

variations are connected with morale, it would appear that morale is lowest on Mondays; as the week goes on, workers get more and more used to the daily grind of factory routine, and the degree of morale (and hence attendance) improves as pay-day and the week-end approach. We found that a smooth curve declining from Monday to Friday is obtained even when only a few weeks are taken to compute the daily averages of absentees, provided the sample is fairly homogeneous and not too small. In fact, the downward movement in absenteeism from Monday to Friday appears in almost every week throughout the year. The pattern becomes blurred only when the routine of factory and domestic life is broken by holidays, football matches, bus-strikes, etc. Other post-war years present a very similar picture, with the exception of 1946, when a six-day week was worked and Saturday ranked highest in absenteeism.

If the hypothesis is true that the pattern of day-by-day absenteeism is connected with morale, one would expect the slope of the curve to be different for specific categories of workers: the lower the morale of the group, and the greater the dislike of work, the steeper the downward trend of the curve. This was largely confirmed by a more detailed analysis of our material. For example, while there is a very steep, downward gradient for foundry workers (Monday, 157), skilled tool-room work shows a more or less horizontal, if not even rising, trend. Workers with less than three years service are characterized by a steeper fall of the curve than those with longer service. Some additional evidence in favour of our hypothesis was gained from data on average daily absence for women teachers at a girls' grammar school, where voluntary absenteeism was known to be insignificant, and morale, compared with factory standards, was expected to be high. When comparing the teachers' curve with those of the factory workers, it will indeed be observed that it is the only one where absence at the beginning of the week is lower than at the end. The increase in absence on Thursdays and Fridays may possibly indicate cumulative fatigue.

From overall absence and turnover statistics it is sometimes argued that women workers in factories have a lower morale than men. It came somewhat as a surprise, therefore, to find that the downward slope of the day-by-day absence curve is less clearly marked, and less regular, for women workers than for men. Does this mean that the morale of women at work is higher, in spite of the fact that the general level of their turnover and absence-rates are usually higher than those of men? Another company (with two thousand employees) situated in a different area and engaged on different work was investigated; but the result was the same: the women's curve, both for day and night shifts, was consistently flatter than the men's curve. When separate data for married and single women were collected, it was observed in both companies that the difference between average absence on Monday and Friday was smallest for married women, moderate for single women and largest for men. Until further details are available, the following tentative explanation is offered: women do not mind so much going back to the factory on Monday, since the week-end does not bring them true leisure but involves work as hard as in the factory, especially for the married woman who has to face an additional burden of housework during the week-end. On this point, our method might usefully be supplemented by attitude surveys conducted by means of questionnaires.

No doubt further research on such lines is required; but it is already clear that this approach to the problem of employee morale is more objective and offers more scope for comparing the level of morale of different firms, occupations and groups of workers within a given firm than any method based on interviews and questionnaires. At the same time, it permits a more direct and more reliable assessment of factors in motivation than is possible by means of overall turnover and absence-rates, which differ so lamentably in definition and method of computation between different firms. On the basis of day-by-day absence curves a way may be found even for international comparisons of the morale of workers in similar occupations, which hitherto has proved impracticable.

## THE SHIRLEY INSTITUTE

THE British Cotton Industry Research Association, better known and more conveniently referred to as the Shirley Institute, or just plain "Shirley", was one of the earliest of the industrial research organisations to be established under the auspices of the Department of Scientific and Industrial Research. Now, after thirty years of existence, a "Year Book" has been published\* for the purpose of explaining to the interested layman something of its history, its organisation, and what it has achieved. Reading through these pages, and looking back over so brief a period of time, it is astonishing to reflect on the great changes that have been wrought, not only in the Institute's physical growth, but also, more especially in the outlook of Lancashire which it has played so large a part in shaping.

Intended to serve an industry based originally on hand craft, and which owed little to science for its development, the Association was faced at the start with a more than usually difficult task in justifying its existence. Though from the outset liberally assisted by the Department of Scientific and Industrial Research with government funds, its permanent survival required that it should become increasingly reliant upon the financial support of the industry itself. It had, therefore, to convince those who held the industrial purse strings, a majority of whom, if not actually hostile, were at least apathetic to the notion, that scientific research was an indispensable investment. Fortunately, there were among the leaders of the industry a sufficient number of influential men of enlightened views who were convinced that, without an infusion of the scientific spirit of progress, the industry was doomed to perpetual decline. By their efforts in the first place, the Association had come into being; and largely by their faith, energy and encouragement was it enabled to survive its early critical years. The debt the industry to-day owes to these men is incalculable. Thanks to the steadfast support of its successive Councils, to the wisdom of its successive directors of research, and to the solid worth of the work accomplished by its staff, the place of the Institute as a fully integrated part of the industrial structure of the cotton trade is now firmly established. A Lancashire cotton industry without a Shirley Institute is no longer imaginable.

\* British Cotton Industry Research Association. Shirley Institute Year Book. Pp. 112+6 plates. (Manchester: British Cotton Industry Research Association, 1949.) 5s.

A large part of the early work of the Institute was devoted to instrumentation and to fundamental fibre study, the importance of which was far from apparent to the large numbers in the industry whose backing had sooner or later to be secured. The temptation to strive for more spectacular achievements by diverting attention to problems of immediate practical interest must have been strong; yet it was resisted. At the time it seemed that the necessity for building a sure foundation upon which further work could be based was justification enough. In retrospect, it is seen how the adoption of any other course might have ended in failure. The nature of the problems had not yet been specified in scientific terms; and furthermore, the staff of the Institute was not yet sufficiently versed in technology to invade the practical field on anything like equal terms with the manufacturer himself. Neglect of even one small practical feature of a situation could only too easily have brought forth amused contempt, if nothing worse, for these scientific workers who had come along to teach experienced mill-men how to do their jobs. The hope of establishing mutual confidence between the Institute and its member firms could have been irreparably shattered.

To-day that confidence is beyond question. Both the Institute and the industry have matured: the Institute in its understanding of practical problems as well as in its genuine respect for the knowledge and skill of the mill-man gained over many years of experience; the industrialists in their appreciation of the necessity for long-range fundamental research and in their recognition that research workers are humans like themselves, who, though differently trained and possessing different abilities, have their limitations and know it, are as glad as any other men to take advantage of informed criticism and advice, and are no less dedicated than they themselves to the task of increasing the prosperity of the industry they serve.

All this has not been accomplished merely by the passage of time, but by numerous acts of deliberate policy of which space here permits only the mention of two. At first the publications of the Institute were nearly all of the type appropriate to the journal of a learned society and for the most part beyond the patience, if not the comprehension, of those for whom they were intended. To remedy this, the more formal research papers were supplemented by a second line of printed communication, the *Bulletin*, now published six times a year, in which the progress and significance of current work are described in terms that the mill-man can rapidly read and readily understand. Excellently though the *Bulletin* serves its purpose, however, it was recognized that it could be no substitute for personal contacts. A Liaison Department was therefore set up, staffed by technologists with experience of industry, the function of which is to confer with mill-men on their own ground and in their own language, interpreting the work of the Institute to the industry, and bringing the problems of the industry to the research worker. In addition, the liaison staff spends an increasing proportion of its time in efficiency surveys of members' mills, the results of which, when collated and analysed by the more recently formed Technical Economy Section, are proving of the utmost value in reference to current problems of re-equipment and re-deployment of labour. Incidentally, it is worthy of wider acknowledgment that the technique of these surveys, devised and developed at the Institute so long ago as 1928,

was extensively applied in various Service connexions during the War when all forms of 'operational research' received great attention.

This is not the place for reflexion on that part of the "Year Book" dealing with work in progress. Suffice it to say that by the quality and value of its work the Institute has established for itself a reputation among the research associations of Great Britain second to none, and that in the textile field there is no organisation elsewhere in the world that can even remotely be compared with it. In size as well as in influence it continues to grow. Though already several times larger in personnel and accommodation than it was at its foundation, it is still inadequate to carry out all it is called upon to do. An appeal has, therefore, recently been launched for funds to see it through the next large phase of its expansion. One could only wish that all those who set the Association upon its course were still alive to witness the raising of this monument to their vision and faith.

W. E. MORTON

## THE HEBREW UNIVERSITY : TWENTY-FIVE YEARS OF ACHIEVEMENT

By PROF. S. BRODETSKY  
President of the University

ON April 1, 1925, many thousands of people, including distinguished personalities, gathered on Mt. Scopus to witness a historic ceremony—the opening of the Hebrew University by Lord Balfour. At the time there was very little there; the hill was bare except for one or two old buildings, and the embryo university consisted in all of three small research institutes: chemistry, microbiology and Jewish studies. To-day, after twenty-five years, we are able to look back and assess what has been achieved in this dramatic quarter of a century, during which the fate and fortunes of the Jewish people have oscillated until the cycle has come round full circle.

It might be true that in comparison with the epoch-making discoveries and events which have taken place in other parts of the world, our achievements in Jerusalem have indeed been modest. Yet the value of the Hebrew University to the Middle East, where the light of higher education and culture had well-nigh been extinguished, cannot be over-estimated. The University has been a positive influence for good in the resurrection of Israel, by its wide contributions, among other things, to education, medicine, agriculture and industry. It has already proved itself a veritable blessing to the young State, which it has staffed with large numbers of trained professional men.

From the modest beginnings described above, the University swiftly developed. To-day it has Faculties of Humanities, Science, Medicine and Law, a School of Agriculture (which will shortly be expanded into a full faculty), a Department of Social Sciences and Economics, a Department of Education, a University Press and the Jewish National and University Library with more than 500,000 volumes. 876 students have graduated from the University (473 in humanities, 366 in science, 37 in agriculture) and 103 doctorates have been awarded. This year the student enrolment has reached 1,541, the highest in