33 The mystery of money

How modern methods of making payments economize the use of money. The role of checks and bank-notes

The enormous edifice of credit

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For a long time, it was the habit of writers on the subject of money to picture an imaginary stage of barter which continued for a long period before it became possible to agree to use one particular commodity as the medium of exchange or measure of value, and thus to adopt money.

This view of things, that men *invented* money in order to rid themselves of the difficulties and inconveniences of barter, belongs, along with much other conjectural history, on the scrap-heap of discredited ideas. Men did not invent money by reasoning about the inconveniences of barter any more than they invented government by reasoning about the inconveniences of some mythical primitive state of anarchy. The use of money, like other human institutions, grew or evolved. Its origins are obscure. It is, nevertheless, fairly certain that at no period in his history has man ever conducted any considerable volume of trade by means of barter. There was a very small gap, perhaps no gap at all, between the beginnings of trade and the origin of money.

Of course, traders dealing with regions where civilization has scarcely appeared may even now find it possible to exchange beads, cheap bright-colored calicoes, knives, mirrors, etc., for goods which are in modern markets vastly more valuable. But the trader, unless he be a trained observer, is likely to disregard the fact that the savages with whom he barters have some crude, primitive monetary system of their own. In fact, it is not at all uncommon for the beads, or other (to them) rarities, which the savage tribe obtains by way of barter from civilized peoples, to become, by reason of their scarcity and desirability, the money, for the time being at least, of the tribe.

A host of different commodities have been used at different times, and by different peoples, as money. If we scrutinize a list of such commodities ever so carefully, we shall find it difficult to see that they have any common characteristics beyond the fact that, for various reasons, the commodities have all had, at a given time and place, an assured market or outlet.

Consider the fact, noted by the great German historian of Rome, Mommsen, as well as by other observers, that the peoples of the early civilizations of the world, like the moderns, almost uniformly selected for use as money commodities that were ornamental rather than useful. This fact calls for explanation, and the explanation may throw some light upon at least one of the mysteries of money. If there is any one clear-cut and fundamental difference between necessary commodities and luxuries, it is that human wants for necessaries are satiable, while the desire for ornaments, as for other goods that minister to the love of distinction and display, is insatiable. Of course, it is not true that normal men place luxuries above necessaries. It is simply true that when one is provided with the necessaries of life, the normal man, in adding to his goods, will increase his stores of luxuries rather than his supplies of necessaries. To use a technical phrase explained in earlier chapters, the demand for ornaments, and consequently the demand for the metals from which ornaments are made, is elastic, while the demand for the necessaries of life is, by comparison, inelastic. There is a surer market and a surer outlet for ornaments and for their materials. Their value is less variable than that of necessaries. Especially is this true in communities with little foreign trade. Wheat might be a drug on the market; but such could never be the case with respect to precious stones or ornaments of gold.

The definition of money and its essential characteristic

Money may be defined as a commodity or group of commodities customarily paid and received in exchange for other commodities and services without reference to the personal credit of the one who offers it. That is, a personal note is not money, but a bank-note is. It is necessary to observe further, however, that not only the credit of the one who offers it, but also the desires and intentions of the persons who receive it, have an important bearing upon the question of what is and what is not money. The person who receives money in exchange for commodities or services takes it with no other thought than that of passing it on again in exchange for other goods and services. No one, except the miser, values or wants money on its own account, even though the materials of which some forms of money are made may have utility and value of their own.

The one really essential characteristic of money is that the holder should be able to get rid of it without undue loss. Other commodities have their ultimate consumers; money never finds an ultimate destination or resting-place: it is tossed about from person to person until finally, worn out, lost, or melted down, it passes out of use.

Illustrations showing money is not primarily valued for itself

If, with these fundamental principles in mind, we survey such facts as are available respecting the monies of the primitive peoples and the diverse types of money used even by modern peoples, we shall find that they have just that one essential characteristic. The precious metals, almost from earliest times, have

been used as the materials of ornaments, and so also from almost the earliest times, they have been used as money. The precious metals could always be passed on to the man whose wealth and standing in the community were estimated, as today in some parts of India, by the number and the weight of the silver and gold ornament worn by his wife. An elastic demand in itself creates a safe outlet. Why was tobacco used as money in early colonial Virginia; or furs in some of the northern colonies and in Canada? Or rice in the Carolinas? Why did the New England colonists sometimes use the Indians' ornamental strings of beads—wampum—as a medium of exchange in certain of their own transactions? Utilizing again our unifying principle, the answer to each of these questions is obvious. Tobacco was the most important Virginia product for export. It was the medium by which English goods, of which the colonists were in sore need, could be obtained. It was the one product for which there was, for the time being, a certain and undisputed market. What more natural than that accounts as between the colonists themselves should be transferred by means of this particular commodity, their best embodiment of purchasing power? And so with furs, obtained by trappers or bought from the Indians, and sold in the export market: they also came to have a local currency as a means of getting other things. They could be passed on from hand to hand with the certainty that the holder for the time being could pass them on again when he so desired. The case of wampum is a little different. There was, of course, no European outlet for it; but it had purchasing power in dealings with the Indians, and it is very likely that, for that reason, some of the colonists were not unwilling to accumulate a stock of it. All of these illustrations serve to make it tolerably clear that money is not primarily a thing that is valued for itself. The value of money *is* its purchasing power. Just so far as any commodity serves as money, it is because it is wanted, not for personal or permanent use, but for passing on. The material of which money is made may have its own use. This merely makes it all the more certain that money itself may be passed on, that someone may always be found who is willing to take it in exchange for goods or services.

With respect to another problem—the economic functions of money—there has also been unnecessary confusion of thought. Money is an important part of our commercial mechanism. The "functions" of any piece of mechanism are properly determined, not by what we think that particular bit of mechanism *ought* to do, but by what it actually *does*. In economics, as in the natural sciences, we shall see farther and see more clearly if we consistently try to avoid the use of loose, vague and general terms, and fix our attention upon concrete facts, upon what actually takes place in this complicated world.

The money price of commodities is final criterion of relative values

Money is often said to be a medium of exchange and a measure of value. Taken loosely, these descriptive phrases are not objectionable, but when we use them we should try to see back of them into the actual facts they loosely summarize or

describe. Otherwise we are likely to forget that after all the "values" of things *are* their money prices. We do not, in actual fact, determine the relative values of different kinds of commodities and services, and then bring in money as a means of "measuring" the different values or of reducing them, as General Francis A. Walker preferred to say, to a common denominator. The general exchange values of the commodities that are bought and sold in modern markets are, in fact, merely relations that we derive or infer from their money prices. The money price of a commodity is the fundamental original fact with which the economic scientist must deal. Interpreted generously and *understood,* however, there is no real difference between the two functions of serving as a medium of exchange and as a measure of value.

It is only in the actual exchange of goods for money, or in deciding whether or not to make such exchanges, that we really use money as a "measure of value." In the same way, of course, it is proper to say that a yard-stick is both a measure of length and an instrument used in measuring. Anyone would say at once that these two alleged functions of the yard-stick are really but one function. Precisely so with money: measuring values and serving as a medium of exchange are only one function, not two.

It is better to avoid these word-wasting controversies over the meanings of terms by recognizing money for just what it is, namely, a *means of payment*. The prices of goods and services are stated in terms of money and we pay for them with money. Debts are promises to pay money, and we pay our debts with money.

Money is sometimes said to serve also as a standard of deferred payments. Properly understood, again, there is nothing objectionable in this statement. It merely emphasizes the fact that debts which run for many years, like short-time debts, are usually made payable in money. The farmer who borrows money on mortgage security and agrees to pay off the loan at the end often years, will gain or lose according as prices in general, especially the prices of agricultural products, move upward or downward during the ten-year period. If prices move downward, he has to pay his creditor in money which costs more, which will buy more, and which therefore is worth more than the money he borrowed. If the debt had been contracted in terms of bushels of wheat, the relative positions of the creditor and debtor at the end of the transaction would have been very different. If prices move upward, rather than downward, it is, of course, creditors who lose and debtors who gain. In saying that money serves as a standard of deferred payments we are really doing little more than calling attention to the importance of this particular problem. As a matter of fact, this function of money, like the others, is really covered by the simple statement that money is the ordinary means of payment.

It would be possible, of course, to divorce the *standard* of deferred payments from the ordinary *means* of payments. Thus, the law might prescribe that debts stated in terms of money should be increased or decreased according as the general purchasing power of money declined or advanced. In such case, although money would remain the means of payment, the standard of deferred payments would really consist of the list of goods whose prices were taken and

compounded to measure the general purchasing power of money. Or, as some have proposed, the cost of money, or the amount of labor required at different periods to earn a specified amount of money, might be made the basis of a standard of deferred payments. The problem of the standard of deferred payments has had in the past a very large political as well as economic importance, as we shall see when, in a later chapter, we examine some of the outstanding facts in the monetary history of the United States.

What gives different kinds of money its value

We now pass to the consideration of certain problems associated with the coinage of money. There is a widespread illusion that the essential characteristic of a coin is the government stamp, that it is the power and authority of the government which give the coin its value. This notion has done a vast amount of harm, and more than once it has been used by governments as an excuse for unsound monetary policies. On some peculiar kinds of coins, as we shall see, as well as on most kinds of paper money, it is the government's stamp which, in a sense, gives money its value. But in precisely the same way, it is the solvent debtor's name on his promissory note that gives the note its value. We must distinguish carefully between two wholly different kinds of coins: standard coins and subordinate coins.

Put a ten-dollar gold piece upon an anvil and deface it with a heavy sledgehammer. The shapeless lump of gold you will have left will not be a coin, but it will be worth precisely ten dollars. By defacing the coin, you will have removed merely a useful and convenient label. But treat a silver dollar in the same fashion, and you will have left sixty cents' worth of silver or more, the exact value depending upon the price of silver at the time. In defacing the government stamp you will undoubtedly have destroyed some of the value the coin had.

The fact is that the coinage of standard coins, such as the gold eagle, is nothing but a dependable official certification of their weight and fineness. They are in reality nothing but pieces of precious metal.

Anyone can take gold to the United States mint, and if it is of the required standard of fineness, the government will pay him for it at the rate of one dollar for 23.22 grains of fine gold. Silver coins, however, are made from metal purchased by the government. There is less than a dollar's worth of silver in the silver dollar and in a dollar lot of smaller silver coins, just as there is less then five cents' worth of metal in the nickel and less than one cent's worth of bronze in the cent. The details of the process by which these coins are kept at a parity with gold will be discussed in a later chapter. We may note here, however, that just so far as the government in its own transactions does not discriminate among these different types of coins and, in particular, just so far as it remains able and willing to exchange any one type of coin for any other sort, just so far will the business world accept these coins as of identical value per dollar. But it is important to observe that in foreign trade the subordinate coins are at a disadvantage. Save in

exceptional cases, such as in border trade with neighboring countries, the general rule is that they will be taken only at the value of their bullion content. Gold also passes in foreign trade at its bullion value, but in its case, as we have seen, bullion value and coined value are identical. For this reason, gold, whether in coins or in bullion form, is the international monetary standard and the means of paying the final trade balances between different countries.

We have assumed thus far that the government makes no charge for the coinage of gold. Such, in fact, is the case in most modern countries. The United States, like most other countries, makes a necessary charge for assaying and refining the gold if it does not conform to the required standard. France and a few other countries make a very small additional charge called "brassage" to cover all or a part of the actual expense of coinage. The operations of the English mint, in principle, are gratuitous like those of the United States mint. There is the essential difference, however, that in England one who takes gold to the mint would supposedly be asked to wait until his bullion had been converted into coin. In practice, the Bank of England acts as intermediary between the mint and the public. An ounce of gold suffices to make £3 17s. 10 1/2d. in English gold coins. The Bank of England will at all times buy gold at the price of £3 17s. 9d. and it may give somewhat more than this price when it desires to strengthen its own gold reserves.

Seigniorage and its results

Modern nations, it is clear, view the maintenance of the coinage as a public function to be performed in large measure at public expense. Very different has been the attitude of governments in earlier times. The monopolistic power of coining money was often held as a prerogative of the sovereign not because in this way only would the people have the advantages of a uniform and dependable currency, but rather in order that the sovereign might use his prerogative as a means of securing profits. A common practice was that of making a high *seigniorage* charge—a charge much more than covering the expenses of coinage. When seigniorage is charged, more bullion must be deposited at the mint than is contained in the coins received for the bullion. The surplus bullion went as profits to the sovereign to be made into coins for his own use. A more flagrantly unfair practice was that of calling in all coins in circulation for recoinage into smaller coins.

Royal monetary legerdemain

One who had thus been forced to turn his money into the mint was repaid the same number of coins, and the coins were of the same denomination, but they were of lighter weight. The bullion taken out of the coins of the people was made into money for the sovereign. It is probable that in purpose and principle these transactions were not thought to be the barefaced robbery which to us they seem to have been. Kings, like other men, were misled by the notion that it was the royal stamp that gave value to the coin. They believed and were often told by their advisors that the new light-weight coins would be worth as much as the

old, and that they could thus reap profits without imposing any real burdens upon their peoples. Of course such doctrines were and are no better than pernicious nonsense. By no sort of monetary legerdemain can wealth be created, as it were, out of thin air. The recoining operations, it will be noted, resulted in an increase in the number of coins in the country, just as when seigniorage was charged, a given volume of metal was made ultimately into a larger number of coins than would otherwise have been minted. The sovereign obtained *purchasing power* that he otherwise would not have had. It is absurd to suppose that he could have expended this purchasing power for goods and services without correspondingly reducing the purchasing power remaining in the hands of his subjects. The king's shillings, or florins, or whatever the coins might be, came into the market, we may say, as new competitors of the coins of the king's subjects. Prices rose to a level which they otherwise would not have reached. Seigniorage, like the debasement of the currency, thus operated as a tax upon the people. Coins subjected to a seigniorage charge always fell in value. Their purchasing power was determined, in the long run, not by what they cost at the mint, but by the amount of bullion they actually contained. Under such conditions, bullion was not brought to the mint except under compulsion.

The fact is that a seigniorage charge of any magnitude is not practicable. The point is important, not so much because seigniorage is today a live issue, but because precisely the same principles are involved in various proposals to substitute for gold another type of standard money consisting of irredeemable paper currency, that is, paper currency which involves no promise to pay on the part of the government, nor any governmental responsibility for maintaining its value. Such paper money, sometimes called "fiat money," is very much like metallic money subjected to a 100 per cent seigniorage charge, if such a thing can be imagined. Precisely the same considerations which counted so heavily against the policy of charging seigniorage on the coinage of standard metal hold with really fatal force against any proposal for a standard money of irredeemable paper.

Credit and its big role in business

We shall find it convenient at this point to set aside for the moment these problems of money, properly so called, and turn to the related subject of credit. Nine-tenths of the business transactions in a country like the United States are performed with the aid of credit rather than of money. From the purely quantitative point of view, credit is vastly more important than money. And yet that should not blind us to the fact that credit without money is impossible. Proposals to do away with money and to use credit only as a means of payment reveal a complete misunderstanding of the nature of credit and of its relation to money. There is, in fact, so much confusion respecting the real nature of credit that we shall do well to observe that credit is in fact a very simple thing. Credit is merely the other side of debt! In a borrowing transaction what appears to the lender as a credit, appears to the borrower as a debt. Much confusion would be avoided if, in discussing monetary problems, we should use the word "debt" in

place of "credit." The real facts discussed would be unchanged. But the mode of discussion would necessarily steer us clear of a number of dangerous fallacies.

For example, who would be willing to say that we could dispense with money and get along very well by the use of debts as means of payment? The objection is obvious. A debt can hardly be a means of payment, for it itself is something to be paid.

Institutions which deal in debts

Nevertheless, we shall see that there is a *certain sense* in which we may speak of making payments by means of debts. But this is a misleading way of stating the matter unless it is clearly understood that we are using the words "making payments" in a rather loose way. Debts, very naturally, are means of avoiding, rather than of making, payments. And the greater the extent to which we can avoid immediate payments by utilizing credit, the more we will be able to avoid the necessity of making final payments, not because we fail to honor our debts, but because the accumulated debts of persons in the community are offset or canceled one against another. This cancellation or offsetting process is accomplished easily and inconspicuously by the mechanism of banking.

A bank is an institution which deals in debts. It buys the debts of its customers and sells its own debts. Its customers' debts come to it in the form of promissory notes and bills of exchange. A promissory note is, of course, a promise to pay money either on demand or, more usually, on or before a certain date. A bill of exchange or draft is an order to pay, drawn by a creditor upon a debtor. When acknowledged or accepted by the debtor, as by writing his name upon it, it becomes an "acceptance", and then, for all practical purposes, is like a promissory note.

Growth in use of bank acceptances

A bill of exchange drawn by a jobber or manufacturer on account of a shipment of goods and accepted by the buyer—a retail merchant, perhaps—is called a "trade acceptance." It may happen however, that instead of accepting the bill of exchange on his own account, the buyer will arrange with some bank to accept the bill of exchange on his behalf.

The bank, of course, will be fully protected by the deposit of securities or by some other satisfactory arrangement. The bank gets a small commission for thus lending the use of its name and the buyer may get better interest rates or more favorable terms of sale because he can furnish an acceptance so satisfactory to the creditor.

Such "bank acceptances," as they are called, have a large and growing use in financing international trade.

In exchange for its customers' debts, in the form of notes and bills of exchange, the bank gives its own debts in the shape of bank deposits and bank-notes. It will be worth our while to examine these two forms of banking indebtedness rather carefully, for they play a very large part in modern economic life. We are

accustomed to think of a bank deposit as "money in the bank." In fact, however, it is nothing but a claim or credit,—a right to receive money on demand from a bank. A bank deposit is the depositor's credit or asset and the bank's debt or liability. It often happens that when some rumor, true or false, has started a run upon a particular bank, the depositors who have stood in line, perhaps for hours, in order to withdraw their deposits before the bank collapses, are perfectly satisfied when they find the bank is able to pay them. They do not want their money, they merely want the assurance that "their money is still there." Of course this shows a profound ignorance of the nature of banking. No bank could afford to have on hand at any one time cash sufficient to satisfy all of its depositors. A certain amount of cash must be in its vaults or must be easily available elsewhere,—somewhat more than enough to meet the ordinary day-to-day demands of its depositors and creditors. This relatively small amount of cash—10, 15, or even 25 per cent of the bank's debts to its depositors—is the bank's "cash reserve." The proportion it should bear to the bank's total deposit debts is regulated in the United States by law, but in many countries it has been found wiser to leave it to be decided by the practical experience of the banks themselves.

Three ways of obtaining a bank deposit

One may purchase a bank deposit in any of three different ways. In the first place, one may from time to time turn surplus cash over to the bank as many merchants are accustomed to do daily. This may seem like actually depositing money in the bank. But the real transaction is an exchange: the depositor's cash is paid into the bank, not with any understanding that the cash shall be kept intact and separate, but in exchange for the right to demand the same amount of cash, or any part of it, from the bank at any time. Or, in the second place, a bank deposit may be obtained by turning over to a bank checks signed by depositors in the same bank or in other banks. It is clear that transactions of this type merely result in transfers of deposit credits from one depositor to another and, incidentally, from one bank to another. The total volume of bank deposits within the community is not affected by these transfers.

In the third place, depositors' credits are *created* by banks in favor of their borrowers. The business man brings to his bank, let us say, his own promissory note for $10,000, payable at the end of 90 days. Or it may be a note which the business man has taken from one of his customers and to which he has added his own endorsement, or it may be an accepted bill of exchange representing a shipment to the customer. The bank discounts the note or bill of exchange. In other words, it buys it and pays for it, not its face value, but a somewhat smaller sum. The amount of the difference or discount is substantially like interest, except that it is deducted in advance from the face value of the loan instead of being added to the principal of the loan at its maturity. In the imaginary case under discussion, if the rate of discount were 6 per cent per annum, the note or bill of exchange for $10,000, running for three months, would be subjected to a discount of $150 (one-fourth of 6 per cent of $10,000), so that the business man

would receive credit for $9850 and would be obligated to repay $10,000. But it must not be supposed that the bank dips down into its vaults and advances cash to every borrower. The common practice is that the borrower is given the right to draw checks upon the bank up to the agreed amount,—in this case $9,850. In other words, he is given a bank deposit. The bank grants him the right to demand money from it at any time in exchange for the right to demand from him or from some third party a somewhat larger sum of money at a definite future date.

Eighty-five per cent of aggregate United States bank deposits due to borrowing

We may have gone into unnecessary detail in describing these elementary business practices, but it is because it is important that the reader should understand the real nature of the operations of depositing and discounting. These are the fundamental things in banking and are, moreover, the fundamental facts that determine the amount and the nature of the bulk of our present-day media of payment. This third method of securing deposit credit at a bank is vastly more important than the other two. Actual cash is continually flowing out of the bank, just as it flows in, so that except in unusual periods, the first method of making deposits referred to above does not have a large net effect. The second method, as we have seen, involves merely the transfer, rather than the creation, of deposits. Probably as much as 85 per cent of the aggregate volume of bank deposits in the United States (amounting to nearly $13,000,000,000 in national banks alone in 1921) have been created by discounting and by similar methods of making advances to borrowers. If we should examine the books of any one individual bank we should hardly find as much as 85 per cent of its deposits represented by advances to borrowers. But we must take into account the fact that the deposits of any one individual bank are created in no small part by transfers from other banks, and if we should trace these transfer deposits back to their ultimate origin we should find that in the beginning many of them started as borrowings. Thus, although our statement is approximately true of the banks of the country taken as a whole, it is not necessarily true of any one individual bank.

The banks' issuance of promissory notes

The other important form in which the banks utilize or sell their debts is that of bank-notes. A bank-note, like a bank deposit, is a bank's promise to pay on demand. There are important differences, however.

The bank-note passes into general circulation; it passes from hand to hand without indorsement; it is engraved and printed in a way that makes it a convenient and a safe medium of exchange; in short, it really serves in hand-to-hand payments as part of the money of the community. Banks issue notes in very much the same way they make deposit credits, with, however, a few differences of detail. Some borrowers, as for example the manufacturer who has a large payroll to meet, may want cash rather than the right to draw checks. Or it may be that borrowers and

other depositors are drawing so many checks upon a bank that its cash reserve is becoming dangerously low; in such a case, the bank may find it desirable to pay out its own notes over the counter in lieu of other money. In this case, what really happens is that a depositor who asks for cash is satisfied by having his deposit claim against the bank exchanged for another form of claim—the bank-note—which will serve his purpose as well as would any other sort of money.

The difference between deposits and bank-notes will concern us in other connections in later chapters. It is well that we should observe at this point, however, that, although they are alike liabilities or debts of a bank, the ways in which deposits and notes respectively are actually used creates problems peculiar to each. Thus, the depositor has an opportunity to acquaint himself with the bank's reputation and with the character of its officials, and to learn what he can about its probable solvency before he intrusts his funds to the bank's care. But if banknotes are to be in common use, if they are to pass from hand to hand, they must come into the possession of persons who have no knowledge of the particular banks which are responsible for them. It is for this reason more than for any other that certain governments, including that of the United States, have thought it wise to impose certain restrictions upon the issue of bank-notes while leaving the creation of bank deposits subject, within reasonable limits, to the discretion of the banks themselves.

Some of these matters we have been treating may be made clearer if the reader will glance for a moment at the statement of the condition of a typical national bank in a city of moderate size.

Most of the stated resources and liabilities are self-explanatory. In the list of assets there will be noted United States government securities. Some of these this

Table 33.1 Statement of the condition of a National Bank: September 12, 1925

Resources	
Loans and discounts	$655,920
United States government securities	165,150
Other bonds, investments and real estate	53,400
Cash and exchange, exclusive of lawful reserves	65,151
Lawful reserve with federal reserve bank	30,816
Other assets	27,565
Total Resources	997,565
Liabilities	
Capital	100,000
Surplus and undivided profits	74,426
Circulation	100,000
Demand deposits	167,062
Time deposits	542,524
Due to banks, and all other liabilities	13,553
Total Liabilities	997,565

bank, as a national bank, is required by law to hold to cover its note issue of $100,000, which appears among the liabilities under the name "circulation." In the cash the bank has on hand there is included its "exchange," consisting of checks payable by other banks and other similar claims against them. Its "lawful reserve" under the present laws does not include all of its actual cash on hand, but consists wholly of deposit credit which this particular bank has in a federal reserve bank. Loans and discounts, it will be noted, constitute the most important item of the bank's assets. This item designates the sum total of the bank's holdings of the notes and bills of exchange of borrowers. Deposits, classified as demand and time, bulk as large in the bank's liabilities as do loans and discounts in its assets.

Capital represents the original investments of the bank's shareholders. The undivided profits are accrued earnings not yet paid out in dividends. For these, of course, the bank is liable to its shareholders. Profits come largely as the result of discounting and other lending and investment operations. Profits which the bank's officials have not decided to pay out in dividends, thus reducing their cash or their other resources, but which instead they have determined to retain in the business as further investments of capital, are called "surplus." Banks are required by our law to accumulate a certain amount of surplus. A large surplus is, generally speaking, a sign of strength. Where surplus is large the depositors' claims are a smaller *proportion* of the bank's liabilities than would otherwise be the case, and thus the depositor is better protected.

But sometimes a large surplus is a sign of weakness rather than strength. Bank officials, knowing that some of their loans are non-collectible, or that some of their other assets are not really worth the amount at which they appear on the statement, may be unwilling to put an increased strain upon the bank by paying dividends. The accumulated profits—really only paper profits because they depend upon an over-valuation of the bank's assets—may be "passed to surplus" without arousing suspicion or without affecting the bank's strength or weakness. A surplus as large as or somewhat larger than a bank's capital is not uncommon and is, in general, an indication of sound banking. But a bank with an abnormally high surplus, four or five or even ten times its capital, is one that should be investigated rather carefully by a depositor before he intrusts his funds to the bank's keeping. In general, however, we can congratulate ourselves that the standards of honesty in the conduct of the banking business are, as they should be, somewhat higher than the standards which prevail in most other types of business.

This is as it should be, we say, because the bank is in a very real sense a public trustee, performing an important and necessary public function.

34 Monetary system of the U.S.

How the various elements of its money circulation first came into being

The evolution of the gold standard

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To the ordinary layman, the principal obstacle to a correct understanding of our currency system arises from its complexity, from the very multiplicity of its elements. Our circulation is made up of silver dollars, gold dollars, and various forms of paper dollars; all together, ten different forms of currency pass freely from hand to hand in the transaction of business. What has been the course of events by which these various forms of currency have been made component parts of our general media of exchange; and what the mechanism by which they have been rendered of equivalent value as means of payment? To gain an understanding of these first principles of American finance, the reader must open the pages of history, and unfold from the tangle of confusing events the dominant threads of financial tendencies.

The life of our country as a nation nominally began on March 4, 1789. The new government was, however, exceedingly slow to assume many of its most urgent duties. Not until the last day of April was Washington inaugurated President, and five months more passed before legal provision was made for a Treasury Department. But the first Secretary of the Treasury, Alexander Hamilton, set himself at once to the task of devising a comprehensive federal monetary system. On January 1, 1791, he presented to Congress his famous report upon the establishment of a mint and a coinage system for the United States. The recommendations of Hamilton in this report formed the basis of our first Coinage Act.

The need of a uniform currency system was pressing, for under the colonies and the confederation, the mechanism of payments was confused and disorganized. In fact the colonies had known almost as many systems of money as there were different colonies. In some accounts men reckoned according to the English system of pounds, shillings and pence; in others the Spanish decimal system prevailed. The principal media of exchange were coins bearing the stamp of a foreign government, as the French guinea and pistole, the Portuguese

moidore and joe, the Spanish doubloon, and the various English pieces. The resulting difficulties in the way of trade and commerce were fully recognized, but attempts made under the confederation to remedy the situation proved inadequate. Not until 1787 could the states be induced even to surrender to the general government the sole right to coin money. Indeed, the disorganized condition of the currency was as compelling a factor as any in inducing the people to accept a form of government equipped with stronger, and more centralized powers.

With some alterations Hamilton's recommendations were accepted by Congress in its Coinage Act of 1792. The features of this act which deserve special emphasis were the following:

1. The decimal system was adopted with the dollar as the unit of value. The choice of the dollar rather than the English pound sterling was but natural inasmuch as the people had become familiar with the Spanish dollar, obtained in trade with the West Indies. Furthermore, the simplicity of the decimal system gave it the advantage in the reckoning of accounts over the more cumbersome English system.
2. The mint, whose establishment was authorized by the terms of the act, was to be open to the unlimited coinage on private account of both gold and silver. The holder of either of these metals possessed the right to bring his bullion to the mints and have it struck into dollars. The coinage ratio of 15 to 1 was adopted in the following words:

   > That the proportional value of gold to silver in all coins which shall by law be current as money within the United States shall be as fifteen to one, according to quantity in weight, of pure gold or pure silver; that is to say, every fifteen pounds weight of pure silver shall be of equal value in all payments, with one pound weight of pure gold, and so in proportion as to any greater or less quantities of the respective metals.

The silver dollar was to contain 371 ¼ grains of pure silver, the gold coins 24 ¾ grains of pure gold per dollar. The reader can easily ascertain by the simple process of division that the relative value of the two metals for coinage purposes was as 15 to 1. Both the gold and silver coins were given full legal tender power for all debts, public and private. The unlimited coinage of both silver and gold into the same currency units is known to finance as "bimetallism."

Why the Coinage Act of 1792 failed to bring much gold to the mint

Congress adopted the bimetallic ratio of 15 to 1 because Hamilton believed that such was the commercial ratio between the two metals, that by establishing the same mint ratio sufficient quantities of both metals would be brought to the mints to give us an adequate circulation of new and standard coins. Before the

mint had begun to manufacture the new coins, however, a change took place in the relative values of the two metals in the commercial market. As a commodity needed for the arts, gold became worth more than fifteen times as much as silver per ounce. In fact, the actual bullion ratio stood closer to 15 1/2 to 1 than 15 to 1. Under such circumstances little gold was brought to the mints, and the Coinage Act did not succeed in securing any considerable circulation of gold.

This phenomenon is merely an exemplification of the operation of Gresham's principle, that cheap money drives out the good. More accurately stated for our purposes, the law is that the metal relatively the more valuable as bullion will not be brought to the mints for coinage. The comparatively expensive gold bullion would not be brought to the mints; it was more profitable to sell the gold as bullion and mint the silver. As a means of payment a silver coin would be as valuable as a gold coin of similar denomination. The metal *overvalued* by the mint ratio will thus, in fact, be the actual monetary standard; the *undervalued* metal will not be coined.

As events finally turned out, the Coinage Act also failed to secure any considerable circulation of silver. It is true that a large amount of silver bullion was brought to the mints, but the newly coined silver dollars did not remain long, here, in circulation. At this time merchants of this country were conducting a flourishing trade with the West Indies, where both the Spanish and the American dollar were accepted as of equivalent value. Despite the fact that the Spanish dollar contained slightly more silver, the natives were willing and even desirous of obtaining the bright, new American dollars, only recently come from the mint. American merchants and money dealers accordingly found it profitable to exchange the American dollar for the heavier Spanish coins and send the latter back to the mint of this country for coinage into a greater number of American dollars. So flagrant did this practice become that in 1806 President Jefferson directed the mint to suspend the coinage of silver pieces.

The Act of 1792 had not succeeded in securing a circulation either of gold or silver. Gold coins had either been hoarded or exported, and what metallic currency we had was made up of miscellaneous foreign coins, many of them clipped and debased. A great part of our bank notes were, moreover, irredeemable in specie. For in the latter part of the War of 1812, most state banks, except in New England, had discontinued specie payments. After the war the continued scarcity of "hard cash" rendered difficult the task of redemption.

In order to bring gold back into circulation, Congress passed in 1834 an act reducing the weight of the ten-dollar gold piece from 24.75 to 23.22 grains of gold, thus establishing a mint ratio of 16 to 1. The commercial ratio at this time remained closer, however, to 15 3/4 to 1. The new mint ratio overvalued gold in precisely the same manner as the earlier had silver. Silver coinage was now unprofitable for silver was worth more as bullion than as coin. In fact it was not until the passage of the Bland-Allison Act of 1878, more than fifty years later, that there was any considerable coinage of silver dollars. The new ratio was, however, favorable to gold, and, particularly after the Californian and Australian discoveries in the middle of the century, large quantities of gold coins came into circulation.

Under the new ratio, the country was even despoiled of its small change. The dimes, quarters and half dollars were all silver coins and silver was now worth more as bullion. As stated by Thomas Corwin, Secretary of the Treasury: "This state of things has banished almost entirely from circulation all silver coins of full weight, and what little remains in the hands of the community consists principally of the worn pieces of Spanish coinage of the fractional parts of a dollar, all of which are of light weight, and many of them ten or twenty per cent below their normal value."

To remedy this situation Congress passed in 1853 a subsidiary currency act, whereby the principle of the free coinage of the fractional currency was abandoned. Hereafter, the small coins were to be struck only at the discretion of the government, from bullion purchased by it at the market price, and in amounts dictated by the convenience of the business community. To render unprofitable the melting down of these coins into bullion, they were reduced in weight by about seven percent. They were not to be a legal tender for amounts exceeding five dollars. Later the law was changed to make them a legal tender for amounts not exceeding ten dollars.

The act of 1853 did not close the mints to the coinage of silver dollars, but for all practical purposes this effect had already been accomplished. For, by the ratio of 1834, the silver in the dollar was worth as bullion from $1.01 to $1.05, and silver could not profitably be coined. The country was only nominally on a double or bimetallic standard. The motive of Congress in passing the acts of 1834 and 1853 is not absolutely clear, but there is a great deal of evidence that it deliberately intended to dethrone silver as standard, and to establish the country on a gold basis. The Chairman of the Ways and Means Committee of 1853, Mr. Dunham had said:

> We propose, so far as these coins are concerned, to make silver subservient to the gold coin of the country. We intend to do what the best writers on political economy have approved, what experience, where the experiment has been tried, has demonstrated to be the best, and what the Committee believe to be necessary and proper, to make but one standard of currency and to make all others subservient to it. We mean to make gold the standard coin, and to make these silver coins applicable and convenient, not for large but for small transactions.

By the time of the Civil War the country had thus, with its circulation of gold, overcome the early difficulty—the famine of a metallic currency—and, moreover, had found a means of securing an adequate supply of subsidiary coins. But in the necessities of the Civil War further difficulties arose, difficulties unfamiliar only because earlier experience was forgotten, and for years the country was to be haunted by the specter of inconvertible paper currency. Enormous issues of greenbacks drove out of circulation the larger part of the gold currency, and left the people with no medium except bank notes and government promises to pay, but promises for which no date of redemption was stated.

Few epochs of history are more instructive from a financial standpoint than this paper standard period. Few periods shed more light upon proper and improper methods of war finance, upon measures governments should seek to avoid.

Until the period of the Civil War our government had made no issues of legal tender notes. Of all countries none were more amply forewarned of their inherent danger. In the pre-revolutionary period some of the colonies had issued legal tender bills of credit, but their experience was so unfortunate that the historian Ramsay was impelled to write: "It is hoped that in consequence of the present increasing means of diffusing and perpetuating knowledge, the like will not occur again."

The "like" did occur again, however, this time during the Revolution. Then, however, the justification for such issues was sufficient if ever it was. Because of its lack of power to levy taxes the Continental Congress was really driven to emit bills of credit. But however real the justification, the results were disastrous. The Continental currency became practically worthless, and the strongest appeals to patriotism were impotent to induce the people to accept them. After the formation of the national government a few of them were redeemed on the basis of one cent on the dollar.

In view of this unfortunate experience it is not surprising that the framers of the Constitution inserted the provision forbidding the individual states to issue bills of credit or to make anything but gold and silver legal tender in payment of debts. There is, furthermore, good evidence that the framers never intended the federal government to exercise this power. For the Constitution nowhere expressly delegates to Congress the right to issue bills of credit, whereas, under the Articles of Confederation, this power was expressly conferred on the general government. Even Alexander Hamilton, who believed in an elastic interpretation of the Constitution, believed that the spirit of this instrument was adverse to such issues. And before 1862 only once had it been proposed to Congress to issue legal tenders. This single occasion was in 1814, in the dark days of the war with England, and then the House refused even to consider the resolution.

The events which preceded the issues of war currency in 1862

It will, therefore, be interesting to consider the events which preceded the issues of the "war currency." The strife between the sections began in 1861. In August of that year, the Secretary of the Treasury, Salmon P.Chase, conferred with a committee of bankers and negotiated with them three loans of fifty million dollars each. At about the same time Congress passed a law virtually authorizing the secretary to handle the proceeds in whatsoever manner he deemed most expedient. The loans might either have been left on deposit with the banks and checks drawn against them for the Treasury's disbursements, or the funds might be withdrawn and placed with the various subtreasuries. Against the remonstrance of the bankers, Secretary Chase chose the latter course, and, in the

judgment of many historians, virtually forced the banks to suspend specie payments.

It is not difficult to ascribe this suspension of payments in specie to Chase's action. Every dollar in the reserves of banks serves as the basis for the extension of credit to the business public to an amount several times this amount. By withdrawing specie an enormous contraction of credit was inevitable. The general public could not but become exceedingly alarmed; in some places runs on banks took place, quite generally creditors refused to renew loans. With the government withdrawing millions of specie the banks were unable to alleviate this general feeling of insecurity.

Suspension of specie payments and the depreciation of the greenback

The suspension of specie payments inevitably closed, at least in large measure, one avenue of borrowing—loans from the banks. Further means were necessary to obtain funds to meet the government's disbursements, and in this extremity a bill was introduced in Congress providing for the issue of legal tender notes. Again the bankers remonstrated. This time they proposed that the government should sell to the general public its long-time bonds at whatever price they would command in the open market. Fears that any large sale of bonds would lower their value and, to outward appearances, undermine the public credit served, however, to frighten the purse holders of the nation from this course. Accordingly on the 25th of February, 1862, the bill providing for the issue of $150,000,000 in legal tender notes became law. On the 7th of June provision was made for the issue of another batch of $ 150,000,000. In the short space of less than six months Congress had opened the floodgates for the issue of $300,000,000 of this currency.

Before the war came to an end further issues were made, so that by the time the army was paid off and disbanded, there were 400 millions of these legal tenders in circulation. Almost from the date of the first issue they depreciated in gold value; in 1864 they were worth in gold less than fifty cents on the dollar. By law the greenbacks were made a tender for domestic transactions. They could not be made acceptable for foreign payments, however. Dealings with merchants abroad must be balanced in gold; in making foreign payments our bankers and exchange houses were forced to go into the market and purchase gold. In order to pay the interest on its loans the government was also forced to bid for gold. The depreciation of the greenback in terms of gold was thus measured by the increase in the number of greenback dollars that had to be paid for a given number of gold dollars. Prices of goods imported from and exported to gold-using countries promptly rose and, through the complex mechanism of the market, other prices, and ultimately wages and other forms of money payments made in greenbacks, had to rise also, following the increase in the price of gold.

During this period the greenbacks were not redeemable in gold, and trade was virtually on a paper basis. Inasmuch as the greenbacks did not command a gold value of a hundred cents on the dollar, gold would not be tendered in

payment of domestic debts; for such purposes greenbacks would be used. All this furnishes yet another illustration of Gresham's Law.

The bitter struggle to restore the gold parity of the legal tenders

The struggle to restore the gold parity of the legal tenders was bitter and prolonged. When the war closed, Hugh McCulloch, Secretary of the Treasury, stated his belief that the justification of such issues lay only in the necessities of war; that the war being over they should be retired as rapidly as possible. In response to this recommendation Congress passed an act authorizing their retirement at the rate of four millions per month. As greenbacks were received by Treasury in payment of taxes they were canceled instead of being reissued. Under this policy forty-four millions of notes were retired from circulation.

It is almost needless to recount that such course met the most bitter opposition. Accustomed to the stimulus of high prices, business could not look upon the retirement of any considerable part of the currency without general alarm. Debtors, too, including many farmers whose lands were mortgaged, claimed that it was unjust to ask them to pay off their debts in money of greater value than the money they had borrowed. Congress was informed that the country had absorbed the paper issues, that it was a function of government to supply the country with the needed amount of currency. As in other periods of inflation, the most strenuous of demands for further issues were made at a time when the currency was already inflated.

In response to these demands Congress provided in 1868 that the retirement of the greenbacks should cease. But this was not all. In 1874 a bill passed both the Senate and the House authorizing the reissue of all the greenbacks which had been retired under McCulloch's policy of contraction. Herein was involved the whole question of further issues of this currency in time of peace. That the country was not plunged into the abyss of a permanent fiat currency was due perhaps to President Grant, who vetoed the bill. This veto practically killed greenback inflation and is worthy of all the praise which has been bestowed upon it.

The reversal of policy demanded by the public results in Resumption Act

The public condemnation of the Inflation Measure was strikingly indicated in the elections of 1874, in which the Republicans lost heavily. A reversal of policy was clearly demanded by the people. The net result was the passage of the Resumption Act in 1875. By this law the Secretary of the Treasury was authorized to sell bonds without limit in order to obtain gold sufficient in amount to redeem the notes. By the first of January, 1879, the Secretary had accumulated $133,000,000 of gold to be used for that purpose. By the latter part of December, 1878, the premium on gold had disappeared, and speculation in currency was discontinued.

At last, seventeen years after the first issues, the gold parity of the greenbacks had been restored.

Disastrous results to all concerned of the flood of greenback issues

Space permits us here to consider in only the briefest fashion the disastrous effects of these issues. For one matter, it has been estimated by a leading authority that they increased the cost of the war by $600,000,000. In floating its loans the government received greenbacks, whose purchasing power was in gold fifty, sixty or seventy cents on the dollar. Eventually both the interest payments and the principal of these loans were paid in gold. The government was borrowing a cheap dollar and repaying with a dear one. In the same manner disturbances were wrought in private finance.

Among the particularly heavy sufferers were those whose incomes were derived from fixed investments, investments made prior to the war. Labor also suffered, for the time being, in that wages did not advance proportionately with the general rise in prices, even though, as it is only fair to add, wages did not *fall* as rapidly or as far as did prices after the effects of inflation had passed. But regardless of these costs, the issue of the notes was a fortunate episode, if it taught the country the danger of an irredeemable currency.

The depreciation in silver and the loss in bullion value of the silver dollar (Table 34.1)

The bimetallic controversy must now reengage our attention. We have previously noted that very little silver had been coined since 1806, when the minting of the silver dollar was suspended by action of President Jefferson. Nominally the mints were reopened to the coinage of silver in 1834, but only at a ratio which made silver coinage unprofitable. As a matter of coinage statistics, in the period 1861 to 1867 only a little more than 300,000 silver dollars were minted, against a gold coinage in the same period of 230,000,000 dollars. Silver coinage increased somewhat after 1867, but, of the 3,200,000 dollars struck between 1868 and 1872 practically all were exported.

The results of the Franco-Prussian War, and the "Crime of 1873"

During this period events in other countries proved unfavorable to silver. The Franco-Prussian War of 1870–1871 had resulted in victory for the Hohenzollern banner, and immediately German commercial ambitions rose to the high level of their military aspirations. As Great Britain, the chief commercial nation, possessed the single gold standard, what could be more natural and necessary than the reorganization of the finance of the new empire on the same basis? The coinage of the country, which differed in the separate states, was unified, and it

Table 34.1 The depreciation of silver 1840–1924

Year	*Market Ratio*	*Bullion Value of the silver dollar*	*Year*	*Market Ratio*	*Bullion Value of the silver dollar*
1840	15.62	$1.023	1905	33.87	.472
1845	15.92	1.004	1906	30.54	.524
1850	15.70	1.018	1907	31.24	.512
1855	15.38	1.039	1908	38.64	.414
1860	15.29	1.045	1909	39.74	.402
1865	15.44	1.035	1910	38.22	.418
1870	15.57	1.027	1911	38.33	.417
1875	16.64	.961	1912	33.62	.475
1880	18.05	.886	1913	34.19	.468
1885	19.41	.824	1914	37.37	.428
1890	19.75	.809	1915	39.84	.401
1895	31.60	.506	1916	30.11	.531
1897	34.20	.467	1917	23.09	.692
1898	35.03	.456	1918	21.00	.761
1899	34.36	.465	1919	18.44	.867
1900	33.33	.480	1920	20.27	.788
1901	34.68	.461	1921	32.75	.488
1902	39.15	.408	1922	30.43	.525
1903	38.10	.420	1923	31.69	.505
1904	35.70	.448	1924	30.62	.519

was resolved to sell the greater part of the old silver pieces. In order not to be swamped by the influx of the cheapened white metal the mints of France were closed to the coinage of silver, and the other countries of the Latin Union followed her example. An international monetary conference held in Paris in 1867 had previously recommended the adoption of the single gold standard.

Contemporaneously with these events a committee of Congress was undertaking the task of revising our coinage laws. This work resulted in an act whereby the silver dollar was dropped from the list of authorized coins. There is every evidence that the committee deliberately intended to render gold, legally, as in fact, the sole standard. In the words of Representative Kelley, who reported the bill from the committee—it was "impossible to retain the double standard." And, furthermore, "every coin that is not gold is subsidiary." This act, which became known as the "Crime of 1873," merely gave legal recognition to the fact that the silver dollar was not a part of our circulating medium.

The pressure brought to bear on Congress by the advocates of "cheap money"

That this law passed Congress without a great deal of public attention was due to the fact that coining silver had been unprofitable. But after 1873 a great change occurred in the silver market. Many rich lodes of silver were developed

in Colorado and other Western states, so that if the mints had been open to silver coinage much silver bullion would have been taken thither.

But if the Act of 1873 was to become law without attracting unusual notice, it was later to receive more than passing attention from the public. The silver miners and the advocates of "cheap money" uttered charges of fraud; they declared the act the outcome of a surreptitious conspiracy to dethrone silver, that by making gold the sole standard of value the creditor classes had been successful in their endeavors to defraud the debtors by compelling payments in a constantly appreciating dollar. Apace with the increasing silver production of the Western states arose the demands for the reopening of the mints to the free and unlimited coinage of the white metal.

The Bland-Allison Act and its effects upon national finance

The silver advocates were not of sufficient influence in Congress to secure this, but they were able to secure a compromise measure. Under the terms of the Bland-Allison Act of 1878 great quantities of silver were added to the country's circulation. By this act the Treasury was directed to purchase monthly not less than two nor more than four million dollars' worth of silver bullion and coin it into silver dollars. Recognition was made of the fact that it might be difficult to "popularize" the bulky coin by the insertion of the provision that the metallic dollars might be deposited with the Treasury and that silver certificates, virtually like warehouse receipts for silver, redeemable on demand into dollars be issued in their place.

It would be interesting to examine in detail the history of the Bland-Allison Act from the standpoint of its effects upon the national finance. In the light of subsequent events we cannot, however, fail to realize how seriously it endangered the nation's gold reserve, how difficult it rendered the task of maintaining the gold parity of our currency. Under the terms of this act, more than three hundred and seventy-eight millions of dollars were coined,—dollars worth intrinsically less than their face value in gold. Their gold parity could only be maintained by redeeming them in gold. The bulk of our trading, it should be remembered, was conducted with gold-standard countries, countries to which payments in silver would be accepted only on the basis of the commercial value of silver.

The Sherman Act and the treasury note of 1890 issued under its authority

Our present task, however, is merely to explain the origin of our various forms of currency. We have now seen how there came into being gold coin, subsidiary silver, the standard silver dollar and the silver certificate. In 1890 the country was to have yet another form of currency, the Treasury note of 1890. This currency was issued under the authority of the Sherman Act, which superseded the Bland-Allison Act. It, like its predecessor, was a concession to the silver party.

The Sherman Act authorized the Secretary of the Treasury to purchase monthly 4,500,000 ounces of silver bullion and to issue in payment treasury

notes of full legal tender power. From the bullion so purchased dollars were to be coined for one year, and thereafter in such quantities as might be required to redeem the notes. The money of redemption was to be either gold or silver coin, depending upon the discretion of the Secretary. At the current prices of silver the act provided for an increase in the amount of the government's silver purchases.

Silver-purchasing clause of the Sherman Act repealed by Cleveland's urgence

Under the terms of this act, more than $155,000,000 in notes were put into circulation. To this extent they increased the strain on the gold reserve, and made more difficult the task of maintaining the gold parity of our currency. The gold reserve had sunk very low, and efforts to restore it proved for a time unavailing.

To maintain the government credit in a period when the public treasury, like business in general, was hard pressed, President Cleveland insisted that the notes presented for redemption should be paid in gold, when, as was always the case, the noteholder preferred that form of payment. To have exercised the government s power of paying them in silver might have discredited our currency and have thrown it over to a silver basis. As the Sherman Act operated the government was expending gold, which it could ill spare, for enormous stores of silver which it could not force the community to use as money. Finally, in 1893, at the urgent insistence of President Cleveland, whose attitude during the whole episode was marked by a fine sort of stubborn courage, the purchasing clause of the Sherman Act was repealed.

Practically none of the notes now remain in circulation. By the Gold Standard Act of 1900 provision was made for their gradual retirement. From the bullion purchased with these notes standard silver dollars have been coined. Upon the basis of these dollars, certificates were issued, and as rapidly as treasury notes were turned in for redemption silver certificates were substituted for them. By this process treasury notes have virtually disappeared from circulation.

Our bank-note circulation, its advantages and its disadvantages

It remains to consider our bank-note circulation. In a preceding chapter the bank-note was described as merely one form of bank credit, one means by which banks may issue their promises to pay. So far as the liability of the bank is concerned there is no essential difference between the note and the deposit. In the one case the obligation of the bank is evidenced by a bookkeeping entry, in the other by a promise to pay written on a piece of paper which may pass from hand to hand and become a part of our general media of exchange. Whatever difference exists between the deposit and the note results from the greater "currency" function of the note. That is, the note tends to remain longer in circulation, and the bank's ability to redeem is not so continuously tested. A

check drawn against a deposit, however, depends not merely upon the solvency of the bank but also on that of the one who tenders it. The check is speedily presented for redemption. The note, however, depends only upon the solvency of the bank and may remain outstanding for a considerable period of time.

It is because of its superior currency function that both the advantages and the disadvantages of the note proceed. The note may be tendered to persons unacquainted with the bearer's financial standing, and is, moreover, acceptable to those who have no easy access to banks. Farm laborers, in particular, demand notes or some form of currency to a larger extent than employees in a city factory, who are more likely to be paid in checks. But, inasmuch as the note remains longer outstanding, inflation of the nation's currency is more likely to result from an excessive issue of notes than by an excessive issue of deposit credit. We have already remarked that the ultimate result of any issue of paper is to drive out gold. For the issue of paper increases the ability of the holders to purchase foreign goods, and foreign payments must in the end always be liquidated in gold. An excessive issue of paper, be it the promises to pay either of the government or of the banks, may render extremely difficult the task of maintaining the gold standard.

Because of its greater inflationary possibilities, governments have been much more prone to restrict the right of banks to extend credit in the form of notes than in the form of deposit credits. In our country public recognition of the dangers of excess issues of notes is clearly evidenced. Our early experience with the loosely regulated issues of state banks had shown only too clearly their inherent dangers.

The dangers of loosely regulated issues of notes by state banks

The period before the establishment of the national banking system was in reality the dark age of American banking. The country was then flooded with a great mass of notes issued by state banks, some of them easily redeemable in "hard cash," some redeemable only with difficulty, others redeemable not at all. Many states placed virtually no legal restriction upon such issues, and banks came to consider as one of their inherent rights the privilege of putting out such currency without making ample provisions for redemption. He who attempted to force the banks to specie payments was often adjudged as virtually a public enemy. For was he not making it difficult for the banks to supply the public with the needed amount of currency?

In one case on record, a Boston broker was indicted by a grand jury in Vermont for demanding that a bank of that state cash its notes. Students of early American history will recall the unpopularity of both the first and the second United States banks because of their policy of sorting out the notes of the state banks which reached their counters and sending them home for payment in cash. The more difficult the access to a bank, the greater was the possibility of large profits. For the more likely were they to escape these demands for specie payments.

Only state bank-notes not readily redeemable left in circulation

In this period some of the states recognized clearly the nature of the bank-note and sought by law to regulate such issues. But this merely enlarged the field within which Gresham's law might operate. Notes of the strictly regulated banks were speedily presented for redemption. Notes of banks which did not recognize their specie obligations remained in circulation. The channels of trade were filled to overflowing with these depreciated issues. Under such conditions trade was severely handicapped. Notes received by merchants possessed different values, according to the bank of issue. Books were furnished merchants to apprise them of the values of the various issues, but no such book could be kept up to date.

The National Bank Act reforms due to fiscal difficulties of government

In 1863 the situation was changed abruptly, and curiously enough the cause of the reform was the fiscal difficulties of the government. The enormous war expenditures increased the necessity of large borrowings, and the banking system was revised in order to render such borrowing easier. In the National Bank Act provision was made for the incorporation of banks under the federal law. The new banks could only obtain the issue privilege by purchasing government bonds and depositing them as security with the Treasurer of the United States. In this manner a market was created for the government's securities. To drive out of circulation the notes of state banks a tax was imposed in 1865 of ten per cent. This tax virtually compelled banks to take out federal charters or give up the note issue privilege. Trade was no longer to be handicapped by the existence of a disorganized mass of partly irredeemable bank-note issues.

Under the national banking system the safety of the note issues has not often been questioned. They are secured by government bonds, and in the case of failure the noteholders have a prior lien on the assets of the bank. Criticisms of the national banking system have not stressed any possible lack of safety. Rather have they dwelt on the inelasticity of the note issues, on their inability to expand and contract sufficiently in volume to meet the needs of trade's seasonal demands. For regularly during the fall and spring planting seasons interest rates rose, security values fell, and banks in the interior withdrew their deposits from the money centers.

Our various forms of currency and how their gold parity is maintained

It has not been difficult to attribute the inelasticity of the notes to the bond requirement. The amount of notes which could be issued depended upon the total volume of bonds in existence. As the note circulation had increased in amount practically all of the available bonds had been absorbed. The note

circulation represented a more or less definitely fixed volume of currency and was incapable of being adjusted to the varying demands of trade.

By the passage of the Federal Reserve Act in 1912, attempt was made to remedy this situation. Machinery was established for the eventual retirement of a large part of the old bond-secured notes. In a later chapter we shall see how this reform led to the creation of two new species of notes, Federal Reserve notes and Federal Reserve *Bank* notes.

We are now in a position to state in summary fashion our various forms of currency and to explain how the gold parity of each is maintained. Table 34.2 shows the circulation of each in July, 1924.

In one way or another all other forms of currency are interchangeable with gold. Coins smaller than a dollar are exchangeable at the Treasury for "lawful money," which includes government notes, silver dollars and gold coins. Government notes are redeemable in gold at the government treasury. There is no definite legal requirement that silver dollars be redeemed in gold, but the Currency Act of 1900 makes it the duty of the Secretary of the Treasury to maintain other forms of money at a parity with gold. This means in practice that he must exchange gold coins for silver dollars even if he should have to borrow funds with which to secure the necessary gold. The Act of 1900 gave definite and formal recognition to the single gold standard which, as we have seen, was implied by the Act of 1871 and which, in fact though not in law, had been in force ever since the Act of 1834 made it unprofitable to have silver coined at the mint.

Incorrect use of term "standard dollar"; what standard money really is

The silver dollars coined under the laws of 1878 and 1879, like those subsequently coined by the silver accumulated by the government, are sometimes incorrectly spoken of as "standard dollars." But silver is not freely coined on

Table 34.2 Stock of money in the United States, July, 1924

Gold Coin and Bullion	$4,490,807,000
Silver Dollars	503,755,000
Subsidiary Silver	277,614,000
United States Notes	346,681,000
Federal Reserve Notes	2,339,048,000
Federal Reserve Bank Notes	10,596,000
National Bank Notes	778,012,000
Total	$8,746,513,000
Percentage of Gold to Total Money	51.34
Money in Circulation	4,754,773,000
Circulation Per Capita	42.19

private account, and the silver dollar does not vary in its purchasing power according to changes in the value of silver. It is, therefore, a mistake to speak of a "standard" silver dollar. Standard money is the money in which all other parts of the circulating medium are ultimately redeemable. It may thus be defined as the money of ultimate redemption. It may also be said to be the one commodity whose price in terms of lawful money is fixed. Gold may be sold to the mint for dollars at a fixed price. Gold dollars may, in turn, be converted into gold bullion without loss in value. Such are the arrangements which make it proper for us to say that gold is the monetary standard.

So long as our present coinage laws remain in force, gold coins must always contain the same amount of gold per dollar. The dollar is defined as a coin containing 25.8 grains of standard gold. Since standard gold 9/10 gold and 1/10 alloy, there are 23.22 grains of pure gold in a dollar. At one time gold dollars were coined, but the coin was so small, so inconvenient, and so easily lost that its coinage was later abandoned. However, the present gold coins of the United States, which include the eagle, or ten-dollar gold piece, the double eagle, the half eagle, and the quarter eagle, contain precisely the stated amount of gold per dollar. The eagle, for example, contains 232.2 grains of fine gold. An ounce of gold, therefore, is worth $20.67 at the mint.

The currency system of the United States, it thus appears, is definitely based upon gold as the monetary standard. In fact, it should be a matter of pride that the United States, alone of all the world powers which participated in the Great War, maintained the gold standard throughout that period of financial storm and stress, even though it would not be wholly accurate to say that an absolutely free gold market existed in the United States during all of the war period. But the gold standard was not definitely accepted by the country until after a bitter controversy which followed shortly upon the repeal of the purchasing clause of the Sherman Act in 1893. Although forced upon Congress by the immediate necessities of the federal treasury, this action was regarded by the advocates of bimetallism as the successful culmination of the efforts of those mythical conspirators who were supposed to have dethroned silver and set up gold—a scarcer metal—as the world's monetary standard.

If the reader will turn to the table[1] on a previous page showing the course of the depreciation of silver between 1871 and 1900, he will note that just as, by an extraordinary coincidence, within three years after the act of 1871, silver, for the first time in the history of the world, became worth less than one-sixteenth as much as gold, so, immediately after the repeal of the purchasing clause of the Sherman Act in 1893, the value of silver became less than one-thirtieth that of an equal amount of gold. Undoubtedly the closing of the artificial market that the United States government had created for silver had something to do with the matter. But a continuing decline in the annual production of gold and other important factors, including the closing of the mints of India to the unlimited coinage of silver, must also be taken into account.

Money continued to appreciate, that is, prices continued to decline; business had not yet recovered from the slump following the great crisis of 1893; crops

were poor; the farmers and the townspeople of the west had suffered heavily through precipitate declines in land values. The cheap money movement, which had been gathering strength ever since 1873, now reached its culmination. In the bitterly contested presidential election of 1896, William Jennings Bryan, the Democratic candidate, was supported by the advocates of bimetallism, whatever their previous party affiliations. His defeat by the Republican candidate, William McKinley, who had been supported by the advocates of the gold standard, marked the end of the last phase of the bimetallic movement. This was not, however, because the bimetallists were convinced that they were wrong or that their cause was hopeless. Bimetallism ceased to be a problem of political importance just so soon as the enormous output of the new gold mines of South Africa, by making gold cheaper, that is, by making prices in terms of the gold standard higher, ended the period of falling prices which lasted from the years 1873 to 1896.

From 1897 down to the eve of the Great War, the general trend of prices in all gold-using countries was upward. Cheap money movements are always children of periods of falling prices. Rising prices, by stimulating business activities, by favoring the borrower—the active user of capital—as against the creditor, do not breed general political and social disaffection, even though they may occasion as much economic injustice and in the long run may do as much harm as occurs in periods of falling prices. An ideal monetary system would be that which would give stability in prices. The gold standard, by this test, is far from ideal. Its strongest claim is not that it gives stability in prices, but that it is, one might say, automatic in its operations. If we must have general fluctuations in prices, alternating movements up and down, it is better that these should be governed by the changes in the output of a relatively stable commodity, like gold, than that they should be the outcome of political manipulation or of arbitrary adjustment of any sort whatever. It may be said for the gold standard, not that it is perfect, but that it is measurably "fool-proof."

Note

1 Table 34.1.

35 Mobilizing banking credits

The drastic reform of the banking system of the United States

Possibilities of the federal reserve

The Book of Popular Science (1924; revised 1929) New York: The Grolier Society. Group IX Ch. 33:4437–46

In considering the factors responsible for the creation of the national wealth, statesmen and the public have often been far too prone to overlook the indispensable services of those institutions which assemble and distribute the credit resources of the country. Too often has the nation been depicted as merely a vast workshop in which the technique of physical production alone demands the thoughtful and continuous attention of the country's best brains. But without an adequate mechanism of exchange, production cannot function to its fullest capacity. General Francis A.Walker wrote indeed without exaggeration that it was much more important to the people of London to possess stable exchange relations with other countries than to keep in repair its largest bridge across the Thames; and a contemporary American economist has remarked that if the world were stripped of its telegraph wires it would not suffer more than if business should be obliged to conduct its operations without the use of credit.

In a previous chapter[a] we have noted the condition of credit in the days of "wild cat" state banks, days in which the country was flooded with currency in the form of the promises-to-pay of banks, promises too often disregarded. When the national banking system was established, a remedy was found in the impositions of so heavy a federal tax on the issues of state banks that they rapidly disappeared from circulation. But despite the admitted service of the national banking system, one cannot but wonder at the calm subordination of banking requirements to temporary political considerations at the time of its establishment.

Except for the financial difficulties of the government in consequence of the Civil War, the national banking system would probably not have been born. In its extremity, the nation was prepared to accept a banking system organized primarily to strengthen the market for government securities. A bill fathered by Salmon P.Chase, Secretary of the Treasury, provided for the creation of a set of banks chartered under federal law; and, as security for their note issues, required

to purchase bonds of the United States and deposit them with the Treasury at Washington. The successful banking system of the State of New York was taken, in a number of important respects, as a model. In this manner the government hoped to increase the market for its bonds.

But many of our institutions, illogically established, have in practice worked admirably. How was it with the national banking system? Before passing final judgment, it will be helpful to review the most prominent features of the act. In what respects did it build upon, and in what respects depart from the experience of earlier systems?

First, and of foremost importance, the act accepted the "currency" rather than the "banking" principle. These opposing viewpoints took root in earlier English banking experience. The currency principle stresses the analogy of bank-notes to government paper money, while the banking principle emphasizes the similarity of the bank-note and the deposit. From the standpoint of the banks' liability the banking principle secures its justification, for the note and the deposit are but different forms in which the banks extend their promises to pay.

But, on the other hand, advocates of "currency" principle argue that notes are apt to remain longer in circulation, and that harmful inflation of the currency was more likely to result from excessive issues of notes than from an expansion of deposits. In other words, the note possesses a greater currency function than the deposit, and its issue, it is accordingly argued, is attended with greater danger. The world had suffered in recent memory greatly from the irredeemability of government paper money. If, then, bank currency possessed the same inflationary possibilities, should it not be as strongly regulated by law? Should not the note issues of banks be more stringently restricted and guarded than their deposits?

This question was answered affirmatively in the National Bank Act. The amount of a bank's note issue was made to depend upon the amount of government bonds deposited with the Treasury. Furthermore, note issues were limited to the amount of the bank's capital stock. Finally, in case of insolvency, the government would assume responsibility for the redemption of the notes, but to safeguard itself, was given a prior lien on the assets of the failed bank. That is, in case of liquidation, the bank's resources would first be made available for the protection of the noteholders.

A second significant feature of the new system lay in the fact that nowhere was there to exist a central board of directors able to exercise a control over credit conditions throughout the country. In this respect, the United States departed from the experience of European countries where cash reserves were centralized in great central institutions. When further funds were required, a local bank would secure them by turning over some of its holdings of debtors' paper—their bills and notes—to the central institution. By raising or lowering its interest or discount rate, the directorate of the central bank can render it difficult or easy for the smaller banks to extend credit to their clientele. General credit conditions may thus to a large extent be determined by the single central institution. In the First (1791–1811) and the Second (1816–1836) United States Banks our country was fairly on the road to develop such dominating

institutions, but these banks so aroused the fears and the hostility of the state banks and of the general public, that they were shipwrecked in the sea of politics. Public opinion in 1863 was not yet ready to sanction the reestablishment of any such all-powerful institution; nor was it willing to accept the dictation of any single central directorate. A federal officer, the Comptroller of the Currency, was at the head of the national banking system, but his duties were primarily administrative.

But even though it was not felt that the expansion of deposit credits should be restricted so rigidly as note issues, the national government was unwilling to leave the control of deposits entirely to the judgment and the discretion of the various individual directorates. Accordingly reliance was placed upon the unwieldy device of establishing by law certain minimum reserve requirements. That is, the upper limit of deposit credits was made to depend upon the amount of each bank's reserve of cash.

But ought not some banks to hold larger proportionate reserves than others? Country banks customarily kept funds on deposit in near-by city banks; these in turn made deposits in the larger financial centers. Should not the banks which held in greatest measure the deposits of other banks be obliged to hold the largest reserves? Clearly such institutions would be subjected to the greatest strain in any period of credit collapse.

Accordingly by law the national banks were divided into three general classes. Banks in New York, Chicago and Saint Louis, the central reserve cities, were required to hold a 25 per cent cash reserve. That is, they had to have on hand an amount of legal tender money equal to one-fourth of their liabilities to their own depositors. Banks in other large cities of the country, designated as reserve cities, were also required to hold a 25 per cent reserve, but half of this might be in the form of deposits with banks in central reserve cities. All other banks, the "country banks," were required to keep only a 15 per cent reserve, and deposits in banks in reserve cities or central reserve cities might count for three-fifths of this amount.

How our national banking system worked

With these few general provisions in mind, we are now in a position to examine the operation of the system and attempt to find explanation of those evils to which the credit mechanism of the country has clearly been subjected. The services of the national banking system in driving out the disorganized note issues of state banks, and in furnishing to state governments a model for regulating institutions of their own creation could not be gainsaid. But in no field of human activity had greater changes taken place than in that of commerce and business, and it could not but be felt that the development of credit and banking had lagged behind. Particularly inadequate did our banking system appear when attention was called to the frequency and severity of industrial crises in the United States. Such credit collapses did not occur with equal frequency or severity in European countries with great central banks.

The panic of 1907 leads to banking revision

Of all the crises of recent years, none called forth more popular discussion than that of 1907. To a greater degree than in previous periods of depression did it appear that the central difficulty was a faulty banking system, particularly as there had been no general crop failure, as in 1893, and since to all outward appearances the industries of the country had been sound and flourishing. To restore the tottering foundations of credit, gold was imported in enormous quantities from Europe, from countries where the per capita stock was less than in the United States. More strikingly than ever did it appear that our banking system was inadequately devised to utilize efficiently our vast quantities of gold in the support of the nation's credit. Never was there a crisis which was rooted more indisputably in monetary disorders, rather than in fundamental industrial weaknesses.

But save for one spectacular feature it may be doubted whether even this collapse would have been sufficient to overcome the inertia of the people and lead to a general demand for banking revision. In 1907, bankers in the interior found themselves unable to withdraw their deposits from New York City, and as a consequence, there was a country-wide tie-up. In August of that year, more than a third of the cash reserves of 6544 national banks were held in the vaults of the New York banks. If any such concentration of credit must exist, bankers and the public asked, would it not be preferable that it be controlled by banking institutions devised for the especial purpose of meeting the variable needs of business? Was not a publicly controlled centralization preferable to the irresponsible private concentration of the past?

The Aldrich-Vreeland Act of 1908

The panic had one immediate legislative result: the Aldrich—Vreeland Act of 1908. This act provided for an emergency bank note currency which might be called into being by the deposit of other collateral than government bonds. Since this provision was avowedly intended as a purely make-shift arrangement we need not consider its details here. In two ways, however, it gained historical importance. In the first place, although it was at first provided that the act should expire in 1914, it was later extended so as to cover the period until the Federal Reserve Act went into effect in 1915. The outbreak of the Great War in August, 1914, led to large shipments of gold to Europe and to a small-sized panic in the money market. To relieve the situation emergency notes to the amount of $386,000,000 were issued by 1363 different banks. It is very likely that the fact that the Aldrich-Vreeland Act was in effect prevented a serious panic like that of 1907. All of the notes issued under the act were retired before the act expired. They were subjected to heavy taxes which were increased as the notes remained in circulation, so that it was to the banks' interests to retire them as soon as feasible.

In the second place, the Aldrich-Vreeland Act is important because it utilized a machinery which, in earlier panics, the banks of large cities, organized in clearing-

house associations, had improvised for themselves. In times of stress banks had sometimes been permitted to pay adverse clearing balances in instruments called clearing-house loan certificates, representing the joint credit of the banks associated in the clearing house, and advanced or loaned to the individual banks whose reserves were deficient. The borrowing banks gave security to the other clearing-house banks by depositing approved collateral. In the shortage of cash in the panic of 1907 these clearing-house loan certificates in many cities were issued in small denominations and were paid out by the banks and put into general hand-to-hand circulation. The Aldrich-Vreeland Act utilized clearing-house associations where these existed, and provided for corresponding organizations of banks in country districts. There is much in the present federal reserve system which, in a general way, is similar to these Aldrich—Vreeland provisions. In fact, although in the reform of the American banking system much was learned from other countries, notably from the central-bank systems of Europe and the elastic note issue of the Canadian banks, it nevertheless remains true that this great reform is based fundamentally upon the monetary experience of the United States, and that it utilized machinery which in one way or another has been shown to be particularly suited to the conditions that exist in the United States.

The Aldrich Bill fails to pass

A special section of the Aldrich-Vreeland Act provided for the appointment of the National Monetary Commission,—a body equipped with sufficient funds to undertake a thorough-going study of banking reform. Under the chairmanship of Senator Aldrich of Rhode Island, this commission heard the testimony of numerous banking and financial experts, and arranged for the publication of a number of works on important aspects of the money problem. At length it reported to Congress a bill for banking reform, a bill which became popularly known as the "Aldrich Bill."

The details of this bill need not detain us here, as it was not destined to secure the assent of Congress. To analyze the cause of its failure would also be unprofitable, save perhaps to mention that it ignored popular objections to a central banking institution in the election of whose directorate bankers' votes would be supreme. That it provided not for centralization but for banking cooperation was not sufficient to lull the general disapproval.

Defects of the old national banking system

After the failure of the Aldrich Bill, it appeared for a time as if banking revision would become a football of politics, particularly as in the political campaign of 1912 all three of the leading parties advocated banking reform in terms not ultra-precise and definite. But soon after the election of President Wilson, the study of banking reform was, at his initiative, begun anew. In 1913 the Federal Reserve Act passed Congress. To appreciate its real significance we must first understand the evils it was designed to cure. Of the defects of the old national

banking system, those most emphasized in popular as well as in purely banking circles were the following:

1 Decentralized reserves. Cash reserves were parceled out among the vaults of 7500 individual banks.
2 Rigid reserve requirements, under which banks were compelled to refuse new loans when their cash reserves had fallen below the minimum set by law.
3 The inelasticity of the note issues, or the inability of our currency to adjust its volume to the varying needs of trade.

To many Americans unacquainted with centralized banking institutions, it was exceedingly difficult to apprehend clearly the operation of a system in which each individual bank was not the holder of a large part of its own cash reserve. But to the European, it would have been equally difficult to visualize the working of the American system. For the European has been accustomed to the great central banking institutions in whose vaults are held in large measure the nations ultimate cash reserve.

It is not difficult to perceive the advantage of the centralized European systems in times of credit crises. If business can be carried over a threatened period of adversity, lack of business confidence may not become general and the soundness of credit may remain unimpaired. Through long experience, the leading bankers have learned that the only safe policy in such times is to lend freely, to convince the business public that the banks are prepared to throw their resources generously at the disposal of trade. Discount and interest rates will undoubtedly be raised in order to cut off the less urgent demands for loan accommodation; but the legitimate demands for credit must be met. Any other policy can only mean an accentuation of the public's fears. But such a policy requires courage. It is useless to ask each individual banker to go ahead blindly, in time of financial stress, risking the solvency of his own bank, perhaps. Somewhere in the banking system there must be some responsible, central authority to which the banks of the country as a whole may look for initiative and guidance in general banking policies and which, most of all, shall be in a position to assure individual banks that they are not incurring undue risks in holding to the right rather than the wrong financial policy. Thus the Bank of England, in announcing its official discount rate, virtually guarantees the other banks of that country that they can, at the stated rate, secure funds to maintain or to replenish their own reserves. But where under the old system were banks to obtain the funds for such an expansion of loans? Nowhere was there a central banking institution with funds husbanded for just such occasions. Least of all could one bank turn to another for aid. In time of threatened danger each institution set to work to put its own house in order, to diminish its loans so that the claims on its cash might be lessened. With each bank thus impelled to look first to its own interests, and with no means of effective cooperation among the banks, a general credit stringency might arise, which in its beginnings could easily have been handled

had some means existed for placing the aggregate banking resources at the disposal of the threatened community.

How well the old system deserved the reproach, "Breeder of Panics," is indicated by the following remarks of Paul Warburg, a distinguished banker, for some time a member of the Federal Reserve Board:

> If after a prolonged drought a thunderstorm threatens, what would be the consequence if the wise mayor of a town should attempt to meet the danger of fire by distributing the available water, giving each house-owner one pailful? When the lightning strikes, the unfortunate householder will in vain fight the fire with his one pailful of water, while the other citizens will all frantically hold on to their own little supply, their only defense in the face of danger. The fire will spread and resistance will be impossible. If, however, instead of uselessly dividing the water, it had remained concentrated in one reservoir with an effective system of pipes to direct it where it was wanted for short, energetic and efficient use, the town would have been safe.
>
> We have paralleled conditions in our currency system, but, ridiculous as these may appear, our true condition is even more preposterous. For not only is the water uselessly distributed into 21,000 pails, but we are permitted to use the water only in small portions at a time, in proportion as the house burns down. If the structure consists of four floors, we must keep one-fourth of the contents of our pail for each floor. We must not try to extinguish the fire by freely using the water in the beginning. That would not be fair to the other floors. Let the fire spread and give each part of the house, as it burns, its equal and inefficient proportion of water. *Pereat mundus, fiat justitia!*

When we consider likewise the rigidity of our legal reserve requirements, many similar analogies might be made, all to the detriment of the old system. What would we think of a government which, having in time of peace established naval and military reserves, should insist that they should not be used in time of war, in order that the reserve forces should not be diminished? Would we regard a waterworks system as efficient, if, during a general conflagration, water could not be used when the supply in the reservoirs had fallen below what was normally regarded as the proper reserve for safety? Yet by our reserve law, banks were unable to utilize their funds to their maximum capacity at the very time when business stood in most urgent need for credit! Indeed, the United States was one of the few countries in the world which, by law, required a cash reserve to be held against deposits.

It was obvious also that the currency system of the United States was decidedly *inelastic*. Its volume could not vary according to the varying needs of trade. Particularly evident was this weakness in the period of greatest stress, the fall crop-moving season. In the late winter, banks in the agricultural districts found themselves with more money on hand than they needed. So large sums were shipped east, largely to New York, where a small rate of interest was paid on

bankers' deposits. Along came the harvest season, and the need for cash in the interior annually caused a wholesale withdrawal of these funds. Each fall the principal banks of New York had been obliged to surrender about fifty millions of dollars to satisfy such demands. In addition, gold was often imported from Europe in large quantities. The high rates of interest on these foreign loans added to the real costs of moving the crops. Europe was exacting a toll for furnishing the funds which should have been forthcoming here.

The inelasticity of bank reserves the real crux

All of these defects of the old system—decentralized reserves, rigid reserve requirements and inelastic note issues—were merely different aspects of the single defect which we have placed second in the foregoing list, namely, the inelasticity of bank reserves. It is worth while, therefore, to further emphasize this particular point and to try and see its relation to the other defects of our old banking system.

The only reason for requiring that a bank shall maintain reserves equal to a certain specified per cent of its deposits or its note issue is to insure that the bank will be able to meet sudden demands for cash from its depositors and on the part of other banks. The rigid reserve requirements that we have already discussed provided that when reserves fell below 15 or 25 per cent, as the case might be, the bank should immediately cease lending until its reserves had been restored. This adequately served the purpose of protecting depositors. But so far as the extending of credit was concerned such a reserve was not a true reserve at all: it was a dead line beyond which the bank could not go. It might have to stop lending at the very time when courageous lending, even if at higher discount rates, was the only thing that would forestall a general crisis. In the practice of most other countries bank reserves are allowed to vary, the variation in the reserve ratio being accompanied by a sliding scale of discount rates fixed not by law but by the experience of the bank.

It is easy to see how this fundamental defect was linked up with others. If reserves were truly elastic it would not make much difference whether they were centralized or parceled out among individual banks. The real difficulty is that it is impossible that bank reserves should be elastic unless they are centralized. Again, if bank reserves had been elastic, the absence of elasticity in bank-note issues would not in itself have done any harm. The New York banks, for example, could have taken money from their vaults every autumn and shipped it to the West, knowing that in the course of the normal cycle of trade it would return in a relatively few months. For the time being, during the crop-moving season in the West, reserves might be low. But what of it? It would have been understood by everyone to have been a normal situation for that particular time of year, and one which would in a short time remedy itself.

But why, the reader may ask, did not the New York banks and the other large banks which held the major portion of the reserves of the country normally hold *more* reserves than were required by law? If the New York banks had normally held 40 or 50 per cent reserves, they could have absorbed the ordinary strains

resulting from the movement of gold into the West, into the government treasury, or even to Europe, while retaining the ability to meet the real needs of the business community for loans. For such reserves would never, except in years when gold exports were large, have fallen to the legal minimum of 25 per cent.

The defect of decentralization

This question brings us back to the first of the three defects we have discussed, namely, decentralization. For even in New York City bank reserves were decentralized, that is, they were scattered among a number of different competing banks. In the nature of the case each bank was interested in doing the largest possible volume of business and in making maximum profits for its shareholders.

No one bank was responsible for the maintenance of the *surplus reserves* which would have given real elasticity to the American banking system. Just because no one bank was responsible, no one bank, as a matter of fact, ever attempted to maintain such reserves. When the return of money from the West, or imports of gold from Europe, or payments by the federal treasury, brought New York bank reserves above the 25 per cent line, this surplus lending power was at once utilized. There was always a sure market for call loans made at low rates to finance stock exchange speculations.

Call loans and speculation

Call loans are loans payable on demand. From the point of view of any one bank, a call loan seems to be a desirable form of credit, for when the bank reserves are threatened, or there is a demand for money for other purposes, repayment may be asked. But when some banks call loans, the borrowers put additional strain on other banks. Moreover, the general calling of such loans often forces speculators to sell their holdings to secure funds with which to repay their loans, just as the making of call loans at low rates generally stimulates *buying* of speculative securities on a large scale. In this way, such surplus reserves as appeared in the New York money market were absorbed in call loans, which led, in turn, to strong bull movements, that is, to rising prices on the stock exchange. When the reserves were brought down to the legal minimum, or in practice a little below, the tightening of the call-loan market often led to the precipitate selling of shares and a drop in stock market values. Altogether it will be seen that our inelastic reserve system worked in such a way as to bring about an unholy alliance between lending and speculation. The effect of fluctuations in the money market was felt in magnified form in the speculative market, while in turn, the ups and downs of speculation reacted upon the state of the money market.

The dominance of the New York money market is shown, even though not fully, in the accompanying table, which, speaking for a period several years earlier than the introduction of the federal reserve system, shows the disposition of the cash deposits and the reserves of the national banks of the country. New York, it will be noted, held more than one-third of the reserves of the country,

Table 35.1 Deposits and reserves of national banks (sums in millions of dollars)

Location	*Number of banks*	*Deposits*	*Reserve*		*Classification of reserve*		
			Amount	*ratios*	*Lawful money in bank*	*Due from reserve agents*	*Redemption fund*
New York	38	825.7	221.3	26.8	218.8		2.6
Chicago	14	262.9	66.6	25.3	66.1		0.5
St. Louis	8	116.8	27.6	23.6	26.8		0.7
Other reserve cities	306	1423.4	362.3	25.5	190.3	165.7	6.3
Country banks	6178	2627.2	443.5	16.9	199.6	226.7	17.2
Total	**6544**	**5256.1**	**1121.4**	**21.3**	**701.6**	**392.4**	**27.3**

and in addition, it should be remembered that many state banks, private banks and trust companies had deposits in New York which they treated as their own reserves. The deposits of other banks generally constituted more than one-half of the deposits of New York banks. Like an inverted pyramid upon its apex, the whole structure of bank credit in the United States rested upon the cash reserves of the New York national banks.

The importance of speculation in its relation to the money market is indicated in the accompanying table, which shows the character of the loans and discounts of New York national banks in 1890 and 1912. In interpreting the table, it should be noted that not only most of the loans made on call, but also some of the time loans made on collateral security, were for the purpose of financing speculative transactions.

The fundamental difficulty may be put in this way: *there was nowhere any slack or "give" in our banking system*. The whole system tended always to be in a condition of strain. Whatever slack might appear was at once taken up or absorbed in the speculative market. There was no possible remedy save in a more elastic relation between loans and reserves, and that was impossible without centralized control and centralized responsibility. Sometimes the best interests of the country demanded a banking policy which ran counter to the interests of individual banks. Such a policy in the nature of the case could not be the outcome of the operations of competitive banks, however public spirited.

Table 35.2 Loans and discounts of New York national banks: 1890 and 1924 (in millions of dollars)

Character of loan	*1890*	*1924*
On call	102	623
On time, with collateral security	43	475
On time, without collateral security	152	873

The federal reserve system

We are now prepared to examine the organization and the operations of the federal reserve system and to see how it has corrected the major defects of the old national banking system.

The system utilizes not one but twelve central banks. This avoids the traditional American objection to the financial and possibly the political power of a single central bank, and in view of the vast territorial extent of the United States as contrasted with most European countries, the system of regional central banks does not seem unreasonable.

These twelve great regional banks are owned and in part controlled by their member banks, which comprise all national banks within the respective federal reserve districts together with such state banks and trust companies as desire to join the system and which comply with certain required standards.

Coordination of the policies of all of the banks and a certain amount of control over each bank is in the hands of the Federal Reserve Board at Washington, made up of five members appointed by the President in addition to the Secretary of the Treasury and the Comptroller of the Currency. The boundaries of the different federal reserve districts together with the location of the different federal reserve banks and agencies are shown in the accompanying map *[Eds: not reprinted here]*.

Functions of the federal reserve banks

The most important functions of the federal reserve banks are those of holding the reserves of the member banks and of rediscounting commercial paper for them. Under the old system, it will be remembered, a bank's legal reserve consisted partly of cash in its own vaults and partly of deposit credits on the books of banks in large cities, especially New York. To meet a drain of cash a bank had to take money from its own vaults or it had to draw upon its New York accounts. With inelastic reserves, a drain of cash into general circulation or large exports of gold necessitated drastic reduction in credit, frequently with disastrous results.

Now, however, when a member bank's deposits are as large as under the law its reserves permit, it may replenish its reserves by taking some of the commercial paper (loans and discounts) it holds and rediscounting or selling it to the federal reserve bank, which is always ready to assist in such operations, provided the paper is of approved quality. The result, of course, is a change in the form of the member bank's assets. Its loans and discounts are reduced, but its deposit credits with the federal reserve bank, constituting its legal reserve, are correspondingly increased. It is now in a position to go ahead and give its customers the further accommodation they need.

Or take the case where the member bank needs something that will serve as actual money. Local causes or the recurrence of the harvest season have led to large withdrawals of cash from the bank. In such circumstances the member

bank again sells some of its loans and discounts to the federal reserve bank, but it takes the proceeds not in the form of deposit credit but in the form of *federal reserve notes* which will serve its customers as well as any other form of money would.

The federal reserve banks, in turn, may go ahead and increase their own deposit liabilities and note issues without any arbitrary restrictions. Of course the bills of exchange and notes which they take over from member banks must be of high quality and must be composed of relatively short maturities, that is, the credits they extend run for only a short time. At maturity, in case further accommodations are needed by the member banks, the paper which has been paid off may be replaced by new. The federal reserve banks are compelled to keep gold reserves equal to 35 per cent of their deposit liabilities plus 40 per cent of their note issues.

These provisions may seem at first thought to indicate that the United States has held to the old discredited policy of fixed and rigid reserves. Closer scrutiny reveals the fact that the present requirements in their actual wording are not at all like the old. In the first place, the centralized responsibility of the federal reserve banks makes it certain that in normal times they will secure elasticity in the credit situation by holding large surplus reserves—reserves of much more than 35 or 40 per cent of their liabilities. In the second place, the 35 or 40 per cent limits are not absolute dead lines, for by permission of the Federal Reserve Board the actual reserve may be permitted to fall below these points. A tax is imposed upon the amount of the deficiency to insure that the reserves will be restored as soon as possible to a normal level.

Taking the system as a whole, it will be seen that it gives a thoroughly elastic supply of credit. It has all of the necessary elements: elastic note issue, elastic deposits and elastic reserves. The assets back of the note issues of the federal reserve banks are in general like those back of their deposits; namely, commercial paper which has been rediscounted for or bought from member banks. Notes may also be issued upon commercial paper bought in the open market, that is, from banks outside the system, from note brokers and others. Federal reserve *bank* notes are to be distinguished from federal reserve notes. They are issued upon the security of federal government bonds which the reserve banks are required to purchase from such national banks as desire to give up their note issue privilege. Most of the government bonds held by national banks as security for note issue pay only 2 per cent interest a year, and, without the note issue privilege, they would be worth much less than par in the market.

Reference has been made above to the open market operations of the federal reserve banks. These are likely to prove of increasing importance in the future. It is urgently hoped that the federal reserve system may be able not only to lessen the acuteness of periods of financial crisis by insuring that in times of financial drought the springs of credit shall not be dried up, but also that it will be able to correct some of the defects in our economic system that are primarily responsible for our recurrent panics. If a man is to fall over a precipice, he is fortunate if his fall can be broken or cushioned in some way. But he would have been yet more

fortunate if someone had held him back before he came to the edge of the precipice. A wisely ordered banking system would tend to check and dampen the periods of overoptimism and of too rapid business expansion, as well as to relieve the severity of the ensuing periods of depression. Just as it is a sound national banking policy to lend freely to necessitous borrowers in times of depression, so it is an equally sound policy to retard the flow of credit in periods when rapidly advancing prices are tending to overstimulate business.

Member banks *must* follow federal leads

If federal reserve banks are to be able to secure a larger measure of stability in American business, they must, like the Bank of England, be able to induce the banks of the country to follow their leadership. This is simple enough in periods of tight money when the other banks are dependent upon the federal reserve banks for funds. It is more difficult in periods of prosperity when each individual bank will feel itself competent to go ahead, extending its credits as rapidly as it pleases, without regard to the ultimate effect of a general credit expansion upon the welfare of the country as a whole. The open market operations of the federal reserve banks, if they can be developed on a sufficient scale, will put them in a position where they can say to the thousands of other banks in the country: "We come to your relief in time of stress by taking off your hands commercial paper which you are no longer able to hold, and by supplying you with funds so that you may continue the operations so necessary to the economic life of your own community. Now, when everything seems prosperous, we must ask you to take off our hands commercial paper which we think had better be held by you than by us. It is better that your surplus lending power be absorbed for the while in the holding of this paper than that you should be free just now to expand your credits further at low interest rates."

Putting on the brakes in time of danger

The open market, in other words, would enable the federal reserve banks to put increased burdens upon the other banks of the country, just as the mechanism provided by the federal reserve act makes it possible for them to relieve those burdens at other times. Increasing the burdens of the other banks would thus be the federal reserve way of "putting on the brakes" in a period in which credit was being extended at a dangerous rate.

Effect of new system during war

It was exceedingly fortunate for the United States that the federal reserve system was in operation during the Great War. The concentration of the reserves of the country in the federal reserve banks, together with the reduction of the reserve requirements in member banks, led to a tremendous expansion—a multiplication in fact—of the aggregate lending capacity of the banks of the country. The

prodigious growth of governmental and private industries during the war, the enormous expenditure and borrowing operations of the government, the advances of billions of dollars to the other governments, would have created a strain that the old national banking system could not have borne. The monetary system of the United States, under the old conditions, would undoubtedly have gone the way of that of most of the countries of Europe. The gold standard would have disappeared, the currency would have been paper money and banknotes, both alike irredeemable in gold. The advance in prices would have gone much further and have been much more disastrous to economic welfare than was actually the case. In short, the federal reserve system, with its enlarged and more elastic supply of credit, saved the country from a great catastrophe.

Editors' note

a Chapter 32 of the Grolier *Book of Popular Science* entitled "Monetary System of the United States" (included in this selection as Chapter 34).

36 Dear and cheap money

The Bank of England and the mechanism of the London Money Market

How the foreign exchanges operate

The Book of Popular Science (1924; revised 1929) New York: The Grolier Society. Group IX Ch. 34:4705–15

The Bank of England, today the most famous financial institution in the world, had a curious origin. At the end of the seventeenth century, when, as had often been the case before, England was engaged in a war with France, and when James II had but recently fled across the seas, the throne of William and Mary rested upon the support of the Whigs. The prosecution of war with France, the backer of the Stuart pretenders to the throne, called for money, and where was money to be had? It was in these circumstances that a company of Whig merchants of the City of London conceived the idea of forming a limited liability company to lend money to the government. At that time, of course, trading with limited liability was a rare thing, and the royal charter of 1694, which was issued by William III, establishing the "Governor and Company of the Bank of England," conferred an exceedingly valuable privilege.

The company or society thus named raised the sum of £1,200,000 (equivalent to about $6,000,000) by tempting the public with interest at 8 per cent, and so it came about that William III got his money for the war with France, the English National Debt began, and the "Old Lady of Threadneedle Street" was born. The whole of the money raised went to the government, and the company was given power to issue bank-notes for an equal amount, government security being thus behind the notes.

Not very long after its incorporation the bank was given a monopoly of joint-stock banking by a law which forbade other banking firms to have more than six partners. This monopoly was not canceled until more than a century later, and during the long interval banking was necessarily confined to the operations of private firms. In 1826 this law was repealed, but even then the Bank of England was given the exclusive privilege of issuing bank-notes within a radius of sixty-five miles of London.

The original loan of £1,200,000 was soon increased, as we may easily imagine. The Bank of England lent £11,015,100 to the State, and up to this sum it possessed the right to issue bank-notes upon government security. Beyond this

it could issue notes upon its own private security. The original government debt of £11,015,000 remains to this day, and still figures in the weekly banking return of the Bank of England.

In 1844 the Bank Charter Act was passed to revise the conditions of note issue, to substitute Bank of England notes for the note issues of other banks, as far as possible, and at the same time to make the Bank of England note absolutely safe by insuring that it should be backed either by government security or actual gold.

The Bank Charter Act of 1844, commonly referred to as "Peel's Act," was the final outcome of a long controversy between the advocates of the so-called "currency" and "banking" schools, which had begun in the period of the Napoleonic wars, when the Bank of England had suspended specie payments, and when its notes, issued in large quantities, were at a discount as compared with gold. The act of 1844 embodies the "currency" principle, which is to the effect that a country needs a certain amount of money and no more and that, since bank-notes serve as money, their quantity should be definitely fixed by law. The gist of the "banking" principle is that the amount of money a country needs depends upon the volume of trade and that there can be no overissue or inflation of bank-notes so long as they are put into circulation to finance actual commercial transactions. The federal reserve system of the United States, like the banking systems of France and of Canada, embodies the banking principle.

The bank, in accordance with the act of 1844, has two distinct departments: the issue department, solely concerned with the issue of notes, and the banking department, which handles the ordinary business of banking. The workings of this system at the present time are clearly shown in the accompanying bank

Table 36.1 Bank return: January 9, 1924

Issue Department			
Resources		Liabilities	
Government Debt	£11,015,100	Notes Issued	£145,984,595
Other Securities	8,734,900		
Gold Coin and Bullion	126,234,595		
	£145,984,595		£145,984,595
Banking Department			
Resources		Liabilities	
Government Securities	£47,312,032	Proprietors' Capital	£14,553,000
Other Securities	77,040,564	Rest	3,338,068
Notes	19,708,380	Public Deposits	11,772,876
Gold and Silver Coin	1,823,449	Other Deposits	116,161,716
		Seven Day and Other Bills	8,765
	£145,884,425		£145,884,425

statement or "return" for January, 1924. The original government debt of £11,015,100 is held as an asset by the issue department to secure an equal amount of notes. "Other securities" are held to cover notes issued by the bank as heir to part of the privileges of note issue formerly enjoyed by certain other banks. But the bulk of the notes issued are covered pound for pound by deposits of gold coin and bullion with the issue department. The so-called "uncovered issue" is thus absolutely fixed in amount. Aside from this fixed amount, Bank of England notes are precisely like the gold certificates issued by the government of the United States. The amount in circulation will depend merely upon the extent to which paper money, rather than gold, meets the convenience and preferences of the community. When gold is needed for export, or for other purposes, notes will be presented at the bank and the gold withdrawn.

Before the war any person could go to the Bank of England and demand Bank of England notes in exchange for gold at the rate of £3 17s. 9d. per ounce. An ounce of gold, as we have already seen, really makes £3 17s. 10 1/2d. in English money, but the Bank of England is compelled to pay gold for its notes on demand while it, in turn, has to wait for its coins when it takes gold to the mint. The margin of 1 1/2d. per ounce is therefore partly interest and partly a commission paid to the bank as official agent for English gold money. When urgently in need of gold, however, the bank often raises its buying price somewhat above the legal minimum. The reader who has followed our account of the defects of the national banking system of the United States and of the improvements embodied in the federal reserve system will wonder just how under the handicap of an absolutely inelastic system of note issue the London money market has been able to achieve and retain its position of predominance.

For the explanation of the apparent paradox, we must look to three different sets of circumstances:

1. There are seasonal variations in the demand for money in England, but these variations are not comparable in magnitude to those occasioned by the crop-moving period in the United States and Canada. An elastic hand-to-hand circulating medium is therefore not so necessary in England.
2. A very large proportion of the business of England is transacted by means of bank checks. English bank deposits, as contrasted with bank-notes, are highly elastic. They are able to fluctuate freely with the needs of trade. During the fifty years preceding the Great War the supply of bank credit in the form of deposits subject to check was more perfectly elastic in England than in any other country in the world.
3. In emergency, the operations of the bank act may be suspended, so as to permit of an increase in the uncovered note issue of the Bank of England. This occurred in several earlier financial crises as well as during the Great War. Because of the possibility of suspension, the bank, by issuing most of its notes virtually in gold certificates, accumulates in normal times a store of gold in its issue department which can be utilized as a reserve for yet further note issues in time of emergency. This explains the comment of Sir

Robert Peel that the real merit of the act was to be found in the accumulation and preservation of a large stock of gold which could be made available by its suspension.

4 Now let us pass to the part of the bank return which is headed "banking department." That department, we repeat, is quite separate and distinct from the issue department. The strength of the bank is not determined by the size of its capital so much as by its peculiar position in the world's money market. The "rest" is a reserve fund corresponding to surplus and undivided profit in the statements of banks in the United States. "Public" deposits are those of the government, and "other" deposits comprise not only the accounts of private customers but also the accounts of other banks, for the Bank of England is a bankers' bank. Its cash reserves contain the greater part of the gold of England. Other banks keep a small supply of sovereigns and other coins on hand as till money, but most of their money is kept with the Bank of England and appears in the return under the term "other deposits." We should understand, therefore, that the really small amount of gold coin and bullion held in the banking and issue departments of the Bank of England is the foundation of the whole structure of English credit. More than that, this small store of treasure was before the Great War, and probably will be again, the world's central gold reserve. We may find it amazing that not only the hundreds of thousands of current domestic debts in England payable on demand in gold are backed up by such a tiny amount of actual cash, but that these same small hoards also constitute the means by which the balances arising out of international trade are in large measure paid.

The reader will now realize how great are the responsibilities of the Bank of England. The English economist Bagehot said: "On the wisdom of the directors of that one joint-stock company, it depends whether England shall be solvent or insolvent." We may go further and say that the smooth functioning of the great machinery of international commerce depends in no small measure upon the wisdom with which the Bank of England is managed.

The Bank of England is a private institution with public duties. It fulfills the most important functions, but it remains today as it always has been an institution fulfilling its responsibilities without acknowledging any formal duties or legal obligations in the matter. Its reserve, it is interesting to note, has increased, but not in proportion to the growth of the trade of England or of the world. In the seventies and 'eighties of the nineteenth century, it ranged from £12,000,000 to £15,000,000; in the 'nineties, it rose to over £20,000,000 and in 1912 it was £26,000,000. The real reserve of the Bank of England, the reader will observe, is equal to the amount of gold and Bank of England notes held in the *banking* department. Gold coins and bullion held in the issue department over and above the amount of notes in the hands of the banking department are offset, of course, by notes outstanding in the hands of the public. In the case of a sudden demand for gold, all the notes outstanding, except those already in the hands of the bank,

might be presented for payment. But just in the measure that the bank holds its own notes, its gold reserve, thus free from prior claims upon it, is the basis upon which the enormous structure of deposit credit in England is based.

As to the Bank of England's view of its responsibilities, Bagehot, writing in 1873 in his famous "Lombard Street," remarked:

> All banks depend on the Bank of England, and all merchants depend on some banker. If a merchant have £10,000 at his banker's, and wants to pay it to someone in Germany, he will not be able to pay it unless his banker can pay him, and the banker will not be able to pay him if the Bank of England should be in difficulties and cannot produce his reserve. The directors of the Bank are therefore, in fact, if not in name, trustees for the public, to keep a banking reserve on their behalf; and it would naturally be expected either that they distinctly recognized this duty and engaged to perform it, or that their own self-interest was so strong in the matter that no engagement was needed. But, so far from there being a distinct undertaking on the part of the Bank directors to perform this duty, many of them would scarcely acknowledge it, and some altogether denied it.

These words are as true today as when they were written. The Bank of England does not admit responsibility, and yet it is responsible. Successive governments acknowledge that the subject is important, and pass on to less important matters.

How the Bank of England's reserve is affected, and how it matters to all

In view of the great importance of the subject, we must now see what it is that chiefly affects the bank's reserve of gold, and what the reserve matters to the ordinary man. Unfortunately, these things matter very much in the daily affairs of life; and while there are few newspaper readers who understand the money column there may be large groups of unemployed and business men bitterly suffering, because of things happening which are recorded in it—plainly for those who understand, obscurely for those who do not.

It is necessary first to show the part which gold plays in international trade and the foreign exchanges. Foreign transactions have much to do with the price of money. What do we mean by the "price" of money? How can money have a price? The answer to these questions is that the word here means something quite different from "price" as applied to goods. The price of a commodity means the amount of money for which it will exchange. The price of money means the rate of interest asked for the loan of it.

The way in which ordinary business is affected by the bank rate

When we speak of the "money market" we mean the places in which money may be borrowed. Very clearly, when money—i.e., loan money—is in plentiful

supply, the rate of interest is low, and money is said to be "cheap." When money is scarce, and loans are difficult to negotiate, the rate of interest advances, and money is said to be "dear."

Of course, it matters a great deal to the business man what the price of money is. If a builder, for example, has to pay 7 per cent for money instead of 5 per cent, it makes a very great difference indeed to his chance of a successful venture. If the price of money rises, we have an immediate check to business; and, conversely, when money is plentiful, business is stimulated. Good business, by creating a demand for loans, tends to raise the price of money, and *vice versa*.

When gold becomes necessary to balance international payments

We showed in a preceding chapter[a] how goods are exchanged for goods in the same country by means of promises to pay gold, which we call "checks"—promises which are offset one against another by banks. This offsetting renders the passing of gold in business almost entirely unnecessary.

When we come to external commerce, the promises to pay gold take the form of bills of exchange, which are actually promises (or "accepted" *orders*) to pay gold at some future date. We do not pause here to explain the machinery of the bill of exchange in detail, for the reader will not be misled if he imagines the process to result in the same way as the exchange of checks, described in a preceding chapter.[a] It will be apparent, however, that if two countries, say the United States and England, trade with each other, it is highly improbable that at any given time the goods sold by Americans to Englishmen will be exactly equal in value to those sold by Englishmen to Americans. Therefore, it may not be at any given moment possible to set off paper promises to pay in such manner as entirely to resolve the transactions between the two nations. Of course, in practice the offsetting takes place between more than two nations, but it simplifies what we have to explain to fix our minds upon two nations only.

Imagine, then, that at a given time the goods sold by the United States to England, and due to be paid for, are worth $25,000,000, while the goods sold by England to the United States, and due to be paid for, are worth $24,500,000. It will be seen that, so far as $24,500,000 is concerned, all that need be done is to offset promises to pay gold against each other, leaving a balance of $500,000. Under these circumstances, the $500,000 must be paid in actual gold shipped from England to the United States. It would thus become necessary to obtain gold from the Bank of England and to export it to New York. As a consequence, the reserve of gold at the Bank of England falls, and the English money market is affected.

Why the price of money is raised in London from time to time

How, then, does the Bank of England protect its gold reserve from such depletion? It has both to supply gold on demand and yet to prevent its reserve from falling to

a dangerously low point. To give the answer in the simplest form, what the Bank of England does is to *raise the price of money in London*. The means by which it effects this is by raising what is called the bank rate, i.e., the rate at which the Bank of England will discount first-class bills of exchange or lend money on good security for short periods. The official bank rate, because of the peculiar importance and power of the Bank of England which prescribes it, determines the market rate, or practical rate of discount, which runs a shade below it. Experience has shown again and again that the raising of the bank rate is effective in retaining gold in London or even in attracting additional supplies from other countries. The Bank of England has not infrequently thus to protect its gold reserve.

Thus, when in 1907 there was a financial panic in the United States, when business men were rushing to their banks for gold, and the banks in turn began to call on London for gold, the Bank of England raised its rate, and prevented too great a drain upon its resources.

So far we have avoided the difficulty that different countries have different coinage, but we must now consider this in detail, and see how foreign exchanges are in practice regulated.

It will be readily understood that as between the gold coins of two gold-standard countries the question is not what the coins are called, but what is the amount of pure gold in the coins. Considering this, what is called the "mint par of exchange" is arrived at. For example, what is the relation of the pure gold in the French prewar coinage (napoleons) to the pure gold of the coins of the United States? This is easily calculated, and we find that a dollar has as much pure gold in it as rather more than five gold francs—the precise amount is 5.18 francs.

The causes of the rise and fall of the rates of exchange

Again, the mint par between the United States and England is 486.7 cents to the pound sterling. We hope we have made it clear that the mint par of exchange has sole relation to the amount of pure gold contained in the various coins. Obviously, as between a gold-standard country and a silver country, like China, there cannot be a mint par of exchange. Now let us suppose that as between two countries the claims for payment at a certain time are equal. That being so, exchange is at the theoretic par of exchange—i.e., if the two countries were the United States and England the claims would be settled at the exchange rate of approximately the English sovereign, $4.87. But, of course, it rarely happens that there is such an equivalence of indebtedness between any two countries; and it will be seen that if on a certain date there is more to remit from the United States to England than from England to the United States, there will be a considerable demand in the United States for bills of exchange as a means of remittance to London. Consequently, the price of a bill of exchange would rise in New York, or, in other words, the rate of exchange would rise.

To express it in another way, a bill on London would be at a premium; an American importer desiring to remit would be willing to pay more than the mint par of exchange—*i.e., more than 486.7 cents per sovereign* for it. There is,

however, a practical limit to the premium he would be willing to pay. That limit is fixed by the cost of buying, shipping and insuring gold, and that limit is known as "the gold point." A moment's thought will show that this gold point strictly limits the premium of exchange, and is the point at which gold is paid instead of a bill of exchange, or promise to pay gold.

The insignificance of the commerce in gold compared with the bulk of trade

Now we see how it is that gold comes to be shipped in settlement of debts between one country and another. In relation to the enormous bulk of international transactions which take place, the shipments of gold are trifling. In point of actual size, however, the shipments of gold are great. For example, in the year 1924 the commerce in goods and gold of the United States was as shown in Table 36.2.

It will be seen that while in a single year our imports and exports of merchandise amounted in value to the enormous sum of $8,201,000,000, our inward and outward shipments of bullion and specie amounted to less than $400,000,000. It is plain, therefore, that the great bulk of the necessary payments were made by the transmission of bills of exchange, and that the shipment of gold played only a comparatively small part. Nevertheless, when transactions in gold are compared with the gold reserve at the Bank of England and other central banks we get a very different effect of proportion. In relation to the total volume of trade the commerce in gold is insignificant; *in relation to the bank reserves the commerce in gold is considerable and significant*. We see that it is large enough and frequent enough to have a very appreciable effect on the money market.

The daily table of foreign exchanges a thermometer of trade balances

We can understand, then, how important are the tables of foreign exchanges which appear in the money columns of the daily newspapers, and how closely they are watched. The movement upward or downward of rates of exchange with any particular country shows in which direction the balance of indebtedness

Table 36.2 Shipment of goods and gold: 1924

	$
Imports of Goods	3,609,963,000
Exports of Goods	4,497,649,000
Exports of Imported Goods	93,335,000
Total Trade in Goods	8,200,947,000
Gold Imported	319,721,000
Gold Exported	61,648,000

Table 36.3 Foreign exchange

Sterling – Par $4.86 5/8	Demand	4.26 5/8
	Cables	4.26 7/8
	Sixty-day bills	4.24 5/8
Francs – Par 19.3 cents	Demand	4.64 1/2
	Cables	4.65
Guilders – Par 40.2 cents	Demand	37.22
	Cables	37.27
Lire – Par 19.3 cents	Demand	4.34 1/2
	Cables	4.35
Marks – Par 23.8 cents	Demand	.0000000000002
	Cable	.0000000000002
Norwegian Kronen – Par 26.8 cents	Demand	13.63
	Cable	13.65
Argentine Pesos – Par 42.45 cents	Demand	32.71
	Cables	32.76

is tending. For example, Table 36.3 shows the rates of exchange as they were given in the daily newspapers of January 31, 1924.

Expressing the meaning of the table broadly, it is as follows: it shows the price which had to be paid at the time in New York for a demand bill payable at sight upon the leading money market in each of the different countries. The "cables" which are quoted in the table, are virtually demand drafts sent by cable instead of by mail. The price of cables, it will be noted, is generally a little higher than the price of ordinary demand drafts. This is not so much because of the expense of cabling—a relatively small matter in a large transaction—as because it takes some time for the ordinary draft sent by mail to reach a foreign country, and therefore a slight allowance for interest is made in the price. The price of 60-day bills on London, it will be further observed, is always lower than the price for ordinary demand bills. This difference also is to be attributed to discount or interest, the controlling interest rate in this case being the rate prevailing in the London money market. In general, a 60-day bill on London is worth in New York approximately as much as a demand bill on London with deduction for interest or discount for two months at the prevailing London rate.

The reader will note that the rates of foreign exchange quoted in the table are in every instance not merely below par but even far below what would ordinarily be the gold import point. The explanation is, of course, that in 1924 most of the countries of the world, not including the United States, were utilizing irredeemable paper currency as money. To pay the extraordinary expenses created by the Great War and of the period of reconstruction which followed,

the governments of these countries induced their banks to issue notes in quantities so large that their redemption in gold was for the time being—and in some countries permanently—impossible. Before the war the franc was an actually enforcible right to demand a certain amount of specie in Paris, just as the mark was a real title to gold in Berlin. But with the changes brought about by the war, the franc and mark and other continental European currencies became simply promises to pay gold at some indefinite time in the future,—promises which it is wholly unlikely will ever be completely fulfilled.

Foreign exchange rates determined by supply and demand

Foreign exchange rates, like other prices, are determined by supply and demand. Exports create a supply of foreign exchange. Imports in a similar way create a demand for it. The American cotton exporter collects from his English customer by means of a bill of exchange drawn upon London. When such a bill is collected or sold in England and the proceeds put in a bank there, it becomes a credit upon which the United States can draw in payment for imports.

It must be remembered, however, that in exports and imports we include many other things than the commodities which figure in the ordinary statistics of international trade. *All things for which we have to pay other countries are imports. All things for which they have to pay us are exports.* Thus among the more important exports of the United States are commodities, American securities (bonds, stocks, etc.) and claims for the payment of interest and dividends on foreign securities owned in the United States. By such means, the United States builds up bankers' credits in foreign countries. Imports in turn include commodities, foreign securities, claims on the part of foreign investors to interest and dividends payable by American governments and by business corporations, expenses incurred by American tourists abroad, etc. Ocean steamship freights, payments for marine insurance and the earnings of the banks engaged in the foreign exchange business also enter into the true balance of trade on the one side or the other.

The significance of the larger meaning of exports and imports should now be clear. Whether or not a transaction involves the physical removal of a commodity from one country to another is immaterial. The wealthy American who pays a high price for an old Italian painting is of course an importer. But so are the other Americans who visit the picture galleries of Italy to see the works of the old masters. So far as the effect on foreign exchange is concerned, Italy may be said to export her climate and her art galleries quite as truly as she exports her olive oil and her silk. Some of the manifold and complex factors that enter into the true balance of trade are revealed by the accompanying estimate of the international balance of the United States for the year 1924. This estimate was made by Mr. Herbert Hoover, Secretary of Commerce, and it was published in a Department Bulletin in April, 1925. Speaking as it does for a year of financial confusion and turmoil, the statement includes a number of unusual items, but it is all the more instructive on that account.

Table 36.4 Balance of international payments of the United States: 1924 (in millions of dollars) (estimate made by Herbert Hoover, Secretary of Commerce)

Items	*Credit*	*Debit*	*Balance*
Merchandise	4,621	3,651	+970
Interest and dividends	614	150	+464
Ocean freights	76	68	+8
Government payments		5	-5
Services to tourists	100	600	-500
Charitable and missionary expenditures		55	-55
Immigrants' remittances		300	-300
Foreign loans, exclusive of refunding		795	-795
Sale and purchase of outstanding securities	319	114	+205
Foreign bonds paid off	45		+45
Principle of interallied debt	23		+23
United States paper currency		50	-50
Gold and silver	172	394	-222
Total	5,970	6,182	-212
Add increase in foreigners' bank deposits			+216
			+4

Gold shipments figure in this statement as exports and imports. In normal times when the currencies of the great nations of the world are based on a gold standard, it is better to take separate account of gold shipments, for they are really *the means by which the international balances are paid*. This will be clear if we reflect for a moment upon the operations of the gold points, as described above. If exports largely exceed imports, the supply of foreign exchange will be relatively large as compared with the demand for it. As soon as the price of exchange falls to the gold import point, however, gold will begin to flow in from other countries. The banks whose balances abroad have been increased by exports find it more profitable to exchange some of those balances for gold and to pay the expense of importing the gold rather than to sell their drafts or bills of exchange drawn against those balances at the low price prevailing in the market. This is the simple but extremely effective mechanism by which an excess of exports or imports, that is, a favorable balance of trade, necessarily leads to gold movements. Conversely, of course, if any country has for some time been importing more than it has been exporting, the demand in its markets for foreign exchange will be relatively large as compared with the supply. Under such conditions, the rate is sure to rise to the gold export point and gold will flow out in settlement of the country's adverse balance of trade.

To what conclusion the Ricardian principle of gold movements leads

This brings us to the consideration of one of the most important doctrines of economic science: the so-called "Ricardian principle" of gold movements. As a

matter of fact the doctrine was well known before the days of the distinguished English economist, David Ricardo, but it was expounded by him in masterly fashion. We shall state first the conclusion to which the doctrine leads and then explain the reasoning upon which it is based. The conclusion is that no country can long maintain a favorable balance of trade. It is equally true of course that no country can for many successive years have an unfavorable trade balance. It will be understood that we are speaking of the *true trade balance* and not merely of the visible balance of commodity exports and imports.

And the reasoning upon which the conclusion is based

The reasoning upon which this conclusion is based is simple: A country whose exports exceed its imports drains gold from other countries. Its monetary circulation and its bank reserves increase. Money and bank-credit become relatively plentiful as compared with other things. Because they are more plentiful, their value decreases; that is, the general level of prices increases. The new and higher price level attracts imports from other countries and at the same time makes it more difficult to export successfully in competition with the cheaper goods of other countries. Through the operation of the increased supplies of gold, therefore, *the current of trade is reversed*. Imports come to exceed exports; gold is drained away by other countries who claim it in the payment of trade balances, now favorable to them; the price level moves downward again, and the cycle repeats itself. This doctrine, it should be understood, does not rest merely upon the basis of logic, of "pure reasoning." Like every other established scientific principle, it is accepted by competent experts because it successfully and satisfactorily explains the observed facts. Statistics of foreign trade and of gold movements square with the Ricardian doctrine. In fact, it is one of the most firmly established as well as one of the most important of economic doctrines.

We are now in a position to return to the Bank of England and to look into the mechanism by which the raising of its official discount rate safeguards its gold reserves. There is no magic in the official discount rate. In fact, it is hardly more than an official statement, a guarantee, that the bank stands ready to advance funds on high grade bills of exchange at the stated rate. As a matter of fact, most of the business of the London money market will be done at a distinctly lower rate. But the Bank of England expects that when it raises its rate, the rates prevailing in the general market will follow suit.

If they do not do so, it resorts to means of putting pressure on the market. For example, it may sell large blocks of its holdings of securities, thus absorbing the market's surplus funds and securing—through the collection of the checks paid for the securities thus sold—a transfer of funds from other banks in London to itself. Induced or forced to replenish their reserves—that is, their own credits at the Bank of England—the other banks turn to it for help. Then the Bank of England is in a position to name its conditions and to enforce what it holds to be the proper market rate of discount.

Effects of advance of discount rates by the Bank of England

When discount rates in the London money market have advanced as the result of the bank's initiative, what effects do they have? It is not true, as some have supposed, that high discount rates in themselves attract gold to the centers where they prevail. That is in truth their ultimate effect, but the mechanism by which they operate is roundabout and indirect. They attract gold because they *diminish and repel borrowing*. Some money, of course, will be borrowed at the higher rates. But other borrowers will prefer to wait and yet others will find that the high rates preclude profits from the enterprises they had in mind. The reduction of domestic borrowings in the London money market will in itself lessen the load upon the banks' reserves but the effect of the high discount rates is much more far-reaching than that. London discount rates, although extremely variable, are in general the lowest that obtain in any of the great money markets of the world. For this reason, London banks and money lenders normally hold large quantities of bills drawn to finance the trade of other countries in all parts of the world. Bills of exchange, like other commodities flow to the markets where they command the highest prices. To say that the discount rate is low is merely another way of saying that the price of bills of exchange is high. Thus, if the prevailing discount rate is 6 per cent per annum, the price of a 90-day bill of exchange for $10,000 is $9,850, while, if the prevailing discount rate is only 4 per cent, the price of the same bill is $9,900. Money lenders and dealers in bills of exchange sell them in the best markets. London, as we have said, normally holds many of them. But an increase in the London discount rate is equivalent to a decrease in the price paid for such bills in London. The flow of bills from other countries will be reduced or stopped, some foreign bills held in London may be resold to their home markets, and under extraordinary conditions, English bills may even be exported.

Important secondary reserve of London market in its holdings of foreign bills

The fact is that in its holdings of foreign bills, the London market has a secondary reserve of very great significance. The commercial paper which constitutes this reserve is a commodity the price of which varies exactly but inversely with the rate of discount. Slight changes suffice to turn it from an import to an export. It is thus an automatic mechanism by which England's trade balance is in normal times kept in a state of delicate equilibrium. When an adverse movement of the foreign exchanges threatens a drain of gold, the Bank of England, by raising its discount rate, avoids losses of gold by substituting for it a retarded inflow and an accelerated outflow of commercial paper and, on occasion, of investment securities. If, for example, the New York money market is demanding gold from London, London is normally able to transfer or pass on the demand to other countries by virtually saying to them: "We have changed our prices so that it will not be profitable for you to continue sending us bills of exchange and securities. In fact, you may find it profitable to take some of these things off our hands. Pay

us, if you will, by sending New York the gold it is demanding." Thus the London money market in normal times should not be thought of as a gigantic financial center in which gold and investments are concentrated in enormous quantities, but rather as a sensitive intermediary or buffer through which the strains and stresses created by changes in the world's currents of international trade are transmitted and, in part, softened and absorbed.

London's international money market position cause and effect of low rates

It is a curious paradox that the London money market has been able to gain and hold this unique position largely because its discount rates are normally exceedingly low. For its discount rates are low partly because the banking business can be conducted in London economically. An enormous edifice of credit can be safely erected there on a relatively small gold foundation. London's low discount rate is thus seen to be at once the cause and effect of London's position in the international money market, and London's position in the international money market in a similar way is the cause and effect of her low discount rates.

Changes in relative importance of New York and London due to war

Notable among the many financial changes resulting from the Great War were New York's relative gain and London's relative decline as an international financial center. The positions of England and the United States were for the time being, at least, completely reversed. The United States suddenly became the world's greatest creditor nation, while England found itself, strangely enough, in the position of a debtor. The United States, thanks to the elasticity of the federal reserve system, was able to maintain the gold standard unimpaired throughout the war and the years of financial turmoil which followed. Moreover, during the early years of the war before the United States was a participant, American trade grew at the expense of the trade of the belligerent nations. Bills drawn upon New York rather than upon London came to be used in many parts of the world—in Latin America, for example—in financing a considerable portion of international trade. The demand for bills on New York as a means of paying European indebtedness also increased the prestige of the dollar at the expense of the pound sterling. With the general collapse of European currencies the stability of the dollar gave a further advantage to bills on New York.

Why London will probably never cease to be the world's clearing-house

Some of these changes are likely to be permanent. The New York money market, with the vast wealth of the United States and the largest gold reserves in the

world behind it, was certain, some even thought, permanently to displace the London market as the world's central foreign exchange clearing-house. Now there is no question but that in the future the international importance of the New York money market will be greater than it has been in the past, and that many international purchases which were formerly paid for in sterling will in the future be paid for in dollars, but these facts do not imply that London will cease to be the world's clearing-house. London's position is founded not so much upon the magnitude of English capital, of English trade, or of English gold reserves, as upon the highly organized and perfected machinery of the London money market, upon the elasticity rather than the sheer bulk of English banking reserves, upon the varied character and world-wide distribution of English trade, and upon England's geographical position, bringing London close to the other financial centers of Europe.

Editors' note

a Chapter 31 of the Grolier *Book of Popular Science* entitled "The Mystery of Money" (included in this selection as Chapter 33).