134 millions received in respect of relief to Germany, and deposited in London to the credit of the New York Federal Reserve Bank, has to be counted as an "import," though it was not actually imported till late in 1920. But it counted towards the reserve as soon as it was deposited.

of the year is usual, and an abnormal loss of gold in the period following the removal of the export prohibition was to be expected. But with the new year there was no recovery. After some oscillations, the surplus reserve on January 23 was still only \$314 millions, and it was decided to take more drastic action. The rediscount rate was put up to $5\frac{1}{2}$ per cent. on paper secured by United States bonds, and to 6 per cent. for ordinary commercial paper; only paper secured by Treasury "Certificates of Indebtedness" (the American equivalent of our Treasury Bills) retained for a time the preferential rate of $4\frac{3}{4}$ per cent. This meant a predominant rate of $5\frac{1}{2}$ per cent., and 6 per cent. for any member bank which might exhaust its stock of paper secured by Government securities.

The market rates of discount for commercial paper quickly responded. From $5\frac{1}{4}$ per cent. in October the rate (in New York) rose to $5\frac{1}{2}$ per cent. at the end of November, and 6 per cent. in December. Early in February it rose fractionally above 6 per cent., and by the end of February it was almost 7 per cent.*

The successive rises in the rediscount rate were not made without some searchings of heart. The Federal Reserve Board had several times expressed a certain scepticism as to the effectiveness of the rediscount rate in checking credit expansion. The Bank of England had successfully controlled credit in the past by means of the bank rate, but London was a great centre of international trade. Moreover, the margin of profit to which dealers were accustomed in America was supposed to be larger than in England, and American business would be correspondingly less sensitive to the rediscount rate.

* It is sometimes argued that the rediscount rate ought to be a *maximum*, and that, when the market rate is above it, that is a sign that the rediscount rate is not effective. The argument proceeds from a fallacious comparison with the London market. The London counterpart of the ordinary "commercial paper" of New York, the one-name promissory note, is not the bill of exchange, but the bank advance. Bank advances not being embodied in any negotiable document, cannot be rediscounted at all, and they are usually made at a fixed rate of say 1 per cent. above bank rate. Bills are discounted at a low rate because they are readily saleable in the market, and are almost the equivalent of cash. The bank rate, though usually above the market rate of discount, is below the prevailing rate of interest on advances. In London rediscounts are only an occasional phenomena, and are usually small in amount.

In New York, and in all the Federal Reserve districts, a large volume of rediscounts is always outstanding. Unless there is a margin between the rates of discount and rediscount, a rediscount absorbs the whole profit of the member bank upon the note in question. As soon as the rediscount rate is raised, it begins to push up the discount rate till the margin is sufficient to give adequate compensation to the member banks. Apparently about 1 per cent. is what they regard as a suitable margin.

But exhortation had no noticeable effect on the banks, and, if the first tentative increases in the rate of rediscount in November were equally ineffective, the fault might be that they did not go far enough. Whatever the faults of the rediscount rate might be as an instrument for controlling credit, the Federal Reserve Board were faced with the fact that *they had no other*.

In one respect the rise to 6 per cent. in January seemed to have a very real effect. Ever since the early months of 1919 American traders had been exporting on an enormous scale to Europe. The European purchasers paid in their own currencies, which had been left, since the unpegging of the exchanges in 1919, to find their level. Deprived of artificial support and exposed to the full effects of the desperate inflation which had characterised European war finance, the value of these currency units in the exchange market fell steadily. The American exporters did not at first appreciate what was happening. Misled perhaps by the "balance of trade" fallacy, they regarded the depreciation of the European currencies as a temporary phenomenon, and they decided to leave the balances lying to their credit till a return to normal conditions might enable them to remit them to America without loss. To hold these balances, it was necessary in many cases for the exporters to receive advances in dollars from their bankers. But by the end of 1919 the depreciation in some cases had reached such a pitch that the prospect of a recovery was becoming remote, whatever happened to the balance of trade. Sterling was no more than 20 per cent. below par; but French and Belgian francs were depreciated 60 per cent.; Italian lire 70 per cent.; German marks and the débris of the Austro-Hungarian crowns were reduced to mere fractions of their par values. Not only was the wisdom of waiting becoming doubtful, but these shrinking balances of paper money were beginning to afford inadequate security for the advances made to their possessors. At the end of January the banks suddenly began to call in their loans, and the exchange market was struck with something approaching to panic. Even sterling fell to \$3.20, raising the extent of its depreciation to 34 per cent. Francs and lire declined rapidly, and the currencies of Eastern Europe fell in February to about half the value they had commanded in December. The temporary character of the movement is demonstrated by the fact that in a few months these currencies all recovered (with one or two unimportant exceptions) to levels above the December quotations. How far this action on the part of the American banks was occasioned or suggested by the rise in the rediscount rate it is impossible to say. At any rate it is noteworthy as being the first symptom of an interruption

of the credit expansion which had been gaining momentum since the previous spring.

Seven per cent.

But in other respects the rise in the discount rate seemed to have little if any effect. The note-issue, which had fallen from \$3,057 millions, the seasonal maximum touched at the end of December, to \$2,844 millions on January 23, began to rise steadily, and by the end of February was back at \$3,000 millions. The gold exports continued. Those to Spain, which in 1919 had amounted to \$29·8 millions, had ceased, but those to Argentina and the East were continuing on a large scale. On February 20 the cash reserves of the Federal Reserve Banks had fallen to \$2,035 millions, being \$100 millions below the amount on December 31, and the surplus reserve was only \$220 millions. The New York Bank actually had a reserve deficiency of \$8 millions. At this stage the Treasury deposited \$50 millions of silver dollars in the New York Bank, with a view to subsequent transmission to the East. But even with this assistance the surplus reserve continued to fall.

Early in March came news that gold was being sent from England. In the course of March and April it arrived to the amount of \$56 millions, and in May there followed \$23·6 millions on British account from Hong Kong. And at the same time the export of gold began to die down. Argentina took in April nearly \$30 millions, making \$90 millions since January 1, and \$146 millions since the removal of the prohibition on export in June, 1919, but apparently that was enough to reach saturation point. Exports of gold to all quarters in May were only \$8 millions. The cash reserves recovered from \$2,054 millions on March 5 to \$2,087 millions on April 9. But the note-issue was growing, and the surplus reserve was soon lower than ever.

There were several danger points in view. In the first place the gold received from England was in the nature of a windfall. It might not be repeated, and in any case could not continue indefinitely. Secondly, though gold exports to South America had stopped, a financial crisis had just broken out in Japan. The Japanese exchange jumped up to the gold point, and there was every likelihood of large exports of gold thither. Thirdly, it would soon be necessary to deal with the usual credit strain incidental to the movement of the crops. In 1919 the Federal Reserve note issue had risen by \$550 millions between August 1 and the end of the year.

And by this time the Federal Reserve Board were fully alive to the fact that the reserve position did not tell the whole story. An

expansion of credit and therefore of purchasing power stimulates sales, depletes stocks of commodities, increases orders to producers, raises prices, and altogether makes business at every stage more active and more profitable. Thereby the demand for bank credit is itself again intensified, and a vicious circle of inflation is set up. In the period we are now considering this process had been working with unprecedented potency, and its effects were clearly to be seen in the prices of commodities. The Bureau of Labour's index number of prices (the base of which is 100 in 1913) stood at 206 at the end of 1918. At first it fell, but from a minimum of 197 in February, 1919, it rose to 248 in January, 1920. There was then a pause, but in March the index rose to 253 and in April it jumped up to 265.

When credit expansion with the concomitant upward tendency of prices has once set in, a rate of discount, which under normal conditions would be adequate or even high, becomes low relatively to the profits to be derived from the use of borrowed money. What is needed to secure control is such a rise in the rate as will deter traders from borrowing. But if prices are rising, the mere holding of commodities in stock yields an additional profit over and above the usual dealer's percentage on the turnover. If traders are to be deterred from borrowing money to buy commodities, the rate of discount must be high enough to offset the additional profit.

But, it may be asked, how is this possible when prices are rising at the rate of 30 per cent. per annum? No one would contemplate a rate of discount of anything approaching such a figure.* Yet how can a lower rate be deterrent?

The explanation is that it is not the *past* rise in prices but the *future* rise that has to be counteracted. The problem is a psychological one. As soon as the rate is high enough to offset the traders' hopes of future profits it becomes deterrent. And a very relevant factor in the psychological problem is the traders' expectations as to the intentions of the authority which fixes rates. If that authority means business, and can be relied on to push up rates relentlessly till they become deterrent, the *mere expectation* that this will happen may make quite a moderate rate adequate. For the prospect of rising prices is dispelled and normal standards of profit and interest are re-established in the traders' minds.

In May, 1920, it had become certain that the rediscount rates fixed in January and the corresponding market rates on commercial

* It is true that the rate of interest on call money in New York occasionally rises to a very high figure, but that is only for a short time. Rates of 20 or 30 per cent. for several months would be quite a different matter.

paper (then fully 7 per cent.) were not adequately deterrent. It was announced that as from June 1 the rediscount rate in New York and Chicago on commercial paper was to be 7 per cent., or, if secured by Liberty Bonds or Victory Notes, 6 per cent. The rate on commercial paper was quickly adjusted to a $7\frac{3}{4}$ per cent. and soon to an 8 per cent. basis.

Deflation.

This was the turning point. The dreaded gold exports to Japan began in July, and before the end of the year had exceeded \$90 millions.* The expansion in the note issue continued, and by December 24 it was \$300 millions above the total at the end of May. The surplus reserve fell on more than one occasion almost to the low level of May. Nevertheless the Federal Reserve Board were conscious that they had gained control. The speculative fever had abated.

The maximum price index was recorded in May at 272. The fall, slight at first, gathered way. By November the reduction in some of the most important commodities (especially grain crops and textile materials) was so severe that dealers and producers, together with the banks that financed them, were gravely embarrassed. The price index for that month was 207 and for December 189.†

And now, indeed, was the value of the Federal Reserve system felt. With the old banking system nothing could have averted a crash.

* The very large gold imports from England, \$215 millions in the second half of 1920, were swollen by the sending to America of the German gold, till then earmarked at the Bank of England. Even if that be deducted the imports were still more than enough to offset the export to Japan.

† The following table shows the fall recorded in certain commodities.

Average price for month.

—	May.	November.	Fall per cent.
Corn per bushel	1.98	0.80	59
Wheat (Spring) "	3.07 $\frac{1}{2}$	1.75 $\frac{1}{4}$	53
" (Winter) "	2.97 $\frac{1}{2}$	2.05 $\frac{3}{4}$	31
Hides per lb.	0.35	0.23	34
Wool "	1.16	0.69	41
Coffee "	0.15 $\frac{1}{2}$	0.07 $\frac{1}{2}$	52
Sugar "	0.22 $\frac{1}{2}$	0.09 $\frac{1}{2}$	58

Some commodities showed little or no fall, but the foregoing list includes so many important staples of which the stocks to be held are large, that the effect of their decline in value upon the credit situation is obvious.

Everything depended upon the banks throughout the country being able to allow time to borrowers whose expectations of selling at a remunerative price had been disappointed. The frozen credits had to be liquidated. The member banks of the Federal Reserve system were able to maintain their reserve position, and to get the necessary supplies of cash by means of rediscounts, and being thus secured of adequate liquid resources, they were in a position to grant their own customers the necessary breathing space. The situation was surmounted, not without casualties, but without a panic. The bank failures in particular were insignificant.

The appreciation of the dollar in terms of commodities was reflected in the foreign exchanges. The fall in the exchanges which took place in February had been confined to Europe. The fall in November, while it brought some of the European currencies lower than in February, was general. It extended to South America and to the East. Japan alone, the only surviving companion of the United States in the maintenance of the gold standard, stood outside. The extent of the fall varied. Sterling, which had recovered to \$4 in the spring, fell to \$3.35 or 16 per cent. Somewhat similar declines were recorded in the case of the stronger European ex-neutrals, Switzerland, Holland and Sweden. This drop fell so far short of the proportion in which the commodity value of the dollar had risen that it supplies evidence of the success of deflationary measures in those countries. Other currencies showed falls of 30, 40 or even 50 per cent. Some of the collapsed currencies of Eastern Europe fell more than 50 per cent. The Argentine exchange was still at par in the middle of July, but the export of gold was prohibited, and by November the peso was depreciated 20 per cent. The price of silver, which in April averaged \$1.20½ (and had been higher), fell to \$0.78½ in November, and of course the Chinese exchanges moved with it. The rupee fell from 49½ cents to 26½ cents.

These movements of the exchanges become more intelligible when it is realized that the purchasing power of the dollar was raised between May and December in the proportion almost of three to two. The apparent depreciation of other currencies for the most part merely measured the appreciation of the gold dollar, the standard by which they were measured. The torrent of forced liquidation that depressed prices in the home markets drove with equal force against foreign markets. But there, instead of bringing down prices, it brought down the exchanges. The effect was the same; the flood of sales was checked, and kept within the absorptive power of the markets.

Is it possible, one is tempted to ask, that such mighty changes

can be wrought by so simple and slight an instrument as a rise in the discount rate by about 2 per cent. ? Yes, it is. It is possible, first of all, because the rise in the rate broke the vicious circle of inflation ; secondly, and still more, because it set up a new vicious circle of deflation. The principle in both cases is the same, though the circumstances of its application are contrary. Deflation once started, prices once on the down grade, the holding of commodities in stock means an actual loss. The prospect of this loss has itself a deterrent effect upon traders, who make a practice of holding commodities with borrowed money, and reinforces the deterrent effect of the rate of discount. In the first instance the rise in discounts discourages dealers from buying and impels them to sell. But the result is so to depress markets that their efforts to sell are ineffectual. The unwillingness of the dealers to buy means fewer orders to producers ; profits are smaller, less wages are earned, and thus the consumers' demand shrinks. The rush to sell in an unfavourable market forces down prices, and the fall of prices reinforces the original process. Therefore, once a high discount rate has become deterrent at all, it tends to grow more and more deterrent. In the long and varied experience of the Bank of England in controlling the credit market of London, and therefore of the world, examples are to be found again and again of a very high bank rate being followed as soon as it has done its work, by a very low rate. In 1907 the bank rate was put up to 7 per cent. at the beginning of November. Early in January, 1908, it came down to 6 per cent. ; before the end of January it was 4 per cent. ; by May it was $2\frac{1}{2}$ per cent.

In 1920 the Federal Reserve Board adhered to the 7 per cent. rate to the end of the year, and the rate on commercial paper remained at or near 8 per cent. The rates that had been imposed in June to counteract the excessive profits of a period of unprecedented inflation were retained when the profits had not merely vanished but had given place to widespread loss and depression.

The turn of the year was safely surmounted. The maximum reached by the issue of Federal Reserve notes was \$3,400 millions on December 24, and the surplus reserves of the Federal Reserve banks were then \$332 millions. Thereafter every factor in the situation conduced to a favourable reserve position. The note issue steadily decreased. The gold reserves, fed by enormous imports, offset by no exports worth mentioning, grew and grew. By the end of January the surplus reserve had reached \$500 millions, at the end of March \$650 millions, at the end of April \$760 millions. Prices continued to fall. The index number, which was 189 in

December, was only 154 in April, or $43\frac{1}{2}$ per cent. below the maximum of the preceding May. The purchasing power of the dollar had thus been raised by 80 per cent.

It was not till May 5 that the Federal Reserve Board relaxed the grip which it had by that time maintained on the discount market for eleven months. Even then the discount rate was only reduced to $6\frac{1}{2}$ per cent. Successive reductions of $\frac{1}{2}$ per cent. at a time gradually brought it down (in New York) to $4\frac{1}{2}$ per cent. on November 3rd. The price index reached a minimum of 148 in June and July, and has varied little since. The first glimmerings of a trade revival can now be discerned. But meanwhile the effect of the Federal Reserve Board's extremely severe discount policy is to be seen in the portentous increase of the surplus reserves to \$1,500 millions.

The Reserves against Deposits.

It will have been noticed that in the foregoing description of the working of the Federal Reserve system nothing has been said as to changes in the amount of deposits. The reason is that the deposit liability of the Federal Reserve banks turned out not to be an important factor in the calculations. On March 7, 1919, the net deposits had already reached \$1,800 millions, and from that date till July, 1920, oscillated quite irregularly between \$1,600 and \$1,900 millions.* Thereafter it found a somewhat lower average level, but without falling appreciably below \$1,600 millions. The amount of deposits was substantially less than the amount of Federal Reserve notes, and their cyclical variations were far less, while the proportion of reserve required against them was only 35 per cent. Their chief importance rose from their day-to-day variations, a change of \$100 millions between one week's return and the next being not uncommon. To understand the movements in the Federal Reserve Banks' deposits it is best to turn to the returns of the member banks (*see* Table on p. 241).

In all the weekly returns of the Federal Reserve Banks themselves from January, 1919, to December, 1921, the maximum of the member banks' reserve deposits was \$1,943 millions (on January 16, 1920) and the minimum was \$1,563 millions (on February 20, 1919). The whole range of variations was thus \$380 millions, the range in the required reserve being 35 per cent. of this, or \$133 millions. In the same period the Federal Reserve note issue rose from \$2,450 millions in January, 1919, to a maximum of \$3,404

* A drop to \$1,500 millions on September 19 may be disregarded. It was due to exceptional and transitory causes.

millions in December, 1920, and fell to \$2,366 millions at the end of November, 1921. The range of \$1,038 millions means a range in the required reserve of \$415 millions.

(\$ millions.)

Date.	Deposits.		Reserves.
	Demand.	Time.	
December 31, 1918	17,103	3,834	1,655
March 4, 1919	16,506	4,092	1,633
June 30, 1919	17,550	4,343	1,724
November 17, 1919	19,717	5,049	1,825
December 31, 1919	20,154	5,305	1,904
May 4, 1920	18,876	5,748	1,866
June 30, 1920	19,177	5,911	1,839
November 15, 1920	18,696	6,144	1,827
December 29, 1920	17,676	6,188	1,763
April 28, 1921	16,174	6,343	1,654
June 30, 1921	16,544	6,367	1,625

Seeing that the total cash reserves of the Federal Reserve Banks fell from a maximum of \$2,270 millions on June 6, 1919, to a minimum of \$2,035 millions on February 20, 1920, and rose to \$3,000 millions in December, 1921, it is obvious that at any rate under recent conditions the most potent influence on the Federal Reserve system has been the demand for currency.

Currency under the Federal Reserve System.

Let us therefore turn to consider the effect of the system as a whole upon the currency position. The following analysis of the distribution of money (in \$ millions) in the United States in June of each year brings out the changes clearly:—

—	In Treasury.	Federal Reserve Banks.	Other Banks.*	Public circulation.
1914	336·3	—	1,630·0	1,772·0
1915	345·4	336·2	1,447·9	1,809·9
1916	298·2	592·7	1,472·2	2,119·8
1917	268·4	1,280·9	1,487·3	2,371·4
1918	360·3	2,018·4	882·7	3,479·6
1919	584·2	2,167·3	981·3	3,786·0
1920	489·7	2,021·3	1,047·3	4,336·2
1921	460·6	2,697·5	946·0	3,920·0

* Including Savings Banks.

In the first place we see from the column headed "Other Banks" the effect of the reduced reserve requirements. Here a comparison with the total deposits in all banks (except savings banks) in the United States is instructive :—

—	Deposits.	Cash.	Ratio.
June, 1914	13,729	1,571	11·44
June, 1915	14,225	1,395	9·80
June, 1916	17,784	1,426	8·02
June, 1917	21,651	1,442	6·66
June, 1918	23,491	839	3·57
June, 1919	27,870	928	3·33
June, 1920	31,462	998	3·17
June, 1921	—	—	—

The drop from 11·44 per cent. in 1914 to 6·66 per cent. in 1917 shows the progressive effect of the transfer of reserves to the Federal Reserve Banks (a process which was spread over three years). The further drop to 3·57 per cent. in 1918 is due to the amending Act of 1917, under which the whole statutory reserve has to be on deposit with the Federal Reserve Bank.

It is of some interest to note that when the cash holdings of banks, with ample rediscounting facilities open to them, are reduced to the amount really needed without any effort at window-dressing, a proportion of about 3 per cent. is found sufficient. If a proportion of 11·44 per cent. had been maintained in June, 1921, the total cash holdings would have been \$3,600 millions, so that the Federal Reserve system may fairly be regarded as dispensing with \$2,600 millions in cash, which would otherwise have had to lie in the vaults of the banks.

On the other hand, the member banks have to maintain their statutory reserves on deposit with the Federal Reserve Banks, which in turn are bound to hold 35 per cent. of those reserves in cash. This 35 per cent. has varied between \$547 millions and \$680 millions.

The mere fact that on balance the Federal Reserve Act has had an inflationary tendency through the diminution of statutory cash reserves is not of great importance, because it is likely enough that in any case inflationary legislation of some kind would have been passed at the outbreak of war. But it requires to be borne in mind in making any comparison between present and pre-war stocks of currency.

As a *continuing* influence on the currency supply the effect of

the system is of course to be found in the absorption of reserves and in the issue of Federal Reserve notes. Broadly speaking, no doubt, the great fluctuations in the note issue, which I have already mentioned, reflect fluctuations in the demand for currency. But the correspondence is not exact. The supply of currency may also be affected by variations both in the supply of gold and in the reserves of the Federal Reserve Banks themselves. If the currency in circulation (*i.e.*, in banks other than Federal Reserve banks, and in the hands of the public) be divided into Federal Reserve notes and other kinds of money it will be found that from April, 1917, to April, 1919, the latter steadily declined from \$3,744 millions to \$2,338 millions, while the Federal Reserve notes rose from \$357 millions to \$2,503 millions, the net increase in money of all kinds being \$740 millions.

But since April 1, 1919, the variations in other kinds of money have been relatively small, the maximum and minimum being \$2,348 millions and \$2,118 millions, although the total has risen from \$4,800 millions to \$5,600 millions and fallen again to \$4,600 millions. It would seem, therefore, that variations in the demand for currency are mainly met by variations in the supply of Federal Reserve notes. At the same time the effect of the big gold movements has been concentrated in the Federal Reserve Banks' cash reserves.

Undoubtedly these operations carry out faithfully one of the purposes of the Federal Reserve Act, the provision of an elastic currency. But there is a curious want of logic in the system, which might quite possibly take tangible form in practical disadvantages. Federal Reserve notes are not legal tender, and there is no particular reason why any one should prefer them to gold or silver certificates or United States notes, which are "lawful money." The proportion of Federal Reserve notes to other money in circulation is really a matter of caprice. The banks may thrust them on their customers, as a conjuror forces a card, but a very slight preference on the part of the customers might break the spell and completely upset the reserve position. Or, on the other hand, when the reserves are falling low, the banks may resort again to the conjuror's art to put Federal Reserve notes in circulation in place of other forms of money. Though anything in the nature of a concerted discrimination by the public against the notes is hardly a serious danger, there is undoubtedly an element of arbitrariness in having the new currency and the old in circulation side by side. The anomaly would have been avoided if the Federal Reserve note issue had been based on the principle of a fixed fiduciary issue, as under the Bank Charter

Act of 1844, instead of a fixed proportion of gold reserve. No doubt, the fixed proportion was preferred as being more "elastic."

This property of elasticity in currency, which was one of the avowed purposes of the Federal Reserve Act, deserves examination. A currency needs elasticity for two purposes. It must be readily adaptable to seasonal demands, and it must be expansible to meet an exceptional emergency such as a crisis. For seasonal demands the margin of gold in excess of the statutory reserves at the time of minimum demand must be sufficient to leave some margin still in existence when the demand has grown to the maximum, and here there is undoubtedly some advantage in the fixed proportion system. With a fixed fiduciary issue, the whole of the additional notes outstanding at the time of maximum demand must be covered, dollar for dollar, with gold. If at that time the margin of reserves, above the legal limit, is adequate for contingencies, then at the time of minimum demand it will be much more than adequate.

On the other hand, if the gold reserve is required to be a fixed proportion of the issue, for example 40 per cent., then the margin at the time of minimum demand will only be swollen by that fraction of the additional issue. For example, in 1920 the Federal Reserve note issue increased by \$300 millions between June and December. With a fixed fiduciary issue it would have been necessary to have an extra reserve of the whole amount of \$300 millions to prepare for the increase, whereas with the 40 per cent. proportion laid down by the Federal Reserve Act only \$120 millions were required.

But when it comes to meeting the exceptional demand for currency in a time of crisis, the arithmetical rule for the calculation of reserves becomes irrelevant. The occurrence of the crisis itself presupposes that the reserve is at or near the limit. The only remedy then may be to suspend the limit. The aim of a sound banking system is to maintain such a control of credit as will avoid this necessity altogether, or will, if it does occur, ensure the earliest possible return to the normal compliance with the law.

For this vital purpose of controlling credit the fixed proportion system of reserves offers some specious advantages which on examination turn out to be illusory. When credit is unduly relaxed, the effect of the consequent expansion of the currency upon the surplus reserve is reduced in the proportion adopted. If the proportion is 40 per cent., every \$100 added to the circulation diminishes the surplus reserve by \$40. So long as the reserve proportion is taken as the criterion of the credit position, this facilitates expansion.

But when the expansion produces its natural consequence of an

export of gold, and a contraction in the currency becomes necessary, the contraction required to make good a given loss of gold is *increased* in the same proportion. As a result, in the critical interval before the export of gold has been checked, the contraction is all the more likely to be so violent as to provoke a crisis.

The decisive moment is likely to come at or near the period of maximum seasonal demand for currency, and, if it does, even the elasticity which facilitates provision for that demand is likely to prove treacherous. In the control of credit what is needed above all is prompt action. Credit is unstable, and a movement once started, whether it be an expansion or contraction, gathers impetus till it is checked. Delay always aggravates the evil, and an elastic currency facilitates delay. That one vital fault outweighs all its advantages.

If in practice the danger can be avoided, that is because in any case the authority controlling credit must exercise *discretion*; it cannot rely on any rule of thumb. Neither a fixed proportion nor a fixed fiduciary issue is an infallible guide. The Federal Reserve Board must exercise unceasing vigilance. It is not even enough to watch price movements, important as they are. All the symptoms of the state of credit and of trade must be observed, and the Board must be ready to anticipate and as far as possible to prevent any movement from the normal.

Bank Deposits, 1918-21.

In America, as here, the note issue is but a small part of the total stock of purchasing power. Table III enables us to trace the history of bank deposits during the critical period following the armistice. The two returns of December 31, 1918, and March 4, 1919, show no appreciable change in deposits as compared with that of November 1, 1918. Investments show a large increase from \$8,759 to \$10,082 millions, but this was partly set off by a drop in loans and discounts. Thereupon there began a rapid increase in deposits from \$25,542 millions in March to \$31,677 millions on December 31, 1919, or 24 per cent. Concurrently there was a *decrease* in investments to \$9,125 millions, and a rise in loans and discounts from \$19,359 to \$24,492 millions. The pressure on banking funds for direct investment in Government securities was already over, and the expansion was in ordinary banking accommodation to trade. In the following six months to June, 1920, there was no further increase in deposits, which stood at \$31,462 millions, but the substitution of loans and discounts for investments continued. Thus, the increase in deposits in the post-armistice expansion may be estimated at 24 per cent.

The increase in money in circulation was from \$4,841 millions on April 1, 1919, to \$5,381 millions on July 1, 1920, or only 11 per cent. Prices on the contrary rose from 200 in March, 1919, to 272 in May, 1920, or 36 per cent.

For June, 1921, the full returns for all banks contained in the annual report of the Controller of the Currency are not yet available. But the returns for member banks of the Federal Reserve system (when corrected to allow for the growth of membership) show a fall in deposits from \$21,886 millions to \$20,612 millions, or about 6 per cent., while prices fell from 269 to 148 or 45 per cent. The money in circulation from \$5,381 millions on July 1, 1920, continued rising for a few months, reached a maximum of \$5,617 millions on November 1, and stood at \$4,866 millions on July 1, showing a fall on balance of 10 per cent in the year. Here we have an illustration of the rule that when business is active prices rise more than in proportion to the stock of purchasing power, and that when business is slack they fall more than in proportion. In other words, when business is active the rapidity of circulation is increased, and when business is slack it is diminished. Stagnant cash balances are a characteristic of periods of trade depression. When trade is profitable dealers cannot afford to let money lie idle, but when every transaction threatens, under the stress of falling markets, to end in a loss, idle balances are allowed to mount up. In the one case everyone is a bull of commodities and a bear of currency; in the other everyone is a bear of commodities and a bull of currency.

This phenomenon has been exemplified in an even more striking form in this country. A deflation so intense as to reduce prices of commodities by nearly 50 per cent. and to throw 2,000,000 people out of employment has been accompanied by no visible fall in bank deposits. And it is even argued that there has been no deflation at all, as if the quantity of purchasing power were the sole test of the state of credit. The kind of deflation that is practically important is deflation not of the outstanding aggregate of purchasing power but of the *flow* of purchasing power.

The Working of the System since 1918.

If we review the experience of the last three years we shall find, I think, that the Federal Reserve Act has conferred an incalculable benefit upon America, in that it has successfully set up an authority with the special duty of exercising foresight and initiative in the regulation of credit. The Federal Reserve Board, which is a judicious blend of Government and business representation, has

discharged its functions during a period of unexampled difficulty with such skill and with such public spirit as to gain the confidence and goodwill of the banking world.

Nevertheless, to avoid mistakes altogether in such circumstances would be something more than human, and it is already possible to draw instructive conclusions from the experience that has been acquired. In the first place, the inflationary movement, which began in the spring of 1919 and brought about a rise in prices of 38 per cent., was ultimately checked by a rise in rediscount rates. Could it not have been checked at an earlier stage? The Federal Reserve Board seems to have been infected with that scepticism as to the efficacy of the rediscount rate which has been so prevalent since the war. Till November, 1919, it is true, they found an obstacle to action in the position of the banks which had undertaken to grant advances at low rates to subscribers to war loans. It seemed unfair to charge these banks such high rates for rediscounts as to involve them in a loss. And, moreover, "an advance in discount rates, while the Government had an unwieldy floating debt, and "Liberty Bonds were still largely unabsorbed, would have added "to the difficulties of Government financing."

But after November, 1919, these motives ceased to operate, and yet six months passed before effective steps were taken to stop the credit expansion. "The purchasing power of the public," said the Board, in their report of 1919, "growing out of high wages and large profits, is greater than it has ever been before; and this purchasing power . . . has raised prices to a point that takes no account of prudence." Yet it was only by tentative and hesitating steps that the Board tried to cope with this menacing situation, and it was not till June 1, 1920, that the rediscount rate was raised to 7 per cent. That measure was successful, and the tide turned, but the ebb had to be proportioned to the flow. In so far as the expansion had got out of hand, the subsequent contraction had to be more severe.

By the end of the year the prices of commodities had already fallen below the minimum of 1919, and the whole of the ground lost had thus been regained. That there was no crisis or panic is to be put down to the credit of the Federal Reserve system, and of the Board which administered it. But the other ill effects of a rapid credit contraction, in the form of loss and unemployment, were experienced to the full.

We have already seen how during 1921 the transition from dear to cheap money was delayed. In America the delay meant an intensification and prolongation of the industrial distress. But its

results were not confined to America. All over the world the currency situation was profoundly disturbed, owing to the fact that the value of the dollar, that is to say of gold, in relation to commodities was raised by no less than 80 per cent. The financially strong countries in Western Europe elected to adopt the same severe deflationary methods as the United States, and had to suffer the same distress. The financially weak saw their currencies apparently depreciating. All thought of stabilisation had to be put aside.

It may be said that even now a dollar is only worth two-thirds as much as in 1913, and that it is hardly the business of other nations to complain if the Americans have thought it desirable to make this partial return to pre-war standards. There would be force in this contention if there were a prospect of the dollar being permanently stabilised at that point. But the original depreciation of the dollar to less than two-fifths of its pre-war commodity value was caused by the influx of a flood of gold, and now the gold is there in larger volume than ever.

Going back to the table on p. 241 we see that in 1914 of the \$3,738 millions of money of all kinds, \$1,772 millions were in the hands of the public, outside the banks. In June, 1921, the money in the hands of the public had risen to \$3,920 millions, an increase of 121 per cent. Bank deposits had increased from \$13,729 millions to about \$29,600 millions, or 115 per cent. After all allowances have been made for the increased need for currency in a growing community with growing wealth, it seems obvious that this supply of purchasing power is more than sufficient to support a 50 per cent. increase of prices. And, in fact, the disproportion is one more piece of evidence of the stagnation of cash balances characteristic of a period of depression. As soon as there is a revival the flow of purchasing power will be increased, although the outstanding aggregate will be stationary or may even diminish. But that is not all. Even with this excessive supply of purchasing power in circulation, the reserves of the Federal Reserve Banks are also swollen far beyond normal proportions. The surplus reserve was already practically \$1,000 millions in June. Now it exceeds \$1,500 millions, and is rapidly growing.

The appreciation of gold has effectively prevented other countries from restoring the gold standard, and the entire surplus gold supply of the world has been persistently gravitating towards the United States. So long as this state of things continues, the reserve proportions established by the Federal Reserve Act will be entirely inoperative. In other words, the Federal Reserve system itself points the way to another great inflationary movement. When that

movement becomes perceptible, however, it will meet with conditions in some other countries very different from those of 1919. For two years Western Europe has been striving after a gold standard, and in the effort has by this time sustained an even more severe deflation than the United States. In this country the discount on the currency has been reduced to 10 per cent. In Sweden and Holland it is less. In Switzerland the franc is already at par with gold. A moderate inflation in America will depreciate the dollar to the level of sterling, and gold exports for currency purposes will become possible to England and to the Continent. As credit expansion proceeds other countries (*e.g.* Japan, and perhaps Argentina, Uruguay, Spain or Denmark) may be put in a position to take gold. Thus may the gold standard be spread and the redundant gold reserves of the United States be drawn off by the simple expedient of cheapening gold in the world market.

But if that is to happen in the future, why was gold ever made dear? We have been made familiar by Prof. Cassel and Prof. Irving Fisher with the importance of stabilising the currency unit, and the experience of the Federal Reserve Board has supplied them with their most telling example. The whole world has been plunged into the most appalling distress for nearly two years by the strain of raising the commodity value of the dollar 80 per cent. And now a great part of what has been done is about to be undone! To that extent the effort was pure waste. It was indeed worse, for the undoing is itself, as we well know, a process full of danger.

How did such a mistake ever come to be made? The explanation is, I think, simply that the working of the "vicious circle" of deflation was not understood. It was not realised that a deterrent rediscount rate, once it has taken effect, can safely be reduced, and that the falling prices and shrinking purchasing power will then do their work without extraneous aid.

Credit is inherently unstable, and it can only be successfully controlled by perpetual vigilance and prompt action. Every disturbance from the normal, whether towards expansion or towards contraction, tends to magnify itself unless quickly checked by the appropriate rise or fall in the discount rate. Traders and bankers often deprecate rapid changes in the discount rate as being unsettling to business. But what is unsettling is the alternation between expanding and contracting credit. If credit and, therefore, the flow of purchasing power are kept approximately steady, the short-period changes in the rate of discount cause no trouble except in the highly specialised calculations of the discount market itself.

Another lesson to be derived from the period we have been

studying is the extent of the command which those who regulate credit have over the commodity value of gold. This, of course, is not new. It is the very foundation of the theory of bimetallism. But the practical experience of the Federal Reserve Board shows that the purchasing power of a gold unit can be fixed anywhere within fairly wide limits, and that the gold supply will accommodate itself to the value chosen. This points the way to that much desired stabilisation of the unit.

TABLE I. *Federal Reserve Banks.*

(Millions of dollars.)

Date.	Deposits.	Federal Reserve Notes.	Required Reserve.	Actual Reserve.			Surplus Reserve.
				Gold.	Other cash.	Total.	
Nov. 27, 1914	249·3	2·7	88·3	227·8	34·6	262·4	174·1
Nov. 26, 1915	398·9	165·3	205·7	492·2	37·2	529·4	323·7
Nov. 24, 1916	650·7	275·3	337·9	736·2	17·6	753·8	415·9
May 25, 1917	721·2	454·4	434·2	977·4	36·9	1,014·3	580·1
June 29, 1917	1,261·8	508·7	645·1	1,294·5	39·8	1,334·3	689·2
Dec. 28, 1917	1,458·0	1,246·5	1,008·9	1,671·1	49·6	1,720·7	711·9
June 28, 1918	1,529·8	1,722·2	1,224·3	1,949·0	57·2	2,006·2	781·9
Nov. 1, 1918	1,663·4	2,515·5	1,588·4	2,052·2	53·5	2,105·7	517·3
Dec. 27, 1918	1,552·9	2,685·2	1,617·6	2,090·3	55·9	2,146·2	528·6
March 7, 1919	1,802·1	2,488·5	1,626·1	2,139·5	66·0	2,205·5	579·3
June 27, 1919	1,750·7	2,499·2	1,612·4	2,147·8	68·4	2,216·2	603·8
Nov. 14, 1919	1,858·3	2,808·4	1,773·8	2,133·3	66·8	2,200·1	426·3
Dec. 26, 1919	1,704·5	3,057·6	1,819·6	2,078·4	57·1	2,135·5	315·9
May 14, 1920	1,839·4	3,083·2	1,877·1	1,939·1	139·3	2,078·4	201·3
June 25, 1920	1,722·2	3,116·7	1,849·5	1,969·4	139·2	2,108·6	259·1
Nov. 12, 1920	1,674·8	3,329·0	1,917·8	2,008·7	171·3	2,180·0	262·2
Dec. 30, 1920	1,604·2	3,344·7	1,899·3	2,059·4	189·8	2,249·2	349·8
April 27, 1921	1,725·9	2,830·1	1,736·1	2,317·6	187·2	2,504·8	768·7
June 29, 1921	1,685·8	2,634·5	1,633·8	2,461·9	163·5	2,625·4	991·6

Note to Table I.—The dates selected are, for the first three years, at annual intervals from the inauguration of the system in November, 1914. In 1917, returns are given just before and just after the amending Act of June, 1917, became operative. Thereafter dates have been taken close to those of the returns of member banks (*see* Tables II and III).

In March, 1921, the method of calculation of deposits for the purposes of the reserve proportion was altered. Till then *net* deposits were taken, that is to say, the F.R. banks were allowed to set off against the gross deposits the net sums due to them through their clearing operations. This is always a positive quantity, because a cheque while in transit to the bank upon which it is drawn is counted as a credit by each bank that it reaches in the clearing chain before it is counted as a debit by the next. In the return for April 27,

TABLE II.—*Banking Capital.*

(Millions of dollars.)

Date.	Non-National Banks.				National Banks.	All Member Banks.	All Banks.
	Total.	Member Banks.	Others.	Proportion of Member Banks.			
June 30, 1914	984	—	984	Per cent.	1,058	—	2,042
June 30, 1915	1,002	9	993	0·9	1,069	1,078	2,071
June 30, 1916	1,056	19	1,037	1·8	1,066	1,085	2,122
June 20, 1917	1,123	40	1,083	3·56	1,083	1,123	2,206
Dec. 31, 1917	1,155	218	937	18·87	1,093	1,311	2,248
May 10, 1918	1,176	270	906	22·96	1,097	1,367	2,273
June 29, 1918	1,184	282	902	23·82	1,099	1,381	2,283
Nov. 1, 1918	1,209	334	875	27·63	1,108	1,442	2,317
Dec. 31, 1918	1,221	349	872	28·58	1,110	1,459	2,331
March 4, 1919	1,233	360	873	29·20	1,106	1,466	2,339
June 30, 1919	1,256	371	885	29·62	1,119	1,490	2,375
Nov. 17, 1919	1,315	412	903	31·41	1,154	1,566	2,469
Dec. 31, 1919	1,333	436	897	32·71	1,158	1,594	2,491
May 4, 1920	1,385	481	904	34·74	1,215	1,696	2,600
June 30, 1920	1,409	493	916	34·99	1,224	1,717	2,633

1921, credits included "uncollected items" to the amount of \$519·8 millions, and the corresponding debit was \$430·7 millions. The difference was \$89·1 millions, and under the old system of reckoning would have reduced the deposits to \$1,636·8 millions *net*. The difference amounted in the return for December 30, 1920, to \$194·6 millions, making the gross deposits \$1,798·8 millions. The new system of reckoning would then have reduced the surplus reserve from \$349·8 millions to \$281·7 millions

Note to Table II.—For national banks and other member banks the amount of capital is taken from the returns made at the end of June and at irregular intermediate dates. For other banks the amount in June of each year is taken from the annual returns of all banks in the United States, and at intermediate dates the total capital of all banks *other than national* has been assumed to increase at an equal rate throughout the year.

TABLE III.—*All Banks except Savings Banks.*

(Millions of dollars)

Date.	Loans and Discounts.	Government Securities and Investments.*	Cash.	Individual Deposits.†
June 30, 1914—				
National banks.....	6,445	1,810	1,022	6,336
Other banks	5,939	1,665	549	7,393
Total	12,384	3,475	1,571	13,729
June 23, 1915—				
National banks.....	6,665	2,068	858	6,611
Other member banks	55	19	4	66
Total member banks	6,720	2,087	862	6,677
Other banks	6,016	1,766	533	7,548
Total	12,736	3,853	1,395	14,225
June 30, 1916—				
National banks.....	7,685	2,351	819	8,143
Other member banks	197	32	14	252
Total member banks	7,882	2,383	833	8,395
Other banks	7,037	2,280	593	9,389
Total	14,919	4,663	1,426	17,784
June 20, 1917—				
National banks.....	8,828	3,013	753	9,655
Other member banks	424	122	38	646
Total member banks	9,252	3,135	791	10,301
Other banks	8,118	2,578	651	11,350
Total	17,370	5,713	1,442	21,651
June 29, 1918—				
National banks.....	9,633	3,957	383	11,220
Other member banks	3,029	1,448	99	4,450
Total	12,662	5,405	482	15,670
Members next June	737	353	24	1,081
Total	13,399	5,758	506	16,751
Other banks	5,558	1,611	333	6,740
Total	18,957	7,369	839	23,491

* Including United States Certificate of Indebtedness.

† Including United States Government deposits.

TABLE III—*continued.*

(Millions of dollars.)

Date.	Loans and Discounts.	Government Securities and Investments.*	Cash.	Individual Deposits.†
Nov. 1, 1918—				
National banks.....	10,114	4,922	444	12,151
Other member banks	3,644	1,753	127	5,224
Members next June	262	126	9	376
Total	14,020	6,801	580	17,751
Other banks	5,954	1,941	382	7,453
Total	19,974	8,742	962	25,204
December 31, 1918—				
National banks.....	9,931	4,740	522	12,248
Other member banks	3,634	1,823	154	5,373
Members next June	132	67	6	195
Total	13,697	6,630	682	17,816
Other banks	5,883	1,902	449	7,635
Total	19,580	8,532	1,131	25,451
March 4, 1919—				
National banks.....	9,705	5,491	435	12,094
Other member banks	3,735	2,294	129	5,590
Members next June	54	33	2	80
Total	13,494	7,818	566	17,764
Other banks	5,865	2,264	373	7,778
Total	19,359	10,082	939	25,542
June 30, 1919—				
National banks.....	10,589	5,048	424	12,940
Other member banks	4,323	2,018	136	6,211
Total	14,912	7,066	560	19,151
Members next June	784	366	25	1,126
Total	15,696	7,432	585	20,277
Other banks	5,837	2,009	343	7,593
Total	21,533	9,441	928	27,870
November 17, 1919—				
National banks.....	11,583	4,865	450	14,097
Other member banks	5,053	2,075	154	6,983
Members next June	576	236	18	796
Total	17,212	7,176	622	21,876
Other banks	6,838	2,152	369	8,695
Total	24,050	9,328	991	30,571

* Including United States Certificates of Indebtedness.

† Including United States Government deposits.

TABLE III—*continued.*

(Millions of dollars.)

Date.	Loans and Discounts.	Government Securities and Investments.*	Cash.	Individual Deposits.†
December 31, 1919—				
National banks.....	11,803	4,709	509	14,517
Other member banks	5,255	2,112	183	7,506
Members next June	366	145	13	523
Total	17,424	6,966	705	22,546
Other banks	7,068	2,158	418	9,130
Total	24,492	9,124	1,123	31,676
May 4, 1920—				
National banks	12,305	4,324	456	13,985
Other member banks	5,515	2,028	166	7,310
Members next June	40	15	1	52
Total	17,860	6,367	623	21,347
Other banks	7,672	2,163	375	9,122
Total	25,532	8,530	998	30,469
June 30, 1920—				
National banks.....	12,413	4,186	450	14,311
Other member banks	5,689	1,977	172	7,582
Total	18,102	6,163	622	21,893
Members next June	411	143	12	548
Total	18,513	6,306	634	22,441
Other banks	7,594	2,041	365	9,028
Total	26,107	8,347	999	31,469

* Including United States Certificates of Indebtedness.

† Including United States Government deposits.

Note.—For all banks in June of each year and for all member banks (national and other) at intermediate dates, the figures are taken from the published returns.

To estimate the figures for non-member banks at intermediate dates the following method has been adopted :—

In the first place the figures for member banks at successive dates are not an accurate index of the position of all banks, because the growth of membership disturbs the comparison. To arrive at figures at each intermediate date comparable to those for the member banks in the following June, the non-national member banks (among which alone this growth of membership can occur) have been separated from the national banks. Table II shows what proportion the capital of the non-national member banks bears at each date to the capital of all non-national banks, and from this it is possible to calculate

TABLE IV.—*Average Rate of Rediscount.*

Average rate of discount on paper actually discounted by the Federal Reserve Banks in each month since the Armistice,

—	New York.	All Banks.	—	New York.	All Banks.
1918—			1920—		
November	4.09	4.20	May	5.56	5.74
December	4.05	4.18	June	6.19	6.20
1919—			July	6.25	6.21
January	4.07	4.18	August	6.25	6.19
February	4.03	4.14	September	6.47	6.39
March	4.02	4.15	October	6.47	6.40
April	4.03	4.18	November	6.41	6.45
May	4.03	4.16	December	6.51	6.48
June	4.04	4.19			
July	4.06	4.14	1921—		
August	4.05	4.12	January	6.53	6.36
September	4.04	4.18	February	6.55	6.41
October	4.03	4.19	March	6.52	6.43
November	4.49	4.53	April	6.45	6.32
December	4.63	4.67	May	6.26	6.22
1920—			June	6.15	6.13
January	4.86	4.90	July	5.84	6.02
February	5.42	5.52	August	5.50	5.76
March	5.53	5.64	September	5.33	5.75
April	5.48	5.67	October	5.00	5.62

what proportional addition must be made to the capital of the former at any date in order that it may bear the same ratio to the capital of the latter at a subsequent date; *e.g.* on November 17, 1919, 31.41 per cent. of the capital of non-national banks belonged to member banks and on June 30, 1920, 34.99 per cent. If the member capital at the former date had been 11.40 per cent. more it would have amounted to the same proportion as at the latter date, *viz.*, 34.99 per cent. As a first approximation, it may be supposed that such an increase of capital would have meant a proportional increase in each of the other figures (loans and discounts, investments, cash and deposits). This increase, which may be regarded as an estimate of the adjustment required in respect of those banks about to become members between November 17, 1919, and June 30, 1920, makes the figures for member banks comparable at the two dates. For those banks which were still not members in the following June, it has been assumed that each item varies at each intermediate date in the same proportion as the corresponding item for all member banks, but upon these variations there has been superimposed another factor to allow for the rate of increase or decrease from one June return to the next, where this rate of increase or decrease is different from that shown by the member banks.

DISCUSSION ON MR. HAWTREY'S PAPER.

MR. RAOUL H. FOÀ: On a paper of such outstanding merit and clarity of thought, it is easier to give praise than to offer criticism. I am justified in endorsing it from facts which have come under my own observation. I think a hearty and earnest vote of thanks to Mr. Hawtreys is due from us to him for his most interesting paper. I think that few of us who work in the discount market have had the subject brought to our minds as clearly as it has been brought by Mr. Hawtreys.

There is one personal note which I should like to place before you; and that is the fact that the Federal Reserve Bank System of America is so much more a modern invention than our old fogey the Money Market here. There is much more cohesion about it than there is with us. I can tell you, for instance, that the difference between the price paid for the acceptances of a member bank and for that of a mere outside trader is always kept to $1\frac{1}{2}$ per cent. in New York; whereas we know here that when we have bills representing large shipments of meat to deal with, the difference between the rate applied to those bills and the rate applied to the acceptances of banks of higher standing is by competition, and by sheer competition only, reduced to at most $\frac{1}{4}$ per cent. I should be the last to deprecate the full play of economic laws; but it is very evident from the solidarity of the bankers in America as compared with those here, that any line of action taken by the members of the Money Market in America is going to be much more united and strictly complied with than is the case here. That, I think, is another evidence of proof of the excellency of the conception of their system.

As I said just now, I have no criticism to offer on the paper; and I take my seat, simply asking you to vote a very hearty vote of thanks to Mr. Hawtreys for his very instructive and interesting exposition.

SIR DRUMMOND DRUMMOND FRASER, K.B.E.: It is a great pleasure to second this vote of thanks. I consider that we have listened to a magnificent account of a really great banking reform; and I think it is interesting to know that this banking reform has been built up on the banking experience of Europe, adapted to American conditions. The American system, as Mr. Hawtreys has told us, has an elasticity which carried America through the war, and also through the inflation of finance in connexion with the world-wide boom after the Armistice.

I should like to make a few remarks; but I have nothing to say in the way of criticism of this most informing and well-balanced paper. The lecturer has referred to the inflation caused by the necessary war expedients. Personally, I do not think it was necessary to have resorted to these expedients. I think that instead of borrowing from the banks, as is evidenced by the striking increase in

investments held by the banks—from 5 billion dollars in June, 1916, to 10 billion dollars, in March, 1919—the money should have been raised directly from the people by means of a continuous, attractive loan. England, during the period that she adopted this method, saved an inflation equal to her floating debt, and checked the rise in prices, because of the transfer of the individual purchasing power to the Government.

I remember hearing of an old woman (before the War Saving Certificates existed) who, when making her weekly purchases, rejoiced that the price of the different commodities had gone up. When asked why she was glad, she replied: "O, it will help me to get rid of the brass!"

A continuous loan has been proved to raise from £30 to £60 per head per annum from two to three million people, who would otherwise have spent it. I suggest, with all deference, that this is what is required now in order to obtain the finance that is necessary for oversea trade.

With regard to the Reserve Bank System, I feel that the twelve Reserve Banks, instead of one Reserve Bank, bring about a lack of uniformity in the rates. This is a weakness in the system, which I found, when I had occasion to meet all the chairmen and governors of the Federal Reserve Banks, they were most anxious to find a solution for. Mr. Hawtrey's reference to the rise in prices of 30 per cent. in one year, before any upward movement in the rates took place, is a striking example of the ineffectiveness of a low rate of interest to check inflation. A policy of raising the rate, say, $\frac{1}{2}$ per cent. every month until the expansion of credit is checked and the rise in prices is arrested would have the effect of creating a deterrent rate, as Mr. Hawtrey has most happily expressed it. The bank-rate should always anticipate events, instead of following them. Such rapid changes in the rates would be a return to the old system obtaining in this country.

The wonderful elasticity of the American Reserve System is best shown by the figures in chart form of the deposits on the one hand and the earning assets (discounts, advances and investments) on the other. When inflation is at its highest, the earning assets curve on the chart cuts through the deposits curve. This is made possible by the re-discount bill system. The psychological moment to put up the rate is when the earning assets curve has an upward tendency, before it cuts through the deposits curve.

Just as the American system gives this inflation, it also gives deflation, which is very forceful indeed. I think I am right in saying that the discounts of the Federal Reserve Banks of their member banks are to-day 2 billion dollars less than a year ago. The currency, for instance, is 1 billion dollars less. And at December, 1921, the Inter-Reserve Banks' re-discounts were all paid off. In this country there has been no such drastic monetary deflation, because the curve of the deposits and the curve of the earning assets have gone up together. In America there has been an enormous

transfer of short-dated Government securities, held by the banks, into longer-dated Government securities held by the people.

The attitude of America towards the branch banks may bring about some amusing complications. At the American Bankers' Convention, which I had the honour of attending, the National Banks Section passed a resolution that branch banks should be allowed within the city area; while the State Banks section passed a resolution that branch banks should not be allowed at any price. One of the Bank Presidents said that in his State the law was so drastic with regard to opening branches, that they could not even send an "automobile" with a pay-roll to another part of their State, as it might be regarded as a branch! Complications might occur when a State Bank (not allowing branches) became merged with a National Bank (allowing branches within the city area).

Another expression I heard at the Convention was that the 32,000 individual banks had fructified prosperity in America to a far greater extent than the cream-skimming branch banks in other parts of the world had done for their countries.

Another President said he had been in England last year and had discovered that the young English banker had lost all his initiative, because he had to refer everything to London.

Sir GEORGE PAISH, in supporting the resolution of thanks to Mr. Hawtrey, expressed his appreciation of the great value of the paper. The creation of the Federal Reserve Banks in the United States was really an extraordinarily fortunate thing, coming as it did, when it did. It helped England during the war to get the credit she wanted in the United States, which otherwise she would have had very great difficulty in getting. Owing to the change in the law by which a great reduction in the ratio of reserve to deposits was permitted, an excess reserve of large amount was created, and power was given to the banks to create a vast amount of new credit—credit which was of great use to the Entente at a critical moment.

He was not quite sure that the paper was quite clear about one thing. He thought Mr. Hawtrey had suggested that the Federal Reserve Banks had to keep a fixed reserve of 40 per cent. gold against notes, and 35 per cent. against deposits. He was under the impression that those ratios could be reduced under given conditions. He thought the ratio with regard to deposits could be reduced under certain penalties or considerations. Perhaps Mr. Hawtrey would make that clear in his reply.

With regard to the description of the structure and work of the Federal Reserve Bank, he thought the paper was most admirable.

With regard to the conclusions of the paper, however, he was not altogether in agreement. He thought the paper might create a certain amount of misconception about what banks in general could do with respect to credit, and it was desirable, having regard to the great interest that almost everyone was now taking in banking affairs, that the deductions of the paper should be criticised.

Mr. Hawtrey stated on page 238 : " Is it possible, one is tempted " to ask, that such mighty changes can be wrought by so simple " and slight an instrument as the rise in the discount rate by about " 2 per cent ? " Undoubtedly the rise in the discount rate by 2 per cent. was followed by those consequences. That was not in doubt ; but he did suggest to Mr. Hawtrey that it was not the mere raising of the discount rate by 2 per cent. that brought about the results, it was the fact that the banks had got to the limit of their lending power, and that they could not go on increasing their loans that was the true factor in creating the conditions which Mr. Hawtrey points out. The reserves of the Federal Reserve Bank had been reduced to zero, or practically zero, and inasmuch as the demand for new loans was all the time increasing, they had to draw the line. They had to say " No, we cannot increase our loans any further. " To say " no " effectively, they put up their rate in order to notify to the whole country that the limit of their loaning power had been reached. He thought it was desirable that people should realise both in this country and in America also, that there had been no appreciable reduction in loans. The advance in the rate of interest merely stopped the rapid increase of loans. The whole of the trouble since the Armistice had arisen from the failure to realise that bankers were not the right people to give the kind of credit that was required to meet the situation. The bankers could give temporary credit. When they could see that the credits could be redeemed at maturity, they were then justified in giving them. But the credits that were needed at the present time were long credits, not bankers' credits, and, although the banks had tried to get their loans against produce repaid, they had not succeeded. Both here and in America bankers gave credit after the Armistice to an extent which he believed was absolutely unprecedented in the history of banking in a time of peace. Unfortunately, the credit was created for the wrong purposes. He did not for a moment wish to criticise the bankers ; it was most desirable that the bankers should do all they could to assist the trade of the country and of the world. But what was needed was long credit to enable the injured countries to restore their productive power and to re-establish an equilibrium between productive power and demand. For that purpose short banking credits were of little use. The credits were used to meet extraordinary expenditures, both Government and private, and the beneficial effect of them had been practically nil. The restoration of the world's productive power since the war had been very small indeed. If the nations had used the money supplied by bankers for the right purpose—to restore productive power and not for unproductive expenditures—Europe would now be a long way towards recovery, and the exchanges more stable.

Mr. Hawtrey had referred to the Bank of England rate rising to 7 per cent. in 1907, and to the rapidity of the subsequent fall. That crisis, however, was quite an abnormal one : it was a bankers' crisis. The bankers of America became unduly alarmed about the

situation, and each one tried to protect himself. Consequently they strengthened their cash reserves by drawing money not only from New York, but from London. This withdrawal of gold forced up the rate of discount in London, but the rise in the discount rate did not stop the demand for gold. That demand threatened to continue in spite of the high rate. What really checked the demand for cash in America and for gold in London was a letter written by Mr. Roosevelt, the President of the United States, to American bankers and to the American people, saying there was no need for alarm, and that if they would all act reasonably the situation would adjust itself. Within two or three days of the issue of that letter, the demand upon London for gold ceased. He believed that letter was issued in response to a request from this side. As soon as the alarm was over, the cash in America was returned to the reserve banks and to the market, and the difficulty came to an end. It was quite true that when they did put up the Bank-rate here it did have the effect of stopping exports of gold, and sooner or later of bringing imports. But they did not put up the Bank-rate here until it was absolutely necessary to warn everyone that the country was trading up to the limits of its banking resources. That was the real reason why the Bank-rate was effective. To those people who understood what a rise to 7 per cent. in the Bank-rate meant, it was a warning at once to take in sail. Not only did the wise ones stop creating fresh credits where possible, but they endeavoured to withdraw money from the rest of the world. These withdrawals of credit soon brought to them gold from abroad with which they required to re-establish their reserves.

He wished the following point Mr. Hawtreys had made were true. "The first glimmerings of a trade revival can now be discerned. But meanwhile the effect of the Federal Reserve Board's "extremely severe discount policy is to be seen in the portentous "increase of the surplus reserves to \$1,500,000,000." If the recovery in trade were entirely brought about by cheap money, he would be in agreement with Mr. Hawtreys. There was cheap money in America now, and there would be cheap money here. But they must have something more than cheap money to make trade good. They must have confidence. When they looked round the world to-day, they found there were practically no grounds for confidence. If they looked over Europe to-day they would find credit expanded as it had never been expanded before, and no one could tell what those countries would do. Certainly no one was justified under existing conditions in giving them fresh banking credit, having regard to the enormous amount of banking credit they had created. When they looked to the rest of the world they saw that most nations did not require credit. The countries that required credit could not get it; the others did not need it. He feared that until a situation was created that would enable the countries that needed credit to get it, trade would not improve. He agreed with the spirit of Mr. Hawtreys's argument, though not

with the letter. They must now do whatever was necessary to enable the world to create fresh credit, but it must be credit of the right sort. It must not be a bankers' credit; it must be an investment credit—that is, credit supplied by investors for long periods, and not by bankers for a few months. The business of bankers was to supply credit for moving the goods of the world from place to place and the making of loans for short periods. Bankers' liabilities were short liabilities; they might be called upon to pay their deposits at any moment, and they were not justified in locking their depositors' money away for long periods. The credits that were now required in order to re-establish trade and to restore the productive power of the world were long investment credits furnished by investors, not by bankers.

Mr. A. W. FLUX said he thought Mr. Hawtrey had rendered the Society a very great service in bringing before it so lucid an account of the reform in the United States banking system, a reform which he thought he was right in saying was preceded by a more thorough investigation into the conditions of banking all over the world than had ever been made as a preliminary to a banking reform in any other country. Yet the United States could not free itself from the necessity of maintaining continuity in its development. The habits of the country could not be destroyed because certain of its leaders were able to discern better methods in the practice of other countries, and the reform had to be organically related to the constitution of the banking system as it already existed.

They had seen in the newspapers lately some suggestions that there might be, in the near future, a serious attack upon the Federal Reserve system in the United States itself from some of those who had never been satisfied with it, and had never accepted the benefits that Mr. Hawtrey had pointed out in the course of his paper. Whatever might be the case in regard to that—and it would not be entirely without precedent if a concerted attack were made upon the third attempt to provide a centralised system of banking in the United States—the system itself, as it existed to-day, was one of extreme interest, and one about which he thought they wanted to know more on this side of the water. It was for that reason one welcomed so heartily a paper such as Mr. Hawtrey had given them.

There were one or two points raised in the paper on which he would like a little more light, or would like to suggest perhaps second thoughts. One of them occurred on page 226, where Mr. Hawtrey dealt with the situation in the United States as depending upon single-name paper. He gave them to understand that in origin, if not in later history, practically the whole of the advances made by bankers in the United States were made on single-name paper, and double-name paper as familiar on this side was hardly extant. That seemed rather difficult to reconcile with some of the official records of United States banking. It was true that one of the consequences of the establishment of the Federal Reserve

Board had been, that some of the information they used to get about banking in the United States was no longer available. For the National Banking system, at any rate, there used to be a division between advances on two or more names and advances on single names. That division did not now occur in the records which the Federal Reserve Board provided. Therefore, anything that one might say with reference to the proportions of two-name paper and single-name paper had to be based, so far as it could be based on public records, on statistics and reports of a time preceding the introduction of the Federal Reserve system. But it seemed to him extremely significant that the last year of the old system, following in that respect earlier years, so far as proportions were concerned, showed, for the group of the National Banks in the United States, which was an exceedingly important group, and one round which the Federal Reserve system was built, that one-half of the time loans other than those on collateral were on two-or-more-name paper. If they looked at other figures, where paper running for less than ninety days was distinguished from paper with more than ninety days to run, they found the proportion of the shorter-term paper with two or more names was greater than for the aggregate of all the time loans, which hardly seemed quite consistent with the statement that the two-name paper came into existence from the mere process of re-discounting the one-name paper. It looked as if there must have been a considerable volume of paper which started by being two-name paper, and the extreme dominance of the promissory note was perhaps not as absolute as appeared to be suggested, at any rate by the phrases that Mr. Hawtrey used. That, however, was a secondary point with relation to the description of the system.

Another point that Mr. Hawtrey had brought out in his discussion of the Federal Reserve System was the change in the nature of the circulating notes in the United States. It was a fact that there had been a very great expansion of Federal Reserve notes, as he showed. The means of increasing National Bank notes had been provided by an increase of Government loans, and there had been during the period a considerable increase of National Bank notes in circulation. But a rather characteristic feature, if one looked over the records of the successive years, was the extent to which gold certificates had decreased in circulation as compared with earlier times. The Federal Reserve note had, to a quite considerable extent, replaced the gold certificate in the aggregate of the paper circulation, and that was fairly readily understandable. The question of the type of circulating paper that a country would have might be a good deal affected by the denominations in which the paper was offered, and there, unfortunately, he thought the data were not quite sufficient. At any rate, he had not had the opportunity of seeing data which showed the denominations of all the different classes of paper in circulation. He noted that the Federal Reserve notes appeared to be dominantly fives, tens, and twenties, and very particularly twenties, and a point which rather surprised

him was the dominance of the twenties over the tens and fives. Probably one of the reasons why silver certificates still existed, or did exist recently, was because they were offered in very low denominations. In fact, if paper currency of one particular class was offered in denominations which met one class of needs for paper money, and a different class of notes in different denominations met another class of needs, the way in which the country took up the different classes of paper would depend on the country's needs for notes of different sizes. If one studied the Canadian position, they would see that their Government notes met the need for small denominations, and that the notes of the chartered banks in medium denominations, which, like the Federal Reserve notes, were not legal tender, circulated alongside the Government notes. The inter-bank payments, *e.g.* in the clearing houses, were provided for in the shape of Government notes of large denominations. Legal tender notes had to be used for that purpose.

That brought him to another point which occurred on page 225, where there is a remark about the clearing house certificates. It had always appeared to him that the existence of the clearing house certificate in times of crisis in the United States was a consequence of the system of settling clearings in cash, in the main at any rate. Where that system existed there would necessarily come times when a great strain would be placed upon it: where clearings could be settled by drafts on a central institution, the need for a special means of providing credit for the clearings would not be felt, or would not express itself in the shape of clearing house certificates, and the need for clearing house certificates was mainly a result of the large number of clearing houses in which the habit of settlement in actual legal tender prevailed, and where, therefore, unless the legal tender could be provided a crisis created an extremely difficult situation. What the clearing house certificate did was, after all, nothing more than to establish temporarily, for the purpose of the crisis, a means which a central bank could provide in the normal course of its business. They could be established on a basis differing somewhat from credit for commercial purposes, because they were needed simply for the purpose of settling the clearing.

There were one or two other things he wished to say with reference to the efficacy of the discount rate, but Sir George Paish and Sir Drummond Fraser had dealt with them in part. One point he would wish to underline was something which Sir George Paish had said as to raising the discount rate, particularly where that was done by a central institution which attracted public attention to the necessity for raising discount rates. This furnished an occasion on which a banker might quite reasonably go over some of his loans—at any rate those that he could call upon borrowers to decrease without any long notice—and the raising of the discount rate might be made the occasion of calling the attention of borrowers to the

necessity of restricting the use of credit, and that could be done without any offence to the borrowers on such an occasion. In that way it might be that the raising of the discount rate had a larger effect than was measured simply by the amount by which it was raised. If he were merely repeating what Sir George Paish meant, he hoped he would pardon him for underlining it.

There was one other point, and that was with regard to deflation and inflation. Mr. Hawtrey had asked why was it necessary to increase the purchasing power of gold—to deflate. He would like to ask the question, why was it ever necessary to inflate? That was the first question. Deflation had become necessary because of an excessive inflation that preceded it, and the reason that Europe had had to follow the United States was that the alternative was to abandon all hope in Europe of ever getting back to the pre-war gold basis for their currencies. As the United States had a gold currency freely exchanging against its paper, it was necessary they should follow them if they were not prepared to abandon hope of coming back to the old exchange of paper against gold. He thought they in England were not prepared to abandon that, and if the policy in the United States led to a fall in prices, they could not help themselves. They had to go on with a depreciated exchange or follow the United States in the course of their price movement, or they would never get to the point where they could resume the payment of their paper with gold, and resume open markets for the exchange of gold between themselves and the United States. He would like to emphasize not the question why it was necessary to deflate, but why it was ever necessary to inflate at anything like the rate at which inflation was carried on between the middle of 1919 and the spring of 1920. There lay the cause of the present trouble. The necessity for the present deflation, and its resultant misery, was that there had been far too violent and far too extreme an inflation preceding it.

The CHAIRMAN said he would make no remarks on the paper, as time was going on, except to express his opinion that it had formed one of the most valuable contributions to the Proceedings of the Society that they had had for some time. He would therefore only put the vote of thanks to them.

(The vote of thanks on being put to the Meeting was declared carried unanimously.)

Sir LANCELOT HARE has furnished the following observations :—

If time had allowed, and if it had not been so well occupied by the speakers who commented on Mr. Hawtrey's able paper, I would have liked to support and emphasize what was said as to the bank rate of interest not being the only, and sometimes not even the principal influence in restraining the issue of credit. Bankers in close touch with the position at any moment will know when

currency is difficult to get, when everyone is asking for it, and no one giving it, and so hold their hand, without waiting for the Bank-rate to go up. The high Bank-rates may be necessary to rake in refractory and uninformed people, and sometimes as an absolute measure of prohibition and restraint.

The paper read to us gives a very lucid account of the American currency reform, a reform which has made their currency very much more effective and much more elastic, *i.e.* responsive to the continually varying requirements of exchange, of which currency is the instrument. It does not, however, give complete elasticity, because the American currency is ultimately based upon gold, upon the value of which it finally depends, and no matter what variation may happen to gold, their currency must vary with it. I should like to point out the essential difference between an inflation of the legal currency and an inflation of credit. With a given amount of legal currency only a definite limited amount of credit can be built up. Under the stimulus of higher interest offered, currency will come in more quickly and readily to the bankers, but, as the latter must charge still higher interest to those to whom they give credit, and there is a difficulty in payment, loans are ultimately shut down as the interest rises. Wide, then, as the possible issue of credit on a given quantity of currency may be, it is ultimately limited by the quantity of currency. A small issue of additional currency immediately permits of a large fresh issue of credit. It is, therefore, of infinite importance to be able to regulate the creation of currency, without which the control is not complete. No doubt the American Government would in case of necessity follow the usual device of cutting the painter which ties it to gold, and so gaining time to restore confidence. This, of course, is only an emergency measure, and the principle upon which the issue of legal currency should be regulated has to be determined. It is this :—Currency is admittedly an instrument for effecting exchanges and for measuring values. As a commodity, its value in exchange, as that of every commodity in exchange, depends upon the ratio of its supply to its demand. As an instrument for measuring values, its value must be kept as far as possible constant, and this necessitates that the above ratio be kept constant. Government has full power to increase its currency as its value is found to rise unduly or to diminish it as its value falls. The general index-number of prices gives the evidence of what is really happening, and currency commissioners regulating the currency would have no great difficulty, with this indication, and their general knowledge of current conditions, in maintaining the currency at approximately the same value. Within these limits, currency may vary in amount, but to go beyond this and multiply currency indefinitely, and on no principle but opportunism and the cheapening of their loans and finding funds to carry on their extravagances, as the token currency countries have for the most part done, is ruinous to the economic condition of any country, and brings untold disasters.

This is not the place to deal with the true theory and management of currency, but it is relevant to point out that the American reform does not give all the elasticity required in a perfect system, but it certainly does give greatly improved elasticity.

Mr. HAWTREY, in reply, said : I am very grateful to the Society for the reception of the paper. I want to be quick in dealing with the many interesting points that speakers have raised, but I am not sure that I can deal with all of them.

I think Sir Drummond Fraser suggested that uniformity of rates has not been secured by the Federal Reserve System in America, and he pointed out that the original proposal was a single central bank. I do not think it is at all clear that uniformity of rates is desirable in so large and varied a region as the United States. It may be, when you allow for a certain amount of economic friction and geographical isolation, that rates ought to be one per cent. higher in one part of America than in another, and also that a local increase of rates may be a right method for dealing with a local inflation. The whole question of the regional division of America is extremely interesting. I wish I had had time to go into it in my paper. It is full of interesting problems, some of which have analogies in the British Empire.

Sir Drummond Fraser also implied, I think, that the American system is more effective in securing inflation or deflation at will than our system. There, again, I am not quite sure I should travel all the way with him. The system in London is very different, and, in some respects, I am not at all sure that it is not on the whole the more sensitive of the two. We suffer perhaps through having such an enormous quantity of advances tied up without any discountable paper being created for the purpose. On the other hand, the bill on London is very sensitive to rate movements, and the mercantile element is so large in British business that I think it is specially sensitive.

Sir DRUMMOND FRASER said he quite agreed, but it was not the same power of elasticity either for inflation or deflation.

Mr. HAWTREY : I agree as to the elasticity, but I regard the elasticity as a very grave danger. Then Sir George Paish asked whether the Federal Reserve Board had not a power of reducing the reserve proportion. That is perfectly true ; indeed, I did mention it on page 227 and again on page 229. I did not go into much detail over it, but it is there.

The main theme of Sir George Paish's speech, I think, was rather to disparage the value of the re-discount rate as the weapon for controlling credit. He said, for example, that the results obtained by the 7 per cent. re-discount rate as from June, 1920, were due much more to the fact that the banks had outrun their limit of lending power. I was not absolutely clear, when he said that, whether

he meant the Federal Reserve Banks had outrun their limit or the other banks had outrun their limit.

Sir GEORGE PAISH said he meant the Federal Reserve Banks.

Mr. HAWTREY: Assume that they had reached the limit—that their free reserves had fallen unduly low—the problem before them was how to remedy that. In order to remedy it, they had to affect the action of the other banks. The value of the re-discount rate comes in as a means of doing that. There is this very important element of truth in what Sir George Paish said, that not only is the re-discount rate an important psychological influence—a signal—but the actual dwindling of the reserves is itself also a signal, and the sight of the figures falling week after week makes the bankers more susceptible to the discount rate than they otherwise would be. I think that the fixing of the fiduciary limit of the currency note issue here was an important element in making our 7 per cent. rate effective, when it was imposed six weeks before the American 7 per cent. rate. I should absolutely agree that there are a number of ancillary influences which assist the re-discount rate or the Bank-rate in its effect. The important thing is the means of turning the corner, whether it is by the re-discount rate or anything else. It could be done probably by a concerted action on the part of the banks without any increase in the re-discount rate. But that would be a very much clumsier expedient. An example of that is to be found in the crisis of 1818, when the Bank of France cut short credit in Paris, not by increasing rates, but by reducing the limit of maturity it was prepared to re-discount. I forget the exact periods, but it was only willing to re-discount bills running for a very short period, and that immobilised a great deal of the paper, and caused, perhaps not a panic, but at any rate a convulsive contraction of credit, which led incidentally to the Committees of 1819, when the Bank of England note went to a discount.

Then another point Sir George Paish referred to was the fact that there had been no appreciable reduction in loans under the influences of deflation both here and in America. I think that is intimately tied up with that stagnation of balances referred to in the paper. People are more willing to hold idle bank deposits, because there are no profitable means of laying them out on commodities. When they do that it stands to reason that if the bank liabilities remain high, the bank assets must remain high, and that means that the loans must remain undiminished as well as the deposits, assuming there are no important changes in currency. But it is not enough to say that it must be so: it is necessary to look a little further into the details of the operation; and when you look further I think you will see that the reason why the loans remain outstanding is just because the reluctance of the people who possess cash to buy anything prevents the borrowers from liquidating. It is another example of what I call the vicious circle:

the very desire to liquidate, by producing this stagnation, makes liquidation impossible.

Sir George Paish also referred to the crisis of 1907, suggesting that the circumstances were different, just because there was a crisis then. I do not think that that really is fundamental. There was a state of inflation in 1907, primarily in America, and also in other countries. We all had the same medium of exchange, and, therefore, inflation in one meant inflation in the others. It was necessary to take a step towards deflation, and to take that step in a very short period, owing to crisis conditions. The high Bank-rate started deflation, and as soon as it became effective the high Bank-rate was reduced, and the deflation continued for another year or eighteen months, both here and in America. I do not think the general type of the situation was different from what it was in 1920, though in detail it may have been different.

Then Mr. Flux asked about single-name paper. I think that a large part of the two-name paper which appears in the National Bank returns originated in single-name paper, or at any rate originated as promissory notes, even if it first came into the hands of the banks after it had passed through another hand. And the National Banks would hold a somewhat larger proportion of paper that had passed through more than one private hand than the other banks, because the National Banks in those days were the re-discounting banks; that is to say, they held the reserves and clearing balances for the other banks, and the tendency would be for notes sold in times of stress to come into the hands of National Banks.

Mr. Flux also said that deflation is necessitated by the preceding inflation, and there I absolutely agree with him. I think that the Federal Reserve Board made as serious a mistake in 1919, in delaying to raise the discount rate and stop the inflation, as it made in 1921, in keeping on dear money long after an adequate deflation had been secured.

On the further point, whether we should have resisted the influence of American deflation, I agree that we could not altogether stereotype our prices at the level they had reached in the middle of 1920. As he said, it would have meant abandoning the gold standard, at least abandoning the old standard. On the other hand, it is possible we could have stopped deflation sooner than the Americans without any ill-effects at all. In the first place, I think that the Americans will have to inflate very considerably in the future, and if we had stopped deflating somewhere about January, 1921, or in the spring of 1921, and had kept our prices steady, then, although the pound would have been comparatively lower than it is now, nevertheless, I think the dollar would ultimately have been levelled down to it. Prices in America probably would have risen to the point at which we stereotyped prices here.

There is another point that I am inclined to believe; that if we had adopted cheap money in the spring of 1921, the Americans

would have reduced their re-discount rates very much more quickly than they did, and the whole world would have been spared the greater part of the agony of deflation, which would have been a great benefit to everybody.

Sir L. HARE : If they had been spared inflation first ?

Mr. HAWTREY : I quite agree. The idea would have been to get up to 6 or 7 per cent. some time about November, 1919, and to have stereotyped prices at about 100 per cent. above pre-war level in both cases.

Sir L. HARE : They ought never to have been allowed to go up so high.

Mr. HAWTREY : I quite agree. I think that is the lesson from the Federal Reserve Board's experience in the last three years, that they could have, and ought to have, stabilised prices.

Sir DRUMMOND FRASER : Why did not they raise the rate sooner than they did ?

Mr. HAWTREY : That is a question of motives. I did deal with it partly in the paper. I think it was partly to avoid embarrassing the banks.

The following candidates were elected Fellows of the Society :—

William Warnes Elven.
Margaret H. Hogg.
Frederick Jacombe Horning.
Dudley Lemon, A.S.A.A.
James John McElligott.

Guy Cathcart Pelton.
Sir Oswald Stoll.
L. H. Shearme, *representing the*
British Petroleum Company,
Limited.