

Mr. Taylor. That occurs with absolute certainty when dull times come along, if not before. In the iron and steel business—in the early years of the iron and steel business—when ever dull times came along, so far as my knowledge of it went, with few exceptions, prices fell to such a point that it was not a question of how much money you could make, but how little you must lose. The owners of the steel works and iron works practically all recognized that they must lose a certain amount of money in dull years, and the only question was how small they could make that loss. The competition was so keen during the dull years in the iron and steel business that it brought about this result; on the other hand, when busy times came along, when a good year came again, I have known them to earn right off 50 per cent in profits, and in that way largely make up the losses which came in dull times.

The Chairman. Now, assuming a case like the Midvale steel plant, where, I understand, this system was developed; assuming that the Midvale steel plant had scientific management and thereby reduced the cost of production, when a dull period came would not the fact that the Midvale Steel Co. had this reduced cost of production as compared with other competitors enable them to secure a very much larger share of the contracts, a proportionately larger share of the contracts and the work than they had formerly secured?

Mr. Taylor. That would be the theory, Mr. Chairman, but, as a rule, I think it has been true that your competitor meets your cuts in prices and he is willing to go to the verge of ruination in meeting your cuts, even though he loses more money than you are losing. Even though you may be making a little bit of money while he is losing a great deal of money, he, generally speaking, meets your cut; and that is a very unfortunate part of the competitive feature of industry. That has been an unfortunate feature and has led in the past to the survival of the fittest and to driving of many of the weaker companies to the wall.

The Chairman. Would it not be true, however, under the circumstances described, that if the competitors still continued to hold their share of the business, assuming that the

Midvale Steel Co. were selling at cost and not under cost, it would only be a question of time until the entire capital of the competitors would be used up?

Mr. Taylor. If the dull times went on through a long enough term of years that would be true, but, fortunately, in most cases they did not continue for a great length of time. Fortunately, the dull times, during which you had to sell at low cost, did not last long enough so that many people were entirely ruined, although many of them came out battered and scarred, in bad financial condition, and overloaded with debt, and so on.

The Chairman. Now, assuming that they have not been driven to the wall by the dull times, those who are competitors of the Midvale Steel Co., which we are using as an illustration, and industrial activity and prosperity recurs, would not the same condition, so far as the benefits to the people who are concerned, exist after the restoration of industrial activity as existed prior to the industrial depression, unless the other establishments also introduced a system by which the cost would be reduced?

Mr. Taylor. If I understand you right, I think it would, sir, but I do not know that it is altogether clear in my mind just what you mean. I think I should agree with you that the conditions would return approximately to where they were before the dull times, came on. I think that has been the history of it.

The Chairman. Now, it has taken, as I understand, 30 years of development to reach the stage in which scientific management now exists. I believe you made that statement, Mr. Taylor, or words to that effect?

Mr. Taylor. To be exact, I should say 29 years, I can mark the starting of it; it started in 1882; in the fall of 1882, if I remember rightly, the first steps were taken and that would be, perhaps, 29 years and 2 or 3 months.

The Chairman. Now, Mr. Taylor, is it not a fact that when any great improvement in machinery takes place or any system is introduced that requires less men to produce the same material, and while the public ultimately will receive the benefit of the improvement, that until it reaches the time when the public does secure the entire benefit there is a dis-

turbed condition in the trades affected by the improvements and that a readjustment must take place and that the workmen who have been working in that trade or industry have to bear the entire burden until the readjustment does take place?

Mr. Taylor. I think a careful study of the history of the introduction of labor-saving machinery would indicate that the larger part of the benefits from the introduction of new machinery first come to the employers or capitalists and that the workmen who were running the new machines, on the whole, have not, upon the immediate introduction of new machinery, profited to the extent to which they ought to have profited in an increase in wages and a betterment of conditions; that is, not immediately; but without any question, ultimately not only those workmen who are working at the particular trade affected, but all of the collateral workmen affected by it do profit and profit immensely through increased production, which brings more wealth into the world for them to use; but the immediate effect has been that the workmen running the machine have not profited as they should have profited, in my judgment, through the introduction of labor-saving machinery.

And right here I want to point out the essential difference between scientific management and the management of the past. I have never heard that through the introduction of labor-saving machinery any manufacturer, under the old system of management, has insisted, as a part of the introduction of the labor-saving machinery, that his men should be paid from 30 to 100 per cent higher wages than are being paid to the same type of workmen working in similar industries in the immediate neighborhood. Manufacturers have in the past, on the contrary, been very careful to pay their men no higher wages than were paid in competitive industries right around them. In contrast to this, all of those men who are interested in the introduction of scientific management insist that the workmen shall get from 30 to 100 per cent higher wages as their share of this new scheme. The workmen get this great increase in wages right off; they do not have to ask for it—it is voluntarily and gladly given to them. And you

will realize that under the old system of management an increase, say of 50 per cent, in wages could only come as a result of six or eight successful strikes, and that the average workman under the old system would not reach the goal in a lifetime. Now, if you will genuinely investigate—I am not speaking of you personally, Mr. Chairman, because anything you investigate is genuinely investigated, but some of the witnesses who have testified before this committee have not genuinely investigated it—the history of the introduction of scientific management, you will find that it is the truth that the 30 per cent to 100 per cent increase in wages which the workman receives as his share has been carefully awarded him right off; and that marks the difference in the history of the introduction of labor-saving contrivances of all kinds, such as new machinery and improved processes, on the one hand, and the introduction of this new labor-saving device on the other hand, namely, scientific management—a study of the motions of men and the simplification of their movements and acts. The introduction of labor-saving machinery has rarely been accompanied by a direct increase in wages, while the introduction of scientific management has always netted the workman an increase of 30 per cent to 100 per cent in wages.

The Chairman. Stating a hypothetical case, Mr. Taylor, there are something over 700,000 coal miners in the United States, producing approximately 500,000,000 tons of coal; suppose that by the introduction of scientific management or the improvement of machinery, or by any other process, you were able to create conditions whereby 400,000 men produced the 500,000,000 tons of coal, would not the 300,000 men thereby temporarily displaced have to be provided for in some other way until a complete readjustment had taken place?

Mr. Taylor. Most certainly, providing those men were thrown out of a job all at once; but the history of the introduction of labor-saving machinery, as well as the history of the introduction of scientific management, indicates that in no industry is it possible to make any sudden change. In the case of scientific management, if you will read what I have written about it, I have carefully emphasized the fact that even in