SUPPLY AND DEMAND--WAGES-PRICES

30 August 1954

CONTENTS

Page

INTRODUCTION--Dr. A. J. Kress, Member of the Faculty, ICAF 1

SPEAKER--Dr. Richard B. Heflebower, Chairman, Department of Economics, Northwestern University 1

GENERAL DISCUSSION 23

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INDUSTRIAL COLLEGE OF THE ARMED FORCES

Washington, D. C.

Dr. Richard B. Heflebower, Chairman, Department of Economics, Northwestern University, was born in Milliken, Colorado, 4 October 1903. He was educated at the University of California, specializing in economics of money and business conditions and the Government control of prices. He received a Ph.D. degree in 1929. Dr. Heflebower taught at the University of Idaho and the Pacific Northwest Banking School, and from 1929-43 served successively as assistant professor, associate professor, professor, Economics Department head, director and dean at the School of Business Administration, State College of Washington. In 1939 he was president of the Pacific Coast Economic Association. During World War II, Dr. Heflebower was associated with the Office of Price Administration, serving as acting director of the Food Division and as economic adviser to the deputy administrator for price. From 1946-49 he was a member of the senior staff of the Brookings Institution, Washington, D. C. Since 1949 he has been professor and is now Chairman of the Department of Economics at Northwestern University, and is an associate editor of the "Journal of Industrial Economics."

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RESS: Admiral Hague, General Niblo, ladies, and gentle-
an old cliche to say our speaker this morning needs no
Of course he does to you, but he doesn't to those in the
ollege, since this will be his fifth appearance on this plat-
k that is getting pretty close to a record.

n to that is the fact that in 1947 we had him over here two
as one of the first economists from OPA--one of two
and Dr. Wallace were here for a half-dozen seminars.
ve formal lectures in addition to the seminars.

that you look in the files back in 1948. His two lec-
mobilization are still classics. He is talking to you
different type of thing. I think if you have had diffi-
nd them too formidable, you are going to see them
A, B, C in the next few minutes.

a pleasure to welcome you back here agai
ral Hague, General Niblo, ladies,
he nature of his occupati
to economic
ion

Then we will see how the economic processes are organiz through the market system by the influence of supply and dem We will deal with particular markets, and then we will see hc interplay among markets serves to organize the whole econor

Next we shall deal with some of the characteristics of c of markets that are particularly relevant to the problems of manufactured goods and to problems of economic mobilizat

We will then turn very briefly to a consideration of wa will do so by looking on wages as another problem of price influenced by supply and demand. Finally, I shall bring s early parts of the lecture to bear on the subject of econor tion.

Economics has to do with how our scarce resource oduce what is wanted. This does not mean that we what people call overproduction. When they spe duction, they mean there are more goods tha ers, will purchase at the prevailing level c hat all wants are satisfied.

s has to do with how we use rces to produce

considering the purchase of more of a given good, my income is a restraint. In order to purchase more of the first good, I have to give up more of other goods.

The result is that the demand curve, as is shown in figure IA, always slopes downward from left to right, which means that we will buy larger quantities at lower prices or lower quantities at higher prices. The reasons for this buyer attitude are those which I just gave you.

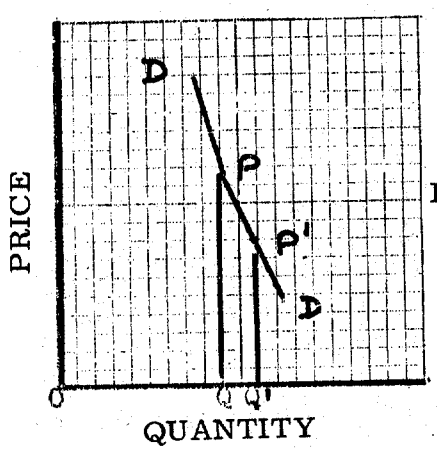

Figure IA

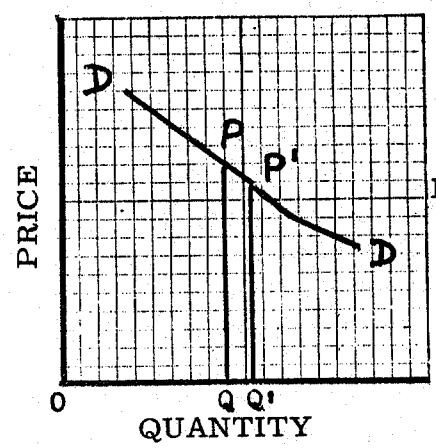

Figure IB

Commodities differ widely in the elasticity of demand, or in the percentage change in amounts purchased with a given percentage change in the price of the commodity. Some of the factors that contribute to this elasticity have been explained in the assigned reading.

From the seller's viewpoint, elasticity is important because it indicates how much the price will change if the output which he intends to sell changes. If there is a slight excess of supply and the demand is inelastic, this volume can move only by a drastic drop in price. Such a demand situation is illustrated by figure IA. Inelasticity of demand is characteristic of many agricultural commodities, of gasoline, and of commodities of the kind which people look upon as necessities and for which there is no close substitute.

On the other hand there are some commodities for which, if the price drops, a substantial increase in consumption will occur. Such a demand situation is illustrated by figure IB, which should be compared with figure IA. The commodities of elastic demand are those for which there is a variety of substitutes to satisfy a general want.

When the price of a commodity A drops, it becomes a cheaper alternative than previously; more of it and less of alternative B will be bought. Most of us prefer one product over others for satisfying a given want. Hence we will consume more of it if it is offered at a cheaper price.

From the buyer's viewpoint elasticity of demand is important because it indicates the extent to which the price will change in the event the quantity varies. You know that sometimes potatoes are quite high in price because of a short crop, while at other times this commodity is so cheap that it is fed to the hogs. Potatoes have a highly inelastic demand and a supply that varies rather widely from year to year, according to differences in yields and acreage.

Because there is not enough of most goods to satisfy all buyers, a rationing problem is set up. Notice that I am referring to this rationing or dividing-up problem without immediately indicating the way in which the limited supply is to be divided up. However, given the fact that in practice there is not enough of a commodity to satisfy all wants for it, then some method has to be devised or evolved for dividing up this scarce supply.

We had some experience during World War II with a point rationing device which was designed to divide up goods evenly; that is, on a per capita basis. That is not however the usual method, for prices are the usual method of rationing the purchase of a commodity. Price is a very effective rationing device, for the reason I gave a moment ago, namely, when people spend more of their income for commodity A, they have to give up other commodities. This limits the consumption of commodity A. The amount people are willing to spend for a given commodity is affected by the intensity of desire. Some people will scrape the bottom of the purse to get a ticket to the opera; other people would not go to the opera if the tickets were free. That is how extreme people's wants differ.

It is also true that the income of a person has an influence on how much he will purchase of a given commodity. The wealthy person who does not care much for opera nevertheless can go to the opera, because he knows that he will not have to give up much of other commodities and services in order to pay the 5 or 10 dollars for a ticket to the Met. Price therefore rations in a particular way; it reflects not merely intensity of desire but also ability to pay.

One of the merits of price is a rationing device--it tends to reflect what we call in economics "consumer sovereignty," that is,

the free choice of consumers. It is difficult to give play to that choice by any other rationing device.

If we suspend price as a rationing device, we do not remove the rationing problem, as we learned so quickly during World War II. That was not news to students of economic processes. If we set a ceiling on the price of a commodity below the level at which the available supply would be purchased, that act establishes the condition under which a black market tends to develop.

For example, using figure II, suppose that the commodity available is OQ, a quantity which would clear the market price at P. Suppose then that by Government fiat the price is held down to P'. But at that price people are willing to purchase more than the OQ quantity available; they are willing to buy OQ'. The difference, or QQ', is the unsatisfied consumption at price P'.

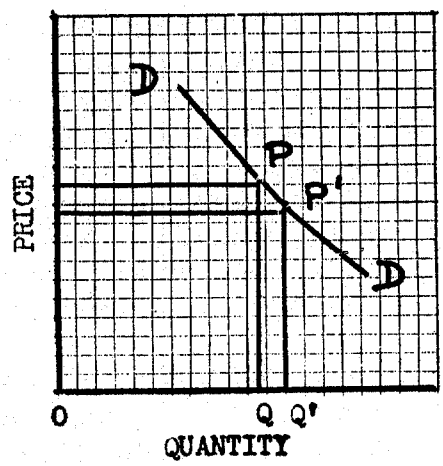

Figure II

Insofar as buyers who fall in the QQ' segment succeed in getting part of the supply, they take it away from people in the OQ segment--persons willing to pay more than P' for the commodity. Unless restrained by conscientiousness or regulation, these "more willing and able to buy" consumers will offer to pay more than P'. Such are the customers for the black market.

This does not mean that when we suspend price as a rationing device, we have immediately to introduce point rationing in all cases. There are many other rationing devices--some of which come into play automatically. During World War II a very effective rationing

device was the length of a queue. Another way of rationing nylon stockings for women was: "Do you have a charge account?" But the effectiveness of such rationing devices passes with time and, even if carried out, raise some questions about whether they are socially desirable bases for dividing up scarce goods.

The same problem arises if a price floor is placed under the commodity at a level below that at which the available supply will be bought. Suppose, using figure II again, that the quantity of an agricultural staple available for sale is indicated by OQ'--that quantity which could be sold at a price of P'. If then a floor is put under the price at P, quantity QQ' will pile up in the storage bins. That is the amount which will not move at price P. This is the way price controls in agriculture work when placed above the level at which the available supply offered for sale will move in consumption.

This is enough of looking at one blade of the scissors or the demand or rationing side of the problem. Before we turn to the other side or the whole question of supply, I want to emphasize that here I am talking in quite general terms in order to demonstrate how economic processes are organized through the market. I am not trying, at this moment, to give any suggestions as to how supplies of commodities might be purchased advisedly by supply officers, nor necessarily to indicate what ought to be the policy of the Government with respect to monopoly, for example. I am engaged in an exposition of how economic processes can be organized through the market rather than by overhead direction.

Going on to the supply side, we find that there is a resistance to producing more of a given commodity. In a certain sense this resistance takes the form of cost. But it would be unwise to think in terms of people's willingness or unwillingness to sell goods as being dependent solely on the cost they incur. Their willingness to sell or not to sell may reflect their expectation of what the price is going to be in the future. A farmer may not sell wheat in the fall because he thinks the price will be higher at a later period; or the manufacturer of vegetable oils may sell some of the oils he has because he expects that he can buy a similar quantity at a lower price at a later date.

In general, to get more of a given commodity, it is necessary to pay more for it. In part this is because, at least in many industries, added output tends to be produced under circumstances in which the cost of production is higher. One reason for this is that, in order to produce more of a commodity A, human and material resources must

be attracted away from some other use. Take for example the case of a large military establishment to be built in South Carolina--an atomic energy plant, I believe--where materials and workers will have to be attracted. I am certain that wages will have to rise in order to attract the needed skilled labor.

Consequently, in a fashion opposite from the functioning of price as a rationing device to keep consumption down, price serves to divide up resources among alternative uses for them. In a free market those who want these resources more intensively are willing to pay more and bid them away from those who were using them previously.

There are great differences in the elasticities of supply, that is, how much the price has to rise in order to get more production of a given commodity. These elasticities also differ between short and long term, as we will see in a moment.

Just as when price is suspended as a rationing device, if we suspend price as an allocating device, some substitute has to be developed. If we put a ceiling on wages and on raw material prices, we have to devise some other mechanism that will allocate this limited supply of labor and this limited supply of materials. You will become familiar during the course of your instruction here with the program for allocating scarce materials during periods of mobilization and war.

Now we are ready to put the two blades of the scissors together. First we will see how a particular market is organized. Then we will go on to see how the whole economy is bound together by a set of interrelationships among markets for the thousands of commodities and services of the modern economy.

With respect to figure III, in which we have both a supply curve and a demand curve, you will note that there is one price at which the amount that will be supplied and the amount that will be purchased are the same.

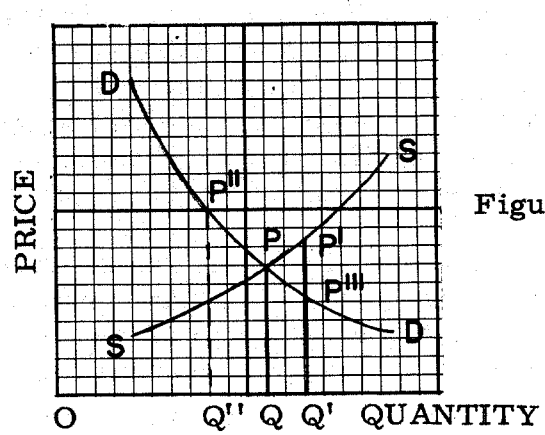

Figure III

When price is at that point, it is in what we call "equilibrium"; that is, a condition of balance. If it happens that the quantity is larger, say at OQ', it means that the sellers are willing to sell that amount at price P' but the buyers are not willing to buy that amount. At that price they are willing to buy only OQ". Either the quantity must be reduced or the price cut. But if price were to fall to P''', the level at which quantity OQ' could be sold, sellers would be unwilling to offer that much goods. The only point at which a balance can be struck is at price P and quantity OQ. But this means output and consumption of this commodity are determined; this small segment of the economy is thereby "organized."

Turning now to figure IV, we can see how balance is restored at

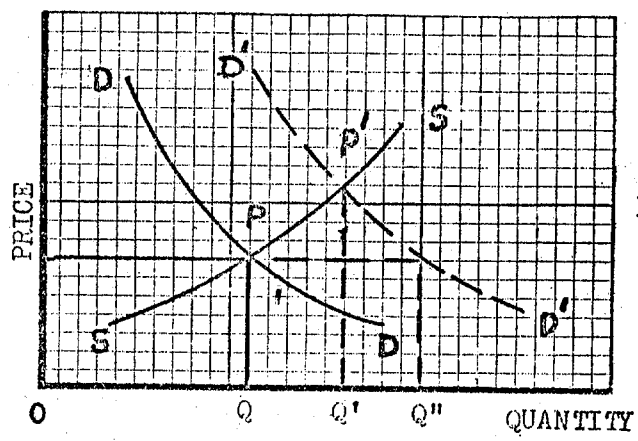

Figure IV

the same point. Let us assume the demand indicated by the curve DD in figure IV increases to the level of the broken line D'D'. What this increase of demand means is that, for some reason, such as in increase of their incomes, consumers are willing to buy more of this commodity at the same price. For example, whereas they would previously buy only OQ at price P, they will now buy quantity OQ'' at that price; but suppliers are not willing to sell that much at that price. After a series of adjustments, a balance is established at price P' at which quantity OQ' will be supplied and purchased. This shows how the economy tends to come back to equilibrium once it is disturbed.

The free play of supply and demand tends to establish an optimum condition, a conclusion which economists have pointed to ever since Adam Smith. This is an optimum condition because, on the one hand it gives free play to consumer choice or consumer sovereignty. On the

other hand competition among suppliers serves to prod producers to be efficient and to put production in the hands of the most efficient producing units. The result, in a sense, is the best of all possible arrangements; consumers get what they want in proportion to the intensity of their desires, and their willingness to spend money and, on the other hand, commodities are produced as efficiently as possible.

Price, as a rationing device, has one quality which is very difficult to introduce into any other rationing method. That is, it gives quite free play to minority wants. If a few consumers want sport automobiles, they can get them if they are willing to pay the cost of producing sport automobiles in small quantities. Oh, we have the sort of professional consumer who says she wishes she could get a small automobile instead of these high-powered cars which cost so much. I always say to those women that someday they may want to go to Yellowstone, and their backs could not stand traveling that far in a car with that small wheel base. What such buyers desire is to have cars fitted to their particular wants but produced and sold to them at the price they pay for cars that are produced in large quantities by assembly line methods.

It is still true, where industries are competitive or reasonably so, that small volume wants for special-preference goods will be produced, although the price will tend to be high. The dollar is a unique voting device. In contrast our political voting, as we carry it out in this country, gives only one result--that is a major decision.

The market system for commodities enables people to have "partial representation," if I may borrow a term from political science.

On the other hand the seller is constantly being prodded to be efficient. If he does not produce what people want, he will not be able to sell it at a satisfactory price; he may even be forced into bankruptcy or if he does not suffer bankruptcy, he will have learned his lesson and next year he will attempt to produce what is wanted. If he is not producing as efficiently as he can and there are no real barriers to the entry of new producers, new rivals will spring up who will offer goods at lower prices. Then those who were selling goods at higher prices either have to be more efficient or go out of business. The tendency, therefore, is to force production of those goods in terms of quality and variety of types which people want and to have this production done at the lowest cost possible with known technology. This is what is called an optimum condition.

Thus far I have really dealt with a single market and have used it as an example of how all markets work and are organized to produce what is wanted. Only occasionally have I hinted at the fact that the economy is made up of not simply one commodity or hundreds of commodities, but of hundreds of thousands of commodities. I hinted at it when I indicated one of the factors affecting how much I will buy of a given commodity is how much of other goods I have to give up. I hinted at it when I talked about conditions of supply--if we are going to get more of commodity A, it means we are going to withdraw resources from commodities B, C, and D. Because of these interrelationships all commodities are competing with one another in a sense.

There is built up a web of interrelationships throughout the economy that when a stimulus of some kind is applied in almost any place in the economy a series of reactions occur throughout the entire economy. It is rather interesting to note some extreme examples of how this operates. One is that the margarine industry in this country really got its start because petroleum was discovered in Pennsylvania. Candles were made of beef tallow; when kerosene light became available, the market for beef tallow shrank sharply. The packers still produced tallow. In trying to find some use for it, they learned of the commodity which the French had developed as a substitute for butter and started to turn out margarine--of a very low quality, I might add. In case you do not know much about the industry, there is no animal fat in most margarine today.

To take another example, if there is an excess supply of gasoline and the refining industry cuts its crude runs, the effect may be an increase in the demand for coal. That is not very hard to explain. As the crude runs of the petroleum refinery drop, the supply of residual fuels declines and coal will replace that fuel in some uses.

Those are simply examples of how our economy is bound together by a series of interrelationships. This shows how the organizing process, with commodity after commodity added, is but an extension of the basic idea with which we started--that of supply and demand for one commodity.

I am certain that most of you have been quite disgusted at times, by the fact that you cannot get a simple and short answer from an economist. When we come to the question and answer period I shall illustrate that fact once again. I urge you to be very suspicious of any short answer to an economic problem, because the economist's

first answer always has to be surrounded with "ifs." Why is that? It is because the economist has to know the whole surrounding situation before he can judge the reactions that might be set up as a result of the first stimulus that is applied. So I doubt very much whether accurate answers can be given to economic problems except when the questioner and the answerer have come to a full understanding of all the relevant variables.

We turn now for a few minutes to the character of supply and demand in some particular types of markets. Here I want to make an observation which will help you bridge what may appear to be a gap between what I am saying this morning and what you have been reading. In much of your reading, you approach the problem of supply and demand by dealing with the individual firm. Here I am dealing with the industry or a group of firms, the part industry plays and how through its reaction the economy is organized. I believe that the industry approach is more useful for dealing with problems of supply purchasing and of mobilization.

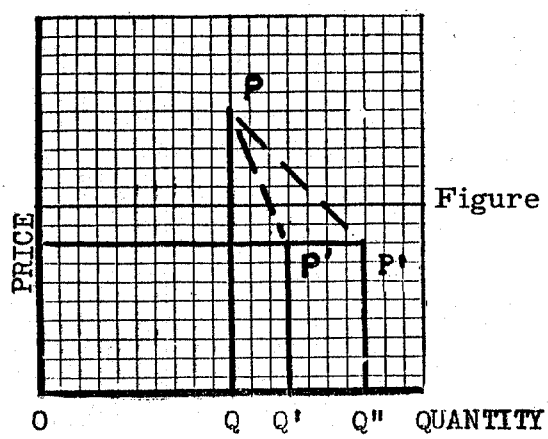

Figure V

First, we must give some attention to the changing character or elasticity of demand and supply over time. As illustrated in figure V, it is quite possible that if the price for the commodity drops from P to P', the consumption would in the short period increase only from OQ to OQ', but if the price remained at price P' for a considerable period of time, more people would learn about the price and more of them would buy the commodity than had tried to buy it before. Some people in the North might learn to like hominy grits if they tried them. The same would be true, I suppose, of southerners trying some northern dish. With the passage of time it would be quite possible, if the

quantity produced at the lower price increased and the price remained at P', that the quantity purchased would increase to OQ''.

Let us put some points we observed earlier with respect to demand elasticity together with some changes in supply conditions over time. In figure VI the demand is shown to have increased from DD to D'D', but in the short period it is not possible to make any increase in the quantity available.

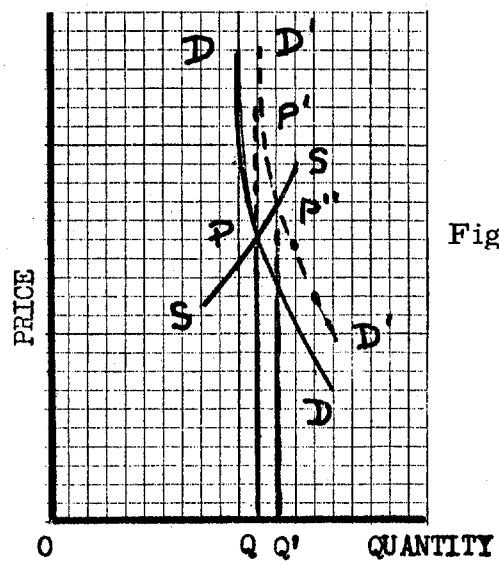

Figure VI

Such is often the case with perishable commodities. That being the case, the price might jump from P to P'. Over a longer period supplies might be brought in from other areas, or output might be expanded as is shown by the slope of the SS curve. After such a period of time, the new equilibrium price would be P'' and the quantity supplied and bought would be increased from OQ to OQ'.

These are illustrations of how, with differing time periods and differing degrees of elasticity, a new balance is struck, first, temporarily, at P', but then, with the increase in output, a more permanent new balance is set at P''. That is how the price system operates.

Looking at figure VII, we see how over a period of time the reaction of an increase of demand or supply may change output and price considerably. If the demand increases from DD to D'D', and if the quantity cannot be increased at all, probably the price will rise

sharply from P to P'! It might be however that without adding new facilities and merely by operating at a higher rate the output could be increased to OQ'. If so, the price would decline to P''.

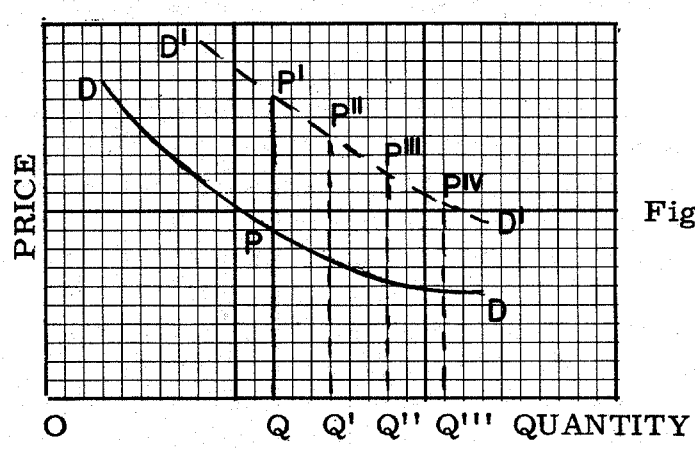

Figure VII

If there is an extended period of high-level demand, it is quite possible that the capacity of industry would be enlarged so that it would be feasible to produce OQ''. If so, the price should fall to P''' in order to move that volume through the market.

As the increase in demand continues, new ideas for the production of goods may come. More of the economies of scale, of which we will talk again in a moment, might be realized with output up and costs down more. If so, the price might settle at Piv with quantity at OQ'''.

Since much of your work is with industrial markets, I thought it well to introduce one important modification to the rising supply curve. I am certain you have all observed that in many markets for manufactured goods when the demand changes, the price does not necessarily change. In other words the industry is willing to sell more or less at the same price. I have attempted to illustrate this by figure VIII.

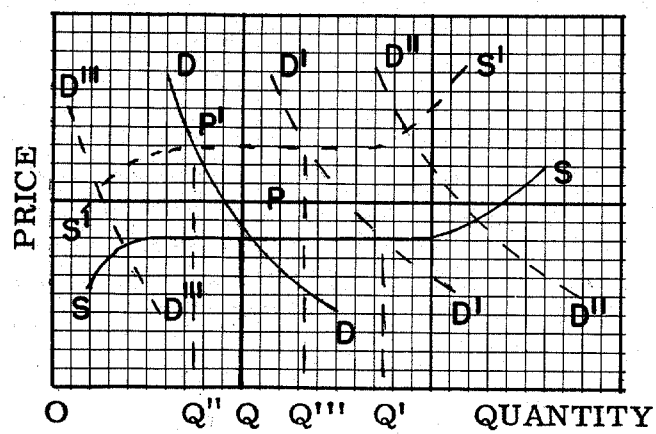

Figure VIII

We start out with the supply situation being represented by the odd-shaped curve SS. Note at the lower left hand it drops off to indicate that if the quantity sold were to get as low as that, sellers would be desperate for volume and be ready to cut price in order to increase sales.

On the other hand if the output were to rise so far to the right that their production efficiency suffers--from inefficient workmen, poor raw materials, and so on--the sellers may not be willing to sell at prices represented by the flat portion of the SS curve. In that event the increased quantity would be available only at higher prices.

Between these extremes the supply curve is horizontal, and if demand rises from the DD level to DD', note that the industry would be willing to sell quantity OQ', a much larger quantity than OQ, at the same price, according to this analysis. If the demand continued to go up however, some of the inefficiencies I referred to previously would affect production, and they might insist on an increase in price.

If the demand were to rise so sharply that it would be at D''D'', it is quite possible that simultaneously some of the basic conditions of supply would be altered. The developments which give rise to a substantial increase or decrease of demand for one product often affect other commodities also and through them modify the conditions of supply.

In other words when demand is rising for commodity A, it is often rising for most commodities. This will affect wages as the demand for labor arises, and will affect the prices of raw materials. If so, the increase of direct cost will alter the price at which manufacturers are willing to supply various amounts of commodity A. As a result, it is quite likely that they would be willing to sell the various supplies referred to on the horizontal excess at only prices indicated on the higher broken supply curve S'S'.

Now we shall put together the new conditions of demand and of supply. Suppose we start out with a demand represented by DD and a supply represented also by SS. Then, quantity OQ would be sold and at price P. If the demand were to rise to D'D', but simultaneously the supply curve S'S' became applicable, the price would rise to the intersection of the D'D' curve and S'S'. Then the amount produced and bought would be OQ'''.

It is important to make this point about simultaneous developments. We in economics engage too much in "all other things being equal" analysis. You men who have to deal with the living world find there is a strong tendency for some forces to go together, and that the ups and downs of demand for a particular commodity is one part of the ups and downs for commodities generally, as the level of the income rises and falls. Consequently, at the same time demand for a given product is moving, conditions of supply are often changing also.

I do want to throw in one other point with respect to figure VIII. I think we are often misled by the prices that are quoted for industrial materials. I noticed in the "New York Times" for Sunday that one of the spokesmen for the steel industry was rather optimistic--he said prices are firm. My guess is that if you were to look at price lists, there would be no evidence that prices had gone down or that they are now advancing. Don't be deluded by the prices that are quoted. Even though I have shown here a horizontal range in the supply curve, I would be willing to wager that in practically every case the curve representing amounts that actually are asked would have an upward slope throughout its whole range. A pretty good rule to follow is that the actual price will move in the direction of the level of demand, whether or not the quote prices do.

Prices may not move by changing the actual price for a particular item, but the same effect may be accomplished by changing the commodity itself. Or the income of the industry may be affected materially by the fact that when national income or demand rises, they are able to sell a larger output of the more profitable items in their line which increases their income relative to their costs.

There is another situation which is of particular importance in mobilization and other industries which are in the developmental stage. In such cases the level of cost is itself influenced by the level of demand. I am not thinking here of the fact that when demand declines, businessmen become much concerned about the carelessness about costs that develop during a boom. I am sure there are many businessmen who worried a year and half ago that if demand declined a little, they would not break even. Their demand did decline but I haven't noticed that many companies were forced in the red.

There are a surprising number of savings which can be made when demand is not as favorable as might be, and there are a

surprising number of inefficiencies that move in when demand has been high for an extended period. Interesting as this subject is--that often costs reflect demand more than the reverse--here I am more concerned with the effect of an increase of demand on the conditions of its production in an industry which has the potentiality of great economies as volume grows.

The point to be made here is illustrated by figure IX.

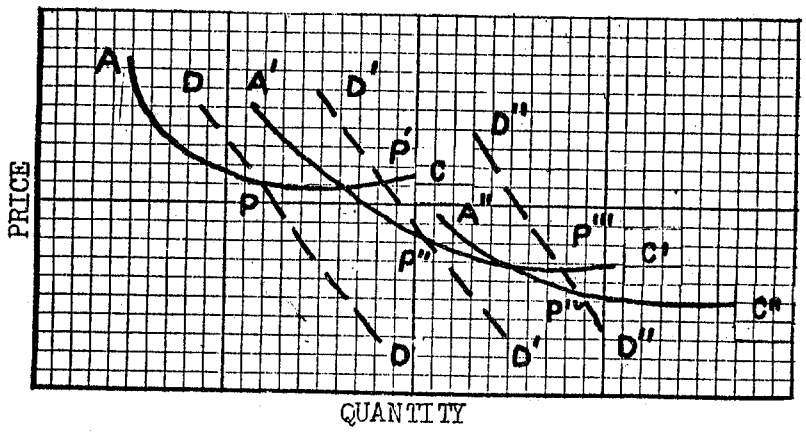

Figure IX

If we start out with the industry operating on a relatively small scale--this would be true of a fairly new industry--its cost may be represented by the curve AC. If at that time the demand is represented by DD, the price would tend to be at P. This is a familiar argument so far. If, however, the demand were to move over to D'D', the first effect might be, until a change in the character of production facilities could be brought about, that the price would rise to P'. If the demand were to remain at D'D' for a while, some manufacturers would get the idea that they could then produce on a quite different scale. When businessmen see an opportunity to produce an article in large volume, the whole method of production varying all the way from the production of materials to the layout of the plant and the length of assembly lines, and so on, is changed radically. The cost curve A'C' would replace AC. As a consequence, instead of the increased demand D'D' bringing a higher price, over a period of years it would be apt to bring a lower price such as P''. With demand increased to D''D'', a still larger scale of operations and new designs for plants might occur and the price could fall still further to P'''.

Such cost and price experience is characteristic to an extreme degree of all new military equipment. Such products go first into

a pilot plant stage and then, if adapted to large-scale production, can be turned out by the tens of thousands or millions at a low cost.

The kind of situation portrayed by figure IX gives rise to an interesting question. If you are involved in buying equipment for an industry that faces this potential change of its cost curve from AC to A'C' or A''C'', what should be your policy? Should you, in fixing a price, think that a cost of A'C', or for that matter A''C'', could be achieved? The same point applies to a manufacturing industry in pricing its own products to sell in a competitive market. Should it price on the basis of the first curve, the second curve, or the third curve?

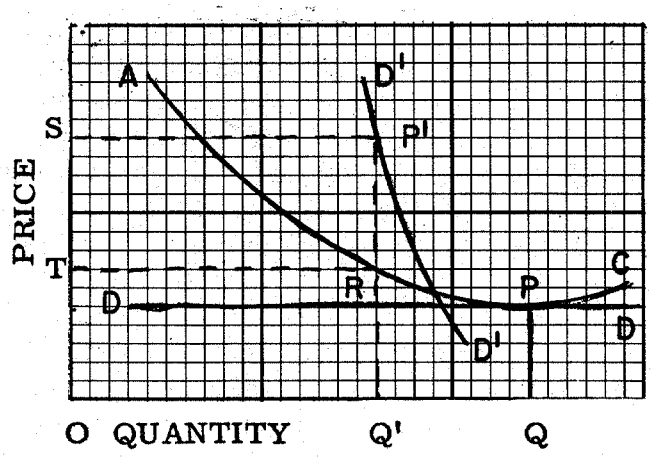

Figure X

Thus far we have talked as though industries were all competitive. The bugaboo of monopoly occupies a large place in the literature of economics. I am not going to cover in detail the monopoly problem.

The major principle can be demonstrated by the use of figure X given the costs of the monopolist at various rates of output and the demand for the product. He can be expected to choose the output and price at which the total profit would be largest. Of course, figure X exaggerates the profit possibilities; here with price P' compared to the competitive price P, monopoly profit is represented by the area SP' RT.

The really important question--and the one which is quite difficult to answer--is, When does a monopoly exist? In answering that question the important point is the slope of the demand curve as the management of the firm sees it. Under pure competition, the

management acts as if it said to itself: "The amount we sell has no effect on the terms. We will take the price in the market as a given condition and adjust our output accordingly." The monopolist says: "My demand is the demand for a product. The demand curve for the product indicates how much I can sell at various prices."

In this country however we do not have much monoploy in the sense just given to that word. But in many industries the sellers are in a position to say: "I have some influence on the price." In other words his demand curve is more elastic than is the demand for the product as a whole.

The difficult problem that we face at this point is that of the determinants of the slope of the demand curve. Does it have a large amount or a little bit of slope? I have no way of knowing. I can say that empirical investigations have led to two conclusions. There are some industries in which firms are so aware of their influence on the price that they do avoid overt price competition, and their competitive acts are all taken with an eye on the counteraction of their rival. This is a situation for which economists have coined the word "oligopoly," which you may have heard about.

Whether or not this feeling is buttressed by a few telephone calls, no one knows. There is nothing like making uncertainty less by leaning on an intermediary such as a trusted reporter for a trade paper, for example, I will say this--that empirical research also suggest that the management of the typical industrial firms does not have confidence in the long-term inelasticity of its own demand curve.

In other words management might think today that if it dropped its price, it might not be followed; and if it raised its price, it might not be followed either. But over a longer period of time the management is impressed by the extent to which, if it acts very much like a monopoly, others will take advantage of that fact.

There are two very potent sources of disturbance of monopoly. One is the member of the industry who is not big enough to feel that it is responsible for the level of price, but is big enough to take care of itself very satisfactorily in terms of production costs and financial resources. In this kind of a lecture I do not think it is appropriate for me to mention companies; I suggest that if you look over the petroleum industry, you can find several examples of the kind of company I have in mind.

Then in the whole consumer-good area, there is a very powerful restraint imposed in the form of the large retail organizations who are always potentially their own suppliers. If they are being charged a price that is higher than the level efficient manufacturing costs warrant, they can sponsor a supplier or go into the manufacturing themselves.

This is a phase of what Mr. Galbraith refers to as "countervailing power" in his book on American capitalism. Even more relevant is the definition of competition by Professor Wilcox of Swarthmore as "twenty parts oligopoly and one part Sears-Roebuck."

I happen to be of the school, and I say so frankly, that believes that the competitive forces in the industry sector of the American economy are very powerful.

With respect to wages as a price, we cannot say much that is definite. We do not know much about what influences choice of occupation or what influences the total supply of labor. Referring to figure XI where there is a very odd-shaped supply curve SSiSd, the segment SiSd represents the possibility that when wages are high, the amount of hours of work which workers do will fall.

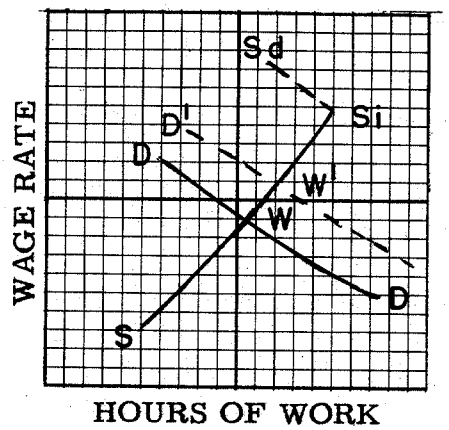

Figure XI

They will take sick leave when they are not sick; fewer members of the family work when they draw high wages. This could be a serious problem during mobilization for then our most important and scarcest resource is manpower.

In a particular occupation however, a change of wages relative to other wages will affect the number of persons seeking employment

in that industry. If more men are wanted in a locality or in an occupation, these workers can be attracted--not solely by wages, but by what Alfred Marshall called the "net advantages." These advantages include security of job, living conditions, working conditions, tenure, prestige, and a whole host of conditions of that sort.

So, this most basic of all resources, manpower, can be influenced by what--if offered. If then demand for labor in a particular occupation rises from DD to D'D' in figure, XI, more workers can be obtained but at wages represented by W'.

It is also true, as was seen in the case of commodities, the degree to which more workers can be attracted depends on the general employment situation.

In the thirties you could get more workers at a nominal increase in wages and in some cases you could have hired more workers even at reduced wages. On the other hand at the peak of the war mobilization in 1944 and 1945, it did not do any good to increase wages in occupation A; we did not have a pool of unemployed.

The only way more workers could be obtained then was to take from occupations B and C, where employers would try to keep their workers if they could get approval from the War Labor Board for a wage increase.

We have debated for some time in this country the effect of an increase in wages on employment. This is a topic on which I do not believe we have anything definitive to say in economics at the present time. There are two reasons:

1. One is that the increase of wages usually occurs at the time when there is a general increase in demand for labor. So it is difficult to say whether the lack of changes in employment reflects lack of influence of wages on employment or reflects the simultaneous increase of demand for the industry's goods.

2. Another reason why it is difficult to indicate the effect of wage changes on employment is that business is not always as efficient as it can be. I think that anyone who has been in a manufacturing plant has seen how, if they would make some change in equipment or organization, they could reduce cost. If the wages paid by this industry were increased, this might be the prod that would lead them to put in new

organization or new equipment. Of course after some delay they might have done the same without the increase in wages.

The analysis thus far has been of the sort referred to in economics "partial." We have dealt with a particular commodity or with this commodity versus another commodity. But implicit in this analysis has always been the assumption that more of commodity A is wanted, the added resources needed to produce it could attract away from other uses without much difficulty.

To complete the story of supply and demand, we have to recognize that reactions on the supply side to a change in demand will be influenced very powerfully by the extent to which there is or is not full use of the human and material resources of the economy. Here is reflected one of the major changes in economic ideas since some of you were in college.

The degree to which resources are being fully utilized is very fundamental to the whole problem of mobilization. If we want to have more steel, ordinarily all we have to do is wait a while and steel can be forthcoming. Sometimes we can get it with no wait at all. But if steel mills are operating at capacity, getting more steel for making more of A is possible only by making less of something else. This means that the supply for each commodity becomes quite inelastic because output of the economy as a whole has become almost entirely inelastic.

This is the final consideration that always must be introduced into the supply and demand problem. Are there idle resources that can be put to work if the demand increases? If there are, output can be increased easily and perhaps at only a nominal increase in price. On the other hand if we have quite full use of resources, it becomes increasingly difficult to get more labor and materials for particular use.

The reverse side of this situation is that if demand falls for a commodity, it is fairly easy to make the appropriate adjustment if there is generally a high level of demand in the economy. Then the resources, human and material, which are released from a particular use can be easily attracted into other employments. But if the demand decline for one product is only part of the general fall of demand the process is extremely painful. Then resources that cannot be used in occupation A will not find employment in occupations B, C, and D.

Our price system does not adjust itself gracefully to decreases in demand. It is much easier to adjust to increase in demand for particular commodities, and all commodities, than it is to make downward adjustments. Downward adjustments are most difficult to make when there is a decrease in demand for all the alternative uses of these resources.

All the points made here, particularly the last ones, have an important bearing on the problem of mobilization policy. It is easy to jump to the conclusion that because now we are going to need some different goods produced than we have produced before, this can be done best by substituting authority for the price system. I suggest that the more you understand how the price system works, the more you will respect it; and I would add, the more you have experience in trying to substitute authority for the price system, the more difficult you see that step to be. This is not to argue that large-scale mobilization--certainly, a larger one than we had for the Korean War--is possible without some interference with the price system. Then the directions of change we have to make are extreme and have to be made more rapidly and perfectly than can be brought about just by paying more for whatever it is then wanted.

I wish to say however that it is equally erroneous to assume that all of these adjustments, even those of full mobilization, can be handled best by substituting direct controls for prices. The fundamental error we made in mobilization during World War II was that we placed too much reliance on direct controls and too little on reducing the excess civilian demand which competed with the military demand. Next time we must not make that error.

Second, I would say that if direct controls were introduced, it is far better to control (allocate) the use of resources and (ration) commodities than it is to rely primarily on price ceilings for commodities. The latter is what we did almost entirely in the civilian sector last time. We relied on price control and did not directly undertake to allocate labor. We did somewhat offset the demand for labor through the allocation of materials however. We ought to put our primary reliance on controlling the use of commodities and raw materials, rather than on holding down prices and hoping that some kind of rationing and allocation devices will be worked out. I do not believe we held prices nearly as low last time as the indexes showed and I do not think we would hold them next time if we follow policies analogous to those used last time.

This remark is all part of my concluding comment: That is, that the forces of supply and demand are enormously powerful. The reasons are that they are really nothing but the attempt of individuals as producers and consumers to try to do better for themselves financially--consumers to make dollars go further, and producers and workers to obtain higher incomes.

One of the reasons I am optimistic about the competitive character of the industrial sector of the economy is that it would be very difficult even in the absence of the antitrust laws effectively to interfere with the seeking of private advantage which is the means by which economic adjustments are made. Both our depression and our mobilization experience show that even the Government, when backed by the enthusiasm of a war period, finds interference with this force of supply and demand to be extremely difficult. Therefore I suggest that we should interfere with it only where it is really necessary; but where we do, we must not do it in a half-hearted fashion--we must go to the heart of the problem by allocation and rationing.

One of the reasons why supply and demand are so important and are broader than your individual problems is that whether in peace or war, it is the market, operating through supply and demand, that is a method of organizing the economy without overhead direction. Through it we have freedom to select our occupation, to select whether we will spend our income on this or that commodity, and to choose among places to put our savings. All such choices are part of the whole concept of individual freedom which is of first importance in the political area, but freedom of choice there relies heavily on the extent of choice in the economic sphere.

MR. NIKLASON: Dr. Heflebower is ready for your questions.

QUESTION: Doctor, when you are talking about rationing and allocation rather than controlling prices, aren't you more apt to cause a black market. How would you control that?

DR. HEFLEBOWER: If we try to hold the price of a commodity at P' (see figure II) rather than at P, but have available only quantity OQ, then trouble with a black market is likely. At price P' consumers would buy quantity OQ' which is more than is available. Consequently, there is unsatisfied demand equal to OQ'.

If, on the other hand, formal rationing is established and ration tickets only equal to OQ are issued--because that is all of the product

available--it should be possible to hold the price at P'. By this means the portion of "willing demand" represented by OQ' is taken out of the market. It has the same effect as if demand were to decline to the level at which only OQ would be bought at P.

When we formally ration, we put out a new money; but, we limit the amount of this special money that each person can have. The attempt is to limit the amount of this special money to the quantity of the rationed goods available.

STUDENT: In the black market people were able to make a good profit on those items that people had to buy there.

DR. HEFLEBOWER: You mean the black market was in ration tickets--not by selling beyond the ceiling price?

STUDENT: The resale value of them.

DR. HEFLEBOWER: There can be two kinds of black markets. When the commodity is not formally rationed, the black market takes the form of selling at higher prices than the ceiling prices. When formal rationing is established, there can be a black market in rationing tickets. This is the same problem as that of counterfeit money. We always ration by money--regular money this time--I don't think anybody here has all the money he wants. Some people are getting around that rationing by black market through counterfeiting. This is really a problem of enforcement.

QUESTION: Isn't the difference, though, that the black market on ration coupons doesn't appear as part of the public debt after the emergency is over; the holder loses it.

DR. HEFLEBOWER: Is this what you have in mind? If prices are allowed to go up, this tends to affect the level of cost for the whole of the war effort, and because we never tax as heavily as the increase in cost, the total debt is inflated. Then, since much of this debt is in a form that is money or can be converted into money, a wartime inflation results.

Colonel, the only effective way to hold the price down--which is what you want to do so that rising prices will not bring about a further rise on the level of the debt--is to ration the commodity if the commodity is scarce. Ceiling prices were generally complied with on

many commodities in this country that were not rationed. But these goods were of the types that people did not want intensively.

The queue method was a perfectly satisfactory rationing device in many such cases.

I do not say that we have to ration every commodity for which we are going to set a ceiling price; but on every commodity for which there is lack of willingness to postpone purchase--the best example is beefsteak--rationing must be imposed if the ceiling price is to be held.

I do want to emphasize however that rather than rely primarily upon price ceilings and rationing to avert wartime inflation, we should go as far as we can in a democratic society to tax the money away from the people so they will not be able to buy beefsteaks at inflated prices.

QUESTION: There has been talk that the perfect economy is free competition in the market. It seems to me that since 1948, when price controls were taken off, free competition has been spiraling prices up all the time. Each year there's a rise in the overall prices. Is that true? If so, what causes it?

DR. HEFLEBOWER: Before answering the question I want to be certain that we agree on the facts. I think there has been increases but this was a definite leveling out of prices after 1947-48 and prior to the Korean War. The increase in prices in 1950-51 was related to that war. There has been no material increase in prices since the first half of 1951.

The level of prices will tend to equal the amount of goods divided by the amount of money. So, if the amount of money increases more rapidly than does the quantity of goods, and this money is spent--which is not always true--the prices of goods will be bid up. This is more clearly seen again in the case of beefsteak, and cost of production has nothing to do with the price of beefsteak in the short run. Then the price of beefsteak reflects the level of consumer demand.

When it was said during and after the war, "If we raise the workers' wages this will increase costs and prices will go up"--when they said prices, they meant food, largely. Wages as a cost do not, in the short term, have much to do with the price of food. But when the

wages of workers rise, their incomes are larger and their expenditures pull up the prices of food. That is the way it works.

Consequently, when you talk about inflation in the sense of movement in the general level of all prices, you are talking about problems in money supply. The failure during the war to do as good a job of taxation and monetary control as we could have done, was the basic force behind rising prices then! Some errors in policy after the war facilitated further increases in the money supply.

The explanation of how the market mechanism governs the economy is usually made without reference to the money supply. If however, the money supply is enlarged and that money supply is effectively used, as by Government expenditures during the war, this increases incomes and expenditure rates. This means that demand for goods rises. If the output does not rise accordingly, and when there is full employment it cannot, prices will rise.

If there is a demand for more of product A and more of product A can be produced easily, its supply is called elastic. But in a war or in a period such as we have had since the war, getting more of this commodity usually means taking resources away from other commodities. It means that if we are going to have more beef, we are going to have less pork--or if we are going to have more soybeans, we are going to have less corn. Then supply of all goods is inelastic; the output cannot be increased because we are already using practically all of our resources. Then there is only one way for income and expenditures to work themselves out; that is, by bidding up the general level of prices. The price mechanism is a device whereby these increases in people's incomes are reflected on the prices. Of course, some commodities rise more than others--either because people want more of some than others, or because the output cannot be enlarged very much.

Since 1951 there has been an approximate equilibrium between total demand and output at a general level of prices that has not tended to move very much, up or down. Of course individual prices of commodities have been moving up and down. There has been shortages of one and an excess of another, but that is the price mechanism working. So I think it would be fair to say it has worked very well. The time when it did not work was in the thirties when we had a general drop in the level of demand. The price mechanism adjusts much more easily to increases than to decreases.

QUESTION: This morning in the "Journal" there was an interesting article which appeared to be a paradox with respect to Philco. The article said its people were going to raise prices now when the market is glutted. They may consider themselves to be in a position of competition, but the demand is practically nonexistent. What factors would cause a company to raise its prices in the face of such conditions as these?

DR. HEFLEBOWER: I remember a Ph.D. examination question with which some of our graduate students had great difficulty. One of the bright young members of the faculty said, "I would have felt better if they said this was impossible."

I am very suspicious, frankly, of what is happening in a case of this sort. They might actually raise a quoted retail price, which is a device for deluding the innocent consumers who do not know any better. I would doubt that there has been any price rise, or, if they made one, that it will stick under the conditions you have laid down.

There have been a few cases in which companies have raised prices when demand fell, but instances are hard to find. When demand has fallen, it is a rather odd time to raise prices. This would cut consumption. Actually, with plants already built, when demand falls the only relevant costs are the variable ones. Since variable costs are ordinarily less than total costs, there is no point to raising prices.

STUDENT: Are we supposed to talk war contracts on that assumption?

DR. HEFLEBOWER: The question is, What costs are relevant in the short run? This is a point which we just did not have time to go over, but it is a topic on which I could have spent another half hour. In the short run, if you cannot sell your capacity output, your average total cost is not a relevant fact. With plants already built, depreciation, for example, is not avoidable. But out-of-pocket costs are, and if not covered by current prices, presumable production will fall or the plant will close down entirely.

Of course, when a company's considering establishing a plant, it will try to figure out what its costs will be and what the demand will be. Then total cost is important because with all assets liquid management has a choice as to whether to invert its funds in fixed assets or not.

But once it builds the plant, all costs related to the plant are sunk. It cannot recover these funds except from receipts above out-of-pocket costs.

The fact that the total it cost per unit will rise when operating the plant below capacity is not an important consideration for what price policy should be in the short run. Management should attempt to get maximum receipts possible above out-of-pocket expenses. That is the best price.

To turn now specifically to the question, presumably the manufacturer with whom you are negotiating has alternative uses for his facilities. If so he does not have to sell below total cost and may even be able to get much more. If the latter is true, you cannot expect him to take an order at total cost plus 10 percent, unless for patriotic reasons or because he is ordered to do so by the Government. On open bids, presumably suppliers offers are based not merely on costs but on what they could get from alternative use of their facilities.

MR. NIKLASON: Our time has run out. Thank you, Dr. Heflebower, for your very effective treatment of a most formidable subject.

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