

assume that the reaction is the same for all classes of wage recipients? We may assume, and we may eventually measure quantitatively, a mass habit reaction to non-financial incentives, but may we assume that all classes of workers react in the same manner or at all? Many critical problems of management are concerned with individual reactions, or group reactions of numerous groups, to stimuli of the managerial environment, and to resolve these we must add to the rich results of quantitative measurement equally rich results of other methods of research.

VII. Other Methods of Research in Management

In the physical sciences investigators are imaginative and bold. Investigators should be not less bold and imaginative in the social sciences—and in the development of a science of management. Too frequently scientists concerned with the industrial field, hesitate to attack many important problems for fear the results will not be definitive as results and as tests of method, with the outcome that they are inclined to neglect the difficult and attack the easy problems. Some one has said that to discover incomplete information about an important matter is a greater service than to secure complete information about an unimportant matter. It is quite possible to carry along side by side researches which yield their important results by testing and validating methods, and researches which yield important results in new although incomplete information. If scientists will indicate a willingness to attack some of the difficult problems of management for which there is not as yet an adequate research technique, if they will utilize methods not yet perfected and perfect them by use, if they will conceive, experiment with and validate new methods, it is probable that industry will respond by offering the necessary facilities. It is true that industry also must be more imaginative and bolder than it now is, but the scientists should take the lead. In the matter of research industry cannot be expected to respond to experts who are timid and doubtful. There was no timidity about Taylor when he attacked the problem of measuring a day's work—even his brother engineers declared it could not be done. The results of this boldness have been enormous in practical results and in influence on industry's mental attitude towards scientific investigation of problems of management.

There are four methods of research which I should like to see utilized more in investigations of problems of management. One, if we may call it a method, is

the reconnaissance. Men of affairs, business as well as military leaders, value exploratory investigations. More investigations of a thorough nature would find support and be undertaken were their probable value pre-determined by reconnaissances. Reconnaissance, in fact, pertains to determination and definition of the imagined problem.

The second, if we may for convenience also call this a method, is that of the clinic. The clinic is in principle much like the reconnaissance; the former is a preliminary investigation of a problem restricted in scope; the latter is a preliminary investigation of a problem extended in scope. The clinic explores a problem pertaining to an individual or a small group of individuals such as the reason for low morale and low production in a spinning room, and may lead to dependable investigation of the experimental order; the reconnaissance explores a problem of social nature, such as the reasons for labor unrest in an entire industry, and may prepare the way for an intensive quantitative investigation. It is quite possible that there could be established in an industrial plant something with the essential characteristics of the clinic of a hospital, but without the latter's formal organization and equipment. Has not every executive who maintains "a close personal contact with his workers" established an embryo clinic?

Another method is the interview, which will secure attention in the paper to follow, by Miss Van Kleeck. It is a method which has not been adequately tested, perfected and validated. It should be, for it is the best method available for discovering a certain class of important facts—those relating to mental and emotional reactions to managerial stimuli. Achievements of the interview method in psychiatry, and the similarity to or identity of its problems with many crucial problems of management,⁵ justify a plea for its more serious use in management research.

The fourth method which I have in mind is the experimental method. It has been highly developed in the physical sciences and in academic psychology. The method should be utilized in industrial plants in study of problems of management. We have heretofore limited our quantitative researches pretty much to investigations of chance conduct. This throws light on what we as industrial cooperators have come to be under the influence of uncontrolled

⁵Cf. Elton Mayo, "The Basis of Industrial Psychology," *Bulletin of the Taylor Society*, Vol. IX., No. 6, December, 1924.

environmental forces. We should experimentally vary our managerial environment and under controlled conditions record and measure the consequences. This might throw light on what we can make ourselves come to be as industrial cooperators under the influence of controlled environmental forces. It may be that we can make ourselves masters of our managerial fates. For, while we are undoubtedly individual and group bundles of fixed habit patterns, there is apparently a section of each bundle in which the habits are plastic rather than fixed, and may be susceptible to molding influences. Many a time when some new procedure is advocated by an executive, his associates will exclaim that it cannot be done—"it is contrary to human nature." A decision to try it out proves that it can be done. Too much had been assumed concerning human nature. I feel that utilization of the experimental method in investigation of managerial problems would yield rich results.

VIII. How Industry May Cooperate

This paper has been addressed primarily to industrial executives. It may be that some are convinced of the necessity of promoting research in industry, may desire to meet their responsibility in the matter, and may ask in what, practical ways it can be done. I shall in conclusion answer this question briefly and sufficiently for our purpose.

1. Firm histories or logs, would be an important contribution. Such records would have to be very carefully devised, and professional assistance should be utilized in devising them. In the large they would consist of statistical data and of data concerning policies, plans, programs, procedures, and so on, including reasons—the genuine reasons—for decisions. Such logs would after a period of years constitute a great reservoir of valuable information.

2. The trade associations of the various industries might well keep, to the great profit of industry, histories, or logs, of the respective industries. Whereas the firm log would emphasize internal experience of a particular firm, the trade log would emphasize experience common to all the firms of the trade, including general industrial conditions affecting the industry.

3. Many a firm might profitably establish a research unit, a functionalized individual or department within the organization, commanding the resources of scientific method and continually engaged in investigation

of problems of management as they are perceived by the executives. The logs and results of firm researches should be available as a social service to investigators of repute and dependability.

4. Groups of firms may cooperate in research concerned with common problems. The research may be planned and supervised, and with respect to some problems carried on in detail, by a special organization like the well-known Retail Research Association, or it may be planned and carried on by representatives of the cooperating firms, meeting as a research group, as in the Manufacturers' Research Association of Massachusetts, about which you are to hear in detail at this meeting.

5. Managements might profitably utilize, more than they now do, the services of independent professional research organizations, such as the National Bureau of Economic Research. There are organizations of this kind which command the highest quality of research ability and render service on a high professional plane.

6. Managements should utilize and support, more than they now do, the research facilities of higher educational institutions. The research laboratories of engineering schools and of the departments of the physical sciences are now being utilized, although not to the extent to which they should be; and similar use of facilities of schools of business administration and of industrial engineering departments of engineering schools should be made. I believe a firm could not make a more profitable investment than to establish in such a school an annual fellowship of say \$500, which would give it for each academic year the use of a keen young man for investigation of one of its problems under its own and outside expert research direction.

7. Finally, industry should, by financial support and at least by offering the necessary laboratory of normal managerial processes, encourage research which is carried on by students of method for the purpose of discovering and validating methods which will become the tools of research generally. With respect to this contribution of management to research, the justification of the contribution should not be the immediate and direct practical value of research results, but the ultimate, indirect practical value of discovery and validation of methods to serve industry in the development of a science of management.