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COST ACCOUNTING

by

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COST ACCOUNTING

Colonel Miles and gentlemen of the College:

I have a great deal of pleasure and a considerable sense of responsibility in coming down here to talk to you about "Cost Accounting". My sense of responsibility has been greatly increased since I arrived in the building, Commander Dunham tells me that my talk is to be the foundation of the course which he is about to give in cost accounting. That seems to increase the load upon me considerably.

Colonel Miles was good enough to leave me a wide-open field as to what I should say to you and how I would handle the subject. I am going to give an outline of the main problems of cost accounting, with some reference to the war contract forms, the procurement contract forms. I am not an expert or an authority in any sense on those forms, but I have read them and studied them a little in the past, and recently have refreshed my memory by reading the excellent paper that Major Fenn wrote in February on that subject. Therefore, my talk is primarily about cost accounting as such, about cost accounting in industrial plants in the ordinary course of business; but I shall make some allusion to the war contract forms.

The first problem in cost accounting is always what they call in textbooks, "the choice of a system", that is to say, what kind of cost accounting system are we going to have in a given plant, and we think primarily of job costs and process costs. Now, first, these terms are misleading, the simplicity of textbooks is always misleading. In most cases in practice you find some combination of the two things, but what is there about it that is important? This I think is important: When we say "job costs" we mean that we are endeavoring to find the cost of a particular lot of product. Of course the simple example is building a house or a bridge or a structure, but in manufacturing we find the cost of a particular order for goods from a particular customer, and there is a job cost situation.

The process cost is used where production is continuous, a sort of continuous flow; for example, the packers in Chicago use process costs because they have a continuous flow of product of animals going through their plant, also, milling flour is a process cost case, many chemical companies use process costs. Instead of finding the cost of a particular lot of the product directly, you calculate the cost for a period of time, say a

month, and then find how much has been produced in the month, divide the quantity into the cost and get a cost per unit.

The important thing there is the unit around which we build the costs, the quantity of goods around which we build the costs. It is important partly as a matter of simple clerical convenience and economy. But while economy in cost accounting is important, it is still more important that you should select the right unit around which to build your costs when you are allocating costs to the different products. If we select the wrong unit we are apt to go astray in our cost allocations. That, then, is the first hurdle to be taken, the determination of a system by which we select job costs or process costs or some combination of the two. Very often you will find a plant with job costs in one department and process costs in another department. But the important thing is to select the right kind of unit around which to build the costs.

Next the main elements of cost. I am talking in rather elementary language, gentlemen, but I am endeavoring to point out to you what are the important features in these elementary concepts. When we talk about the factors or elements in cost we immediately think of materials and labor and burden, but the first and main division is that between direct costs, as we call them, and indirect costs. Direct costs can be allocated to a given product. Here is the desk; it contains certain material, certain labor was put upon it by an individual, and that material and that labor can be charged directly to that desk and go into the cost of it.

The kind of thing is fairly simple. I say "fairly simple" advisedly because there are some problems present, with which I shall deal later. While there is no trouble in identifying the lumber in that desk nor the individual labor of the carpenter who put it together, a set of problems is connected even with that. It is all very well to say, "That desk cost so much for lumber and so much for labor, as direct charges." They are unmistakably in that desk. But in business and in your procurement work, and particularly if we should come to the stage of war contracts, there is always in the background the question: True, that desk cost \$5.00; that may be a fact but is that the right cost: Should it have cost \$5.00? Who is going to set a standard and say, "Yes, but it ought to have been made for \$4.50." With the so-called direct costs there is little trouble in allocating them to the product; the big question is the standard or measure you are going to apply.

In ordinary business we attempt to deal with that type of thing by such devices as standard costs, built partly out of experience of the past, but also partly out of standards set up by engineers and people who from knowledge of drawing and designing can say from a theoretical viewpoint what the thing ought to be. I am sure you are all conscious that only a combination of those two things can be satisfactory, that is to say, experience of the past is not necessarily satisfactory; we need also an ideal theoretical standard to check up by, but also you cannot set a standard alone on the basis of a theoretical idea about it. That also must be checked up from experience. It is generally accepted all through business that standards are necessary and desirable to match against your actual costs. Those standards must come partly out of experience as to what has been accomplished before in the way of the use of material and the use of labor. How much material did they spoil, how many board feet should they take out, and how many hours of labor went into it; if seven hours, should it have been done in six hours? Questions of that sort are at the basis of any cost situation.

When we come to burden, the indirect costs, there is the problem of allocation, of saying how much burden must be loaded on the direct materials and labor. Over in England they use the phrase "oncost", some people call it the loading. It means the additional costs over and above the direct charges for material and labor that go into that desk. Here the problem of allocation in itself is difficult. There are two stages of it in ordinary manufacture. You have first the general charges of the department in which that desk is made, building costs, the machinery and equipment, all the charges within the department. It is not difficult to see that charges of a shop in which that article was made have something to do with its cost, and it is not too difficult to make some kind of allocation to the particular article, commonly on the labor basis, and there the question chiefly is, whether it shall be on a money basis, for example, a percentage of the labor cost. The labor cost was \$2.00 for burden of the department. That part is not too difficult.

The problem is to find out what the relationship is between the burden of the whole shop and the particular articles that go through it. How much do those articles utilize the facilities of the shop is the question. One great difference always surrounding the question is, whether the article is chiefly made by hand labor or machine labor. If it is a machine product then commonly a machine-hour cost is the common and suitable basis of allocation. The theoretical ideal, once more, is to charge the product in proportion as it uses the

facilities of the particular shop.

But, over and above the particular shop and the foreman and the machinery is the general organization of the company, the general administrative, the president of the company, the vice-president, the secretary, the general offices, all the administrative paraphernalia of the company. What about them, how are they going to be charged to the desk? Here you are in more difficult territory, an area where there are practically no rules. It isn't cut and dried and we are forced to the use of the best judgment that we can apply to the situation, which is always very distressing to people who don't like to use their judgment. But there is no one way for always doing that kind of thing. Sometimes this general overhead can be combined with a shop overhead, and can be applied on the same basis with it. Sometimes it is necessary to make a second loading, a second charge for the general overhead, putting it in on a different basis from the shop overhead.

One of the things I am most anxious to emphasize is that as you study your cost accounting you try to observe up to what point you can be sure about your ground. You can be sure that that labor is in that desk and that the workman's labor is in that desk, but beyond that, when you come to the loading of overhead you are dependent upon the exercise of your own judgment and your own discretion to a very marked degree. When you come to that stage do not deceive yourselves into thinking that you have as definite and reliable figures for the indirect charges as for the direct charges.

With burden, as with direct charges, there is also the question of the standards, what ought the expenses to have been. That was one great trouble with your cost-plus contract in the war. Very often it wasn't very difficult for a manufacturer to show that the labor and the material actually went into the product and that it came to a hundred thousand dollars. They could show the checkbook and there are the payments. But while it cost that much, the whole question was should it have cost that much? Was that a fair cost? Once more you are confronted with a question of a standard, by which you can put a yardstick against actual figures and say whether these costs are reasonable or not.

Thus we have this running parallel of difficulties: first, the allocations of costs, some which are easy, some more difficult, second, admitting that we now have in our hands a cost sheet which contains the actual costs, are they the right

costs in the sense of what the costs should have been? Is it a good standard? Is it fair to ask a customer or the Government to pay that much cost as a price?

This general overhead also contains things that will be interesting to you gentlemen, research costs and development costs. Those are always difficult things to handle. We have two stages: first, research and development designed to develop a particular product; here you know what you are shooting at and therefore can charge such costs to that product: second, especially in large companies, you have a good deal of general research and development going on, feeling around in the dark, not knowing what they are going to find, but feeling sure that they are going to find something. Such costs must be lumped into that general overhead of which I spoke. Theoretically, they should be charged against all the products which will result from that research and development. You are dealing in futures in a condition like that, but are spending your money now; you don't know what is going to come of it, and even if you invent something you don't know how many units of that thing that you are going to manufacture to that particular design. Again you are confronted with the necessity for making estimates, and the main question is, are your estimates reasonable. There constantly develops in cost accounting this situation of dealing with figures that look exact, and to the simple-minded are exact, but which always contain a large element of judgment in which some person has taken some arbitrary steps, and made allocation to this and to that product on what he called the best basis.

Let me illustrate that further by referring to the case of joint costs. Many people think that joint costs are odd and peculiar things limited to people like the Chicago packers or a company like Corn Products Refining Company, which takes corn and makes thirty-seven different products out of it, or companies of that kind using a common raw material and developing a great many products from it. Here it is not merely the overhead which is common; the very raw material itself is common to all the products and its cost in some way must be split up among the different products which result.

Some years ago, 1921, I believe, the Federal Trade Commission made a study of the cost accounting practices of the Chicago Packers and said they were all wrong. But, in this year of grace, 1938, the Chicago Packers are still following the same cost accounting practices as they were before the Federal Trade Commission made its study: no change has occurred in that respect.

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What is the issue? When you go out in Illinois and buy a steer and bring him up to Chicago and divide him into beef, hides, and fat, and the hide must be processed this way to make leather, and the fat processed that way to make soap, while the beefsteak is sold as beefsteak, how much is the cost of each of those products? How much of the cost of the steer shall be allocated to each? As a simple example, suppose they buy the steer on the hoof at ten cents a pound, that the average selling value of the meat is twenty-five cents a pound, hides are five cents a pound, and fats two cents a pound. What the Chicago Packers do, roughly speaking (there are many qualifications and complications) is to divide the cost of that steer, at the original ten cents a pound, and allocate to the beefsteak, fat and hides in proportion to their market values. They resort to a selling value basis for the allocation of costs.

The Federal Trade Commission said that was wrong, and that a sound and scientific cost accounting system ought to be installed whereby the packers would get direct actual costs of these different products that result from the steer. But they carefully refrained from suggesting any specific basis as to what the allocation should be. This represents a problem which confronts us all. Joint costs are very common in industry. They are common in chemical plants, for example, where you are breaking down raw materials into a number of different chemicals, having all kinds of different values. It is one of the commonest problems, this allocation of a joint raw material to many different products.

There are two choices in this allocation. You can resort to a physical basis and charge them all equally, pound for pound; for instance, for hide ten cents a pound, fat ten cents a pound, and beefsteak ten cents a pound, all alike. But what are figures for? They are very largely for the guidance and assistance of executives who are going to use them as a basis for policies on such questions as whether they are going to process a given product any further, or sell it now. Many such questions and problems depend upon the figures they are using. But if you put a loading of ten cents a pound on fat which is selling at two cents a pound, what is the reaction of your operating man, the foreman, the superintendent, these practical men who are naturally suspicious of figures? They say they have no use for figures of that kind, and the thing falls of its own weight.

I'm not talking theoretically. In the corn products refining industry, not the Corn Products Refining Company but another company of the same type, the attempt has been made to allocate the cost of corn at equal rates per pound to starches, cattle-feed, fertilizers, high-grade chemicals, salad oil and the other products made out of corn, although some of them are worth ten dollars a ton, some of them fifty cents a pound, and other products in between. Such a practice breaks itself down because the executives say, "Those figures mean nothing to us."

The alternative is the value basis, market value or selling value basis. I would like to warn you that there are many complications. Sometimes, at the point where the product divides there is no market value; you have to process it further. In that case it is usual to subtract the subsequent processing charges from the selling value and work backwards to the point at which the product is divided up. This is a common example of a situation where you are forced to make a choice between a physical basis for allocating your costs and a value basis, an economic basis

I have raised the question of standards in costs, whether the costs are reasonable. All of us, especially people like you, hope and desire to have some kind of check upon costs. How will you find them? In ordinary business and in a great deal of Government buying the greatest check and the greatest safeguard is competitive bidding. If you can get honest competitive bids in an open market, that is the greatest protection that any buyer, Government or private individual, can have. When we can't get that, when we are dealing with some special product, perhaps never made before, or a plant which has been making sewing machines is now making runabouts, then things move out of the area of experience into the realm of experimentation, competitive bidding is not available, and you resort once more to the exercise of judgment aided by the application of standards of some sort. These standards consist, first of all, of comparisons with prior experience as far as may be; but we have started out with the assumption that this is an area where there is little or no prior experience. While the plant may have had no prior experience in making a particular product, they may have had prior experience in many of the operations that enter into that product; they can break a thing down and say, "We know how much a man ought to do on that machine in that particular operation, and the same machine is used for this other purpose". In this way it is

possible to find useful experience with which to check new work. Also the designing department, the engineering department, can help to set standards on the new work, how much time should it take on that machine for that operation, and for that laborer how much time. A good deal of that goes on in ordinary industry, and there is no need to accept as a final answer, "We have no experience of that kind of work." They have had experience of a similar type or otherwise they would not be doing this kind of work; they make such transitions in ordinary peaco-time work. Of course this involves correcting the standards, a good deal of adjusting as you go along. You set standards in advance, and as you acquire experience those standards can be adjusted and corrected.

Another interesting phase of this problem is suggested by the work of that class of consulting people called industrial engineers. They are often asked by private manufacturing concerns to come in and see what they can do for them. What do the manufacturers want them to do? The work of such firms falls largely into two main classes; one is the cost accounting system as such, the paper work and its methods; the other is an attack upon the actual costs themselves, with the hope of reducing them.

A great deal of confusion occurs on this subject. It is a common thing for a manufacturer to have an uneasy feeling that something is not quite right in his factory, that something needs to be done to improve it. So he goes to such and such firms of consulting engineers and says, "I think you could do something for me." One of the difficulties is he doesn't have any clear idea what to ask them for. If they happen to be specialists in cost accounting they may give him a very good cost accounting system and say, "You take this and then you will know all about your business. It will tell you what you ought to do." But often it does not deal directly with the problem: "I want to reduce my costs, I want to cut down the cost of this article from three cents to two and a half cents per piece."

If that is the problem paper work can assist by telling what the costs are now, but that is only the starting point. The question is, how to reduce present costs, and that requires somebody who has the gift of being able to walk about a factory, and looking at a man working on a machine to say, "He is doing his best, he is doing what ought to be done, he is doing a standard job on that machine. Or, he is doing something less than standard, also that is the best layout, the best sequence, the best arrangement, for processing that particular article." It is necessary to tackle actual layout, organization, methods,

time and motion studies, with some sense as to what is good, what is poor, and what is bad performance. The number of men who have that gift is limited. If we should ever get into an acute crisis where a greatly increased production was suddenly needed all of a sudden by the Government, I could imagine no better step than the Government mobilizing, among other things, the whole consulting engineer fraternity. It includes many of the best men at this task of looking at the shop and saying what is one hundred per cent, of eighty per cent, or forty per cent efficient. I should warn you against this illusive appearance of accuracy in the figures that you get on the cost sheet. It is nicely typed, it adds up; it includes all the material and labor and burden; but it is very often a delusion. But when you challenge it and endeavor to say whether it is right or wrong, all the questions to which I have referred come up: the questions of allocation, the question of judgment in allocation and in the application standards. You are all conscious that industry is confronted with this problem every day; they are not satisfied merely to know what is the actual cost of a product; they want to know whether they can make it cheaper, whether they can do better; that is their real ambition. Obviously, that must also be your interest when you come into contact with this sort of work.

Referring briefly to your forms of contract, you have the several forms - I repeat that I am not an authority on them, especially not on their legal aspects - you have certain fixed price contracts for use in those cases where experience is available. When you are buying a known product in a competitive market you can get competitive bids. In such cases, if you are pretty sure about the bids, you can safely place your order at a fixed price. It saves a lot of trouble and probably gives you about all the protection you can get as regards not paying an excessive price for the article. The evaluation fee construction contract relates to the construction of buildings and large undertakings designed to be devoted to war-time or Government production. There you are venturing into a new area and the purpose is to pay for the direct charges, the materials and the labor and a fee in addition. It has many features in common with the next form, the adjusted compensation contract, where again we are talking about manufactured products, perhaps manufactured in one of these buildings put up under another form of contract. But here the conditions are such that there is not much opportunity for competitive bidding, and not as much experience as we would like to have to guide us in setting up standards or arriving at a price. Furthermore we all

understand that these forms are efforts to get away from the old-time cost-plus contract. That was seriously affected with the defect of which I have spoken. The contractor could put so many things into cost, could prove to you that it was the cost, that he spent the money, but all the time the question was, should, that have been the cost, was it an honest cost, or was it padded, either deliberately or, by careless negligence and incompetence? Almost any fault might have contributed to increase these costs over and above a reasonable amount.

The new forms are not approaches to that problem, but they do not solve the problem. You will still be confronted under the new forms as under the old, with all these problems of setting a standard, in arriving at that. In the adjustment compensation contract they speak of direct materials and direct labor as being fairly easy to figure. They are easy to come at in the sense of finding what actually went in, but if you raise the question, what should have gone in, you are in the same difficulties as with your cost-plus, it is the same situation.

I think that the new approach has some value; it makes a contribution, but mainly in that it puts you on a better platform for approaching the problem, for negotiation with the contractor. We have seen a lot of negotiation lately internationally; you know the advantage of having a good platform to start from, no par. These contracts will put you or others concerned in a better place, in a better negotiating position to ask more questions of the kind to come at the truth of the matter. That is their greatest value, but if any man believes that these new forms of contract are going to remove all the difficulties that arose with cost-plus, that is a delusion.

In the adjusted compensation contract itself are various provisions for controlling costs, indicating that those who drew the form were aware that they would have to take certain steps to protect the Government. First of all, there is the setting of an estimated cost, the attempt to create a standard in the first instance, recognizing that it might only be tentative or temporary; here is a standard for the time being. Then there is the incentive of sharing with the contractor the savings which are made as compared with the estimate. Out of every dollar the contractor can save on the estimate he can have thirty-five cents, or whatever the share is. There is a good deal of value in that. There is no doubt that it is worthwhile to give the contractor an incentive to cut his costs. Then, of course, there is the provision that the representatives of the Government will have

the right and the opportunity for a review of all the costs, both while the contract is going on and afterwards. In that review you will pay attention to the various things that have been mentioned, the basis of cost allocation and the idea of a standard or reasonableness at every step. Finally, there is the provision in the contract for arbitration in case of dispute. All of that is to the good. All of it contemplates setting up machinery to deal with these problems as they arise, but all of it emphasizes the fact that the contract itself, the form itself, is not going to avoid the difficulties. These will come up, and the contract itself contemplates meeting them, and sets up certain machinery for dealing with them.

Probably one of the thorniest issues, one of the most difficult phases of this work, is the problem of the construction of new plants and new facilities primarily for war purposes, but useless to the Government after the war. The disposal of those buildings and facilities always creates an issue. It is natural for the Government to take the point of view of going to the company on whose property the construction occurred, and saying, "You can surely use this plant for something." The company, partly under pressure and partly out of their imagination as to what the future contains, will finally agree to take it over at a value. But many of the companies which accepted plants in 1919 and 1920, and accepted them of their own free will in the belief that they could do something with them, were disappointed afterwards. In many cases, they were not able to get their investment out of those plants. Some of the larger companies which were contractors with the Government have said: "We made these so-called profits during the war, but by the time we were finished with the plants with which we were loaded after the war, there wasn't any profit."

You will say that is going pretty far in the cost accounting field. I am indicating that cost accounting is not the whole question. There are questions as to what you are going to do even after you know the cost. It is easy to find out how much money was put into a given building but who is going to bear the load? Who is going to pay is the question. In the first instance the Government, needing the facilities, pays for them. When peace time comes they naturally try to make a deal with the manufacturing companies saying, "You take over the property and pay part of its cost because you can use it for peace-time purposes." This is one of the greatest and one of the most difficult of all the questions that will have to be dealt with.

Cost accounting in a narrow sense does not include questions of price and profits, but we are all aware that one of the main purposes of cost accounting is to arrive at a price and to determine a profit.

You are all aware -- Major Fenn touched upon it in his paper -- that it is contemplated that profits will in some way be restricted, regulated, in the event of another war. There is a certain moral element in that. It is expected that every manufacturer will do his duty in a national emergency and not make too much profit out of it. Furthermore, the strong arm of the Government will be available to effect this result, and to make it uncomfortable for those who resist. But we are again in the realm of political philosophy. If we should be so unfortunate as to find ourselves in another war, will the administration command all our services by authority, by dictatorship, or will there still be an element of the fact that this is a free country of free men who want to fight for their country, who wish for its prosperity and happiness and welfare. Insofar as there is any element of the latter kind, the question of profit comes into industry even in war time. There is a classic example of this in the writings of Walter Bagehot, the English financial economist, in his discussion of the foundation of the Bank of England. It will be known to some of you that the Bank of England was established in 1694, and its purpose was to finance the wars of William the Third. It is now an ancient and respected institution, but originally was a device to finance a war, and Bagehot says it succeeded, "by reason of the happy combination of patriotism with 8 per cent." Eight per cent was the rate that the bank paid on the stock to raise the money which was handed over to William the Third. That element present is still present. I realize that you gentlemen are not in the Treasury Department, that you do not decide the basis of financing and taxation; but for those who do have these problems there is a good deal to be said for letting manufacturers at least handle the money, at least make a profit, even if it is taken away later by taxation. Either the Government is a government of free men who want to serve their Government willingly, and as a cooperative enterprise, or else it is a government of terrorism by which they command the services of the citizens by compulsion. If the first is wanted, they must give a little encouragement, and one of the joys of a business man is to make a reasonable profit. The authorities could therefore afford not to beiggardly about the profit, remembering how much of it they take away afterwards by taxation. At least the business man has had his fun, he has made his profit, and has handled the money once.

Consider the economic discussions of profit. First of all, to the economist profit is one of the costs. In talking about society as a whole, profit is one of the costs because in order to have those goods produced, society must pay for

the services of the entrepreneur who makes them and receives the profit. The profit is the payment made by society to the entrepreneur for his contribution to the business. What is his contribution, they go on to say; and it is fair to ask ourselves the same question. First of all, profit contains the element of interest on the capital invested. Let us assume there is such a thing as a pure rate of interest of two, three or four per cent on the money capital invested in the industry and that the company must have a return on that. Many of our friends think that rate is sufficient for interest and for profit. But profits are, in the definition of the economist, something more than that. They also contain a reward to superior management, for entrepreneurs of superior enterprises.

Let us grant that those who have superior skill and ability in industrial organization and management should be rewarded by being allowed to earn proportionately greater profits. It seems worthwhile to take note of that. In an emergency we need these services, especially of the superior managers; it should not be entirely out of our philosophy to allow them some recognition of their superior skill and ability.

The third element that goes to make up profit -- I have mentioned interest and the reward for superior management -- is the compensation for risk-taking. Investors embark their capital in the enterprise, they undertake all the risk, they pay the expenses and receive the income, and thus take what is left. If it is plus it is a profit; if minus it comes out of their capital. Therefore, as a reward for the risks which they undertake, and for their encouragement, if you like, to adventure their capital, they are given a profit commensurate with the risks, over a long period of time; because if the profits are not commensurate then many are eliminated from that business and other people will not come in to replace them, so that gradually there is a curtailment of the supplies, and prices are forced up. There are such risks involved in working for the Government. Major Fenn in his paper refers, for example, to the fact that on account of a legal ruling, at the end of the war a very large number, I think he said something like 7,500 proxy-signed contracts were thrown out for the time being. It is true that they were reinstated, but that is one of the risks to which the manufacturer is exposed. Then of course he is exposed to the risk that the war may suddenly end and leave him with unfinished contracts.

Therefore all three of the elements which in ordinary economics enter into profit, interest, superior management, and risk taking, enter in large degree into this emergency manufacturing for Government purposes. It does therefore seem reasonable that a fair addition be made recognizing all those elements, not merely the element of pure interest - practically everybody recognizes that - but these other elements also, of superior skill and management, and also some compensation for the type of risks they are undertaking when they accept that kind of work.

Thus while in cost accounting, for ordinary business we stop when we have found the internal costs, the economist, speaking about general costs for the whole of society, adds profit for the entrepreneur as being a cost, another cost which society must pay if it expects those materials and commodities to continue to be supplied.

I refer to one other point. For reasons arising partly out of the Government management of finance, a war time is practically always at least, in past experience, a time of rising prices. That arises partly, as I say, out of the method of financing the war by the Government; but partly it arises from a scarcity of ordinary peace-time commodities created by the diversion of large productive enterprises to war production instead of peace-time production. So you have at the same time a financial situation which tends to rising prices, and also a condition of scarcity of products. That is the atmosphere in which we must expect to work when we deal with war-time contracts. But then another thought enters. Probably the experience of the last twenty-five years in this and other countries is showing our Government ways, not only of managing money, as they say, of managing the supply and demand for money itself, but also of pegging prices, and undoubtedly considerable effort will be made to peg all the staple commodities of food and materials for munitions, steel, copper, cast iron, wheat. That is another thing which will not be in your hands nor in my hands but those hands in which it lies will have a heavy responsibility, and they are the people who should take account of some of the things which I have said this morning as to what should be included in a price. You must remember the inherent conditions, the money situation, the need of financing the war with constantly new bond issues on the one hand, and on the other hand the scarcity of commodities; these exert a constant upward pressure on prices, and the more the Government holds the lid down on copper and wheat and what we call staples, the more prices are likely to break out in some other direction.

I am conscious that I have covered a lot of territory. My teaching at the Harvard Business School is largely concerned with ordinary peace-time manufacturing. Our students expect to go into business and they hope to live the rest of their lives without being bothered with war. However, all of these considerations which I have placed before you as applicable to peace-time production would be equally applicable to war-time production and I have tried to show you the elements that enter into it. Up to a certain point we have definite figures, with some assurance as to their accuracy; but even though they are accurate, are they standard, are they good standards, are they fair standards? Beyond that, no definite figures are available, no definite basis for allocation; the need is for some wise and sensible person to use his judgment about where the costs are to be allocated; and then skill is required to apply standards to the actual costs, and thus determine whether or not they are reasonable.

"Cost Accounting"

By Professor T. H. Sanders

Discussion

October 25, 1938

Q -- Doctor, before I ask this question I'd like to make one surmise. As I understand it, the military is not so fundamentally exercised over cost control except in the raw materials that go into the materials but one of the things that is going to bother the military in the next war is the time element. You commented on these forms for determination of cost. How is that going to affect the time element of production?

A -- I don't see and nothing in them struck me as being likely to prolong or delay the thing. To tell the truth I haven't examined them with that particular question in mind. As I have read them there has been nothing in them that struck me as being unnecessary, cumbersome, but of course the point you make is very important indeed. They must be drawn and carried out both in letter and spirit in a way which will expedite the completion of them. But I am not sensible about anything that will create undue delay.

Q -- I'd like to ask you, Doctor, in connection with this question of determination of cost, etc., what you consider the real efficiency of the permanent settlement of trade when, as compared with any war time settlement, it is made. In other words, if by law a property has been attached, would you be more likely in the long run to arrive at a fair price and hold down or exclude excessive profits by operation of the taxing law than you would by attempting to control the tax during the production process. In other words, would we set up an agency that would not be as well qualified as

what the Treasury already has. I didn't mean to use one of those policies to the exclusion of the other. I have assumed that these contracts, for example, will be applied in their forms and that the price will be held down to what you might call a fair price and no excessive profits. I accept that principle but even after you have accepted the principle it's like these diplomats who say, "I agree in principle", but after that they start fighting. I agree in principle to a price with no excessive profits but what do they mean. Some of those gentlemen think four per cent a fair return. It is not a fair return to cover interest plus superior management plus risks. I said ~~six per cent~~ because that is a historical item but I think more than four per cent anyway. I think that in other words I won't be niggardly about one or two per cent. I've done a lot of study and work in the public utility area and I don't know whether you have been aware of the enormous expenditure of money and effort and wrangling that goes on in the various state commissions that exercise control over them. They'll spend \$100,000 in a hearing to determine whether a company shall have 5½ or 6 per cent as a fair return. What I think is that that is a great waste of time and energy and I'd like to avoid the same kind of wrangling in case of war. One way to get things done quickly is not to wrangle too much about 5½ or 6 or 7 per cent because you have got a second crack at them in the tax laws.

Q -- In the past year it's been Doctor Sanders who has asked me questions. Now I'll put one to him. How far can you go in war time in using our experienced companies in our arsenals and navy yards in applying them to industry as a basis for what we'll allow them to charge?

A -- I take it you're thinking more of the labor costs, rather than of

the terms. If your arsenals will not be responsible for any gyrations that take place in the price of steel or copper or other materials. Somebody else has got to look after that. Presumably, they'll have to pay whatever the market sets or the Government sets. In the use of materials there's something that you'll want to have - standard bond from which you could derive a good deal of standard guidance in peace time work. It is, however, a common experience that when we turn small products as on a more or less experimental basis to mass production on a grand scale, something happens to cost. In general, we can expect them all to go down. That is a general statement, of course. In the transition period in speeding up production you're bound to have increases on account of the unnecessary confusion. I think of the phrase of an old textile man who was in the habit of speaking of what he called the hidden profits that were always in a long run. They get an order for 5,000 yards of a material or 10,000 yards; that is just chicken feed; that is just small stuff. They like to get an order for 200,000 yards of the same stuff and be able to run it through the machines. If you can give a standardized product to a plant and give him a long order for a long run the workmen, the foremen, the whole organization learns a good many short cuts and a good many of the best ways of doing this and that, but they don't have time to learn when they are on short time work. I think it's fair to speak on mass production on a grand scale of a great many economies you can't expect from short time production. Of course, I'm not answering your question precisely. You didn't expect me to say 10 per cent or 5 per cent or one way or the other but the general experience of all industry is that costs are reduced to a rather surprising degree when there is the opportunity to have long run operations.

Q -- Will you comment, please, on your opinion as to the present cost standard set up by the Government for income tax purposes? Would they be a fair basis to determine depreciation rates in the event we must go to cost planning?

A -- That is a difficult question. I was over in the Internal Revenue Department on one occasion two or three years ago when I was doing some work for the S.E.C. They told me there that out of a half million or so tax returns which they receive from corporations, in 95 per cent of them the depreciation which they take in their tax return is the same as the depreciation they take in their ordinary financial accounting for their own purposes. Now I fear that that is one of those misleading statements. That means that five per cent of the corporations have a different rate of depreciation in their regular accounts from what they do in the tax returns. That is referred to as having two sets of books. Is isn't that at all and in general there is no element of duplicity. But now five per cent of half a million corporations means 25,000 corporations who have or may have different rates of return in their own accounts from what they do in their tax returns. Very often there are higher rates of return than the Government will allow them to take. Now I fear that the point is that in that 25,000 corporations that differ with the Government on depreciation are practically all the big corporations of the country, so when we say sixty-five per cent of all the corporations are the same for both purposes we are misleading. Now as you know the Internal Revenue Department has put the pressure on corporations to pare down their depreciation rates within the last ten years It's been going on a long time. I remember meeting in 1925 or 1926 with some

of the representatives of the Internal Revenue Department in a Trade Association meeting where they were beginning to study depreciation rates in different industries and beginning to get this information together for what they called R.D. 4422. The fact is that conservative management is a good thing. It makes provision for all the possible contingencies of the future. Now for example, in the 1920's, it used to be said that the public utility companies were about right in their charges for depreciation and industrial companies were excessive. It has been said by some of the leading public accountants in New York, who know most about these things, that the 1920's have demonstrated that the public utilities were woefully inadequate in their depreciation provisions and some industries, notably the steel industry, were under-providing for depreciation. You probably know that about 1935 or 1936 the United States Steel Corporation underwent a grand transformation. Now one of the things that they have done, of course, is to write off out of plant something like \$285,000,000 of plant that was obsolete that had not been provided for by depreciation. That kind of thing more or less prevails throughout the steel industry. Now you say, can we accept it? I think again you can only study the situation and use your own judgment. If the tax depreciation is the same as the company's depreciation, then I say there is a very strong basis for accepting it but if this is a different rate, I think you have to ask a company why they are using a different rate of depreciation and you have to use your own judgment as to how good their reason is. Many companies honestly believe that the rate the Government allows is not enough.

Q -- I want to ask Dr. Sanders a question about his standards. The

question refers to your remark about the price of that desk. If it would cost you \$4.50, the question arises as to whether that would be the proper price. Now in ordinary times as you intimated that standard would be observed. But we have a principle in the industrial mobilization plan as to price and cost to be set at the bulklime. That is defined as the price which is necessary to bring out the last indispensable quality in production. How on earth are we going to apply a standard when the high cost producers must be brought in under that basis? Doesn't the principle leave us out at sea?

A -- Well, that would fulfill one of my previous requirements that the proper cost producer would reap the reward of that in what I call the reward for superior management. That would serve that purpose. That is a different issue from what you are raising. But of course, it does mean that if you have really used the word indispensable you have got to get out of a high cost producer because you have got to compensate him; then if you accept that as the price some of them are going to flourish very well. Then of course, you have got to rely on that other taxing element.

Q -- In the last war I think the low cost producers made profits which they were ashamed to acknowledge. Bethlehem Steel, I think, testified to that. Even now we run up against the other proposition. If we had an excessive profits tax which would take from the low cost producer the excess beyond reason, it might be all right, but the Treasury expert as you well remember testified before the Nye Committee that for every dollar the Government collected in excess taxes, it cost them three and a half dollars to collect.

A -- It's partly their fault that excessive cost of collection results.

They should devise a tax law and a business procedure that could be operated for less than that.

Q -- You touched upon most of our major problems that we are trying to solve and especially price control. You said the Government took steel over. Do you think it's practical for the Government to take the price of steel, knowing that some element of a great variety go into the price of steel without at some time taking notice of what goes into the constituent of that price. Do you think it's possible to take the price of steel and labor will get out of work, transportation will get out of line. Don't you think it's got to be over everything. Do you think that a piecemeal fixing, taking in these elements and commodities, would be practicable in time of emergency?

A -- You have me in a weak spot. I don't mind admitting I'm a liberal in the old-fashioned sense of the word. I dislike all these Government controls. I'd be glad to dispense with all of them. We live in a period of perplexity in our ordinary life in peace time and it's pretty obvious that some form of Government controls are going to be applied. You say how far? Well, you talk about the Treasury spending three and a half dollars to get a dollar on the excess profits tax. What I fear is that if they go to pegging the price on everything, they will spend three and a half dollars for every dollar they spend there. Look at the enormous machinery you are going to run into. In my own heart and mind - they wouldn't ask me anyway - but I'm willing to give my vote for some amount of price pegging partly as an element in the general program of maintaining the confidence of the people at large and if we're going to call it a democratic country, we have got to have the sort of support that comes from all in the organization.

Price pegging really, I think, is justified not on a financial and economic basis but as a token to the people of this country that the Government and everybody is trying to play fair. I think it's a token. Now for that purpose I don't think you'll have to peg everything but if you can peg their wheat, their daily bread, their clothing - wool - to a reasonable price, steel and some of the stable commodities, partly for practical purposes, but largely as some sort of token of maintaining the general morale by maintaining the confidence of the people in the situation, I think that's a large part of the picture. We are talking a lot of things and covering still more territory here but I should be very apprehensive about a general campaign to peg everything because there I'm sure you would spend three and a half dollars for every dollar you took in or saved.

Colonel Miles - There seem to be no more questions, Doctor. I think you gentlemen who are hearing Dr. Sanders for the first time must realize what a privilege it is to go to Harvard School of Business Administration and take one of his courses, where from day to day you'll get the same fine approach and the same common sense point of view on everything with which he deals and I'm sure we are very grateful for having been given some of that this morning. We only wish we could have more of it.