

Reviews of the New Book "Scientific Management in American Industry"

An Engineer's Appraisal

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THIS interesting and instructive volume is a symposium by prominent members of the Taylor Society and is issued under the auspices of that society. It is by far the best piece of work that the society has fathered. The twenty-six contributors to the volume are all well known in the field of management and its literature. The book is divided into six sections as follows: Introduction; Management Research; Management Standards; Control (of operation); Control (through standards); Human Aspects. It will be seen, therefore, that the book is not simply a collection of articles, but has been carefully planned and coordinated. This editorial work was done by Mr. H. S. Person, Director of the Taylor Society, and it has been well done. The volume presents an appearance of continuity that is helpful in grasping the trend of thought back of its conception.

The book presents scientific management in its many aspects as it appears to these authorities today. It is not simply a reiteration of Mr. Taylor's philosophies or actual accomplishments, except as is necessary to lay a background and a foundation. There are no lengthy descriptions of Taylorized plants, but it is rather a series of excellent papers, grouped under the leading headings given in the foregoing, that show what is being done in the field today.

As everyone knows there has been constant growth and change in the field of management ever since Taylor's classic experiments. His ideas have been adopted under many combinations of elements, no two alike, yet all tending in the same direction. This volume treats of many of these elements in their latest forms without endeavoring to set up ideal combinations. Therefore, it is of value to all administrators and students of this new science without reference to size or character of plant.

As President Kendall in his foreword has noted, the book marks the first decade of organized work of the Taylor Society. The society has existed for twenty-five years, but during the earlier period it

was of a rather informal character. Ten years ago, however, the society established a permanent office and a staff of workers and, as President Kendall states, "This book is a summary of a decade's study, analysis and exposition of the philosophy, principles and procedures of scientific management; and a picture of its status and influence today." The Taylor Society is to be congratulated upon this very fine production which should be in the possession of all who are interested in this most important field.

Economists and the "Mental Revolution"

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THE MODERN system of industry, Topsylike, just grew. Lacking plan or pattern, deriving its specific forms from the sheerest accidents, having its motivation in nothing more consistent than business expediency, the new industry became a "system" only when it grew to self-consciousness with maturity. Business men, Olympian in their magnificent individualism, established "independent" enterprises such as factories, railroads and electrified communication without reference to their functional implications to any system at large, but simply and solely because these modern contrivances promised pecuniary rewards, which, according to the tenets of business itself, is reason enough. The very lack of systematic implications, however, means that the launching of industrial enterprises and of the policies necessary for their continued operation were based on mere matters of opinion or, as we sometimes say, of speculation.

Systems exist only in our minds. They are ways in which the mind comprehends an array of more or less discrete particulars and identifies significant relationships among them. Obviously, the kind of system created by a given mind depends on the direction or point of view from which the mind is projected and also the technical criteria with which the mind is equipped. Thus a "system of industry" may be conceived by an economist as a congeries of pecuniary relationships. Or, to an engineer, it may consist of a complex of mechanical processes. The business man, on the other hand, is busy with the practical and important problems of making profits for himself or for his stockholders. He is little concerned with systems, nor is he suffi-

ciently detached for system-building until he is forced, by the immediate problems with which he is faced, to seek the threads of relationship which tie discrete facts into broad questions of policy. That business men are seeking and finding these threads is evidenced by several contemporary tendencies. Thus, for example, the old notions of "independent" enterprise are giving way to a consciousness of group interests which is best illustrated, perhaps, by the absorption of functions by trade associations. The integration of industrial processes and the wider employment of contracts go still farther in recognizing the lack of independence among private business concerns. And, most striking of all, the wide interest in methods of internal control—the precise standards of scientific management—demonstrates a genuine desire for systematic understanding on the part of the business community. These movements in the direction of systematization of industry appear to mark a partial realization of the "mental revolution" so urgently sought by Frederick W. Taylor.

Engineers, next to business men, have had the largest part in shaping modern industry. The industrial revolution received its impetus from new methods of generating and applying power. Back of those developments—and essential to them—lay the triumphs of marine engineering and navigation of what historians call the commercial revolution. In fact, to trace genetically the contributions of engineers to industry would take us beyond Hero and Archimedes to the truly revolutionary inventors of the wheel and the lever. And yet, in spite of their constant concern with the affairs of industry, engineers have not, until recently, been admitted to its inner councils. Business men traditionally have employed engineers to perform prescribed tasks but have reserved to themselves the determination of what to do and how to do it. When, in their consciousness of need for systematizing their affairs, they commission engineers to establish standards and to co-ordinate and synchronize the operations of their businesses, the deviation from convention is so marked that we regard it as another escapade of those revolutionary engineers. We call it a "mental revolution."

Since Taylor's early experiments at Midvale the engineers have been creating a science of management along lines laid down by him. And yet, perhaps because the participants in this movement are

more interested in working on their problems than in explaining their ideas to the world at large, laymen have had very little understanding of what the new science is or of what it is about. The publicity that the movement has received has been in part sensational and in part vitiated by charlatanism and misunderstanding. Many engineers have written monographs and articles concerning the detailed problems with which they were working—in fact the New York Public Library published an impressive bibliography of these works several years ago. Yet the workers in the field, apparently by tacit agreement, did not attempt a systematic account of basic principles, leaving the works of Taylor himself as a foundation of doctrine. And Mr. Taylor, genius that he was, was not gifted at exposition. Perhaps this is best evidenced by the fact that his clearest declaration of principles was presented in his testimony before a congressional committee when he merely answered the questions that were asked. At any rate laymen went right on believing that scientific management was time and motion study, or a bonus wage plan, or functional foremanship, or cost analysis, without realizing that these are only devices of a system which seeks to standardize all industrial processes and operations and to create comprehensive controls on the basis of these standards. A few recent works, among which the volume edited by Edward Eyre Hunt, *Scientific Management Since Taylor*, is outstanding, have attempted to evaluate scientific management in fairly general terms. Yet, even in these works, there is lacking any clear exposition of principles.

For all of these reasons, as well as for merits of its own, the new volume of the Taylor Society, *Scientific Management in American Industry*, is a major accretion to the literature of this subject. For the first time there is presented to readers who are not engineers a working idea of scientific management in its total aspects. To criticize here the detailed matters of research, standards, controls and organization with which the book is concerned would be both presumptuous and of little worth. That, again, demands the attention of an engineer. Yet some of the implications of scientific management, and of this volume in particular, to the field of economics may properly be considered.

Classical economics is based on hypothetical restrictive tendencies. The system of Ricardo, for