of and implications for town planning which have resulted from the lack of co-operation between housing and other authorities. In London, for example, workers have to travel from Becontree to the new factories on the Great West Road. The policy of open development of the suburbs—an endeavour to house the urban population in rural surroundings—is shown clearly to have resulted in the unwieldiness of large cities, the lack of a feeling of community such as would more easily arise in the recommended compactness of building, and in increasing the distance to be travelled each day. Many suggestions are made as to remedies, but one which commends itself is the suggestion that 'communal leisure facilities and decentralized services should be supplemented by making the residential districts areas of local government.' Another important requirement of this wider issue is to foster citizenship also at work places. Society cannot afford to neglect the work places as potential focus of common interest and local affinity.

'If accompanied by a proper organization of social and civic life,' Dr. Liepmann concludes, 'the severance of dwelling-place and work place (as is now increasingly seen) may well prove to be for the benefit of the urban population.'

The second half of the book contains the results of statistical inquiries and includes the U.S.A. and German industrial centres. The whole book is of significance to those concerned with transport, town planning and industrial health.

J. G. B.

A STUDY OF VARIATIONS IN OUTPUT
Emergency Report No. 5 of the Industrial Health Research Board
By S. Wyatt, D.Sc.
(Assisted by R. Marriott, B.Sc., W. M. Dawson, B.Sc.,
D. E. R. Hughes, and F. G. L. Stock)
(H.M. Stationery Office. 1944. Pp. 16. 4d.)

It is widely held that, for economic reasons alone, the working week should be reduced below 60-65 hours for men or 55-60 hour for women—the so-called maximum levels for manual work involving medium physical effort. So an investigation was planned to prove the truth of this belief.

At the end of 1942 the weekly hours of work were reduced in certain factories; these were selected for this study. Although the reduction varied in different factories, it was thought that the change in hours of work might have a measurable effect on output. It was therefore interesting to find that the most striking feature of the output records was their variability. Although stable operations were chosen for measurement there was often considerable weekly fluctuation. The chief causes of this were changes in the type of design of production, mechanical defects or breakdowns, variations in quantity or quality, progressive improvements in the methods of work, changes in the lay-out of machines, and personal factors such as dissatisfaction with wages or friction between management and workers. These points are of interest to the future investigator, and show some of the real difficulties in carrying out a scientific study of a problem such as this.

Despite the presence of these interfering factors, however, the hourly output increased in 15 out of 21 groups during the period covered. The average increase for all the factory groups was 4-1 per cent, but in some it ranged from 11 to 21 per cent. This satisfactory feature of the results was due mainly to small but progressive improvements in methods and conditions of work, but in some groups it was accelerated by fairly large-scale measures of reorganization. Although the effects of shorter hours of work were, in most groups, mainly obscured by the presence of other factors there is reason to believe that the effects were favourable. Thus in three groups free from disturbing influences the period after the reduction of hours showed an increase in hourly output of 3-3-6-3 per cent. In most groups the shorter working week was appreciated by the workers, especially by women with family and home responsibilities. In some groups there was a slight decrease in absenteeism.

In general the trend of output was upwards despite the shorter hours of work. A comparison of the amount of absence in the different factories showed, on an average, that it was appreciably higher among two groups of women employed on a 3-shift system than among 5 groups of women on a 2-shift system. There was also a tendency for absence among men and women on a 2-shift system to decrease as the weekly hours of work decreased. On the 2-shift system there was little difference between hourly output during night and day work. On the 3-shift system output was likely to be highest on the afternoon shift and lowest on the morning shift.

The Board rightly states that it is unjustifiable to make dogmatic statements about the results obtained which, incidentally, corroborate previous work by Sargent Florence and others. But the fact that the investigation has been carried out, and has clearly shown the type of difficulty that can and will arise in similar studies, is justification for starting it. A wide field for research is thus again opened up.

D. S.

OCCUPATION AND HEALTH. SPECIAL SUPPLEMENT—INDUSTRIAL HEALTH IN WAR TIME

The International Labour Office has recently published a Special Supplement to its Encyclopaedia of Hygiene, Pathology, and Social Welfare. This deals with many aspects of industrial health as it is affected by war-time conditions in Great Britain, the U.S.A., the U.S.S.R., France, Germany, and other countries. Employment of large numbers of persons with no previous experience of industry, the necessity for work at high pressure, 'black-out' regulations, and the relaxation of many rules controlling health and safety, together with the handling of many noxious substances—some of which are new and imperfectly understood—have combined with difficulties in housing, transportation, and food so as to lead to much illness and loss of efficiency. Study and research in these matters have engaged the attention of those countries concerned, but exchange of information has been hindered by security considerations—many war-time processes are secret—and by difficulties in holding conferences and publishing reports.

In view of these conditions the present Supplement is of particular value; it gives, in the small compass of 39 pages, a summary of the principal observations made during the past four years in the fields of industrial hygiene and toxicology. This includes dust diseases; poisoning by lead, magnesium, mercury, and other metals; carbon monoxide; explosives; solvents; rubber substitutes—synthetic rubber has been produced in large quantities in Germany, the U.S.A., and, since 1935, in the U.S.S.R.; chlorinated naphthalenes; radio-active substances; and notes on caisson disease, aviation hygiene, and skin affections. References to recent literature on these subjects are given.

D. C. N.