

pectation that if she marries her adolescent experience may be repeated and a young family require her sole support. Many discussions gave her an opportunity for expressing her reveries for the first time and her production has recently improved. She is still opposed to marriage.

A clerk in charge of deliveries; approximately twenty-eight, occasionally absents himself from the factory and stays in bed for a day or two. After the war he was unable to work for two years; he suffered what he describes as "neurasthenia." He is happily married and has four children. He is highly esteemed as a worker by the management and as a man by his fellow-workers. He contributes cartoons and humorous columns occasionally to publications and earns small sums thus. He suffers financial anxieties on his children's account. He habitually indulged in anxious or gloomy reflection as he worked until the unwisdom of this practice was pointed out to him. Since then his health and outlook have much improved. He has more intelligence and ability than his work demands; he cannot easily find a quiet corner in his home. His periods in bed are crises of revery; they are diminishing in frequency as he learns how to control revery. He should have more interesting work.

A machine operative of thirty-six is married to a woman much older than himself. They have no children and both regret it. He is highly skilled and is valued by the management. He complains of "neuritis" in his back which his medical attendant cannot diagnose. His wife has spinal curvature.

A man of thirty, married and with several children, is engaged upon a monotonous and unpleasant job. He suffers occasional emotional crises in which he is afflicted with panic for no very obvious reason. These crises were difficult to handle until it was discovered that at the suggestion of rest he would drop into a condition of hypnotic somnambulism. Inquiry shows that his work has played some part in developing this capacity in him.

A girl in the early twenties is engaged upon a monotonous machine operation for ten hours daily. She partly supports her mother and a large family. The father lives with them but has been demented for some years. A certain proportion of her work time is given to speculation upon the possibility of a similar development in herself.

When individual situations are thus described, I have no doubt that they have an air of being specially selected and unusual. The point I wish to make is that these are fair average samples taken from the several hundred cases we have under investigation. It is only rarely that we discover an individual entirely free from irrational or pessimistic or irrelevant revery thinking. There is of course an immense difference according to the suitability or unsuitability to him personally of the work upon which he is engaged. If the conditions of work are good or the work interesting, then his job acts as a corrective of any tendency to pessimism or as an antidote to any actual difficulties or problems. On the other hand whenever pessimistic reflection emerges, the effect upon productive efficiency is striking and immediate. This I have illustrated not only by cases taken from Philadelphia but also by those instances of workers in the Middle West cited in my opening paragraphs. Productive capacity, like capacity for concentration, is symptomatic merely of the total situation of the individual. When the total situation is adversely affected by any cause whether within or without the factory, a diminished capacity for work will always be one among other symptoms.

It is easy, therefore, to exaggerate the effects upon the individual of a traditional discontent within a factory or of so-called "agitation." It is altogether probable that such traditional expressions of emotional attitude have no effect upon individuals except when they afford a means of expressing individual discontents. Our experience with such traditions of discontent has been that the actual individual situation is different in every case; the traditional complaint is no more than a common vehicle of expression.

This type of investigation is not unknown in the United States. The need for it was expressed by Simon Patten of the University of Pennsylvania. The form it should take was explicitly stated by the late Dr. E. E. Southard of the Boston Psychopathic Hospital. In a sense, the work involves an extension of that begun by the pioneer by whose name this Society is honored. Taylor confined his attention, upon the whole, to the problem of irrelevant synthesis or mistaken coordination in our muscular apparatus; there is urgent need to extend this inquiry to discover what irrelevant syntheses of emotions and ideas are imposed upon

workers by indifferent education and unsuitable conditions of work. I use the term "workers" here to include proprietors and managers as well as machine operatives. Over the whole field of industry dispersed thinking and emotions bred of revery are making for unrest and breakdown rather than content. Many investigators are needed, but since few opportunities have been offered to the Universities, the inquiry is slow to begin. Industrial psychology is but one aspect of a research into the nature of man. Without such research civilization cannot endure.

The Achievements of Motion Psychology¹

By Frank B. and Lillian M. Gilbreth

Consulting Engineers, Montclair, N. J.

IT IS now almost thirteen years since the importance of this relationship of psychology to management was stressed before those interested in scientific management, at the Dartmouth Conference.² For seven years before that time, steady progress had been made in correlating psychology and management, but from that time on the correlation was placed upon a scientific basis. As an account of the "state of the art" of applying psychology to management, Dr. Person's paper on industrial psychology³ is both timely and interesting.

We agree with Dr. Person as to the need to recognize the limitations and to estimate the achievement of psychologists, especially in the field of industry; the need to recognize that they cannot at once, even though afforded all possible opportunities, solve all pressing industrial problems, and the necessity for the manager in industry to prepare opportunities for psychologists, to offer facilities for their investigations and to cooperate in every possible way. We agree also as to the problems that might profitably be considered;—but before future developments in industrial psychology can

¹Discussion of paper "Industrial Psychology" by H. S. Person at meeting of Taylor Society, Cambridge, Mass., April 25, 1924. This was the last manuscript to receive Mr. Gilbreth's editorial attention before his death.

²Scientific Management, Addresses and Discussions at the Tuck School Conference, October, 1911, published by Dartmouth College, page 356.

³Bulletin of the Taylor Society, Vol. IX, No. 4, August, 1924.

be profitably considered, it is necessary to estimate past and present conditions adequately.

In attempting to present in a few words the progress which has actually taken place in correlating psychology and management during the past twenty years, it is necessary to note that while the first step was to compare and harmonize the vocabulary and methods of management and psychology, from the start psychology has been defined, both by the psychologists and managers interested, as the science of behavior, or the science of motions. Behavior psychology, or motion psychology, has resulted.

In finding and teaching The One Best Way to Do Work, we prefer to use the phrase Motion Psychology for two reasons:

1. Every mental process has outward visible and recordable motions.

2. Every opportunity should be used to get the entire organization to think of all management planning and performing in terms of the *elements of motions*.

It has been recognized that the chief necessity for both psychologists and managers is for units, methods and devices for recording behavior. These enable all to have at their disposal indisputable permanent records of what actually takes place,—to be studied, analyzed, measured, synthesized and standardized. This need has been met, and there now exist and have been in successful daily use for twelve years units, methods and devices that fulfill every need. These are being applied with success in every field of activity and from their profitable use is resulting a mass of data,—accurate, cumulative, correlated and now solving industrial and other scientific problems.

Finding The One Best Way to Do Work signifies the application of the scientific method to the investigation of records of every motion made, in every line of activity. While no two cycles of motions have ever been made exactly alike as to paths in three dimensions, relative speed, exact speed, direction, etc., the sequences of therbligs or elements of cycles of motions are so comparatively few that any accurate data regarding the activity of the best man obtainable demonstrating the best that he can offer or has been taught, are usable forever on all other work. We have precision

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