

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.

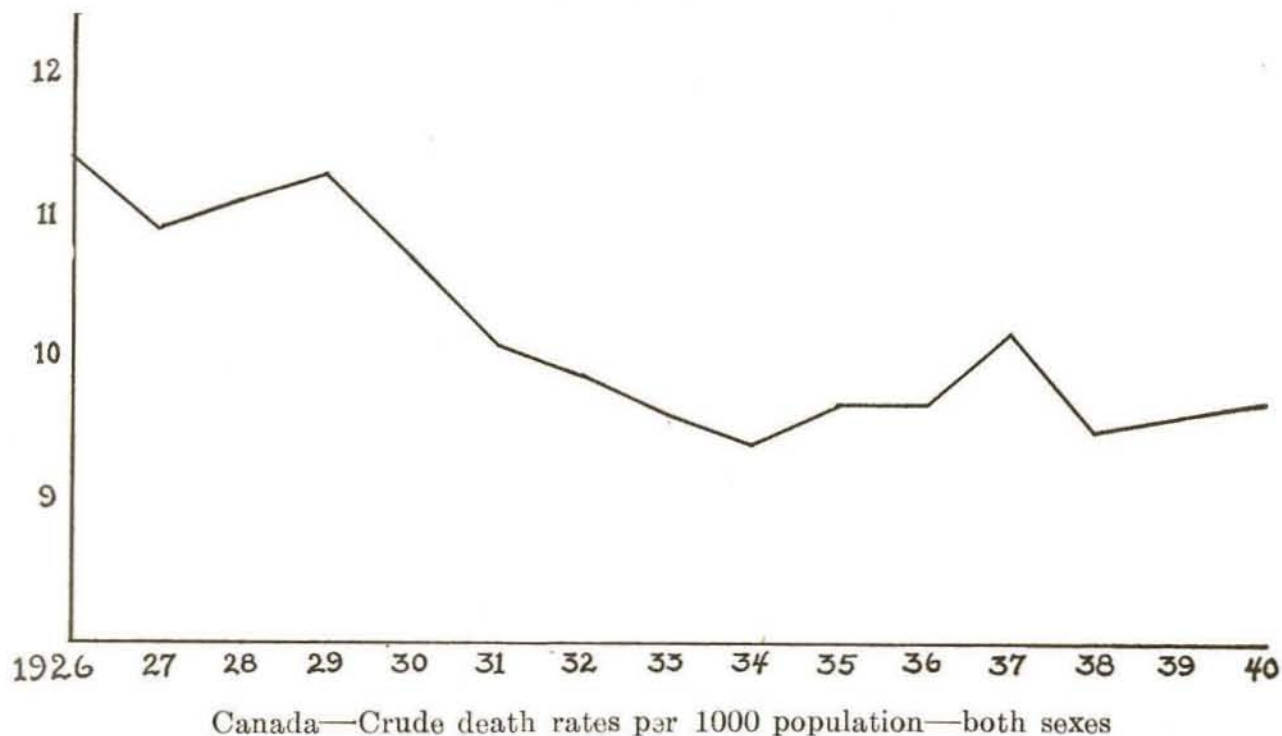
What has been the trend of mortality during these fifteen years of statistical records? Chart I below shows the death rates per thousand (number of deaths divided by population) for these years, and as will be seen a substantial reduction has taken place. Both sexes have contributed to this improvement,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

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from 11.1 to 9.0 per thousand. While the average age of the population has increased only slightly (less than two years) the improved death rate is reflected in the rapid increase in the average age at death. This latter has risen from 41 to 52 years over the fifteen year period.

and in the maternal death rates from childbirth. The following two charts (II and III) speak for themselves in demonstrating the drop in death rates per 1000 live births and in showing that this progress has been the most rapid in the past four years. There has been

CHART I



Further evidence of improved health conditions may be seen in the mortality records of Canadian insurance companies. For example, from the ten year period 1922-1932 until the year 1940 the death rate amongst the Canadian policyholders of the Sun Life Assurance Company of Canada, standardized for age, has dropped from 7.1 to 6.1 per thousand. The average age at death has increased from 47 to 54 years, while the average age of living policyholders has increased by only three years. Other companies have experienced similar trends. It is fortunate that this improvement has occurred to offset the effect of reduced interest rates upon earnings, which would otherwise have resulted in a substantial increase in the cost of life insurance to Canadian applicants.

Striking evidence of the rapid progress made in hospitalization and health work may be seen most clearly in the rates of death of children under one year of age

a 45% improvement in these infant mortality rates and a 30% improvement in maternal mortality rates over the fifteen year period.

Chart IV traces graphically the trend of the more important causes of death from 1926 to 1940. A glance will show where our best health efforts have been made and where there is still room for improvement.

Substantiating the improvement in infant mortality rates is that in the communicable diseases of childhood—measles, scarlet fever, whooping cough and diphtheria. Great strides have been made in the prevention and treatment of these diseases as evidenced by a 73% decline in the death rates from 1926 to 1940. This is the largest percentage decline of any of the main causes of death.

Next in the order of improved mortality come the respiratory diseases—influenza, tuberculosis and pneumonia. The percentage decline in the death rates are

CHART II

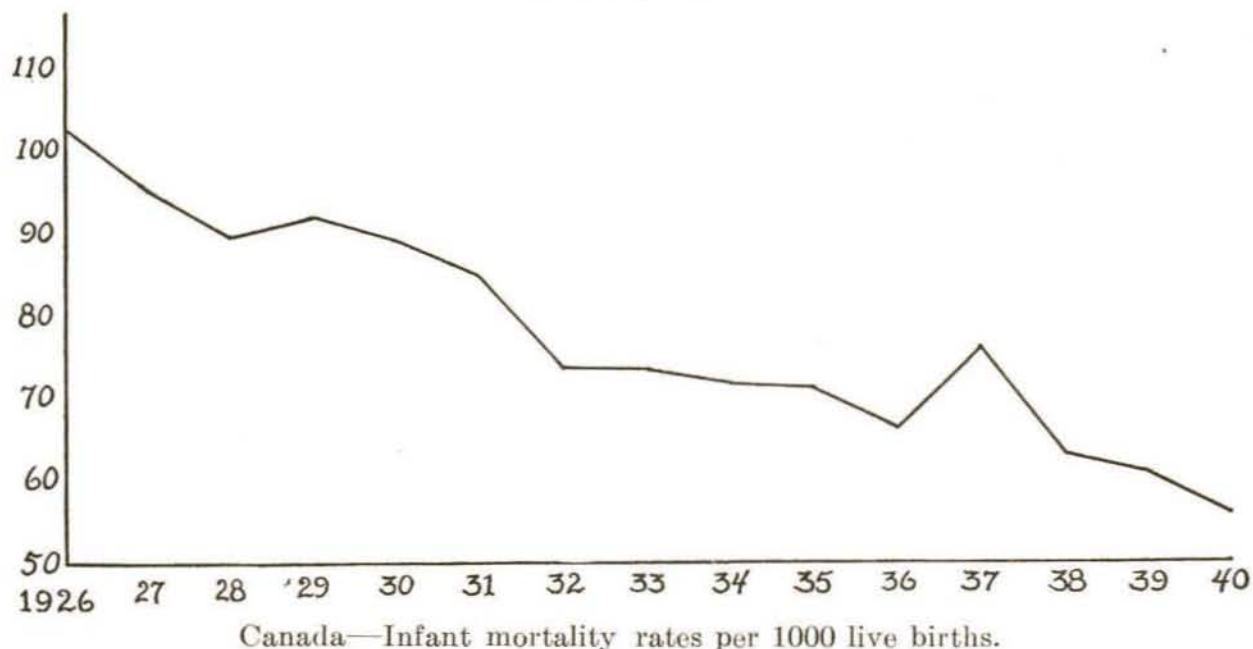
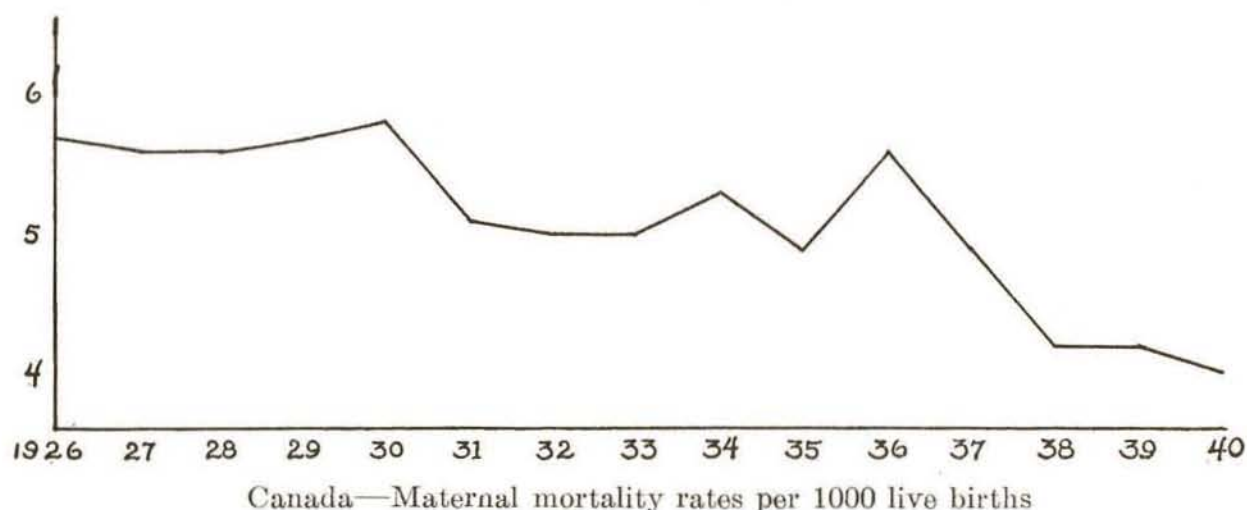


CHART III

TREND OF THE MAIN CAUSES OF DEATH



54%, 41% and 40% respectively. Amongst the Sun Life Assurance Company's Canadian policyholders these three diseases have shown the most significant reductions in claims year by year. The influenza rate fluctuates widely as epidemics of varying severity are experienced in different communities but the general trend is downwards and health authorities entertain every hope that this can be continued. Much progress has been made in the treatment of tubercular patients, and the time, care and money spent on this disease may, we hope, eventually relegate it to a minor cause of death. However, these results should

not give us any sense of false security since it has been shown that continued strenuous efforts must be made even to maintain the present level. The new serum and drugs for the treatment of pneumonia which have been introduced since 1937 are rapidly reducing the proportion of fatal cases from this disease; it will be observed that a sharp drop in the death rate has taken place since that year.

There has been little fluctuation in deaths from violent and accidental causes. In spite of the increasing casualties from automobile accidents the total accidental deaths have not increased over the past

fifteen years. This is partly due to a decrease in other transportation accidents and drownings; also, for about eight years after 1926 industrial accidents were on the decline—a trend reversed in more recent years.

Considering now those diseases which have taken an increasingly heavy toll of life, cancer is a problem which our best efforts have as yet failed to overcome. Over the last fifteen years there has been a 44% increase in the death rate. The percentage increase amongst life insurance policyholders has been even higher. Investigation of death claims lends support to the theory that improved diagnosis at the time of death is in part responsible for the rapid rise in the number of deaths from this disease.

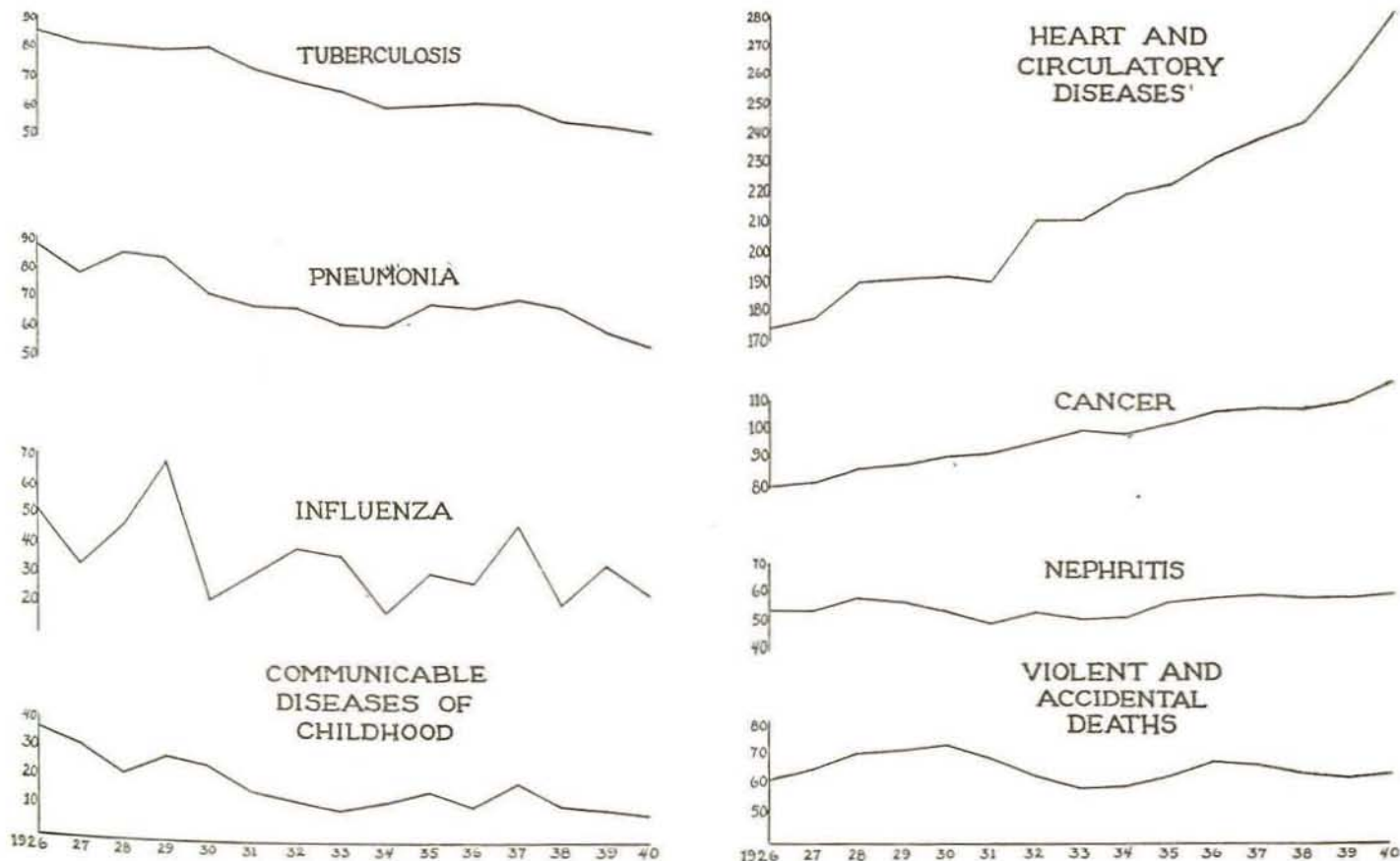
We come lastly to the diseases of the heart and circulatory system, comprising chronic as well as acute heart conditions and sudden deaths from diseases of the coronary arteries and angina pectoris. These causes of death have shown a 60% increase since 1926 with an even greater increase amongst insurance policy-

holders. Often associated with heart diseases are impairments of the kidney and the 10% increase in the death rate from nephritis indicates that there is still much work to be done amongst the so-called cardio-vascular-renal diseases. Together with cancer they are diseases of the older ages and the slight increase in the average age of our population together with more accurate diagnoses at time of death has tended to accentuate the increase in crude death rates from these causes. Even so, there is no doubt of their rapidly increasing importance as causes of death.

What are some of the problems which face us in our constant efforts to increase the average span of life?

The charts and figures given indicate that tremendous strides have been made in the fifteen years of health records. But we have already entered upon a period which is so uncertain as to cause grave doubts concerning our ability to maintain the good record. Up to the present time our country has been fortunately free from the ravages of war

CHART IV



Canada—Crude death rates per 100,000 population for the main causes of death

so far as it means danger to life and limb, but no one can foresee the future and it would be foolish to attempt to make prophecies when our history is being written in such a remarkable and rapid fashion.

Let us look, however, at the long term trend where we have ample evidence of success from the efforts towards the prolongation of life. While our country is in the midst of a great world-wide war and is still subject to epidemics and other visitations which may have a strong temporary effect on our death rates, we may conclude from the studies made by government statistical bureaus and insurance companies that normal population mortality in the future is unlikely to rise above the present levels at the younger ages. At the higher ages, however, much progress is needed in the future control of cancer and heart and kidney diseases if we are to expect death rates to remain at the present levels or to reduce. From the statistics available there seems to be no immediate solution to this problem.

Considering lastly a temporary problem which is directly affected by the war, a word of warning may be added regarding

increasing accidents in industry. The rapid transition of our industries to a war production basis and the development of many more factories has involved a tremendous expansion in the number of persons exposed to occupational accidents. New industries with greater hazards have taken the place of old ones where the hazards have been overcome, and the employment of more and more inexperienced workers tends to make the danger even more acute. Since 1933 the death rates from industrial accidents have shown an upward trend as industry has revived under improving economic conditions. The rates of non-fatal accidents have also been rising and preliminary figures of the Workmen's Compensation Boards for 1940 have attained a new high. In time of war a new psychology of recklessness and bravado is apt to arise amongst our workers. We should make every effort to guard against this attitude, for experience has shown that it causes wastage of human lives and limbs and hence impedes our efforts to build our vital war materials with the utmost speed and efficiency.