

Scientific Management and Economic Planning¹

A Philosophy and Technique of Progressive Industrial Stabilization

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I. Past and Present

Introduction

IT IS our present purpose to examine scientific management as a means of industrial stabilization, and therefore as a means of social stabilization and progress. We shall discover that it is not only a means of stabilization, but also a force creating new situations which compel stabilization over ever wider areas of industrial relationship.

In current discussions of industrial problems in the United States the word stabilization is used with a frequency which is reflected by its use in this document. It is therefore essential at the outset to explain the meaning of the term when so employed, and incidentally in that connection to consider somewhat the nature of scientific management.

In American industrial usage the word stable does not imply a static condition such as, for instance, does its usage in chemical literature. Several centuries of experience in a dynamic frontier environment have made it impossible for the American to think in terms of unchanging social institutions. Therefore the word stable as applied to social concepts does not exclude the factor of change. It connotes adjustment and balance in the midst of change, absence of extreme fluctuations, the power to make change when it is desirable and to prevent it when undesirable, and some regulation of the direction and extent of change.

It is in this meaning of the term that scientific management is a great stabilizing force. Through application of its basic principle of research—discovery of laws governing mechanical forces, social forces

and individual conduct—it on the one hand makes it possible to avoid unexpected change caused by unknown forces and on the other hand to promote desired change through controlled utilization of known forces. Through application of its principle of standardization—formulation of laws to guide conduct—it on the one hand avoids the wastes of chance variability in conduct by establishment of common understandings, and on the other hand promotes desired variation by specifications of new and better purposes, relationships, instruments and procedures. Through application of its principle of control—voluntary co-operation in accordance with standards—it constantly strives to guard accepted modes of conduct from change for which investigation has not found warrant, and to establish new modes of conduct which it is believed will promote accomplishment of a common purpose. The reader is referred to the following chart for a summary presentation of the principles of scientific management, the relation to them of the ever-expanding technology through which they are expressed, and the areas of functional industrial activity to which scientific management has been progressively applied.²

Scientific management is not only a means of stabilization; it is also a force which compels successive expansions of the area of stabilization. There are two reasons for this. First, in bringing any lesser area of industrial relationships under control, it is discovered that control over this lesser area cannot be complete until the environment affecting that area has been brought under a similar control; and second, the technology which establishes control in any particular area so affects relationships with and throughout the environment area as to intensify forces which tend to upset

¹The most comprehensive treatment of scientific management is *Scientific Management in American Industry*, published for the Taylor Society by Harper & Brothers, New York, 1929. See also *Frederick W. Taylor, Father of Scientific Management* by Frank Barkley Copley, Harper & Brothers, New York, 1923, and "Scientific Management" by H. S. Person, in the Proceedings of the Cambridge (England) Congress of International Industrial Relations Institute, 1928.

²Reprinted by permission from *World Social Economic Planning* (\$2.50 with Addendum), edited by M. L. Fledderus, International Industrial Relations Institute, The Hague, Holland. This volume constitutes the proceedings of the World Social Economic Congress held in Amsterdam in August, 1931, and may be obtained in this country through the Department of Industrial Studies, Russell Sage Foundation, 130 E. 22nd St., New York. The preliminary studies which formed the basis for the Congress discussion may be obtained from the same source under the title, *International Unemployment* (\$2.50). Only a few copies of these remain.

equilibrium. For instance: a workplace cannot be completely stabilized as long as the workplace preceding it in series delivers worked materials to it in an irregular flow; and on the other hand the stabilization of a workplace may produce an increased output which renders more unstable and uncontrolled the workplace following it in series. This makes it necessary, in order completely to stabilize any one of these workplaces, to bring the three into harmonious relationship.

Thus scientific management, in order to complete and to conserve its achievement in any lesser area, is compelled to give attention to the environing area and to attempt to establish similar stability and control there. This necessity is progressive. Apparently there can be no end to it until the entire world of industry has been included. Fifty years ago scientific management began with the problem of the individual workplace, but to bring that under control it was compelled almost simultaneously to stabilize all related workplaces, i.e., the entire shop. Then to complete stability of the shop (production) it was compelled to attack the problem of merchandising and selling. Stabilization of the relations between production and selling demonstrated the necessity of stabilizing the function of co-ordination—general administration. So much for the individual enterprise, beyond which scientific management has not yet had noteworthy influence. Now, however, it is realized that complete stabilization of an individual enterprise as a thing in itself is not possible; that the entire industry of which it is a part must be stabilized—and probably all the industries of a nation in their relationships, and industrial and commercial relations internationally.

The scientific management of today is therefore a product of evolution. Although Frederick W. Taylor, the creative genius of scientific management, half a century ago gave us in embryo all that is contained in the far-reaching scientific management of 1931, it has been the subsequent efforts of many workers in fields not touched by Taylor, which have demonstrated its adaptability to varied and larger areas of management, brought it into panoramic perspective and proved it to be one of the durable and dynamic forces in the service of mankind. So fundamental are both its principles and technique, that although they had their origin and primary development in a highly individualistic and capitalistic society, they may serve equally well any other conceivable form of social organization. It is our purpose now to trace successive stages of its development as a stabilizing force.

Stabilization of the Individual Workplace

The first expositions of scientific management³ were concerned with problems of the shop—the conversion of materials. They emphasized the discovery and control of physical forces embodied in materials, machinery, tools, appliances; methods and conditions of handling them; and the organization and direction of human effort closely related to their use. Although industrialists in the United States at that time—the last decades of the nineteenth century—were much concerned with the problem of management, they were giving their attention primarily to devising various incentive wage systems as a means of stimulating workers to increase production by greater personal exertion. Taylor and his associates made a new approach to the problem by insisting that the way to greater productivity was through stabilization and control of the processing, measurement of work, and rewards according to productivity. They insisted that the important thing is that work should be so organized that labor would automatically become more productive and wages higher, which could be realized only by bringing all the conditions of processing under control and eliminating the wastes of unco-ordinated efforts.

Why was there at that time absence of especial regard for phases of management other than conversion of materials and the human problems immediately involved; why disregard for merchandising and selling, general administration and the collective aspects of human relations? Because these latter were not at the time dominant interests in American industry. Taylor and his associates were practical men who made their appeal to dominant interests. The outstanding problem of the period was output of commodities to satisfy an apparently insatiable demand.⁴ Anything which promised greater productivity at a given cost—an advantage

³The early classics of scientific management are: "A Piece Rate System" by Frederick W. Taylor in *Transactions of the American Society of Mechanical Engineers*, Vol. XVI, (1895); "Shop Management" by Frederick W. Taylor in *Transactions A. S. M. E.*, Vol. XXIV, (1903), also Harper & Brothers, New York, 1911; *The Principles of Scientific Management* by Frederick W. Taylor, Harper & Brothers, New York, 1911; *Work, Wages and Profits* by Henry L. Gantt, The Engineering Magazine Company, New York, 1913; *Scientific Management* by C. Bertram Thompson, Harvard University Press, 1913, a collection of papers by various authorities which had appeared chiefly in periodicals during the preceding decade.

⁴One cannot really understand the scientific management of today without an understanding of its evolution, and one cannot understand its evolution without a knowledge of the background of industrial culture. For this reason we recommend Charles A. and Mary R. Beard, *The Rise of American Civilization*, one-volume edition, The Macmillan Company, New York, 1930.