

the Commissioner of Corporation and Taxation in Massachusetts and with that of the Tax Commission in New Hampshire. The provisions of the act state the conditions under which existing towns may be "liquidated" as political entities. The area covered by the defunct town becomes state land thus placing on the state the responsibility for the care of the local population, which may be left. It then becomes the duty of the Assessor to arrange for the schooling, protection, and governmental needs of the people. Sometimes these are divided among neighboring towns; sometimes people have been moved to more favorable and populous locations.

Granted, this experiment is not startling, nevertheless it reveals clearly that New England is confronted not only with the urbanization of some areas, but with the very opposite of others. The Deorganizing Act is a clear example of the responsibility of the state to protect and preserve a community when local government breaks down. Like the establishment of fiscal agents for fin-

ancially unsound counties in New Hampshire, it shows that New England is awake to this duty. Indeed there are many who interpret the extensive assumption of powers by the state governments as indicative of a breakdown in local and municipal government. To others this interpretation has not been proved.

In conclusion it should be observed that only the more apparent aspects of the problem have been treated. They all indicate changing relationships between State and local governments. But this must not be construed as a concerted movement for either general or specific reform. It is much safer to observe that a general readjustment is being undertaken in the functions of municipal government to bring it into step with rapidly changing times, with new functions and with new social, economic, and governmental needs. The underlying governmental structure remains intact having demonstrated its inherent worth throughout the critical period since 1919.

Safe Working Conditions in War Industry

By KINGSLEY KAY

GREAT BRITAIN as well as Canada knows from the experience of the last war how important it is to keep up an efficient control of labor conditions in war time.

In Great Britain where a comprehensive system of factory inspection had been operated for many decades a temporary relaxation of the control was proclaimed at the outbreak of the war in 1914 due to the extreme need for the manufacture of implements of war. Great Britain at that time had not learned the lesson painfully demonstrated later in the war that healthful working conditions most certainly increased ef-

ficiency of production, quality and quantity of output. Health supervision was forced to the background making production, at any cost, the important goal and by 1915 there was no doubt but that the large increase in production of war materials and the accompanying factors, long working hours and poor working conditions, were leading to tremendous increase in fatigue accidents and occupational disease. Not only was an increase shown in fatigue, ill health and accidents, but it was quite evident that they were contributing to a serious lowering of the efficiency of war production. Labour turnover sky-rocketed and great difficulty was experienced in obtaining sufficient workers to enter the unhealthy trades such as shell filling in view of the

EDITOR'S NOTE: Kingsley Kay, M.A., Ph.D. is Acting Chief, Division of Industrial Hygiene, Dept. of Pensions and National Health.

unsavoury reputation that such types of work had developed. Poisoning and dermatitis among explosives workers were widespread. Another factor of importance was the withdrawal of manpower to the armed forces which occasioned an acute shortage of labour and made the toll of accidents and sickness even more disorganizing.

The situation reached such an acute phase in September 1915 that the Right Honourable David Lloyd George, then Minister of Munitions, appointed with the concurrence of the Home Secretary the Health of Muniton Workers Committee to consider and advise on matters affecting the health and welfare of workers in British muniton factories. It was not long after this committee had been active that a decided improvement in the health situation of the war industries took place. The two direct results of the committee's work were, firstly, an improved organization of industrial effort as a result of the elimination of inefficiency of fatigue due to excessively long hours of work and poor working conditions and, secondly, legislation based on scientific findings to control hazards inherent in the manufacture of munitions of war. Results of the formation of the Health of Muniton Workers Committee were far-reaching and found a wide application in industry after the war was brought to an end. Although the committee was dissolved at the end of the war, its place was taken by the Industrial Fatigue Research Board. This latter board continues to function as the Industrial Health Research Board and is rendering important service in Great Britain to-day.

BRITAIN TO-DAY

Great Britain has learned the lesson well from experience of the last war that safe working conditions are a concomitant to efficient production and during the present war control of working conditions has been increased over peace-time practice. New control was placed over health in British industry under an order made last summer by the Minister of Labour and National Service. By

this order employers are required to engage a whole-time or part-time doctor or nurse, or both, wherever the Factory Department considers such appointments necessary, the necessity to be determined by the number of workers employed in a given factory or by special conditions appertaining to work, such as dangerous processes or isolated position. This new order extends the authority granted under the Factories Act 1937, which empowered the Secretary of State to require reasonable arrangements for medical supervision in factories where there is reason to believe that injury to health may be caused by conditions of work or where juveniles are subjected to risk. This order has been discussed in a leading article in the *British Medical Journal* of August 31st, 1940, in which it is pointed out that, while conditions created by the present war output have led to the decision to require the appointment of doctors in certain factories, the importance of the order lies in the fact that it signifies State recognition of preventive medicine as a function of factory management.

Not only have measures been taken to increase factory health and safety service in British industry to-day but measures have been put into effect to ensure that working hours will be controlled within limits compatible with efficiency of production. During the last war the Health of Muniton Workers Committee conclusively showed that excessive hours of work were resulting in a disorganization of production and in an actual and serious lowering of the quantity of war materials being produced. Many of the processes used in manufacturing materials of war were studied by the Committee's investigators and ample proof was obtained, repeatedly confirmed by investigation during the post-war period, that reduction of hours in those factories where excessive hours were being continually worked actually resulted in a maintenance of production level. The Committee even found on numerous occasions that excessive hours of work could be reduced to reasonable levels with a resulting increase in production.

British experts to-day suggest the hours of the Factory Act, 1937, as being the most suitable for maximum output and maintenance of health. At the outset of the War some control of hours of work was lacking in Great Britain and indeed in May 1940 most of the regulation was cast aside owing to the urgency of the situation at the time. It was soon realized that such unlimited hours of work to which approval had been given would result in a repetition of the situation of 1915 and regulation of such matters was taken over by the Minister of Labour and National Service who set up a Factory and Welfare Department and a Factory and Welfare Supervisory Board to assist in developing and establishing safety, health and welfare in factories. During the summer of 1940 hours of work were again regulated.

CANADA

Few records exist of the extent of sickness and accidents in Canadian industry during the last war. There is however little doubt that production at that time suffered from the effects of fatigue, accidents and occupational disease in much the same way that British and American production suffered. It cannot be concluded because Canadian records for the period are meagre that these factors were not a serious problem of the time. A consideration of the many important advances that have been made in establishing safe working conditions during the past twenty-five years shows that fatigue, accidents and occupational disease must previously have been problems. In August 1939 at the commencement of war it was realized that health and labour authorities in Canada would be called upon to make their substantial contribution toward maintaining the efficiency of a rapidly expanding industry. The Department of Pensions and National Health had in many respects a special responsibility in view of the fact that most war production would be carried out under contract to the Federal Government. Already provided in peace-time with

a Division of Industrial Hygiene it but remained for the Department to formulate a plan which would co-ordinate the efforts of the Division with those of Provincial health and labour officials.

In order to consider this problem from a national point of view it was discussed at meetings of the Dominion Council of Health and of the Technical Advisory Committee on Industrial Hygiene in October 1939, these two bodies being part of the organization of the Department of Pensions and National Health. As an outcome of the meetings and in co-operation with the Federal Department of Labour and the War Supply Board, now the Department of Munitions and Supply, it was arranged that there should be inserted in all Government contracts a clause requiring that health and sanitary conditions be maintained at levels satisfactory to the Minister of Pensions and National Health. The contract health clause provides the Department with the power to require that working conditions be healthful, that sanitary facilities and safe water supply be adequate, that suitable medical services be available and that health records be kept wherever it be deemed advisable by the Minister. The clause represents an agreement between the Federal Government and the contractor and supplements legislative requirements under provincial Health and Factory Acts. By means of the clause and provincial legislation, the Federal Divisions of Industrial Hygiene and Public Health Engineering co-operate with provincial health and labour officials toward the maintenance of safe working conditions in Canadian war industry. It is interesting to observe that the contract clause provides powers, in effect, to require medical supervision in factories. It is to be noted that the contract clause specifically sets forth that medical services shall be provided to the satisfaction of the Minister of Pensions and National Health, whereas the Walsh-Healey Public Contracts Act of the United States does not specifically give such powers.

Following upon the insertion of the contract clause in Federal war contracts,

it was arranged that the Division of Industrial Hygiene would be supplied with details of contracts let by the Federal Government. The purpose of this arrangement was to assist in a comprehensive supervision of war contract premises. Every attempt is made to avoid duplication of supervision by Federal and Provincial authorities and to this end contract information is routinely disseminated to the Provincial Departments concerned. By virtue of the contract clause every manufacturer engaged in the production of materials of war has at his disposal the facilities of the Division of Industrial Hygiene. Experts are on hand to give every possible assistance to manufacturers having problems relating to the provision of safe working conditions.

War-time production brings with it many new hazards to health. New processes and new materials which are not encountered in peace-time create safety problems which frequently cannot be solved on the basis of information collected during and since the last war. The Department of Pensions and National Health has attempted to provide the necessary information in Canada by conducting rapid surveys in the aircraft, shipbuilding and munitions industries. By means of these surveys it is possible to determine the types of hazard common to each type of manufacturing. Such surveys also make it possible to prepare standards of safe operation applicable to old plants and new ones going into production. A survey of the aircraft industry has been completed and the results of this survey have been issued in the form of a memorandum to aircraft manufacturers. Surveys of the shipbuilding industry and the munitions industry have also been worked upon and important information has been made available to the manufacturers concerned. Such surveys provide information which can frequently be distributed in the form of pamphlets for employers and employees and the careful reading of such pamphlets by employees assists the manufacturer in developing

a program of control. The technical nature of modern war industry requires that the employee be acquainted with the process in which he is engaged in order that he will fully comprehend the need for precautionary measures which have been instituted. Pamphlets have been prepared on the subject of benzol poisoning, nitrous fumes poisoning, T.N.T. (trinitrotoluene) poisoning and prevention of tetra-erythematitis and many thousands of such pamphlets have been distributed. To supplement the pamphlet program a series of posters has been prepared to introduce these pamphlets to Canadian employers and workers.

Shortly after the declaration of war studies were commenced at the Department's Industrial Hygiene laboratory for the purpose of setting safe practices to be instituted in the manufacture of various war materials. The problem of T.N.T. (trinitrotoluene) poisoning and its control has been dealt with and a method of analysis for its concentration in air has been developed. It assists in evaluating the efficiency of ventilating systems in use in munition factories. Department is following closely the incidence of any ill effects from T.N.T. and attempting to correlate such information with the air concentrations to which affected employees may have been exposed. By this means it will be possible to set a safe level of T.N.T. in workroom air.

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of any ill effects from T.N.T. and attempting to correlate such information with the air concentrations to which affected employees may have been exposed. By this means it will be possible to set a safe level of T.N.T. in workroom air.

It is a peace-time function of the Department of Pensions and National Health to extend service to provincial health authorities. One of the most effective forms of contribution during war-time has been related to instructing officials of the provinces in the latest methods for safeguarding employees of industry. New industries are spreading to many of the Canadian provinces which before war-time were engaged mainly in non-industrial pursuits, and, in the case of these provinces especially, the Department of Pensions and National Health has arranged to give instruction to provincial officers so that they may be in the best position to cope with unusual problems which may arise in new industries. It is unfortunate that Canadian universities have not devoted greater attention to training medical and engineering students in the methods to be used for protecting industrial employees. Practical courses for the training of factory inspectors, safety engineers, industrial physicians and hygiene engineers have long been available in the United States and there is little doubt that courses of similar training will become necessary if the war-time expansion of Canadian industry is maintained during the post-war period.

Industry in Canada, in common with industry in other countries, has lent assistance to many health and safety organizations which are contributing to safety control in Canada. The accident prevention associations are doing an important work at the present time in dealing with their specific problem and there is little doubt that the endeavours of these associations are amply repaying the efforts expended in their maintenance during peace-time. An interesting development, supported by industry, is the Industrial Relations Institute of

Queens University which is doing important work in training personnel managers and other industrial officials in the latest aspects of industrial relations. This Institute includes as part of its tuition consideration of the problems concerned in providing safe and healthful working conditions, and this aspect of its work is unique in Canada.

In the present war, the successful prosecution of which depends to such a great extent upon a constant supply of essential war products, it is more important than ever before to eliminate the disorganization in which unsafe working conditions can result. There is little doubt to-day that industry, facing a shortage of trained labour, appreciates that by safeguarding employees and by providing good working conditions the ultimate success of the industrial effort can be assured to an appreciable extent. Nevertheless at the present time there is a tendency to ignore many well recognized principles relating to hours of work, rest pauses, lighting, ventilation and other working conditions. Now, as during the last war justification for ignoring these important principles is founded upon a need for rapid production in light of the present critical situation. It is, however, abundantly clear that lack of attention to these factors can only lead to a condition of fatigue among employees resulting in excessive labour turnover, accidents, ill health and impaired efficiency of production. Even in Germany where health and factory legislation was dismissed with careless abandon upon the advent of rearmament, the last year has witnessed a revision and a return to practise of many of the principles laid aside. This return has been necessary owing to the tremendous increase of sickness and accidents, a return not based upon humanitarian motives but upon a hard headed consideration of the production needs of the time.

While it has not yet been found necessary in Canada to rigidly restrict freedom of practice relating to hours of work and other working conditions, such a course might be necessary if evidence is found

that war-time production is being seriously hampered as a result of a lack of attention to these factors. Experience thus far in the war would indicate that a repetition of the sickness and accident situation in British industry in the last war will not occur in Canada. Industry is attempting to apply much common knowledge which has evolved out of the gradual improvement in working conditions during the post-war period. In addition, Canadian manufacturers appear

to take seriously their responsibility to continually canvass dangers to health inherent in the processes in which their employees are engaged. Governmental agencies are to-day well equipped to provide industry freely with all possible assistance in eradicating bad working conditions and there is little excuse for giving the enemy the advantage of production days lost through fatigue, accidents or ill health.

Canadian Health and Mortality — Its Progress and Its Problems

By R. D. BALDWIN

HEALTH and mortality statistics of the population of any country always tell an interesting story and our own country is no exception. Accurate records of the changes in population, births, deaths and migration have been maintained by the Dominion Bureau of Statistics since the year 1926. Prior to that time some of the provinces did not follow the uniform practice in the recording of births and deaths. But it is possible now to see complete records of the population of Canada for the last fifteen years, and the story which is told there reveals without doubt that we have passed through a period which has brought our people to a level of health and vitality never before attained in our history. Only a study of our population—its geographical and age distribution, its industrial and economic activity and the causes of death amongst its members—can tell us why this trend has occurred and how it can be continued.

In 1926 the population of Canada numbered 9,439,000 persons; by 1939 this had increased to 11,301,000, and a preliminary figure for 1940 is 11,422,000. In 1936 there were only 3 persons per square mile resident in the Dominion as compared with 43 persons per square

mile for the United States and 703 for England and Wales. While most of the population is concentrated along or close to our southern boundary, it is clear from these figures that our people are comparatively widely scattered over a huge area.

The efforts of medical science, public health services, and our own increasing ability to maintain good health by improved habits in both work and play have tended to spare more and more of our people to reach a ripe old age. These factors are largely responsible for a gradual increase in the age of our population. Ten years ago 17% of our domiciled residents were aged 50 and over; preliminary figures from the National Registration conducted in 1940 indicate that now about 20% fall in this age group. This increase in the proportion of older ages is reflected in higher death rates from diseases prevalent at these ages.

What has been the trend of mortality during these fifteen years of statistical records? Chart I below shows the death rates per thousand (number of deaths divided by population) for these years, and as will be seen a substantial reduction has taken place. Both sexes have contributed to this improvement, the male death rate having dropped from 11.7 to 10.2 per thousand and the female rate

EDITOR'S NOTE: R. D. Baldwin is Chief of the Mortality Department of the Sun Life Assurance Company in Montreal.