mental effort, hurt their pride in being placed in the position of novices or apprentices, and in general, upset a well established mental, physical and psychic equilibrium which they hated to have disturbed. So strong was their opposition to being taught new operations that they preferred to sit idle even if not paid for idle time, rather than take the trouble of learning a new operation, at the expense of the firm.

The difficulty was only partially overcome through persistent effort on the part of the management with individual workers. The majority clung to their old operations. The whole experience showed the profound difference in the psychology of mental and manual workers, and how wrong we are in assuming that the workers suffer from the monotony of their simple repetitive operations. The very opposite appears to be the case. The nature of intellectual work is such as to require mental concentration, and if of a repetitive character, it becomes monotonous and therefore irksome, causing one to seek variety. Manual work, on the other hand, when once thoroughly mastered, can be done with almost no mental concentration, enabling the worker to dream or talk to his fellow workers, so that he is unconscious of monotony and prefers the rhythm of a repetitive operation to the mental effort required by changes in work.

From the foregoing account it will be seen that the workers' reaction to the introduction of scientific management called for much patience and tact. In spite of frank explanations of objectives sought, through talks to the rank and file of the workers and through conferences with union and shop leaders, and in spite of monetary advantages which the workers derived immediately upon the introduction of the new system, the hostile influence of a few aggressive leaders, whose suspicious natures and prejudices against management on general principles prompted them to see cunning traps in every advantage offered to the employes, was sufficient to arouse opposition at every step when difficulties inseparable from the installation of a new complex system in a busy plant arose from time to time. It took the better part of a year to overcome the workers' suspicions through the practical demonstration of the superiority of the new system and its advantages to the workers as well as to the firm.

Today, after more than eight years of operation, scientific management as expressed in planning and dispatching of work, time studies, written specifications of standards of quality, and concentration of production control through the dispatch system which relieves the foreman of a duty which formerly took most of his time and sets him free for supervision of quality for which he is best fitted, is so firmly and successfully established that its most pronounced critics both in the executives' and workers' ranks would not think of suggesting its elimination and going back to the good old days of hit and miss.

THERE is no place for conflict in the economic world, nor for its twin evil, class superiority. There is but one economic man and one group of economic forces. Those who make for efficiency make also for the improvement of all other ennobling qualities. . . . . The unskilled worker must be transformed into an efficient citizen; the irregular trades into which marginal men flock must be safeguarded so that they will stimulate and elevate the worker instead of lowering his life and vitality. Children must be kept from work and women must have shorter hours and better conditions. Men can thus be moved from the margin and an equality secured through the more generous return which the new situations give. By this means the incomes and personal efforts of those favorably situated can reduce the evils of poverty without the destruction of the advantages upon which their welfare and the progress of society depend. The nation can gain economically by moving forward. (Simon Nelson Patten, *Essays in Economic Theory*, pp. 238, 257-258.)

A Technique in Employment for Subexecutive Positions[1]

A Method of Measuring Personality Factors in an Individual and Comparing Them with Job Requirements

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THE function of this paper is not to discuss the entire field of employment procedures, but principally one phase, and a technique which holds promise of illuminating that phase. This refers to the personality and fundamental nature and aptitudes of the individual as distinguished from his knowledge, technical experience, skills and environmental situation. It covers much of the information and impressions usually sought in the personal interview, and while it is not intended to supersede the interview it aims to qualify and quantify the individual's characteristics in a more definite way than usual. While the full technique is at present best applicable to the hiring of employes of the more intelligent class, such as recent college graduates and others of potential executive calibre, some of the principles and methods involved have more extensive applications. Some explanation will be made of the detailed principles behind this technique so that others can experiment with it, and if they find it valuable, adapt it to their own needs.

What we are primarily seeking are organized differentiation and approximate measurement of the individual's innate desires, aptitudes, and interests; of his present beliefs, attitudes, ambitions, preferences, and temperamental predilections; of his evolving adaptability to people and to changing conditions. Can we secure and organize at least part of this information in such a way as to supplement the findings of the interviewer; and at the same time secure other data of value?

The hopeful angle of approach would seem to be a psychological application of the engineering approach, and perhaps we may say, of the Taylor principles.

"Scientific management," says Taylor, "involves the substitution of exact scientific investigation and knowledge for the old individual judgment or opinion, either of the workman or the boss."[2]

Person, in elaborating this principle, says, "Scientific management aims . . . to assure the highest opportunity for individual capacity through scientific methods of work analysis and of selection, training, assignment, transfer and promotion of workers."[3]

The assent of the psychologists to this position and a statement of their point of view was well expressed by Bingham before the same Congress. "In essence," he says, "this point of view consists in a more than ordinary tenacious belief that human experience is understandable, that human behavior is not a spiritual mystery but a natural phenomenon like other phenomena of the organic world. Such a belief leads to the persistent attempt to understand one's fellows, to appreciate their motives and ambitions, to comprehend their shortcomings and their possibilities," and further "it pays in the long run to attempt to understand the deep-lying motives and ambitions of people, and to work with the current of human nature, rather than counter to it. It (psychology) has made this point of view explicit in its application to problems of vocational adjustment, including placement and training, in conformity with the individual's proclivities and talents."[4]

I like to think of the engineering approach to

[1]Paper presented before a meeting of the Taylor Society, New York, December 7, 1928.

[2]Copley, Frank B., *"Frederick W. Taylor, Father of Scientific Management,"* New York, Harper & Brothers, 1923, Vol. I, p. 12.

[3]Person, H. S., "Scientific Management, an Analysis with Particular Emphasis on Its Attitude Toward Human Relations in Industry," *Bulletin of the Taylor Society*, Vol. XIII, No. 5, October, 1928, p. 202.

[4]Bingham, W. V., "Industrial Psychology," *Bulletin of the Taylor Society*, Vol. XIII, No. 5, October, 1928, p. 193.