

MONEY AND THE MONETARY SYSTEM

2 September 1953

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Dr. Lester V. Chandler, Economist, Princeton University, was born in Kansas, 2 September 1905. He received his A.B. degree in 1930 and his M.A. degree in 1931 at the University of Missouri. In 1934 he received his Ph.D. at Yale. He was an instructor at Dartmouth from 1933 to 1935; Amherst, 1937 to 1950; and Princeton from 1935 to 1937, 1950 to the present time. His present position is Gordon S. Rentschler Professor at Princeton. From 1943 to 1946 he was with the Government as price executive in charge of rubber, chemicals, and drugs; and in 1949 to 1950 was an economist to the Douglas Subcommittee on Monetary, Credit, and Fiscal Policies. He is the author of the following books: "An Introduction to Monetary Theory," 1940; "A Preface to Economics," 1947; "Economics of Money and Banking," 1948; "Inflation in the United States, 1940 to 1948," (published in 1951); "Economic Mobilization and Stabilization; Selected Materials on Economics of War and Defense," 1951, and articles published in various periodicals.

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DR. KRESS: Admiral Hague: It used to be a policy in my student days to introduce a speaker on the subject of money by saying that he knew everything about money except how to get it for himself. The speaker this morning even knows that.

I had to promise him we would let him speak from notes, because he said he was busy writing a book and couldn't write a formal lecture. I told him he would probably do better that way. When he says he is busy writing books, he is. He has turned out six books since World War II.

When you are through with your refresher course this week you will be ready to enjoy this book. I would like to recommend it for you to keep on your permanent shelves--"A Preface to Economics." It's a very fine piece of work.

This one, "Economic Mobilization and Stabilization," you will have to read when you come to Unit VI of your course on economic stabilization. This tells you what economic mobilization steps to take in a period of full mobilization as well as a period of partial mobilization.

This one, a treatise on money and banking, has gone through several editions. That's what I mean when I say he knows how to make money.

Our speaker was also an adviser to one of the congressional committees which worked on the so-called "fight" between the Treasury and the Federal Reserve Board.

We are pleased to present this morning a man who is pretty well equipped to talk about money--Dr. Lester V. Chandler, Professor of Economics in Princeton University.

DR. CHANDLER: This morning I should like to talk primarily about what money is, how it is created, and how it is destroyed. I shan't go into all the functions of money and all its effect on the operation of the entire economy. I shall merely point out that the only justification for talking about this part of the mechanics of the economic system is that money and monetary policy can have such a great influence on the behavior of the economy as a whole.

For example, we note that the creation of too much money at any place, in pockets or in checking accounts, can lead to excessive spending and inflation. On the other hand if the money supply is too small or actually reduced, this can be a potent deflationary factor which can interfere with the attainment of full employment and full production.

It is obvious that we need to avoid these two extremes of too much money and too little money, and to try to walk some sort of a middle line which will make money contribute as much as it can to the maintenance of full employment, full production, and relatively stable price levels.

I am sure you will have to spend a good deal of time on this difficult question of defining what is the right kind of monetary policy.

You will note that my remarks today will be rather simple. This is not because I think that is all you can take; it is simply because I think the field is basically simple and that the only reason people think there is anything mysterious or difficult about money is that they start out with some basic misconceptions. It is only if we can get rid of some of those misconceptions that we can really understand how money operates.

I shall start by asking this question: What is money? Some people have confused this issue pretty thoroughly by talking about things that are by nature money, such as gold, silver, or something of the sort. The fact is that if you look at monetary history, you will find there is no one thing that has served as money at all times and in all places. You will find that things like gold and silver have very frequently served this function, but you will also find in the monetary category dried woodpecker scalps, shells on a string, tusks, rocks, and playing cards. I am sure many of you have dealt with cigarettes as a medium of exchange, to say nothing about soap, chocolate bars, and a few other things which achieved acceptability in payments.

The only definition of money that will hold up is a functional definition. It is whatever people generally use in payments.

We needn't go into other times and places. We need only look at the United States and we find that here the money supply is made up of three principal parts: coins, paper money, and checking deposits. On the mimeographed sheets that I handed out or asked others to hand out, we have the money supply as of 30 June 1953. In terms of proportion this is fairly representative of the situation for at least 40 years. You will find there that coins are the smallest part of the circulating medium. Out of a total money supply of

over 127 billion dollars, coins made up less than 2 billions, or only 1.4 percent. We long ago passed the stage where coins were a very significant part of the total money supply.

We find the paper money made up a total of a little over 22 percent of the total money supply. This is the point I want to bring home--that by far the major part of the money supply is in the form of checking deposits, or demand deposits, at more than 14,000 privately owned and privately operated commercial banks. When we talk about money we are talking primarily about checkbook money or checking deposits, or demand deposits, if you wish.

We could have a long argument here as to whether this listing includes all the money supply, although nobody will deny that these things are money. Coins, paper money, and checking deposits are generally acceptable in payments. If we want to be all-inclusive, we might add certain amounts of time or saving deposits, on which some banks will allow us to write checks to make payments to others.

But I think we can stop at this point and say there is no definite dividing line between things that are money and things that are not.

Let us see who issues our money. You may want to know why it is that very little of our money is issued by the Government itself, by the Treasury. The Treasury does issue all of our coins. It does issue a certain amount of paper money, 2.7 billions out of a total of over 28 billion dollars. But this is very largely a historical accident. If you will investigate the money that comes into your hands, you will find once in a while a United States note which is just a holdover from the Civil War period. There are about 330 million of those. This is a silver certificate, which represents the political success of the mountain States. Silver certificates are used to pay for the silver, which in effect subsidizes western miners.

Only 3.5 percent of our total money supply is issued by the Treasury. The rest of it is issued by others. For this reason I shan't say much more about the Treasury and the monetary situation.

The Federal Reserve issues the major part of our paper money. Those of you who have tens, twenties, fifties, and so on, in your pockets will find practically all of those are so-called Federal Reserve notes issued by the Federal Reserve System. We are going to find, however, and I think you have already found in the film this morning, that the major function of the Federal Reserve is not to issue money itself, but rather to regulate the money creating and destroying activities of the privately owned and operated commercial banks.

This brings us to the commercial banks. I am sure you are all perfectly familiar with the fact that there are some 5,000 so-called

national banks chartered by the Federal Government and also some 9,000 banks chartered by the 48 States. These are not only the most numerous but they are the most important money creating and destroying institutions. These are the institutions with which we have to deal when we talk about money and monetary policy. And again I want to emphasize the point that we have now reached the situation where most of our money is issued by privately owned and operated institutions.

The next point I want to make is essential to a clear understanding of money--that is, all of our money is nothing at all except debt. Money is merely promises to pay. One of the reasons we run into so much trouble about money is that some people have the notion that a thing cannot circulate and be acceptable in payments unless it itself has a good deal of intrinsic value, whatever that may mean, or is directly redeemable in something which has a great deal of value.

As a matter of fact, in our personal experience we believe that statement every day of the week. I should like to ask how many people in the room really know what they can get if they turn in a five-dollar bill. You would get another one something like it.

The next question is: Do you care? The answer is clearly no. You are interested in only one thing--that is, Will somebody else take it and give me something I want in exchange? This is the social psychology of money becoming acceptable. You take it because you think somebody else will take it. They take it for the same reason. A thing doesn't have to have high intrinsic value to function as money and be generally acceptable, and it can give purchasing power and can buy the things if its quantity is sufficiently limited. Of course, if you are going to issue tremendous amounts, as they did in Germany after World War I and in China on several occasions, the purchasing power of each unit is likely to fall to practically nothing. If its quantity is sufficiently limited, it will keep its purchasing power.

Let's look at the individual kinds of money and see in what sense they're debts. Take first checking deposits. Checking deposits at the bank are nothing at all except the bank's promise to pay the debt on the bank to the person who holds the claim. The term "deposits" has led to much misunderstanding and has obfuscated the whole process of creating and destroying money. It suggests two things:

First, that all deposits are backed 100 percent by coin and paper money in bank vaults. This is obviously not true. It is certainly a rare bank that has coin and paper money in its vaults equal to more than 1.5 percent of its total deposit debts outstanding. Banks can operate only because they assume that they will not in fact be asked to pay those debts in any very large quantities; that there will, of course, be people coming to the window asking for coin and paper money

and other people bringing coin and paper money and putting it in there, and so on; that there will not be much demand that they redeem large amounts of the so-called deposit debts with coin and paper money. In 1933 there was such demand. What happened? The banks all folded.

The second misunderstanding generated by the term "deposits" is that these so-called deposits or bank debts came into existence because people took coin and paper money and deposited it. You can almost see somebody coming up and slapping down a five-dollar bill or a few thousand dollars and saying "I want to deposit this."

The fact of the matter is that most of the checking deposits did not arise in this way at all. They arose as the banks gave these promises to pay to people who borrowed money from them or sold securities to them. I am coming back to that in a moment.

As to the paper money--holding up a five-dollar bill--it is nothing at all except fancy promissory notes. There is only one reason why a bill could not be a perfectly white piece of paper with just IOU on it signed by the Federal Reserve bank. It's too easy to make IOU's of that sort. The only reason this is so finely engraved and artful is to make it difficult for someone to go into the manufacturing business itself. Paper money is nothing at all except evidence of a Federal Reserve debt.

Money issued by the Treasury means that the Treasury has purchased something; it is a certain kind of evidence of debt by the Treasury. You may say: What about coins? They're evidence of debt by the Treasury, except they happen to be stamped on metal instead of on pieces of paper. There's no reason why they should not be stamped on pieces of paper except that they would wear out pretty fast. It is cheaper to turn out coins. They are more durable.

The major point is that all money is debt, particular kinds of debt, that we as American people have come to accept readily in payment. Now, why emphasize this point? For just one reason--the process of increasing the money supply is nothing at all except a process of increasing the quantities of these particular types of debt that are outstanding, by increasing the checking-deposit debt of the banks, the Federal-Reserve-note debt to the public, and the Treasury debt to the public.

This makes money creation relatively easy. All you have to do is create debt. If all of our money were made out of gold, obviously the amount of money we could have would be dependent on the size of your gold stocks. We couldn't issue more money unless we had more gold.

In this case, the only limitation on money creation is the limitation on the ability of those institutions to create debts and issue them to the public.

Let's go into the question of how these institutions manufacture money debts. They do it essentially by buying assets. I am going to concentrate here on the Federal Reserve and the commercial banks, without any special distinction between them. These institutions buy assets--anything that is valuable to the Federal Reserve or commercial banks. How do they pay for them? They pay for them by giving a debt claim to the person from whom they bought the asset. On the one side the institution gets an asset. It pays for it by creating a debt to the person who sold it. What are these assets that the institutions buy, the commercial banks and the Federal Reserve?

There are two principal classes: (1) gold and (2) debt claims against others. I will take up gold first, though it is the smaller of the two. I think it is necessary to take up gold because so many people have the wrong impression of the effect of locking up gold in Fort Knox. Most of you know, I am sure, that since 1934 it has been illegal for anyone except dentists, manufacturers of jewelry and other processors of gold to hold gold in the United States. All of the gold is held by the United States Treasury, except for these quantities for certain industrial and artistic purposes.

Not all of the gold is in Fort Knox. Some of it is in vaults elsewhere but most of it is in Fort Knox. Let's assume that all of it is in Fort Knox. Some people assume that this means that gold has no effect on the monetary system. That's quite wrong. When gold is purchased by the Government, it must pay for it. How does it pay for it? By issuing money.

Let's take a transaction. Suppose you come back from successful speculation abroad, carrying 10 million dollars worth of gold with you. You are not allowed to hold it here so you go to your favorite commercial bank, turn the gold over, and say: "Will you take care of routing this to the Treasury?" How will they pay you for the gold? By adding 10 million dollars to your checking account. This will be, as you will testify, a 10-million-dollar increase in the money supply.

Let's follow the thing through. What will your bank do with the gold? It can't hold it. It will send it to Federal Reserve. The Federal Reserve will have to pay your bank. How will it pay your bank? By adding 10 million dollars to your bank's deposit at Federal Reserve, and the bank's deposit at Federal Reserve constitutes reserves for that bank. We will come back to that in a moment.

The Federal Reserve turns the gold over to the Treasury. The Treasury will pay the Federal Reserve by giving it a so-called gold

certificate which is merely a certificate showing that there is 10 million dollars worth of gold in a warehouse. So the Federal Reserve will have the 10 million dollars worth of gold certificates. The gold then lies sleepily in Fort Knox.

What has happened in the process of importing the gold and of sending it to Fort Knox? The banks have created 10 million dollars more of money for the public. The banks have 10 million dollars more of reserve at the Federal Reserve and the Federal Reserve has 10 million dollars more of gold certificates.

So the general principle indicated here is that every time the monetary system buys gold, either gold imported from abroad or gold mined here or melted down from old scrap, it increases the money supply.

The other kind of assets bought by the monetary system, by far the larger part of its total assets, are simply debt claims against others. Let's take the simplest kind of case. You go down to your bank, profess temporary financial difficulty, and ask for a 10,000-dollar loan. You give it your promissory note. It is a debt claim against you. The bank sees that your record is impeccable and your future bright, so it buys your promissory note. How does it pay you? Simply by adding 10,000 dollars to your checking account. What has happened in this process? The bank has bought an asset--a debt claim against you. What has it done? It has paid you newly created money in the form of checking deposits.

In the process of lending to you, the commercial banks have created 10,000 dollars of money that did not exist before. I want to follow through a little bit to show you that the same result is attained if the debt claim is of another sort. Let's take another case.

You have a one-thousand-dollar government bond. You want to cash it in. You take it to the bank and say, "Look, can I talk you into buying this from me?" We will assume the bank replies in the affirmative. How will it pay you? Simply by adding to your checking account. In the process it has created 1,000 dollars worth of money that did not exist before. It did it by buying an asset in the form of a debt claim against others.

How do the commercial banks destroy money? By precisely the reverse process--by selling assets. It can happen as gold is sold. Suppose, for example, you have to take a million dollars with you when you go abroad. To make it simple, suppose you buy it through your commercial bank. You write a check on your deposits to pay for gold, and there will be a million dollars less money in the hands of the public.

The bank would have to get gold from the Federal Reserve. How would it pay? By surrendering a million dollars worth of reserves in the form of deposits at Federal Reserve. The Federal Reserve would get it from the Treasury by turning in a million dollars worth of so-called gold certificates.

The effect on the monetary system of selling assets in the form of gold would be to reduce the money supply and bank reserves by a million dollars.

But the main way that the money supply is decreased is simply by a decrease of the loans and security holdings of the monetary system. Again let us take a case. Suppose your banker calls you up and says: "I should like you to repay that 100,000-dollar loan you owe me." What happens? You write a check on your deposit account, and the bank will certainly reduce your deposit account and give you back your promissory note. They have in effect sold their debt claim against you and have withdrawn 100,000 dollars worth of money. It is no longer in existence.

The same thing would happen if you bought from the monetary institutions government securities, mortgages, or anything else. They would simply reduce the money supply by the amount that is paid in to buy the assets from the monetary institutions.

In short, the day has passed when metallic coins make up any considerable part of our money supply. It passed when we came to use warehouse receipts against precious metals for the major part of our money supply. By a long process of evolution, we have simply fallen into the habit of using these particular kinds of debts and the amount of these debts outstanding is determined by the commercial banks, the Federal Reserve banks, and the Treasury as they buy assets and create money, and sell assets and withdraw money.

There are a couple of other relevant points. Concentrating for the moment on the commercial banks, I have indicated the total assets of the monetary institutions, the Federal Reserve and commercial banks (see appendix--top of page 23). It is important to note that in June they held 185 billion dollars worth of assets which they had purchased by issuing these debts. Only 22.5 billion dollars of these assets were in the form of gold and nearly 163 billions were in the form of debt claims against others.

I would like you to note the nature of these debt claims against others. At the present time U. S. Government securities make up a very considerable part of the total. Out of the 163 billion dollars of debt obligations, Federal Reserve held 24.8 billions of governments and the commercial banks held over 58 billions of governments. So that

about 83 billions out of the 163 billion dollars were claims against the U. S. Government. The rest of them were debt claims against business, state and local governments, individuals, farmers, and so on.

It is important to note how tremendously important has become the Federal debt as backing for our money. Please note that the Federal debt can get monetized in either of two ways.

In the first place it can get monetized as the United States Treasury borrows from the banking system. The Treasury says in effect to the commercial banks, "Would you buy 2 billion dollars worth of governments from us?" If they say yes, they pay the Treasury by creating checking deposits for the Treasury; the Treasury writes checks on this to pay expenses; and the money comes to rest in our hands. So the public's money supply can be increased by the Treasury's borrowing from the commercial banks.

In effect the Treasury does not create its own money. It hires commercial banks to do the job for it. The price of the hiring is of course interest which the commercial banks get on the government securities they buy from the Treasury.

In the second place the Federal debt gets monetized as anybody else sells securities to the banks. As a matter of fact, a fairly good part of the government securities held by the banks were not purchased directly from the Treasury, but purchased in the regular market from individuals, insurance companies, businesses, and so on. A very considerable part of the monetization of debt is in the form of monetization of U. S. Government securities.

Let's look at these private institutions that have taken on the money supply function--14,000 places, privately owned, privately operated banks. Like other businesses, their primary motive is to make profits. One may presume that a banker's instinct would lead him to maximize his profits. They're supposed to be at least as pecuniary as other people.

This raises the next question: If they manufacture money this way, why do they show such restraint? Why wouldn't the banks buy up every bit of debt there is in the entire economy and pay for it by the manufacture of checking deposits? It looks like a pretty profitable operation from a banker's point of view. He issues checking deposits on the debt, pays no interest, and he buys promissory notes and securities which yield him a return of anywhere from 1.5 to 9 percent a year. If you could use your own noninterest bearing debt to pay for debts bearing interest, it would seem smart to buy up all the debt there is.

This might happen were it not for limitations placed on the banks. In other countries this is done by custom. In this country we do most things by law. I will talk about legal requirements or limitations. This is fundamentally the reserve limitation. By law our banks are required to hold so-called reserves against their deposit liabilities. It gets pretty complicated, if you include all the banks that are not members of the Federal Reserve. But since banks that are members of the Federal Reserve issue 86 percent of all deposits, I can speak only of them without doing too much violence to the actual situation. For these so-called members banks, the ones that do belong to the Federal Reserve, their reserve requirements are fixed by law and the Board of Governors.

In the first place the only thing that they can count as reserves is deposits at the Federal Reserve banks. These are just debts of the Federal Reserve banks, but they're valuable to the commercial banks. They are debt claims by the commercial banks against the Federal Reserve.

In the second place the minimum reserves that must be held against deposits is prescribed by law, with a certain amount of administrative discretion by the Board of Governors of the Federal Reserve.

In general the reserve requirements are like this: The Board of Governors may state the reserve requirement against these checking deposits; that is, all banks must hold reserves equal to at least 10 percent of their deposits. But the Board may, if it wishes, set reserve requirements anywhere between that level and double that level. In other words the Board of Governors may fix requirements anywhere between 10 and 20 percent of the deposits at those banks.

Suppose we take a situation where the Board has fixed reserve requirements at 20 percent. It says in effect to every bank: "You have to hold reserves equal to at least 20 percent of your checking deposits." This is just a way of fixing the maximum amount of deposits that may be created by the banks. If you say reserves have to equal 20 percent of deposits, it's the same thing as saying their deposits will need to be more than five times their reserve.

To make the thing more complicated and professional, I put down the factors: Let D equal the dollar number of deposits the commercial banks may have outstanding at any time; let A equal the dollar volume of reserves available to the banks; and let R equal the minimum requirement ratio of the reserves to deposits, such as one-fifth. The formula indicates that the amount of reserves the banks must hold is equal to the dollar volume of their deposits times the reserve ratio--or, what is more useful for our purpose, that the total volume of deposits they may have outstanding is equal to the dollar volume

of their reserves, divided by the fractional reserve requirement. If R equals one-fifth, it means that they could have outstanding deposits equal to five times the volume of reserves available to them.

Of course, if R was only one-tenth, the banks could have deposits equal to ten times the volume of reserves available to them.

Why do I spend some time on what looks like a technicality? Because in this formula we find the two principal ways the Federal Reserve can regulate the money creating and money destroying activities of the commercial banks: First, by fixing and altering the reserve requirements of commercial banks, varying them anywhere between one-tenth and one-fifth; and, second, by regulating the amount of reserves available to the banks, the A in our equation.

In other words what we have here is a case in which the Government does not issue most of our money. Instead, it leaves this to private industry. But since money creation and destruction obviously have such great powers for good or ill in our society, it has been determined that these powers should be regulated much more than most of American industry is regulated.

Many people believe this is not the right solution. They believe that the money creating and destroying power is so important and so subject to abuse by private industry that it ought to be carried on completely by the Government itself. I see very little immediate political support for this idea. Yet there is a long line of monetary reformers who insist that money creation and destruction ought to be nationalized and not entrusted to private industry. What we have is a regulated private industry, and the primary function of the Federal Reserve is that of regulating the monetary policies of these thousands of commercial banks.

We'll just spend a few more minutes on what the Federal Reserve can do to regulate the volume of money that the commercial banks create. What can they do? For example, suppose you are in an inflationary period and there's so much money created, and perhaps still being created, that you are bound to run into inflation. What can the Federal Reserve do to try to curb that inflation? Obviously its main intent should be to try to cut down on money creation and possibly even to reduce the total quantity of money. How can it do that?

In the first place it can reduce the volume of bank reserves. Suppose the banks had 20 billion dollars worth of reserves. Federal Reserve can take away some of those reserves from the banks. How can it do that. There are two principal ways: First, Federal Reserve can decrease the amount of loans to banks. In order to make this point, I must indicate that the Federal Reserve can manufacture reserves for

banks by lending to banks. Federal Reserve is often called a system of banker's banks, because the Fed can do for the banks what the banks do for you. That is, the Fed can lend bank A a million dollars. How would it do that for bank A? It would do that simply by adding to that bank's deposit account at the Federal Reserve, which is of course the bank's reserve.

In the opposite process, Federal Reserve can decrease the bank's reserves by decreasing its loans to it, by saying, "Pay me back the million dollars." The bank would have to write a check on its deposit account to the Fed to pay the debt to the Fed.

How does Federal Reserve reduce loans to banks? One way is to raise the discount rate, which is merely the interest rate the Fed charges to banks for its loans. However, it also uses moral suasion. Sometimes moral suasion is in the form of public speeches indicating that banks ought not to lend so much, that we ought to have tighter credit. Or the Federal Reserve may call the bankers and say, "If you don't pay your debts we are going to have the bank examiners in." It can also come to the point of refusing to lend to the banks, but it doesn't often come to that point.

So the ways Federal Reserve tries to fight inflation are by cutting down on loans to banks, cutting the interest rate, and using moral suasion.

More common and sometimes more potent is the technique called "open market sales" of U. S. Government securities by the Fed. The Fed simply sells securities in the market and this decreases the volume of bank reserves. Let's take a particular case. Suppose one of you buys 10 million dollars worth of government securities which the Federal Reserve sells. You write a check on your deposit account and send it to the Fed. Suppose you do business with the Riggs National Bank. When that check goes to the Fed, the Fed deducts 10 million dollars from the Riggs Bank reserve account at the Fed, and the Riggs reserves would simply fall. Then the check would go back to your bank and you can be sure that it would deduct 10 million dollars from your account, too.

So the Federal Reserve's sale of government securities to the public reduces both the volume of bank reserves and the public's money supply directly. Suppose the banks here have lost 10 million dollars worth of reserves. If each one of those dollars was supporting five dollars worth of deposits, the banks might have to scurry around and reduce the volume of money very markedly.

Another major thing the Fed can do is raise the reserve requirements of banks. Suppose the banks have been carrying 15 percent and the Fed raises requirements to 20 percent. The banks, if they don't

have enough reserves to meet the new requirements, have to call in loans and destroy deposits until they can bring deposits down in line with the new reserve requirements.

It should be fairly clear that, in order to make money easier and facilitate the creation of more money, Federal Reserve does precisely the opposite. It manufactures more money for the banks, to be put in bank reserves, and it lowers the reserve requirements of banks. I have only a moment, so I will just indicate briefly how it does this. First, of course, Federal Reserve notifies the banks: "We have lowered our discount rates. We will make you loans at lower interest rates, so you can add to your reserves." The Fed tells the banks, in effect: "It is your duty to meet all credit demands. We stand ready to lend you all the reserves you need for that purpose."

Fed can buy securities in the open market. Suppose it bought 50 million dollars worth of governments from you. It would send you a check for 50 million dollars on the Fed. You would put it in the bank and get an increase in your deposits account. The bank would send the check to Fed, which would add 50 million dollars to your bank's reserves.

Another thing Fed can do is lower the reserve requirements to the banks. Suppose the reserve requirements have been 20 percent. Fed lowers them to 14 percent. Each dollar of reserve can support more deposits.

Now, in very brief outline this is the kind of monetary system we have. These are the essential principles of it. All of our money is in the form of debt. It is issued by the Treasury, the Federal Reserve, and the commercial banks--but mostly by commercial banks. They issue this money by buying assets. The two principal types of assets bought by these institutions are gold and debt claims of others. The debt claims are by far the larger part of the total. The commercial banks not only account for the major part of our money supply at any time but also for the major part of the fluctuations in the money supply; they increase the money supply by increasing their loans and by buying securities, and decrease it by decreasing their loans and by selling securities.

The Federal Reserve is superimposed as the controlling agency to regulate the activities of the commercial banks in creating and destroying money, and the principal instruments of control of the Fed are changing the bank reserve requirements and altering the volume of commercial bank reserves through lending to the commercial banks and buying securities from them and the public.

I think this is all I have time for this morning. Thank you.

DR. HUNTER: Dr. Chandler will now answer your questions.

QUESTION: Certain authorities hold that the operation of the Federal Reserve in changing the discount rates or the reserves is too indirect and too slow to effect price control--that is, to operate as price controls. Do you want to comment on that, sir?

DR. CHANDLER: This is a difficult question to answer because it covers such a broad area. The monetary and fiscal controls--the latter meaning taxation, expenditures, and so on--are often referred to as the so-called indirect controls, in that they do not deal directly with any particular price or any particular commodity, but rather try to influence the total amount of spending power that the community has.

So, if you were trying, for example, to prevent an inflation, what would be called for in the monetary fiscal controls would be a tight money policy that would decrease the amount of money--probably heavier taxation to take money away from people, so we would have less to spend. The direct controls, on the other hand, try to put lids on particular prices, particular wages, and that kind of thing.

In wartime it usually is not possible to use these indirect controls sufficiently. You don't collect enough taxes; you don't tighten up the money supply enough to hold down the total purchasing power of the public. In that case, if you are going to prevent inflation, you have no alternative to the use of direct controls. But please note that direct controls don't prevent the accumulation of inflationary pressures; they merely suppress them.

Take our experience in World War II. We had an easy money policy. The Government was spending twice what it was collecting in taxes. People's incomes went up greatly and the only reason we didn't have prices going up very markedly was that we had price and wage ceilings, supplemented by other kinds of controls. What happened? We had obvious shortages, because people had so much money to spend and there were so few goods to be bought. We suppressed inflation pretty effectively until the end of the war. Then, people had a lot of money and when direct controls were taken off, we really got a first-rate inflation.

It may well be that there are times when you want to use your direct controls to arrest the price and wage increases until your monetary and fiscal limitations on purchasing power can be put in. Note that if you do go in for direct controls, you are interfering with the functions of the price system. You don't let supply and demand determine prices. You can of course throw out of gear your entire demand-supply adjustment apparatus.

This is one of the differences between the fiscal control on the one hand and the direct controls on the other. Monetary-fiscal controls operating on the total purchasing power will leave the price mechanism to adjust the output and price of industrial commodities, whereas direct controls can stifle the adjustments of many commodities and different industries.

QUESTION: The papers have recently reported that the total of installment debt has now risen to some 27 billion dollars. How is that reflected in the money supply and, if it is reflected there, what would be the effect of everyone suddenly defaulting on those 27 billion dollars worth of time payments?

DR. CHANDLER: Twenty-seven billion dollars is a very considerable amount of money, obviously. I don't know whether I am going to say it is too high a consumer debt or not. Please remember in following the consumer debt figures that absolutes don't mean much. What you have to do is compare them with the amount of income people have. You might find that before the war the consumer debt was 14 billion dollars. Now it is 27 billions and consumers have three times the money income they had before the war. One must always use the ratio of incomes versus the debt to make it meaningful.

Your second question is: Is it related to the money supply? Much of this consumer debt is not debt to banks. A good deal of it is debt to small loan organizations, retailers, and others, where the increase of the debt does not add particularly to the money supply. It represents a transfer of already existing money from lenders to borrowers. But the banks are in the personal loan business, and some of this does represent an expansion of bank credit.

You can get an increase in the money supply on the basis of loans to consumers as surely as on the basis of loans to the Government or to business. It is fairly obvious that if we did have universal default on payments to the banks, we would have extreme insolvency. Bank assets are largely in the form of debt claims against others. If people can't pay debts to the banks, the banks will find themselves insolvent. This is in effect what happened in the depression period. At first people didn't realize it but when they did, the psychology was like the story of the old lady who went to a cashier's window and told him she wanted to withdraw her deposit. She said: "I would like to get paper money for my deposit. If I can get it, I don't want it; but if I can't get it, I want it right now."

QUESTION: Going back to the kind of condition we had in World War II, with a lot of migratory employment and a great number of people dealing strictly on a cash basis, we must necessarily have had a larger amount of paper money in circulation. A lot of it did not move to the banks too regularly. That I might assume would bring us into an inflationary condition. How would the Federal Reserve System deal with that? Or isn't that amount of money so significant?

DR. CHANDLER: We have had a significant increase in the proportion of paper money to the total money supply since this midwar period you are talking about. Actually, we don't understand it very well. Some of this paper money and coin I have listed here (see appendix) as being in circulation is probably not in the United States. This includes all the money that has been issued by the Treasury and the Federal Reserve, some that has been exported and is being hoarded in other countries. We don't know how much--probably not more than 3 or 4 billion dollars.

There has also been less use of checking deposits by low-income families in the last few years because of the rise of service charges at banks. People would rather take a chance of losing money or having it stolen rather than pay fairly high service charges every month. We don't know how much of that there is.

It also seems that some people got themselves into transactions they would rather not explain to the Bureau of Internal Revenue and who kept cash during the war and who are still keeping cash. We don't know how much there is of that.

All in all, it doesn't seem likely that there is much inflationary potential left in this big increase of paper money outside the banks. We got a big increase in it during the war. We have had almost no increase since. In the meantime payrolls and retail trade have risen greatly, so there's probably not much more paper money outstanding now than people need to carry on payrolls and retail trade.

QUESTION: Doctor, I think maybe I have been lost some place in here. What does this 25 billion or so we have at Fort Knox do to the system? I don't see much use for it in the monetary system as you have explained it.

DR. CHANDLER: I am sympathetic with your point of view on this thing. Our gold standard is the result of a long period of evolution and, like Topsy, it "just grew up" and nobody quite knows why.

To go back to the original period, most of our gold was actually in the form of coins. People used them in day-to-day trade, if you go back a hundred years or more. People got tired of using coins about the time of the Civil War. We didn't circulate gold any more; we circulated so-called gold certificates, which were pieces of paper, gold warehouse receipts. There was gold in the vaults somewhere, but the gold was circulated by proxy in the form of certificates. People didn't worry about whether the gold was there or not. The paper was good enough.

In 1934 we decided not to allow gold, or gold certificates, to circulate any more. The gold was just held there in the vaults.

The gold serves at least two purposes. One of them is a major purpose. That is for international payments. For this purpose gold is a sort of cash reserve. If we get into trouble and want to spend more than we earn some week, we have cash. So a nation holds gold. It can use part of this gold to import more than it exports at times.

Also our purchasing the gold is a particular way of supplying dollars to foreigners. For example, we supplied very large amounts of dollars to the British Empire in recent years by buying gold that was mined in South Africa and in Australia. They shipped all newly mined gold here. We gave them dollars for it. They used the dollars to buy our products. It is a type of foreign aid, if you look at it that way, but a foreign aid that depends on the gold mining possibilities of a foreign country.

It is a tradition that a nation is better off being on the gold standard. It is a way of establishing a kind of international currency.

I think that's about all I can say about it. I myself think it would be easy to devise a system at least as good as a gold standard system which would not require that the Government buy or sell gold, but this is considered an obnoxious idea by people who still like to feel that there is still gold lying in Fort Knox.

QUESTION: In most banks today savings deposits are insured by the Federal Government for 5 or 10 thousand dollars. Will you explain how this insurance system would operate in the event we were in a situation such as 1933.

DR. CHANDLER: The deposits at banks that are insured are not just savings deposits. They are savings and checking deposits that are insured up to 10,000 dollars for each account. What happens is, each bank contributes a certain insurance premium to the Federal Deposit Insurance Corporation, which underwrites the insurance and will pay up to 10,000 dollars on each account.

The purpose of deposit insurance is fairly widely understood. A lot of people think its only purpose is to protect the poor little guy who might lose money in the bank. A purpose which is far more important is to maintain confidence in the banks so we won't have runs of the kind we had in 1933, so that we will be able to say to people: "You don't have to take your money out of the bank. Even if the bank does break, you will get paid in a couple of days by the FDIC." The runs on banks would drain out reserves and put the country in a difficult situation.

The present law in my opinion is not adequately adapted to this purpose. Most of us probably feel that the sum of 10,000 dollars is plenty, in view of our own deposit balances. It is true that about 98 percent of all deposit accounts are fully covered by insurance, but only half of the dollar volume of deposits is covered by insurance.

There are some disquieting statistics on this indicating that the runs were not started by poor little people with 25 or 100 dollars in the banks. They were started largely by the very, very large depositors. This seems reasonable, when you think of it. They had every incentive to watch closely and start moving when danger occurred. We still could have serious runs from those who own deposit accounts of more than 10,000 dollars. But the law goes a certain distance toward preventing banking runs on banks.

QUESTION: It is my understanding that should a bank become insolvent the corporation will not pay you the full amount of your bank account within a few days, but the corporation will rather issue to you certificates of credit until such time as the insolvent bank goes into the hands of a receiver or trustee and when they decide how much is going to be paid off per dollar, the corporation will pay you.

DR. CHANDLER: Not on the first 10,000 dollars. Are you thinking of the Federal Savings Loan Insurance instead of bank deposit insurance? The savings and loan companies are also insured under a 10,000-dollar scheme. If they close it is as you say, people get certificates instead of cash. But in banks you get paid the first 10,000 dollars with a new deposit at another bank, or cash if you want it, and very quickly. But over 10,000 dollars you take your chances with the FDIC as to how much it collects on the assets on everything above 10,000 dollars.

STUDENT: In the case of a savings bank I worked on the liquidation of the Bank of the United States, which in my opinion is a bank which should never have gone under. It paid on the basis of 100 percent on the dollar.

DR. CHANDLER: Was this before FDIC?

STUDENT: Yes, but I followed it after FDIC and it was not my understanding in my reading of the law that it would immediately pay on the basis of 10,000 dollars or a deposit account.

DR. CHANDLER: FDIC usually goes to another bank and gets it to take over the liability, and the depositor will immediately get a checking account, with FDIC protection, in the new bank.

STUDENT: Let's assume we are not able to find a new bank.

DR. CHANDLER: FDIC will put up its own bank.

STUDENT: It does not have that effect at the moment.

DR. CHANDLER: It has done that in four cases.

DR. HUNTER: What are the effects of a run on FDIC?

DR. CHANDLER: FDIC has accumulated reserves of something over 2 billion dollars. The Treasury is under obligation to lend FDIC 3 billion more if FDIC should ask for it. On top of that there is a moral commitment by the U. S. Government to keep its own corporation from falling.

COMMENT: Dr. Chandler, I think the crux of it is here. I think it is a psychological one of protection which the depositor has for the 10,000 dollars, this insurance. If the economy started to go broke, with the psychological factors and other factors it would appear that there could be no guarantee that the man would get 10,000 dollars that would be worth 10,000. The fact that there is insurance would seem that the insurance fund would in some measure pay them back, but if the economy goes broke the dollar may not be anything like a dollar. It starts with being a psychological thing more than anything else, in my opinion.

DR. CHANDLER: We have not only deposit insurance at the present time, but also a composition of bank assets that is very different from what it was in the early thirties. Something like 33 percent of all bank assets are now in the form of U. S. Government securities. I am not trying to say that these securities will never depreciate, but I will contend they are a lot safer than some of the business, farm mortgages, and things banks were holding before. You not only have bank insurance, but you have also a somewhat higher quality bank portfolio at the present time.

STUDENT: Excuse me. I maintain there is no excuse for the economy to go broke if our Government will take charge and keep people working. I think it is psychological. There may be inflationary forces. But there is no excuse for putting people out of work or for not giving them an incentives or compensation for working and keeping the economy whole.

DR. CHANDLER: What you are saying is in effect that the best insurance we can have against bank failures is full employment and high incomes rather than bank insurance. With this I would agree.

QUESTION: Doctor, in describing the Federal Reserve System, you mentioned some 14,000 small banks.

DR. CHANDLER: I'm sorry--they're not Federal Reserve banks. They're just commercial banks, like Riggs Bank.

STUDENT: I understand there is a difference, between banks. Some are members of the Federal Reserve; some are not. My question is, in all the description you have given of members of the Federal System, are those things also applicable to the banks that are non-members.?

DR. CHANDLER: May I go back just a moment? I recommend to you a little book by R. S. Sayers, called "American Banking System." It is written by an Englishman. The tone of it is, "What quaint people, these Americans!" We are somewhat quaint. We have never settled the question of who has jurisdiction over banks in the United States. We have national banks and state banks. It has never been decided whether the primary responsibility for chartering and supervising banks should be Federal or state. We have always set special issues when we come to monetary and banking legislation. The result is something like this: We do have approximately 5,000 banks chartered by the Federal Government.

When Federal Reserve was established, it was provided that all these banks had to join Federal Reserve and subject themselves to its regulations. When it came to state banks, it was decided that state banks that wished to become members of Federal Reserve might join if they wished and subject themselves to Federal Reserve requirements. The result is that there are approximately, as members of the Federal Reserve at the present time, 5,000 Federal banks, plus about 2,000 state banks. Some 7,000 state banks are not members of the Federal Reserve. But on the average these nonmembers are so small that they don't have more than 14 or 15 percent of all bank deposits.

The Federal Reserve has jurisdiction over the reserve requirements of only those member banks--in other words, the 5,000 national banks, plus 2,000 state banks that have joined the Fed. It does not have jurisdiction over the reserve requirements of the other 7,000 nonmember banks. But Federal Reserve can affect the volume of reserves available to the nonmember banks just as well as to the member banks.

Suppose you live in Mississippi, where about three-fourths of the banks are not members of the Fed, and you buy 5 million dollars worth of securities from the Federal Reserve. You write a check on your bank to pay for them. Your bank has to lose reserves to pay Fed, so it can't expect not to be affected by Federal Reserve simply by not joining the System. But the Fed cannot raise or lower reserve requirements for the nonmember banks.

QUESTION: Would you consider that a weakness in our Federal Reserve System, an existing potential danger, even though you say it represents only 15 or 20 percent of the banking business? Is not that a potential capacity for doing damage to our national economy if it does weaken the Federal Reserve System? Or is that a situation which will bolster our economy?

DR. CHANDLER: I think so. If there were a commercial banker here I would probably start getting tomatoes about this time. In this field, as in all fields, you get into the question of politics. It is not only bank politics; it is also state and national politics. The State bank commissioners, the boards of supervisors, and so on, have a lot of honest political jobs, and they will fight to keep them as long as they can possibly do so. They will fight against a centralization of control. Moreover, the bankers like to feel that they have the option of withdrawing from the Federal Reserve and getting under some easier jurisdiction if this should become convenient, so all attempts to force all banks to belong to the Federal Reserve have been defeated. This is a fight that goes back for over 200 years, and as nearly as I can tell, it is likely to go on for 200 years more.

There have been at least three occasions when the right of states to charter banks was questioned. At the time of the Civil War, when national banks were first established, and old Senator who brought in the bill said, "Make no mistake. The purpose of this bill is to end chartering of banks by the States." This seemed to have been fairly well accepted at the time, but it didn't work out that way. The same thing happened again in 1914 and came near happening in 1933. But we seem unlikely to get a centralization of control over the entire banking system in the near future.

Of course if we had a banking panic, anything could happen. It seems unlikely.

QUESTION: I think you explained how the Federal Reserve System is supposed to work. In recent years there apparently was some difference of opinion about it, principally in the Treasury Department. Do you have any comment to make on that, sir?

DR. CHANDLER: This is one of the fights of the century in the field of banking policy. What I was describing was in effect the powers of the Federal Reserve. These powers can be used in all kinds of different ways. One of the biggest questions is: For what purpose should you use powers?

Federal Reserve can tighten credit if it wants to, or make credit easy any time it wants to. On this issue it had the big fight in the postwar period. Despite the fact that we had inflation,

there were strong elements in the country that didn't want a tight money policy, didn't want Federal Reserve to raise discount rates, sell securities, or raise interest rates. There were two reasons for this.

The first reason was one with which we must all be sympathetic. That was the fear that we might have widespread unemployment. There were some people so afraid of widespread unemployment that they would rather have inflation than have the Federal Reserve do anything that might hold down the demand for the products of industry. You remember how neurotic practically everybody was on the subject of postwar depression. They said that if Federal Reserve tightened money, it would throw us into a depression like the one in the thirties. This is 1953, not 1946, when I am saying this.

In the second place, the Treasury Department had, of course, increased the national debt by 200 billion dollars in order to finance the war, bringing the total debt to over 250 billion dollars, on which the rate of interest was something over 2 percent. The Government was paying an interest charge of 5 million dollars a year on the national debt. The Treasury pointed out that every one-half of 1 percent rise in the average rate of interest on the Federal debt would add 1.25 billion dollars to our annual interest charges. They said: "Federal Reserve can't do this to us. It must supply plenty of money at low interest rates in order to hold down interest charges on the debt."

The unfortunate part of this, from my point of view, is that we have no way of holding down interest charges to the Treasury while making reserve more costly to the private dealers and giving the banks liberal reserves; the banks will be at least as liberal to the private concerns as to the Government in a peacetime period.

Here was a sort of conflict of objectives. On the one hand suppression of, or at least retarding, inflation called for a tight money policy. On the other hand holding down interest charges on the national debt called for an easy money policy. In back of this was also, as I indicated, the fear that they might go too far and precipitate a depression.

Now, they followed a relatively easy money policy until 1951, which I think unquestionably encouraged the inflationary spiral. Since 1951 the Federal Reserve has regained some independence.

DR. HUNTER: Gentlemen, our allotted time is up. Dr. Chandler, on behalf of the Commandant and all the rest of us, thank you very much for so extraordinarily enlightening a lecture on a difficult subject.

DR. CHANDLER: Thank you, sir.

(12 Nov 1953--250)S/sgb

APPENDIX

MONEY AND MONETARY INSTITUTIONS IN THE UNITED STATES

1. The money supply, 30 June 1953.

Type of money	Issuer	Amount (Billions of dollars)	Percent of total
Coins	Treasury	1.8	1.4
Paper money	Treasury	2.7	2.1
Paper money	Federal Reserve	25.6	20.1
Checking deposits	Commercial banks	97.2	76.4
All kinds		127.3	100.0

a. The specific types of money.

b. The three types of money issuers: Treasury, Federal Reserve, and more than 14,000 commercial banks.

c. All money is debt: specific types of debt generally acceptable in payments.

2. Manufacture and destruction of money.

a. Manufacture and issue of money by the Federal Reserve and commercial banks to pay for assets bought and held: (1) gold and (2) debt obligations of others.

b. Destruction of debt money by sale of assets by Federal Reserve and the commercial banks: (1) gold and (2) debt obligations of others.

c. Principal assets of the monetary institutions, 24 June 1953:

	Amount (Billions of dollars)
Gold	22.5
Debt obligations of others--total:	162.9
U. S. governments held by Federal Reserve	24.8
Debts owned by commercial banks--	
U. S. governments	58.4
Short-term loans	65.5
Other securities	14.2
Total	185.4

3. Manufacture and destruction of money by the commercial banks.
- a. Manufacture primarily by expanding loans and security holdings.
 - b. Destruction of money by the reverse process.
4. Limitations on the quantity of money created by the commercial banks.
- a. Role of legal reserve requirements: (1) form of legal reserves--deposits at the F.R. banks, (2) height of reserves as a fraction of deposits.

b. Formula for determining maximum volume of deposits at commercial banks:

Let D = maximum dollar volume of deposits.

A = dollar volume of legal reserves available to banks.

R = minimum required ratio of reserves to deposits, such as $1/10$ or $1/5$.

Then,

$$A = R \cdot D; \text{ or } D = \frac{A}{R}$$

5. Federal Reserve controls over commercial bank monetary policies.
- a. Control of R (commercial bank reserve requirements): (1) raise R to reduce money creation, (2) lower R to permit larger money creation.
 - b. Control of A (the dollar volume of commercial bank reserves): (1) Federal Reserve loans to banks (discount rates and moral suasion) and (2) Federal Reserve holdings of the U. S. Government securities--(a) open-market purchases to increase the dollar volume of bank reserves and (b) open-market sales to decrease the dollar volume of bank reserves.