

lished. To provide against occasional irritations and conflicts through misunderstanding, and for the settlement of disputes promptly at their source, the pioneer functionalized personnel manager, although not so called, was created and made a permanent part of the organization. All of this was nearly a half century ago.

These remained the focal points of early scientific management's interest in human relations so long as the general conditions of industry remained those of a vigorous, expanding sellers' market. In the course of time, however, significant changes appeared in the general conditions of industry, which scientific management anticipated by continual expansion of its basic technique.

It is impossible to understand this evolution of attitude toward the human problem in American management without understanding social and industrial history. The days of early scientific management had one philosophy of personal relations; our day has another. The social philosophy of those early days was that of frontier individualism with emphasis on self-reliance, intuition and responsibility. On the whole it served reasonably well, for if an individual failed to adjust to one particular opportunity an abundance of others was available—new industries were springing up on every hand and there were still free lands to be had almost for the asking. Under these conditions the attitude of early scientific management toward the personnel problem, as indicated above, was a radical departure from that which was prevalent and was a step toward that held by our generation.

The attitude of our day has been determined by a new perception of inter-relationships and interdependencies created by the new commercial and industrial technology, of which scientific management itself is a major factor, and by the new spirit of "humanism" generated by the more widespread higher education, pragmatic philosophy, institutional economics, sociology, the social sciences generally and other forces. The older attitude was still dominant when Taylor retired from active affairs, and, therefore, the burden of interpreting scientific management in terms of the new dominant interests fell to his successors. How well they have done their work in the second quarter century of scientific management is indicated by the fact that plants which it has influenced constitute today the outstanding cases of progressive industrial relations; scientific management literature is the record of the progress of humanistic as well as efficient management, and its organizations offer the only forums

specializing in management on which problems of human relations in industry are discussed openly and impartially. The code of employer-employee relations, which this Congress honors by selection for consideration at one of its sessions, is a creation of scientific management and is the only such code yet formulated by any group in America. Organized labor and scientific management technicians are today jointly further developing the technique of scientific management as the fundamental and substantial institution for establishing stability and harmonious relations in industry.¹²

The classics of scientific management, now familiar through translations to nearly all the world, were written before this recent intensive interest in human relations generated by the new commercial and industrial technology.¹³ For evidence of scientific management's later interest in the problem one must consult later records.

The first of these sources is the little-known statement by Taylor himself, in January 1912, more than ten years after his retirement from professional work, at a hearing before a Special Committee of the House of Representatives of the Congress of the United States.¹⁴ This Committee was created especially to inquire into the human relations aspect of scientific management.

This testimony made clear the fact that scientific management had never been inspired by any desire to establish a new social order, but to make human relations harmonious in industry as it is today—individualistic, capitalistic, with specialization and division of labor. This harmony is to be established by an intellectual revolution on the part of both employers and workers concerning their common purpose and the means of achieving it. The purpose is greater leisure and culture for workers as well as employers through greater prosperity resulting from greater productivity. The means to this greater productivity is discovery by research of "a science" for every operation and every relation between operations in co-operative activity, and the formulation of the discovered laws into rules of co-operative procedure. "The organized in-

¹²"The Naumkeag Experiment," *Bulletin of the Taylor Society*, Vol. XV, No. 2, April, 1930, pp. 63-79.

¹³It should be noted that *The Principles of Scientific Management* (1911) which might at first be considered an exception to this generalization, is essentially a popular restatement of the contents of *Shop Management* (1903).

¹⁴The official report has been long out of print, but Taylor's testimony was reprinted in *Bulletin of the Taylor Society*, Vol. XI, Nos. 3 and 4, June-August, 1926. This also is now out of print but fortunately can be found in many public libraries.

vestigations for discovery of the laws governing the joint activities should be participated in by workers, and the resultant procedures should govern owners as well as workers. The co-operation must be voluntary—not imposed by one party on another—and could if necessary be promoted by collective organizations. The achievement of voluntary co-operative activity is a matter of education and understanding. The mechanisms of scientific management should not be confused with the principles. The latter are enduring; the former, expressions of the principles, may vary from place to place and change with changing conditions of the application of the principles. Therefore scientific management is not something which may be imitated or bought outright, or imposed by one party on another, but is a process of co-operative education in learning how to achieve ever greater productivity and ultimately greater leisure and culture.

It is regrettable that this illuminating statement by Taylor has not been known throughout the world; and even more that there was not forty years ago such a general interest in industrial relations as to call it out.

Since its utterance in 1912, however, the literature of scientific management has been one of industrial relations as much as of managerial technology. It has introduced to industry the doctrines of workers' consent and participation,¹⁵ and of utilization of workers' capacity for creative self-expression.¹⁶ In 1916 Robert B. Wolf observed: "The management should primarily furnish the men with the information necessary for them intelligently to co-operate in determining what the standard practice should be . . . and my personal opinion is that the splendid results obtained by Dr. Taylor . . . were due largely to the fact that he stimulated the reasoning powers of the men . . . and made them realize that they were co-operating in obtaining the results."¹⁷

During the past decade scientific management has again made inquiry into the nature of authority and who are managers. Henry S. Dennison says: "We must find ourselves forced to answer that while the managing factor is heavily graduated from almost zero to almost 100 per cent among separate individuals, it nevertheless finds itself to all practical purposes

coterminus with the whole active organization." And from Miss Mary Follett, now a resident in London: "If, then, authority is derived from function, it has little to do with hierarchy or position as such, and in scientific management shops this is more and more recognized . . . Authority should go with knowledge and experience . . . that is where obedience is due, no matter whether it is up the line or down the line."¹⁸

Ten years earlier this emphasis in scientific management had been anticipated by Morris L. Cooke, a co-worker with Taylor. "Should we not learn in every relation in life to follow the lead of the particular individual who is charged with any given function, whether he be the President of the United States, the traffic officer, or the clerk in the office?"¹⁹

In his presidential address before the Taylor Society in December 1928, Mr. Cooke considered at length the possibility of a recognized functional status for workers' organizations. "If it can be accomplished the group of workers must be collectively related to industry in a way not possible under a bargaining status. What we want now is an integrating process which will tend more and more to unite us in a common purpose. The development of the techniques by which such unity may be accomplished is a problem common to all productive enterprise . . ." At the present moment scientific management is being developed in a cotton plant in Massachusetts by an engineer employed jointly by the management and the local unit of the national union of the workers.²⁰

We perceive, therefore, that the necessity for taking into consideration all factors in a management situation has given scientific management a vital concern for industrial relations from its beginning. The forms of its concern at any time have reflected the general mental attitudes and industrial conditions of the time; or to be more accurate, the new mental attitudes and industrial conditions imminent at the time. Fifty years ago its concern was manifest in such details of personal relationship as were presented by problems of ability, skill, training, temperament and fatigue in relation to the job; today it is manifest also in such broad problems of collective relationship as provision for a functional status of workers' organizations in industry.

A noteworthy characteristic of this progressive

¹⁵*Ibid.*, Vol. XI, No. 5, December, 1926, p. 243.

¹⁶*Ibid.*, Vol. III, No. 4, August, 1917, p. 7.

¹⁷*Ibid.*, Vol. XIV, No. 1, February, 1929, pp. 5-6.

¹⁸*Ibid.*, Vol. XV, No. 2, April, 1930.

¹⁹Valentine, Robert G., in *Bulletin of the Taylor Society*, Vol. II, No. 1, June, 1916, p. 7.

²⁰Wolf, Robert B., in *Bulletin of the Taylor Society*, Vol. I, No. 3, May, 1915, p. 1; Vol. I, No. 4, August, 1915, p. 2; Vol. II, No. 1, January, 1915, p. 3.

²¹*Ibid.*, Vol. II, No. 3, June, 1916, pp. 7-8.

²²*Ibid.*, Vol. IV, No. 3, June, 1924, p. 106.