

will largely depend on the degree to which its national machinery for performing standardization work has been developed. And the amount and quality of the standardization work of any particular country will have a significance in the markets of the world similar to that of the machine equipment of an individual plant; that is, it will in many cases prove the decisive factor in competitive effort.

Foreign Appraisals of "Recent Economic Changes" A French Opinion¹

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THOSE changes in the field of economics which have recently brought about an extraordinary development of industry have been made the subject for a great deal of study by all of those who feel anxiety at the increase of wealth in their country, especially as it affects social equilibrium. Therefore, the "Report on Recent Economic Changes," which was sent to us immediately after its publication in the United States by our excellent friends in that country, was received with most spirited interest. We instantly saw in it a document of exceptional importance, not only because of its immediate utility, which is apparent, but also because it marks a considerable progress in the evolution of the science of economics. This science has played a rather passive role in pointing out too late the errors of the past, and has manifested an exaggerated confidence in the establishment of an equilibrium between the different elements of production and consumption. Today it must assume an entirely different attitude and clear the way by calling on the analytic methods of the engineer. These are indispensable in defining the points on which statistics should be gathered and in showing the value of the resultant figures.

The United States is the country in which industrial development has assumed the greatest importance. It is likewise there that changes in essential factors in the life of the country have made themselves felt with so great intensity that a co-ordination which had never before been secured has been necessary. It is not surprising either that the importance which must be attached to the study

¹Translated by Helen A. Carnes and P. E. Henderson.

of these changes attracted the attention of that eminent statesman, himself an engineer, who already knew how to approach the vital problems of waste and unemployment with breadth of vision, by making use of the positive methods of the engineer.

How clearly we recognize in the spirit which actuated this inquiry the influence of the movement in favor of scientific management, with which the works of Frederick W. Taylor have already made us familiar. Thus, we think it quite natural that the Taylor Society should have taken the initiative in gathering together opinions on this work from the different countries that had already manifested an interest in the scientific management movement.

We should have wished that the appraisal of such an important work as the "Report on Recent Economic Changes" could have been formulated by a leader of French industry or one of our great economists. Since that was not possible, we must be content to give the opinions of an engineer who has followed the scientific management movement for a long time and who preserves faithfully the memory of his relations with Frederick W. Taylor.

The manner in which the inquiry was conducted is remarkable in many respects. First, it was prepared in an astonishingly short time. It is very evident that a study which deals with economic conditions in a country which has developed with unprecedented speed could have had no value if a conclusion had not been reached in a short time. One is amazed at the result when one considers that this inquiry, though it embraces all the aspects of the question, more completely than any other study ever made, was commenced in January, 1928, and completed in February, 1929.

The division of work between the Commission and the National Bureau of Economic Research was in order to check those who might wish to inject their ideas into an inquiry of this kind. The help of the National Bureau of Economic Research is important not only because of the number of competent men who participated in it but because of the way in which the documents were collected and presented, without any assumptions and without giving the impression that the material had been gathered to support a thesis. And yet one feels that in every instance all the important factors have been taken into account—technical, finan-

cial, human, moral, social, economic, and so forth.

The report of the commission presents in an enlightening manner the relative importance of the different elements of the problem which the inquiry brings out with so much precision.

The development of industry is proceeding with such rapidity, bringing with it consequences of such importance, that even the best informed business man cannot quickly pick out the line of conduct which he should follow. The problem goes beyond the limits of one business, or even of one group of businesses, and becomes a problem of national importance. And not only is it a national problem, but an international one as well. If economic science is to provide the solution, it must make new progress and perfect methods for setting up and examining statistics of manufacturing from which one can draw practical conclusions in time to make use of them.

For us the method by which Taylor approached the study of the worker, the principles of scientific management which he evolved from it, his vision of the economic and even social consequences which would result, were the first, precise indications of the way in which the problem of the development of industry should be attacked. This development manifested itself before attaining extraordinary proportions and could not have been continued except with the perfect co-ordination of effort of all those who were called to contribute and the development of a spirit of collaboration which had so far seemed non-existent.

As early as 1911, M. H. LeChatelier had a very clear vision of the place that the application of the principles of Taylor should assume in the evolution of industrial economy. He concluded his preface to the *Principles of Scientific Management* by Frederick W. Taylor with the following:

"The steel manufacturers and the engineers are incessantly in strife with their clients, the railroad companies. They do not agree easily on sales prices, upon rates, nor upon commercial questions where their interests are opposed. This, however, does not keep them from recognizing that it is to their mutual interest to improve the qualities of steel, and they unite in technical congresses to discuss these common questions. They willingly fraternize on a ground where their economic interests are identical. Workers and employers could do as much.

"In a more or less distant future all these elementary truths will certainly be recognized. In that day the workers will no longer strike when new machines are introduced in their shops; rather, they will do this when their employers, too slow to follow industrial progress, do not permit them to increase their production sufficiently rapidly to make a better living for themselves. And they will not forget to demand an equitable share in the benefits of work done in common.

"Scientific management of work in factories, proposed by F. W. Taylor, is a realization of the essential ideas submitted here: It demands that the leaders of industry employ their science to multiply the productive capacities of their workers and that they offer, as remuneration for this greater production, an important increase in wages, not to mention the greater value given to money by reductions in the selling price of articles manufactured at a lower cost.

"But to attain this result, belief in economic determinism must first be made general; the law of enrichment by increase in production must first be made acceptable. This is now the battle to be won. *The physical sciences have increased the wealth of the world ten-fold in the past; the economic sciences will repeat the wonder tomorrow.*"

Many who have recognized from the beginning the accuracy and importance of Taylor's principles certainly never thought to see the realization of such a vision. Nevertheless it has not taken a great many years for these elementary truths, to which M. H. LeChatelier referred, to be accepted and put into practice, at least in the United States, and we are now taking part in a great forward movement in the economic sciences from which much may be expected.

It will undoubtedly be some time before the interested countries are in a position to conduct inquiries, on matters which concern them, similar to the one made in the United States. But this one has already instructed them in a precise manner on the relative importance of the different elements in modern industry and they can derive great benefit from it.

The development of industry in the United States has been studied on many occasions by foreigners, leaders in commerce and industry and by workers; but the information has always been gathered in too hasty a manner, in too limited fields, and has