

arguments concerning administrative policy governing the use of management technique, and not more pertinent to scientific than to any other form of management. Superficial critics failed to perceive the point that the effective working of the scientific management mechanisms in particular depends so vitally upon sympathetic coöperation between planner, supervisor and operator, that anti-social administrative policy is inconsistent with its development and technical effectiveness.

Influence of the War

The status of scientific management has been profoundly influenced by the war. Three influences are noteworthy: (1) Although the prejudice of workers engendered by the sharp controversy preceding the war has not disappeared, open and active hostility of labor has been discontinued and apparently will not

be resumed; (2) the demand for output during the war, supported by labor, compelled a wider extension of efficient production methods, in some instances of the methods of scientific management, not only in the United States but also in Europe, and both labor and management have learned by experience that scientific management technique is not inconsistent with wise, humane and coöperative administrative policies; (3) labor and management have observed that during and following the war managers of scientific management plants and scientific management engineers have been in the van of those inspiring and directing the establishment of the most humane and coöperative administrative policies, in accordance with the most farsighted principles of industrial relationship. War seems to have cleared away prejudice and misunderstanding and to have made possible an appreciation of the value of scientific management as an instrument for the increase of the productivity of human effort under wise administration.¹

THE primary object of any industry is production—production of commodities or of services. In these commodities or services three groups in society have an economic interest. These three groups are the capitalist whose money is invested, the worker who supplies the labor, and the consumer who pays the price for the commodity or service. As viewed from the welfare of these three classes, which combined comprise all members of society, the fundamentals of the finances of production should be a fair return to the owners of the capital, a fair wage to the possessors of labor, and a fair price to the consumers of the commodity or service. These finances should be so organized that attainment of any two of these fundamentals or objects would automatically produce the third. That is, a fair interest or dividend and a fair wage should of themselves in combination result in a fair price; a fair interest or dividend and a fair price should of themselves in combination result in a fair wage; and a fair price and a fair wage should of themselves in combination result in a fair return to capital in interest or dividends.

If this is true then it is equally a fact that the prime essential of the finances of any corporation engaged in production is to show the actual true capital investment of money and services. If the finances do not show this—if the true capital investment is arbitrarily increased by paper capitalization and hidden or concealed by corporate organization and similar methods—then it is impossible to ascertain what is a fair return to any single one of the three elements to successful production. If, for example, only one million dollars of money and services are invested in a corporation, with its finances showing a capitalization of, say, ten million dollars, and an endeavor is made to pay a return on the ten million, there cannot possibly be a fair return on capital, a fair wage, and a fair price—every one of the three is most likely to be unfair. So at the very outset it is impossible, for any industry so capitalized to supply the essential elements of fairness to the three classes interested in its production.² (Frank Julian Warne in THE ANNALS, No. 174, p. 271)

¹A concluding bibliographical paragraph is omitted.

²The writer is familiar with the stock phrases that endeavor to justify over-capitalization, but all such arguments stress profits to the individual and not service to society.

POSITIVE CONTRIBUTIONS OF SCIENTIFIC MANAGEMENT¹

THE ELIMINATION OF SOME LOSSES CHARACTERISTIC OF PRESENT-DAY MANUFACTURE

By HENRY H. FARQUHAR²

SUMMARY

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I. INTRODUCTION

TODAY, when present and impending conditions are trying men's souls and forcing a weighing in the balance of their past achievements in so many directions, it seems appropriate and important to make at least a partial appraisal of the contributions of scientific management to the field of industrial problems. It may be well, however, at the start to look back briefly over the successive stages of its development in order to arrive more fairly at a true estimate of its present value, and to enable a correct forecast of its potential worth as a means for the adjustment of present and future social and economic problems.

As long as the early discussions and the evolution of the science were confined within the bounds of the American Society of Mechanical Engineers, the public knew little of what was taking place. This was as it should have been, for the early papers³ which stimulated discussion and really crystallized and forced the concrete statement of principles and meth-

ods, later served as the substantiation of the most potent claim of scientific managers—namely that scientific management is not a theory evolved on paper by a more or less practical dreamer, but is the result, though as yet imperfectly expressed, of carefully worked out solutions evolved by far-sighted and eminently practical managers and engineers to meet everyday problems. Such theory as has been developed was preceded long years by sound practice.

With the Eastern Rate Case hearings in 1911, however, came the second stage, the public awakening; and immediately succeeding it came a flood of popular articles, extravagant claims, and vehement denials. There was a mad scramble on the part of various owners of industries (possessing a lamentable lack of understanding as to what this new movement really was) to secure this "panacea," and of course an equally eager readiness on the part of incompetent and frequently unscrupulous charlatans to supply the demand. It is safe to say that had not such abundant evidence of the real value of the fundamental principles, properly applied, been available during this period, the inevitable reaction would have been much more severe and of much longer duration. The fact that it was not is only another tribute to the (possibly unconscious) farsightedness of the real leaders in the movement.

For there is no question that the reaction is largely past and that we are now in the third stage. This does not mean, however, that there is not still a tremendous amount of misunderstanding as to the real significance of the movement, or even a considerable amount of active opposition. The third stage is

¹Reprinted by permission, from *The Quarterly Journal of Economics*, XXXIII: 466-503, May 1919.

²Management Engineer, Belmont, Mass. Member Taylor Society.

³Towne, "The Engineer as Economist," *Trans. A. S. M. E.*, vol. vii, p. 425; Towne, "Gain Sharing," *ibid.*, vol. x, p. 600; Halsey, "A Premium Plan of Paying for Labor," *ibid.*, vol. xii, p. 755; Rowan, "A Premium System, Applied to English Workshops," *Proc. Inst. of Mech. Eng.*, March 20, 1903, p. 203; Taylor, "A Piece Rate System," *Trans. A. S. M. E.*, vol. xvi, p. 856; Gantt, "Bonus System for Rewarding Labor," *ibid.*, vol. xxiii, p. 341; Taylor, "Shop Management," *ibid.*, vol. xxiv, p. 1337; Gantt, "Graphical Daily Balance in Manufacture," *ibid.*, p. 1322; Barth, "Slide Rules as Part of the Taylor System," *Trans. A. S. M. E.*, vol. xxv, p. 49; Dodge, "A History of the Introduction of a System of Shop Management," *ibid.*, vol. xxvii, p. 720.