

other fellow, we would get a solution to many of our problems. Establishment of cooperation and the solution of all these problems depend upon education. In this connection we must consider the function of managers and executives as fundamentally educational, and we must provide above all things for their systematic and progressive education. How can you ever have your children taught in a school with teachers who themselves have not had adequate training? It cannot be done. I firmly believe that progress to the solution of these problems depends on the education of the employer, and the executive's neglect of this fundamental is at the seat of most of our trouble. If the man higher up is educated, you need not worry much about the rest.

I have tried to give you only an insight into the solution of this problem and perhaps some of the things I have said seem illogical. I have said one of the solutions to employment is unemployment. In other words, I have said that in many instances we are employing too many men in normal times. This may not seem consistent as a solution of unemployment. I think it can be accepted as an economic fact that the greatest stimulus to consumption is production, because consumption is stimulated in proportion as we bring things within the reach of the average man's pocketbook. By an inventory of positions, by the understanding of our business, by applying research methods, taking our business seriously, looking at it as we must from the point of view of the responsible engineering manager, we will find many things in the average business that can be remedied and that will permit the manufacture of more goods with less people, less effort and less cost. When business is on this basis we need not worry much about reducing the force or the payroll. Our organization has felt this business depression. We have not got all the business we want, but there is no one whom we have had to lay off.

In connection with the costs I believe our dear friend, the late Mr. Gantt, has made an enormous contribution in what he has written about cost systems. He points out that it is wrong to charge maintenance and other overhead charges to the manufacture of the product in instances where there is lost time and production is below normal. He has shown us that lost time is chargeable in many instances to lack in the quality or supply of materials, the lack of orders or other managerial deficiencies. When you do things as they should be done you will readily see that the last thing you can afford to do is to shut down your plant. A record of our employment and hours shows

a remarkably continuous and straight line. It is of course true that during these times there have been a few days off and periods of somewhat shortened hours, but this has also occurred during prosperous times and is practically entirely due to the fact that those upon whom we are dependent for materials have not kept their plant steadily running. Our record nevertheless shows a remarkable steadiness of employment under all conditions and a consciousness of the necessity of exerting every effort to maintain continuous employment basis to the organization, industrially, socially and morally.

I have not said much about unemployment in times of depression such as exists at present. This problem of unemployment from the engineering point of view is a problem of all times. We must be organized against it in normal times to prevent its occurrence on a general scale. When once started it is a kind of vicious circle inasmuch as unemployment is caused by unemployment. The vast majority of the consuming public consists of those employed. Consequently when employment ceases the ability for consumption of the products of industry ceases. Therefore, from the point of view of the engineer and manager the solution to unemployment and all the ills attendant upon unemployment is the conscientious organization and systematic effort at all times toward continuous employment.

AN ADDENDUM

The following may be considered an addendum to Mr. Feiss' address on unemployment printed elsewhere in this issue. It is an excerpt from a letter from Mr. Feiss to a friend who had been appointed member of the Presidents' Conference on Unemployment:

It seems to me that the first thing to consider is how unemployment periods are brought about. In a simple way it appears that during so-called normal times prices tend to rise and we increase output and expenditures of all kinds on a large scale. By output in this instance I mean total output of industry and not the output of the individual. During times of this kind credits are easy and are readily expanded. The tendency in many industries is to develop production facilities without due regard to means of distribution. Consequently we have a state of unbalanced production, and for a short period of time demand is outstripped by output. With prices and profits going up and credits easy, expenditures are sanctioned that are in many instances extravagant and unnecessary for the efficient conduct of business. This also applies to other spheres of life. Finally, by reason of non-absorption of surplus product, by reaching the limits of credit expansion, or by reaching the limit of price inflation or some other cause, we arrive at the peak and the logical reaction sets in. We find the business world with stocks on hand that are being rapidly depreciated. We find sales falling off. We find our business and its product which constitute security for credit of less value than it has been and we find credit rapidly shrinking. This we call business depression and it results in unemployment.

When periods of unemployment start our mediums of publicity are generally filled with the great cry about extravagance, advising people to be economical, to buy little or nothing, to reduce wages and expenditures of all kinds. I realize that this is not all of the picture, but, nevertheless, this is an outline of what occurs, and it is important that we get such an outline before us before we try to solve the unemployment problem which is not in itself a cause but a result. I feel that with a rough outline of causes we can better outline some of the remedies.

In the first place, I would say that it is essential that we learn and keep in mind through public agencies the economic factors in business. Most of us are ignorant on this score, and those who are not have not available the facts. Along the lines of the recent service established by the Department of Commerce under Mr. Hoover, we should have for all industry timely information not only as to output but as to the supply of raw materials, and also as to the rate of consumption or demand. In this connection I would call attention that any statistics showing prices and their rise and fall should not be limited to wholesale prices, but should cover the field of raw material prices and all retail prices as well. This kind of service backed with publicity of the right kind would not only prevent the increase of facilities of production at a more rapid pace than the increase of demand, but would further give information leading to control regarding sources and manipulation of raw materials. Such information should be the basis of credit expansion or contraction as specifically applied to a given industry. In fact, with such information there is no reason why a system such as our splendid Federal Reserve system cannot use its power to prevent over-expansion and over-extravagance in prosperous times. It is over-extravagance in "good times" that is one of the greatest causes of "bad times" and resultant unemployment. It is the essentials in business, the frills, the heedless expenditures without any investigation as to their permanent use, that lead to the cutting off of expenditures the moment there is any contraction in credits or business. We must, of course, realize that whenever we cut off expenditures we cut off the use of some product or some service and consequently cut off employment.

By the same token I feel that the propaganda for not buying and the propaganda for cutting wages at times of depression to be only an aggravation of the unemployment situation. Trying to overcome unemployment we are trying to find work for the unemployed. Work can only be supplied where there is a demand or anticipation of a demand in the case of commodities, and it cannot be supplied in the case of service unless there is a demand. It seems to me, therefore, that while we should have plenty of propaganda against unnecessary expenditures in times of plenty and while every business should accumulate a definite fund during such time to expend at times of non-employment, we should have propaganda for making expenditures during dull times instead of propaganda of not buying and not making expenditures. Plans for legitimate expansion and improvement should be put into effect, and funds accumulated for this purpose and for other purposes should be expended as a preventive of unemployment at times tending to unemployment. We should rather look for the job that can be made at such times than the job that can be vacated or done without. While I realize that probably at times of this kind adjustments must be made in labor rates because we are not able to control the proper proportions and adjustments in the scale of wages during times of rising prices, nevertheless, propaganda to lower wages generally or publicity of this nature at any time is harmful to business and to the employment situation. It is far more essential that we have publicity for the fact that cutting down income cuts down buying power and cutting down buying power cuts down buying and therefore business. In this connection I would state that propaganda of this kind is equivalent to a threat to every wage earner and salaried person that his income might be curtailed at any time. This threat alone is sufficient to curtail normal buying to an extent sufficient to cause widespread unemployment. While I realize that an element contributing to periods of depression such as we are now going through is a "buyers'

strike" against high prices, I think it can be demonstrated that prices can be reduced by elimination of the manipulation of markets for excessive profit and by the elimination of waste in management and in industry in general. Reduction of wages in many instances would lead to increase in cost and in most instances in practical effect has no direct bearing on cost reductions. I believe, moreover, that it would be practically impossible to find any case where the reduction of wages in the industry has resulted in an increase in buying. While a "buyers' strike" is unquestionably a big factor in the present depression, it is a well-known fact that people will not buy when prices are declining. On the other hand they will buy when assured that prices are going to be no lower and when assured that they are as low as is consistent with reasonable profits and a fair return to everyone concerned.

One of the important things relating to the unemployment problem is cost accounting methods. When business slacks off to any extent there are in all business certain expenses that go on or may even be increased during such times. At times when there is a curtailment of demand and business slows up, business men are accustomed to figure what their service or product costs, and in accordance with methods of accounting in general practice their conclusions show them a picture of the rising unit costs as business falls off. As cost is nearly always distributed over the product the picture generally shows this as an increase to the cost of production. Cost methods should be set up so that service and output costs are always shown as separate entities. Factors of delay should be studied and provided for in normal times, and gains or profits chargeable to delay time not used should be accumulated and set aside. Output or service costs should not show any additional costs for delays due to lack of materials or lack of business. In this way during slack time unit costs will not appear fallaciously to be going up, and production or service can be produced and sold for at least the cost they can be produced and sold for in normal times. Additional expenditures because of lack of business will be kept separate and postponed and spread over the business charges during normal times.

An important factor always contributing toward unemployment is the reasonableness of business. A great deal could be accomplished if means were instituted to educate the buying public to co-operate in the elimination of this evil. A great deal already has been done in this connection in various industries and in individual organizations. Much more could be done along the lines of more scientific distribution and the anticipation of demands in the manufacture of stock. An important thing in this connection, however, is the fact that in most industries a contract for goods or service is a mere "scrap of paper." Especially in the industries where the style factor exists, contracts are cancelled in case of late though timely deliveries or upon the slightest pretext of any kind. This is often done for the purpose of leaving the manufacturer with unsold stock which he must sell at prices often below the cost of production so that the same or similar goods contracted for in advance are bought at a much lower price. This is a very disturbing factor in the situation. It often forces original prices up higher than they would normally be and makes the manufacturer very cautious about producing goods in advance.

As to other matters pertinent to the question, I will only touch upon them as they have been presented in greater detail before by others as well as by myself. We of course know that unscientific employment methods at any time give rise to conditions aggravating unemployment. Especially is this true because of the fact that the average manufacturer has not accurate knowledge of the amount of labor it takes to do a given job and consequently has a larger payroll than is essential. This "inflated working force" is immediately reduced at the slightest easing off of demand. Restrictions in individual output, especially in normal times and times of rising costs and prices, by individuals or by reason of labor organization rules or methods, are factors contributing directly to unwarranted rise in prices and consequent dropping off in business and employment. On the other hand, restriction of output by employers, especially those who control raw materials, or the