leadership of scientific management toward sound human relations in industry is its freedom from sentimental and academic direction. It has been under the guidance generally of men and women in direct contact with industry. It has never departed from the basic principle that the focal points of industrial relations are the unit workplaces. In these vital spots lies the problem "of getting the work done with the utmost excellence it admits of." In them frictions arise and states of mind are generated and there the remedies must be found. The problem of stabilizing relations between men and things and between men and men is an inseparable part of the problem of technological stability.

Stabilization of Marketing

Following the World War one of the most disturbing changes in American industry was the sudden transition from a sellers' to a buyers' market. Industry before the war had enjoyed a gradually expanding consumption and rising prices, and production to satisfy this increasing demand had been the dominant interest. Considering industry as a whole marketing relatively had not been a problem. Then in 1920 came a change, indicated by a sudden turn in the price curve. Industry found itself on a buyers' market and intensive selling became a necessity and a problem.[23] Selling then became the dominant interest. Scientific management recognized the new problem and added to its other educational interests that of more scientific management in marketing.[24] This was not the earliest evidence, however, of the influence on selling of scientific management principles and technique. As early as 1912 Charles W. Hoyt had opened his "Scientific Sales Management"[25] with a chapter which reviewed Taylor's work and the principles of scientific management in production, and had then attempted to adapt these principles to the problem of sales management. But at that date, because selling was not the dominant interest, the new approach in this book attracted little attention. It required the sudden appearance of the buyers' market of 1920 to focus attention on the problem of marketing. By 1930 the literature of scientific management applied to selling—and also to the office, that auxiliary unit which intensive merchandising had helped to make prominent and costly—had become substantial.[26]

Scientific management's pioneering emphasis on scientific marketing was forced by the logic of the situation. It was another example of the necessity to stabilize a larger managerial situation in order to preserve the stabilization of a lesser one. As long as the flow of orders into the processing departments of enterprises had been relatively regular, scientific management had given its primary attention to perfection of its methods in production. As soon as the flow of orders into manufacturing departments became irregular and seriously declined, the stability of every production situation was upset. Scientific management was compelled to protect the stability it had accomplished in that field by attacking the additional problem of sales management imposed by the unstable environing market.

The problem of scientific marketing for the individual competitive enterprise was one of applying formulated principles and basic elements of an established technique to a new field. The studies and experiments in merchandising during the decade since 1920 have discovered no alternative principles and no technique different in basic characteristics. Market research is in principle the earlier production research applied in another area to another set of similar problems. The establishment, for instance, of sales quotas, by items, territories or salesmen, is a procedure in standardization similar to the setting of definite tasks for machine or bench work. Sales programs and schedules correspond to production programs and schedules. The establishment, after adequate research and experiment, of new channels of distribution is analogous to the regularization of the flow of work in the shop. The study of the use and style values of items, and the adoption of new and the elimination of old items and styles, is the production problem of design, materials and machining expressed in other terms. The routing of salesmen corresponds to the routing of work in process. The problem of warehousing is the plant

[23] We should not be misled by the spectacular activity and growth of the automotive, radio, tobacco and a few other industries during the decade 1920-1929. Many of the older staple industries such as the woolen, cotton and shoe industries were suffering severe depression. On the whole, American industry had its first experience with a prolonged buyers' market.

[24] "A widespread interest in marketing methods cannot be said to have come with the turn of prices, although at that time there was plenty of talk about the difficulty of getting sales. As early as October, 1920, however, articles suggesting a more scientific viewpoint on marketing appeared in the Taylor Society Bulletin." *Report of the Committee on Recent Economic Changes of the President's Conference on Unemployment*, Herbert Hoover, Chairman, New York, McGraw-Hill Book Company, 1929. Vol. II, p. 531.

[25] New York, George B. Woolson & Company, 1912.

[26] For example: White, Percival, *Scientific Marketing Management*, New York, Harper & Brothers, 1927; and Leffingwell, William H., *Office Management: Principles and Practice*, Chicago, A. W. Shaw Company, 1926.

problem of storage on another scale. The control of merchandising inventories is the technique of materials control projected into the area of distribution. "Hand-to-mouth" merchandising is made possible by broader application of the same technique that is expressed in the balance-of-stores ledgers and materials control in the shop. Accounting for the costs of sales is essentially the same technique as accounting for the costs in production. Even the principle of separation of planning and execution is found in the separation of the function of devising sales programs and methods from the function of directing the sales force in carrying out the programs. Notwithstanding a greater number of imponderables which evade control and complicate the problem, all along the line of major functions in current scientific marketing—from market research at one extreme to standard methods of suasion and securing orders at the other extreme—the principles and technique of scientific management of the shop are reproduced. At last the practical industrialist is discovering by experience, what the economist has consistently asserted, that manufacturing and selling are socially but parts of a continuous series of inter-related processes, all of which are essential to the production of utilities and subject to the same principles and basic elements of management.

The problem of marketing is infinitely more complicated than is indicated by this over-simplified consideration of it. The progress of goods from producers to consumers is halted and diverted continually by the interference of forces beyond the influence of individual managements. The marketing problem of enterprisers in a competitive industry is but part of the larger problem of stabilization of the relations between total consumption and total production of a society, with all its train of factors such as competition, purchasing power and credit. This raises the inevitable problem of stabilization of national industry, which will be considered later. All that scientific management has been able to do in marketing is to make a beginning with respect to the few factors on which an individual management can have direct and immediate influence. This is indeed a small sector of the problem. What is being done is both complicating the larger problem and giving experience vital to its solution.

Let us leave this brief section of our exposition with the emphatic reminder that this effort to develop scientific marketing is but an additional step in the direction of industrial regularization: that as soon as stability in the shop was threatened by forces of instability projected from the marketing environment, scientific management was compelled to turn to the task of putting that environment in order. The task has hardly been begun, but scientific management is patient and never releases its educational pressure.

Stabilization of General Administration

The war and its aftermath brought into sharp focus the function in enterprise which governs all other functions—general administration, which is concerned with the establishment, development and policies of an enterprise, and with the co-ordination of its functional units. During the war the dilution of the personnel of industrial organizations created new problems of rapid selection, training and co-ordination. Then the depression of 1920 brought out sharply two additional problems of general management: forecasting the effects of the new buyers' market, and the formulation of appropriate policies and plans; and the necessity of even greater economies through more precise control of the relations between units of enterprise which had been permitted to operate with such an absence of control as to neutralize each other's effectiveness. The frozen inventories which characterized that depression, for instance, were evidence of the prevalence of neglect in planning and co-ordination of sales, production and purchasing. Many of the larger enterprises which had been built up by consolidation discovered that their major units were not effectively integrated. Industry began to give attention to these problems and more generally to bring general administration under a control, already exemplified in a few more progressive enterprises, analogous to that previously established in production and being established in marketing. The development of this general administrative control was essentially a compelled application of the principles and technique of scientific management in a still larger area of influence.

The application of the principle of research in general administration has had two noteworthy aspects. In the first place, technical interest was turned to the history and development of industry, the characteristics of consumer demand, competition between industries, analyses of tendencies, and forecasts of the probable future of demand. Many of the larger enterprises established large and costly administrative research departments. Middle-sized enterprises came to accept, with respect to general information desired, the findings of professional institutions of industrial-