

stance we discovered a worker who, during part at least of his working day, fell into the hypnotic somnambulant condition. Now the danger of this general condition of things both to the individual worker and to industry is obvious to anyone acquainted with psychopathological work. All the authorities agree that an adult nervous breakdown originates in earlier pessimistic reveries—one authority indeed specifies feminine handwork as offering much opportunity for the development of a hysterical mentality. Insofar as this general state of affairs exists and remains uncontrolled, we may expect an increasing condition of emotional unrest manifesting itself in the periodic "crises of revery" so well described by Janet.

The second reason why psychological investigation is necessary to industry is that these pessimistic reveries which culminate in disorder and unrest (absenteeism, high labor turnover, strikes) are relatively easily controlled provided that the management has a means of discovering the nature of the cause. It is in respect of this control that the factory differs from the hospital and clinic. A psychoneurotic is little benefited by a change of his conditions of living or working; the relatively normal worker in a factory responds at once to any betterment of his total situation. An individual's occupation is at least half his life; if his occupation is interesting and stimulating, he can support a burden of domestic and private difficulties which would otherwise tend to depress or break him down. Our inquiries seem to show that the usual form which pessimistic revery takes in the factory is that of depressed reflection upon personal and intimate affairs. It is important for management to realize that the conditions of work or occupation can exaggerate or minimize this tendency.

In passing, I should like to call attention to the fact that in discussing these two reasons I have been discussing the vexing question of monotony and boredom as distinguished from physiological fatigue. Monotony in itself is apparently a matter of no great moment; the definition of what constitutes monotony will, in fact, be found to vary with every individual. Monotony becomes a problem for the management of a concern only when it is obviously giving rise to pessimistic revery, not merely in individuals but over wide areas of the personnel.

The psychological approach to the factory, defined as I have defined it, does not involve at the

outset any elaborate confusions of card indexing or numerous additions to the office staff. It takes existing problems and re-states them in terms of total situation in individuals and in the factory itself. Its object is better understanding, improved control, and an increase of human happiness.

VI. A Case in Point

I can best explain by an illustration, after which I shall have done. Rather more than a year ago the Industrial Research Department of the University of Pennsylvania was asked to make what contribution it could to the solution of certain problems in a textile mill. The problems, briefly stated, were:

1. A high labor turnover and low productivity in a spinning department;
2. Absenteeism and "eye-strain" in a sorting department;
3. Low productivity in a pickering department;
4. Absenteeism in a winding department.

The only investigation actually proposed to us was that of the high labor turnover in the spinning department; the other problems were discovered as we worked.

1. The spinning-mule investigation has been reported and discussed at length elsewhere,¹⁵ and I do not propose to renew the discussion here. Our findings, briefly stated, were that the conditions of work involved a considerable degree of postural fatigue. This fatigue was complicated and increased by an almost universal incidence of pessimistic revery. To remedy this, the management introduced rest-pauses, four in a ten-hour day, in which the men were asked to lie down and were instructed in the best method of relaxation. Since the institution of this system the labor turnover has become negligible, the evidences of general pessimism have diminished or disappeared, and the productivity of the department has increased by approximately 15 per cent.

2. The sorting of white wool and cotton was done entirely by women of varying ages. There was a tradition in the department that the work caused eye-strain and indigestion. This tradition appeared in the reveries of the workers as an expectation of these ills; every worker in the department gave evidence of such expectation. In

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this and other departmental investigations, we have had the most excellent backing and collaboration from the Graduate Medical School of the University. Care of the physical welfare of the individual being thus assured, we tried the experiment of interrupting the sorting by six ten-minute rest-periods in a ten-hour day. In this instance, as with the spinners, workers were given individual instruction in the best methods of rest. The effect has been to eliminate altogether the periodic emotional crises which used to characterize the work of the department. There have been no complaints of eye-strain or indigestion for six months; absenteeism and evidences of pessimistic thinking have disappeared. There is in this instance no means of measuring productive output, but the management is entirely satisfied that there has been no diminution.

3. The situation in the pickering department has at no time been made the object of active investigation. The management some months ago adapted the procedure in the spinning department to the picker house. Since that time those employed in pickering have earned bonuses of from 5 to 14 per cent. Previously, they had earned no bonuses.

4. The winding department is interesting chiefly because it illustrates a variation of method. Cone-winding is piece-work, and supply is sometimes irregular; workers are therefore unwilling to take regular rest-periods. The workers are women and the relatively high rate of absenteeism was found to be largely due to a tradition of incapacitation by menstrual "cramps." In one month, for instance, one-half the departmental strength absented itself for a day or more for this reason. In this instance, as with the sorters, it was discovered that the tradition of the department appeared as a revery of expectation in the individual. The work involves postural fatigue, the reveries tend to be pessimistic, and the occasional recurrence of the tradition in such reflections acts as what used to be called a suggestion. Investigation was made medically and also by the dispensary nurse. It seemed entirely possible that physical fatigue might contribute to the causation of dysmenorrhoea. We were somewhat astonished to discover that the physical causes are apparently negligible as compared with the mental. I am expertly informed that the medical help given is not more than "an aid to suggestion"; but the individual attack upon the revery and tra-

ditional expectation by the nurse in charge has had the effect of almost entirely removing this cause of absenteeism. In one period of four months, for example, there was no time lost by reason of this ill.

VII. Total Situation and the Individual

This paper would not be complete without some reference, however brief, to our method of approaching the individual and to the content of the pessimistic reveries in particular cases. The individual has to be approached with care, but once he understands that his happiness and well-being are our concern, and that confidences are not divulged to his fellows or the management, he is usually willing to help the investigation. Given this collaboration, our endeavor is to discover:

1. His physical condition and medical history;
2. His personal history, including his dominant reveries;
3. His domestic situation;
4. His adaptation to his work.

This investigation of individual situations is more interesting than the inquiry into general or departmental situations. It will in the end probably yield more in the way of definite knowledge as to what is happening in industry and in the detail of civilized life. In by far the greater number of cases there is some unsatisfactory circumstance, usually of personal history or private life, which is a habitual topic of dispersed thinking or revery. Any monotony of occupation or unpleasantness in work tends to extend and emphasize this thinking. We have under investigation several hundred individuals of average normality and I give one or two instances which must not be supposed to be specially selected; they are taken more or less at random and are typical.

A girl of twenty-seven has been engaged upon a machine operation for nine years. She began work in adolescence to support her mother and four brothers and sisters after the father's unexpected death. For five years she was the sole support of the family; in the last four years a brother has helped. For seven years she was the best worker in the department; latterly her production has been less. Two years ago a young man wished to marry her and she had, so she says, a nervous breakdown. She is much opposed to marriage; she has developed in a revery an ex-