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## *Progress Report on Health*

HEALTH IN CANADA ranks among the best in the world.

Unprecedented reductions in mortality occurred during the first half of this century, reflecting epoch-making advances in medicine, public health, and the general standard of living.

Medicine's greatest triumphs to date have been over the contagious diseases. Rules of sanitation have been evolved, and serums and vaccines have been developed. The progress in preventing premature death has resulted in a significant rise in the proportion of the population surviving to the older ages.

In general, the diseases of environmental origin are playing a diminishing role, having given way to the degenerative diseases. Pneumonia and influenza, tuberculosis, diarrhoea and enteritis, which were among the first five causes of death fifty years ago, have dropped below that rank. For all practical purposes, typhoid fever has been eliminated as a cause of death, although fifty years ago it was well up on the list.

### *Some choose to be ill*

We do not all take advantage of the medical science that would give us a continuing feeling of wellness.

Some people choose to be ill, because illness is a kind of adaptation to the difficulties of living. Thomas Mann's epic story *The Magic Mountain* shows how fearful persons sometimes take refuge in tuberculosis rather than face the battle of life: they find it much easier to be sick than courageous. Others develop a sickness complex because it gives them power over their families and keeps them the centre of interest.

But those who wish to enjoy good health have an increasing number of things to assist them. The pioneers in Canada, living in scattered settlements and on isolated farms, had nothing of a permanent nature in the way of sanitary measures, and there was no effort made toward prevention of the outbreak of infectious diseases. Physicians were scarce and widely scattered.

It was not until the turn of this century that people ceased to look upon illness as a malignant demon to be driven out by heroic measures.

From the pioneer extremes of hard labour, malnutrition, and lack of medical care, the pendulum in the affluent western world has swung to physical inactivity, over-nourishment and a plethora of drugs. In this country there is little starvation from want of calorie value, (the daily calorie intake in North America is 3120, compared with 2070 in the Far East), but there is much ill health due to overeating and eating the wrong foods.

### *Public health*

At the time of confederation little was known of the subject of public health — in fact, the term had not yet been coined. It is not to be wondered at, therefore, that the British North America Act of 1867 contains no reference to the subject.

It took the public health act of 1875 in Great Britain to awaken Canadian authorities to the urgency of action. Seven years later Ontario established a provincial board of health, the most important piece of health legislation that had up to that time been passed in Canada. In 1890, wrote Dr. John W. S. McCullough, "the first public health laboratory established on the North American continent was set up in Toronto."

It has been said that "if not the mother, filth is at least the nurse of disease," and the struggle of health authorities on all levels to provide clean air and water and sanitation still goes on.

The eradication of the communicable diseases which are spread by water is today not a matter of gaining knowledge but of applying economics and administration. The economic problem may be huge. Consider a large city which has developed a one-sewer system carrying both drainage water and domestic waste. A sewage disposal plant to handle that volume of water and waste would be astronomically expensive. The cost and disruption that would attend the re-laying of the city's system with two new systems stagger the imagination.

Canada was too sparsely populated to be affected as London was in 1858, when blinds saturated with



chloride of lime had to be hung in windows along the Thames to make breathing tolerable. However, the big Canadian cities of today are approaching the same need for dynamic action to prevent the pollution of water by civic and industrial poisons, to provide adequate sewage disposal, and to dispose of garbage in some other way than by letting it rot in a suburban field.

### *Children's diseases*

The bounding advance of medicine has blunted the threat to individual survival caused by some organism from outside the body — a bacterium, a virus, or some other parasite. The improvement of years in the life expectancy of a new-born baby represents man's conquest of the infectious diseases.

Diphtheria illustrates an epidemic disease that has been almost wiped out by immunization. In 1924 there were 9,093 cases in Canada, with 1,281 deaths; in 1964 there were 25 cases and only 5 deaths. This is not to say that everyone may relax. Herein is a paradox: diphtheria is so scarce that there is little chance for natural exposure to serve as a harmless but effective booster after the usual shots in infancy. The level of diphtheria immunity thus gradually declines in adolescence and adulthood, and a new group of susceptible people is formed. In 1964, 23 per cent of diphtheria cases in the United States occurred in people beyond the school years.

Whooping cough is a particular menace to young infants. Maternal immunity is not passed along to babies, so early immunization is essential. There has been a general downward trend since the 1920's. Between 1929 and 1945, a rate of cases below 100 per 100,000 population occurred in only one year, and rates as high as 170 and 180 were not uncommon. Since 1945, rates have not exceeded 90; since 1957, they have not exceeded 45, and in 1964 the rate was at an all-time low, 25.2.

Although true scarlet fever, once a common bacterial disease of childhood, is not frequently encountered nowadays, the diseases grouped together as "scarlet fever and streptococcal sore throat" continue to show a relatively high rate among notifiable diseases. In 1962 the rate of infection was 55.1 cases per 100,000 population, compared with the 1959 rate of 134.2. The sulfa drugs and penicillin, which are particularly useful in combating streptococcal infection, are expected to give the final knock-out blow to scarlet fever.

Smallpox may be down, but it is not yet out. The World Health Organization approved in 1966 a ten-year programme to eradicate smallpox throughout the world. The plan involves 1,790 million vaccinations, including the entire populations of 41 countries.

Smallpox is one disease that should have no foothold in a country with our high standard of public health, and vaccinations should be rigidly insisted upon. No matter how strict the quarantine at ports of entry, some day smallpox will get through, and the only way

to prevent its spread is by prior vaccination. To realize the necessity, we need only remind ourselves that in one year toward the end of the last century Montreal had 3,193 deaths from smallpox.

Measles is usually a mild disease, but it can be serious, particularly in infants under two years of age. Though the total rate of serious complications is quite small, even this low rate yields a substantial burden of suffering and disability. In every million cases, there are about 100 deaths, all preventable by vaccination. In addition, some children suffer deafness, and investigators are studying the possibility that some cases of mental retardation are associated with a history of severe measles.

During recent years effective means of controlling poliomyelitis have been found: the Salk vaccine, introduced in 1955, and the Sabin vaccine in 1962. In 1953, the year of highest incidence, there were 3,912 reported paralytic cases and 494 deaths; in 1964, only 19 cases in all, or one case per million population. But there are still millions of unvaccinated and unprotected children.

### *Immunization*

What is this immunization all about? It means to render immune, and "immune" means "not liable to infection". By being immunized you opt out of contracting the disease.

When Louis Pasteur reported that germs might transmit diseases, he was ridiculed, but he showed us not only how to discover our microbic foes and shut them out from the human body but he also found the way to arm the living cells with new power to destroy the parasites even after they had gained entrance.

The record is plain for all to read: diphtheria, tetanus, whooping cough and typhoid conquered; polio reduced, tuberculosis and other diseases partly controlled. An instructor in the Department of Pediatrics in the University of Toronto said this: "With the exception of chicken pox, whooping cough, occasionally measles, mumps, and rarely meningitis, it is extremely difficult to present the student with actual cases of communicable diseases, and we are forced to a great extent to use wax models and pictures."

To immunize is much more sensible than to take a chance on a killing or maiming disease which even the latest and best medical treatment may be unable to overcome. But three fallacies are widely prevalent: that immunizations are only for children; that immunizations aren't really necessary until children reach school age; and that people who were immunized in childhood, in university, or before a trip abroad, remain protected indefinitely. When such ideas lull even a few people into inactivity, the door is opened for personal tragedy.

In the forefront of the battle to save lives by preventing disease is the Health League of Canada. Its vice-president and general director, Dr. Gordon Bates,



has pressed the struggle for immunization of children, for pasteurization of milk, for fluoridation of water, and for a dozen other innovations whose success is registered in the statistics of declining death rates and improving health rates.

### *Today's major diseases*

Thousands of scientists all over the world are seeking to solve the mystery of cancer, that family of malignant growths which attack organs or tissues of the body.

Encouraging gains made in the control of cancer tend to be overlooked because of the heavy death toll still taken by the disease. Much has been accomplished in lengthening the life of patients. It was estimated in 1960 by the American Cancer Society that if all the patients received early and adequate treatment, one half would survive at least five years after diagnosis of the disease.

Knowledge of cancer is daily becoming more extensive, and it may be said with truth that never was knowledge pursued more ardently by those engaged in medical research.

Health departments and professional and lay groups working for the control of cancer have been concerned mainly with four aspects of the problem: diagnosis, treatment, research and education. Some provinces have programmes of their own, others support agencies or commissions which sponsor diagnosis and treatment in special clinics.

Heart disease, with its heavy toll of disability and death, is in the forefront of public health problems. About a million people on this continent suffer heart attacks every year. If they follow the guidelines laid down for them by their physicians, most of them can recover to enjoy healthy, normal lives, lived with moderation.

Many who suffer with diabetes, pernicious anaemia, and a variety of other diseases, are kept alive and active who would have been lost inexorably a few years ago. Diabetes was one of the diseases most dreaded by physicians. Little had been accomplished in two thousand years to overcome this affliction until Sir Frederick Banting, in 1921, discovered insulin.

Considerable success had been attained twenty years ago in the control of pneumonia through use of the sulfa drugs and penicillin. Since then even more effective antibiotics have been developed. Further gains are to be expected, but ultimate victory awaits the development of reliable vaccines which can be widely used.

A few decades ago it was tuberculosis that struck people down in their youth or early life, and there were many hopeless journeys to distant sanatoria. But tuberculosis has proved to be a manageable disease, and advanced societies are quickly getting rid of it, particularly as a cause of death. Between 1914 and 1917, bovine tuberculosis was eliminated in Toronto by the use of pasteurization of milk.

However, several thousand cases of active tuber-

culosis are still found in Canada every year. The death rate has been reduced from 43.4 per 100,000 population twenty years ago to 3.1 in 1964. This high survival rate is one of the two great improvements made by the use of drugs: the other is the reduction in the time spent in sanatoria. Patients who could have looked forward to spending two or three years in hospital are now being discharged in six to eight months.

At the beginning of this century, typhoid fever was one of the most prevalent of diseases. Twelve per cent of the people who were infected died. In 1964 there were only four deaths in Canada.

Accidents have displaced infectious diseases in recent years as one of the major killers. Of 12,389 deaths reported in 1964, 4,463 were of youths below 25 years of age, and 7,926 were of people over 25.

There are three main causes of accidents: unsafe acts, such as a boy riding his bicycle without hands on the handle-bars, or someone driving a car carelessly; unsafe practices, such as reaching out from the bathtub to pull a light chain; and unrealized hazards, typified by careless use of dangerous solvents and products containing injurious chemicals. The protective device here is to acquaint ourselves with where and under what circumstances accidents are looking for a place to happen, and then avoid those places and circumstances.

Good health relates to the whole spectrum of life — body, mind and spirit. However backward our provision for the mentally ill may appear from the point of view of an ideal society, it clearly represents an advance.

Not so many years ago the authorities in Canada, as elsewhere, concerned themselves only with segregation of the mentally ailing and the protection of society. In 1918 the Canadian National Committee for Mental Hygiene was organized to ensure the best possible care, treatment and rehabilitation of the mentally ill, and to promote practical programmes designed to prevent mental illness. This became the Canadian Mental Health Association, whose educational efforts have succeeded in changing the public attitude to some extent. A noticeable turn for the better has occurred during the past ten years, and the spectre and the old image of mental illness may be banished.

### *Longer life*

Long life has been a human dream through all ages.

The cold facts are that even in 1840 the average human in the world lived less than 33 years; 25 per cent died before the age of six; fifty per cent died before the age of 16; one man in a hundred lived to be 65. What has increased in developed countries in the past century, through hygiene, improved medical knowledge and better living conditions, is not the potential universal longevity of human beings promised by the Fountain of Youth but the chances of survival.

The average length of life in Canada has been steadily increasing. Under mortality conditions pre-



vailing around the time of confederation, the expectation of life at birth was less than 40 years; in 1965 the United Nations Demographic Yearbook gave Canadian boy babies an expectancy of 68.4 years and girls 74.2 years.

Canada had one of the lowest death rates in the world in 1965, ranking behind Iceland, Japan, Soviet Russia and Poland. Our death rate of 7.5 compares with 21 per thousand in the 1860's, and 13 in the first year of this century.

Efforts to conserve the lives of children have been richly rewarded in the past fifty years. At the beginning of the century infant mortality was frightful, so usual, in fact, that when a child was born its parents only hoped that it might live: they did not assume that it would. In 1926 the death rate was 102 per 1,000 live births; by 1945 it had been cut to 51; in 1965 it was 25.3. There are some 15 countries with better records than Canada's.

Child-bearing is safer now than ever before, due in part to the fact that 98 per cent of deliveries are made in hospitals under competent care. Other factors are adequate prenatal care, improved obstetrical techniques, and advances in the control of infection through chemotherapy and the antibiotics. Nevertheless, *Canada Year Book* of 1965 pointed out: "Despite this improvement, Canada's maternal death rate (4.1 in 1962) is higher than the rates for several other countries, such as Sweden (3.7), England and Wales (3.4) and the United States (3.2)".

### *Where credit is due*

Having paid tribute to the scientists who labour so untiringly on the problems of keeping us alive, it is proper to mention those on the front line of the health army: the physicians and surgeons.

The family doctor retains his importance in maintaining our health. While the public health people look at health from a statistical viewpoint, and at the people in masses, the doctor looks at individuals. He doesn't ask "What can I do about x per cent of so and so disease?" but "What can I do for John Doe, my patient?"

Most people in Canada have progressed in their thinking to the point where they recognize that pain has a very good reason to exist. Unless it comes from an exterior cause, like violence or an accident, it is a red light announcing that something is wrong. It is wise not to try to treat this symptom, but to let the physician determine the cause and remove it.

The fear that we are harbouring a fatal disease is very common, and some people delay going to the doctor because they feel unable to face the fact. This in itself is a self-destructive act. If there is a disease, the delay has wasted time during which it might have been arrested; if there is no disease, the continued fear is needless torture.

The record for surgery today epitomizes the accomplishments of a highly skilled team of medical and

allied personnel. They work with efficient equipment, new drugs, and with a smoothly functioning hospital organization. The scope of surgery has broadened, especially in the past fifty years, and at the same time the risk of operation has lessened markedly.

The use of drugs for deadening pain goes back to remote times, but no method of rendering a patient unconscious for a pre-determined period without doing him more or less serious harm was known until the 19th century. Anaesthesia was established for surgical operations as a part of practice only 21 years before Confederation. Two years after Confederation Lord Lister perfected his methods of antiseptic surgery. Up until that time certain types of operations were followed so often by infections which brought death that surgeons feared to try them.

X-ray contributed its big part. For more than half a century internal human structures have cast their shadows against X-ray films where trained eyes can see them, interpret the different shades, and take action which can preserve health and life. We have not only more hospitals and more hospital beds but the hospitals have improved their systems and techniques so that patients can be treated and returned to their homes in shorter periods. The nursing profession, with the development of schools of nursing in the universities, is recognized as a vital section of the medical team.

### *What of our second century?*

Everyone is a personality with capacities of pleasure and of pain; a person who can be hurt or who can be at ease: but whether he be well or ill is not a matter altogether of chance.

These are days when the great majority of people can enjoy good health if they will co-operate with nature. The expression "as well as can be expected" has taken on new meaning. If they exercise a reasonable degree of care and intelligence in the treatment of their bodies they can expect to be very well indeed. If by misfortune they fall ill, they have resources for treatment and cure never before available in the world.

Education is the keynote of the modern campaign for health. The battle against disease will not be won by huge expenditures on public works but by the interest and conduct of the individual. Mothers must have a clear knowledge of the ways in which disease spreads, and the ways in which it can be prevented, if they are to give their babies a good start in life. Everyone needs to make use throughout his life of the knowledge of the medical sciences, of immunization, of the advice of his physician.

In fact, so available are the aids to complete wellness that in this age of law-making we might take a look at the law passed in Samuel Butler's ideal commonwealth which he called *Erewhon*: "If a man falls into ill health, or catches any disorder, or fails bodily in any way before he is seventy years old, he is tried before a jury . . . and if convicted is held up to public scorn and sentenced more or less severely."