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BY a strange twist of human nature, "health" is not a popular subject in the way it is to be discussed here.

This is in line with the experience of a drug company which used an advertisement showing an alarm clock going off. People did not like the picture because it reminded them of unpleasant things, such as waking up from a peaceful sleep.

Though this country has made good progress in providing the things necessary to full health, there are still too many Canadians ill, too many babies dying, too many deaths in motherhood.

Let us start first with babies. Every year the birth of a baby is of concern to about 300,000 homes in Canada, which means that every day it is the event of the year for 900 families.

When the baby is born, it is already nine months old, and if it has been neglected during that period its chances of living are much lower than if its mother had been given proper medical care and intelligent home help before the birth. If babies were thought of and cared for from the very beginning the number of deaths would be negligible.

What do we find the fact to be? In the four years 1938 to 1941, 57,436 babies under one year of age died in Canada, and 3,806 Canadian mothers died giving birth. This is a greater death toll than was suffered by Canada in her fighting forces in all four years of the first world war. During the period of the second world war the deaths of infants, stillborn and under one year of age, totalled more than three times the deaths in our fighting forces. Monuments in every city and hamlet show that we were sadly aware of the war sacrifices, but there is no general feeling displayed of our sense of the heavier losses on the home front through the death of infants and mothers who could have been saved.

The record has improved over the past 25 years, of course, but are we content with it? Those who point with pride to the reduction in infant deaths from 102 per thousand live births in 1921 to 55 in 1944 should go on to compare this with the record in other countries. Here are the figures: Sweden 29; New Zealand 29; Switzerland 38; Australia 40; Netherlands 40; the United States 40; England and Wales 49 . . . and Canada 55. These are given by the Health Study Bureau in its "Review of Canada's Health Needs and Health Insurance Proposals," published in May 1946.

If some people are satisfied with the overall Dominion record, what do they say about the differences between various parts of the country? The number of children out of every 1,000 born alive who died before their first birthday varied in this way: British Columbia 40; Ontario 43; Prince Edward Island 44; Alberta 46; Saskatchewan 47; Manitoba 49; Nova Scotia 53; Quebec 68, and New Brunswick 78. These figures are given in the current Canadian Almanac, referring to the year 1944.

Statistics such as these indicate that some sectors have little cause for contentment when they compare their record with that of others; some provinces are not keeping up with their neighbours in health conservation, and the infant death rate of the Dominion compares unfavourably with that of many other countries.

The same situation is found in maternal deaths. The rate in Canada is high, but wherever adequate services are provided and taken advantage of, the death rate is only half that of Canada as a whole. The effective work done in every field of nursing by the Victorian Order of Nurses shows up particularly well in the realm of maternity nursing. Where mothers were served by the V.O.N. the rate of death was less than half the general rate — 2.5 per 1,000 live births compared with 5.1 in the five years ended 1936. In general, maternal deaths decreased from 5.6 per thousand births in 1936 to 2.7 per thousand in 1944.

The point of pressing interest is that, according to the report of the Advisory Committee on Health Insurance issued in 1943, "It is considered that by the adoption of adequate maternal services the death rate could be more than cut in half."

Expectancy of life has increased greatly. A child born in the sixteenth century had a life prospect of 21 years; in the seventeenth century this had increased to 26 years; in the eighteenth century to 34 years; and by 1880 it was 40 years. Canadian tables of 1940 to 1942 show an expectation of life at birth of slightly less than 63 years for males and over 66

for females, increases of 3 and 4 years over the time of the 1931 census. The person of 20 now has, on an average, as many years of life remaining as the new born child had in 1900.

It should be noted that the expectation of living more years applies most strongly in the younger ages: for persons over 40 life expectancy has been increased by only 3 years since the turn of the century. Young people live to older ages than formerly, but older people do not tend to live to yet older ages.

It must be emphasized that the increase in life expectancy is not brought about by something completely beyond control. Speaking before the Sugar Research Foundation this fall, Dr. I. M. Rabinowitch, associate professor of medicine at McGill University, said that there was "no physical or chemical reason" why the human organism could not continue to function efficiently from birth up to 110 or 115 years, and he pleaded for more research, particularly in diet, to bring about that state.

Some will be puzzled by the fact that while Canada's infant and maternal death rates compare unfavourably with many other countries, her general death rate is one of the lowest in the world. The latest Canada Year Book shows a Canadian death rate of 10.1 per 1,000 population, while only four countries had a rate under ten per thousand, and some were as high as 26 per thousand. It appears that the room for improvement lies within groups, particularly the two already discussed — infants and mothers. The Hon. George Hoadley, one-time Health Minister of Alberta and now President of the Health Study Bureau, emphasized this in the booklet "Canada's Health", using figures based on the 1931 census year: "On the average, we are losing a mother every eight hours, or three a day; 54 children under five years every day; 42 children under one year every day, and 24 children stillborn or who live less than 24 hours, every day."

The very young and the very old require greater care and more of it in proportion to that needed by the in-betweens. This is important because Canada's population in the older age groups is increasing rapidly. It is expected that in the ten years starting in 1945 the number of persons 60 years of age and over will grow by some 20 per cent, according to the National Health Survey report of the Canadian Medical Procurement and Assignment Board.

Let's consider the children. Whooping cough causes more deaths under two years of age than diphtheria, measles and scarlet fever together. This fact should send all mothers flying to the doctor to have babies protected early, starting at about six months. Will this treatment do good? Here is what is said by Dr. F. O. Wishart, associate professor of Hygiene and Preventive Medicine at the University of Toronto, as reported in proceedings of the annual meeting of the Health League of Canada a year ago: "there is strong evidence that whooping cough vaccine will protect children — surveys showing that use of vaccine resulted in 80 per cent reduction in incidence, and in milder cases where the disease did occur."

Quebec province had good results when it combined whooping cough vaccine with diphtheria toxoid. There was only half of one per cent of the protected group afflicted with whooping cough, compared with 1.6 per cent of the children who were not given vaccine. None of the protected children died of whooping cough while there were 23 deaths among the unprotected children.

Diphtheria has been wiped out in places where children are protected by toxoid. The important date is 1923, when the toxoid was discovered. In 1920, Toronto had 2,256 cases with 224 deaths; by 1940 there were no cases. In all Canada the death rate from diphtheria decreased from 24 per 100,000 population in 1921 to 2.4 in 1943.

Scarlet fever is not nearly so common as it was, since toxin prevents the disease in about 80 per cent of those immunized.

There are still many children in Canada who do not receive the full benefits of existing knowledge in medicine and public health. This is not always, nor mostly, because they are far away from facilities. Even in the heart of a city where all modern facilities are at hand to prevent illness and restore ailing people, there are children deprived of health and sentenced to shorter lives because of prejudice on the part of parents.

Turn now to diseases of later life. By saving babies from the ailments of infancy, by rescuing children from the scourges of diphtheria and scarlet fever and typhoid, more people are growing up to become liable to the diseases of later life — cancer, degenerative diseases of the heart, and the so-called diseases of civilization: high blood pressure and nervous disorders.

A dozen influences play their part in aging. They include food, vitamins, hormones, physical activity, environment, chemistry and electrical forces. It should be noted that they do not start at a certain age, say middle-life. They are all there from the very first breath. Thorough periodical medical examinations of children and young adults would do much to prevent in their later life the development of diseases such as cancer, heart disease, arterial disease, diabetes and diseases of the kidneys. When people are well, they are inclined to overlook the little precautions that will keep them that way, and it was of them that Socrates said: "It is disgraceful for a person to grow old in self-neglect."

Heart disease heads the list of the "Seven Great Killers." These seven are not confined to any section of the country, or to any class of population. In the United States they cause seven out of every twelve deaths, doing more havoc than all other causes of death put together. The toll in Canada for every 100,000 people was, in 1944: heart disease 243.8 deaths; cancer 119.3 deaths; nephritis 59.6 deaths; hemorrhage of the brain 76 deaths; accidents 57.4 deaths; pneumonia 49.7 deaths, and tuberculosis 47.8 deaths. In other words, these seven killers take the lives of 80,000 Canadians in a year, or 800,000 lives in a mere ten years.

The sad thing is that we are neglecting our chance to reduce the toll by early diagnosis and care.

Heart disease, measured in terms of numbers of persons affected, is our most important problem. It may be said that part of the increasing death rate is a reflection of the increasing proportion of older persons in our population, and that it is also affected by changing diagnosis, in which deaths formerly ascribed to secondary diseases are now traced to the heart. This does not alter the fact that diseases of the heart and arteries are diseases which represent the wearing-out of the body machine, and that, given the necessary watch and care, that machine should last for at least 65 years. Many a man who would not dream of putting too much pressure in his automobile tires lays a constant overstrain on his heart.

It is amazing what can be done by just relaxing. It may not be necessary to take a long sea voyage: all a man may need is to slacken his pace at periods during the day, loosen his necktie and shoestrings, put his feet up on his desk or another chair, and let the world roll by for two or three minutes without worrying about it. It has been found that a good proportion of persons who suffered heart attacks of the most severe nature, and adopted right measures of living, are still alive and enjoying life ten or more years later.

An article on science in the New York Times of October 27th gave an interesting hint to people past youth. "In the United States alone about 500,000 persons succumb annually to heart and blood-vessel diseases. What is the cause? Ask Dr. Hans Selye, director of the Institute of Experimental Medicine and Surgery at the University of Montreal, and he will say 'the strain and stress of life' — worrying about financial security in old age, worry about health, a hundred different fears, fatigue, hates that cannot be stilled, jealousy, intense and persistent emotions."

It is doubtful whether any disease is viewed with more alarm than cancer, but the outlook is much more encouraging than at the turn of the century. The vital need is public education. Scientists are talking today in a specific way of what can be done about cancer, whereas a few years ago many avoided the subject. The concentration of medical science on this killer is the greatest the world has ever seen. With the progress so far made, many lives can be saved, if the people will do their share to help themselves.

Look at this statement, reported in the Montreal Star last spring: "Fifty per cent of those Canadians who died from cancer last year died needlessly, and a further 35 per cent afflicted with the disease could have been medically treated so as to have allowed them to lead a pain-free normal life, Dr. Carleton B. Pierce, co-chairman of the medical advisory committee, Cancer Committee, Quebec Division, declared in an interview today." The greatest percentage of recoveries are in the early stages of the disease, and it is delay, ignorance and fear that cause most of the deaths. In the final analysis only you can beat the cancer which may threaten you.

How? By medical checkups at regular intervals. Then, if a danger-holding growth is found, there are the accepted and result-producing treatments, by surgery, X-ray and radium. When he was announcing the establishment of a number of cancer treatment centres throughout Ontario last winter. Dr. R. Percy Vivian, then Minister of Public Health and Welfare, declared, according to a report in the Montreal Gazette: "radium, X-ray and surgery, alone or combined in treatment, by highly trained specialists, at an early stage of malignancy, can cure cancer."

Note the stress laid by scientists upon early treatment. Some have gone so far as to say "If cancer is detected in the beginning stages, 100 per cent cure is theoretically attainable." This quotation is from Hygeia, published by the American Medical Association. But it cannot be discovered unless the doctor is given a chance to search, and this throws the responsibility right back on the individual. It is the plainest common sense on everyone's part to give the doctor that chance, even before suspicions are aroused. It is not good enough to wait for a pain, because many growths begin without pain.

Nephritis (Bright's disease) the third great killer, is, in its acute form, a disease of childhood which usually results from acute infection, particularly of the tonsils. It may also follow scarlet fever, diphtheria, or other similar infection. Great care is needed in looking after patients upon their recovery from these diseases. In its chronic form, nephritis often develops in middle-aged folk as the end — result of long-continued local infection, as by way of teeth and tonsils. When nephritis is caught in time, the patient may live with very fair health for many years.

One of the common complications of nephritis is the fourth great killer — cerebral hemorrhage, or breaking of an artery in the brain. This is because nephritis usually raises the blood pressure, putting a strain on any weak blood vessels, Cerebral hemorrhage, of course, may be the result of other causes. Strenuous exertion by a person with high blood pressure due to any cause taxes the blood vessels everywhere. A break, or stoppage, which would do no serious damage elsewhere in the body, is very dangerous if it occurs in the brain.

Not much need be said about accidents, which are the fifth great cause of death. Every magazine and newspaper carries articles urging people to be careful, but people have not yet learned that though this modern age of speed has brought great revolutions in transportation, the human body has not kept pace. It will not withstand being wrapped around a telephone pole at 70 miles an hour.

Pneumonia is still one of the major causes of death, though its toll is reduced greatly through modern treatment. Within the past few years treatment with the "sulfa" drugs has reduced the mortality rate greatly. While new developments have eliminated universal need for "typing", co-operation of the medical profession and the hospitals in organizing a pneumonia control service in the local departments of public health has proved effective. It was announced in

April by Dr. Michael Heidelberger, of New York Presbyterian Hospital, that a vaccine has been perfected to provide immunity from the most common of 50 types of pneumonia for six months or longer.

Tuberculosis, the last of the "great killers", is being gradually beaten down. The report on health to the Dominion Provincial Conference said: "Accurate figures are not available for Canada as a whole, but on the basis of a study of deaths recorded for Ontario and Quebec, the death rate in 1900 appears to have been at least 200 per 100,000. By 1939 it had fallen to 52.8." It was announced this year by the Canadian Tuberculosis Association that the death rate had fallen in 1944 to the lowest point in history, 47.7 per 100,000 population. However, in 1944 there were 5,724 deaths, of which 2,624 were in Quebec and 1,068 in Ontario. In the same year there were 15,292 cases reported by provincial health departments. That is still serious enough to demand attention.

Here, again, the need is for early recognition and treatment. Of the deaths which occurred in sanatoria during the year 1944, 75 per cent of the patients were far advanced on admission, and 17 per cent were moderately advanced. Thus, 92 per cent of those who died came too late to be effectively treated. Dr. J. J. Heagerty, Director of Public Health Services of the Department of Pensions and National Health, told the Social Security Committee in 1943: "Given an opportunity we can eliminate tuberculosis altogether in one generation." The magazine Health and Welfare, published by the Department of National Health and Welfare, declared this year: "results give every assurance that if we are determined to follow up gains that have been made, final victory could be achieved in our generation."

The work of the Canadian Tuberculosis Association on a nation-wide base is well known. Its members, who support its work with dues as low as $1 have reason to be proud of the way in which it has expanded its educational and preventive work. The public contributes by buying Christmas seals, of which last year's sales showed an increase of around 30 per cent — an indication of general realization of the great importance attached to battling tuberculosis.

Communicable diseases have yielded wonderfully to modern science. The Metropolitan Statistical Bulletin records that the death rate from the principal communicable diseases of childhood has declined well over 90 per cent in the past 35 years.

In fact, medicine's greatest triumphs have been over contagious diseases. The medical man has made known rules of sanitation and principles of public health by which these diseases can be controlled; he has developed serums and vaccines which either prevent or cure the diseases. Take typhoid fever, the occurrence of which simply means a failure to apply sanitary knowledge. The death rate in municipalities where drinking water was not treated totalled 7.1 per 100,000 population in 1936, and only 2.6 in municipalities where the water was treated. The rate in all Canada dropped from 10 deaths per 100,000 in 1921 to one per 100,000 in 1943.

Most people look on smallpox as a kind of medical curiosity, because of the infrequency with which a case crops up, but there are reminders given us occasionally. Just recently there was an outbreak on the Pacific Coast, when the disease was imported from the Orient by returning servicemen. It seems incredible that only 60 years ago there were 3,164 deaths and 25,000 cases of smallpox in Montreal's 120,000 population in one year. Now, the record of the whole province is enviable: no deaths since 1918, and no cases since 1930.

Mention of returning servicemen recalls that Canada suffered a rude jolt to its health complacency during the war when medical examination revealed so many unfit for service. Of 1,260,952 men examined, 357,634 were placed in category E: "unsuitable for army service anywhere in any capacity." Fewer than half qualified for the highest classification. In between the few with the highest category and those rejected were scores of thousands who could be "fixed up" by medical, surgical and dental attention, but they were not top-notch specimens. This was not Canada's experience alone. In the United States there were five million men between 18 and 38 rejected out of 13 million registrants for military service.

It will be said by many: "Oh, but the army standards were very high!" So what? *Shouldn't people's standards for their own health be the very highest?* And do not lose sight of the fact that the medical examination which disclosed diseases at the time the men tried to get into the army would have revealed them just as surely if there had been no war and the men had gone to a medical practitioner for a checkup.

All men who went through service were given another examination on discharge, and the government provided treatment which should restore any loss of health. Thousands of men know they would have gone through life handicapped and disabled but for the collective skill of the medical officers, of whom there were more than 5,000 in the Canadian forces. It is urged upon these ex-servicemen that now, being launched in civilian life with the best start medical science can provide, they should give themselves every chance for continued good health by calling upon the medical and dental doctors for examination every birthday, if not oftener. It would be good if everyone did the same.

Space has run out fast, and it is quite impossible to grapple in one short article with the details of so vast a subject. In another Monthly Letter we shall discuss what we can do to raise our health to a high level, and keep it there.

In closing this survey of the toll of disease let us point to the opportunity open to science. When scientists diverted their great power to war purposes, the terror-inspiring atomic bomb resulted. Now is the time to focus equal genius on the diseases which afflict mankind. If the same concentration of enthusiasm and energy as was devoted to finding ways of destruction were brought to bear, what might not be the beneficient result to all of us and to our children?

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