

published a summary volume covering ten years of continuous psychological, economic and educational research. The influence of its work on personnel practice in department stores has not been limited to the local constituency but has been felt throughout the nation.

That competing firms have co-operated in support of such investigations is significant. That the findings have in large part been passed on to other firms for the benefit of all and for the public good is evidence of broad mindedness. It well illustrates the growing conviction in American business and industry, that the ancient practice of maintaining trade secrets wherever possible is sometimes an unprofitable if not a ludicrous form of selfishness.

Such limited psychological research as has been carried forward by *individual corporations* has likewise for the most part been open to the inspection of any visiting scientist or personnel manager. A few street railway and taxicab companies with laboratories of their own for investigating individual susceptibility to accidents and related psychological problems of transportation, have not hesitated to exchange methods, data and results. Among such firms as the Eastman Kodak Company, the Western Electric Company, the General Electric Company and the American Telephone and Telegraph Company there has been free exchange of specifications for psychological laboratory equipment and of other technical information.

Several of these companies contribute to the support of the *Personnel Research Federation* which maintains a clearing-house for the exchange of research information, as well as a staff for consulting work and for carrying forward specific studies. Among its current investigations is one regarding the effects on accident reduction of individual attention to workers who are found to have a susceptibility to accidents. Another investigation, designed in the end to facilitate the flow of correct information from workers to management, consists of a study of the technique of the personal interview. In this task of jointly furthering the scientific approach to the human problems of industry, a number of government agencies, university departments and independent research organizations likewise co-operate. The Engineering Foundation, the National Research Council and the American Federation of Labor initiated this co-operative movement which signaled a definite recognition

of the need for co-ordination of research plans and extensive stimulation of sound research developments in industrial psychology and related aspects of personnel science. *The Personnel Journal*, now in its seventh volume, furnishes the record of accomplishment to date.

The establishment of the Personnel Research Federation followed upon the research developments at Carnegie Institute of Technology already mentioned, and other undertakings which had received an impetus from the widespread interest in applied psychology awakened by the military accomplishments of psychologists and personnel managers during the war. The Scott Company, for example, with Walter Dill Scott as its guiding spirit, for four years operated as a firm of personnel consultants to large business concerns, and made familiar to American industry a number of psychological concepts, principles and techniques recorded in the volume, "Personnel Management," by Scott and Clothier (1923). The immediate stimulus toward the establishment of the Personnel Research Federation, however, came from two sources. One was a series of significant investigations as to the value of the psychiatric approach to industrial problems, made by the late E. E. Southard, M.D., at the request of the Engineering Foundation. The other was a recognition by the National Research Council, of which James R. Angell was then the head, and by its Division of Anthropology and Psychology, of which the writer was Chairman, that the problems of industrial psychology were of increasing importance and that there was some danger of duplication of research effort unless there existed an agency to facilitate exchange of information, to survey the field as a whole, and to plan constructively in the light of known needs and facilities for research.

The National Research Council, which represents mainly the physical and biological sciences, has continued its efforts to further practical psychology, for example in its applications to problems of highway safety. More recently the Social Science Research Council has come forward, and as one of its activities is helping to plan and to finance selected investigations in industrial psychology. Both of these Councils also offer each year certain fellowships for advanced students of psychology, and a few of these investigators have chosen as their topics for study problems in industrial psy-

chology and related aspects of personnel science. The Psychological Corporation, founded by J. McKeen Cattell in 1921 as a means of making the services of American psychologists conveniently available to industry, has served useful purposes, not least of which has been to inform inquirers as to who and where the real psychologists are, in contradistinction to the dilettantes, charlatans, character analysts and pseudo-scientists who prey upon the public in America as in Europe.

The readiness of business firms to co-operate for the advancement of knowledge in the common interest, may again be exemplified by their support of such national associations as the American Management Association and the Taylor Society (an international association to promote the science and the art of administration and of management). Both of these organizations have from time to time encouraged discussions of psychological problems and of psychological research before their membership. It is a wholesome sign that the participation of psychologists in the work of these associations has grown somewhat during the past four years.

Papers of industrial significance are occasionally but all too rarely presented before the American Psychological Association. These most often are related to problems of vocational selection and placement, since American psychologists have concerned themselves with determination of interests and abilities by means of various techniques of testing, rating and individual appraisal, more often than with problems of the simplification of work, industrial fatigue, monotony, incentives and similar practical problems of the factory.

One exception to this indictment is Mrs. F. B. Gilbreth, who years ago had a clear vision of the problem. She worked jointly with her husband to spread among industrial engineers some understanding of the psychological point of view, especially with reference to fatigue, and to develop ingenious techniques for use in motion study and work analysis. In her private institute she has continued to introduce each year a few engineers to this point of view and to the refinements of these techniques. Another exception is C. S. Yoakum, whose contacts with the automotive industry and with business concerns have enabled him to formulate specifically problems of personality study, work histories, personnel accounting and measurement of the effects of management policies, and

whose psychological researches in vocational guidance are basic. Elton Mayo, to mention yet another, has brought the findings of psychopathology and the doctrines of Janet stimulatingly to bear on problems of irritation and irrationality in the factory. A number of younger psychologists are engaged in work which has its industrial bearings, and the temptation is strong to touch upon their individual contributions. Our generalization would, however, apply to the most of them, namely, that they are more often interested in employment psychology than in the psychology of the worker at work.

This paper, already too long, must be brought to a close with a word about industrial psychology in relation to government agencies. It may surprise European readers to learn that the federal government of the United States has never established an agency for research in industrial psychology, such as the Industrial Fatigue Research Board of Great Britain. Admirable research, to be sure, has been done by the Bureau of Mines in co-operation with the Public Health Service. The Department of Labor and the Federal Board for Vocational Education have published many studies on topics related to industrial psychology. But the research work, at least so far as the writer is aware, has been done for the most part by economists, educators, physicians or engineers, rather than by investigators whose training has been primarily in psychology. Only one agency of the national government has on its staff a well known psychologist: L. J. O'Rourke, of the U. S. Civil Service Commission. In a strategic position, he is changing for the better the character of the postal service and other government offices, by judiciously applying the techniques of psychological science to the procedures used in selecting and placing government employees. A few municipal and state governments are similarly benefiting by psychological research, and this movement is being fostered by the Bureau of Public Personnel Administration.

And so, in conclusion, it is admitted once more that psychology is influencing industrial relations and conditions in the United States most directly through its contributions to vocational selection and the understanding of individual differences. Within other equally important areas of inquiry, the influences of psychological content, methods and point of view have been more indirect, and