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How to Live, to Prolong Life.

BY

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HOW TO LIVE, TO PROLONG LIFE *

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President Tuberculosis Association of Canada, Consulting Physician to Their Excellencies the Governor General and The Countess of Minto.

THE various problems I shall introduce to your notice, as most closely associated with life, are in the lines of Sanitary Science, Food, Alcohol, Education, and Tuberculosis, and more particularly how, by a want of knowledge on these subjects, a soil may be formed in the human system, in fact a hot bed, for the reception of the Consumptive Bacillus, so frequent in our atmosphere, and so fatal as to its results.

Health is a quality of body difficult to define. It is dealt out differently at different periods of life, and is best defined as exemption from disease. My present object is to point out how individual health may be secured, and how a reasonable measure of health may be attained, in the life of the most ordinary individual, inasmuch as the number of years, is not actually so important, as the physiological age of the person, if we may so express it. In all civilized countries, laws exist to protect public health. The past history of the world presents certain epochs in sanitation each of which possessed its own distinctive character, and guiding influences. The *Hebraic Epoch* of personal sanitation, as defined by the Levitical laws and laws of Moses, for the guidance of daily life. As the practical result a nation was brought into existence, strong, powerful and vigorous, courageous in war, and exercising a remarkable influence in establishing peace. Second, the *Roman Epoch*, known as the period of municipal sanitation, during which the vast water works and aqueducts of Rome were constructed, remnants of which are to be seen at the present time. The extensive baths in the vicinity of that ancient city are evidence should such be wanting, of the habits and life-giving principles of a people notorious throughout the world as to the development of remarkable mental and physical power. Next in importance is the era of *International Sanitation*, of which we have undoubted evidence in the remarkable changes in the sanitary condition of Havana, the outcome of the united efforts of the military, medical and sanitary officers of the United States, changing that entire city, from a pest-striken centre, to one now known as possessing health, comfort and happiness, with a death rate fully as low as in any advanced modern city, and redounding to the credit of the great neighboring Republic.

During the past quarter of a century, the progress and steady advancement in sanitary science is truly remarkable. Twenty-five years ago, the Council of the college of Physicians and Surgeons of Ontario passed a resolution recommending sanitary science as part of the medical curriculum in Ontario, and at present it is adopted by the various

* Lecture Victoria College, Toronto. January 14th, 1902.

teaching bodies throughout our Dominion, greatly to the advantage of the public. To secure a still greater influence in health matters, the elements of public hygiene should be taught in our schools, which would in time reach our entire population. What an opportunity is thus afforded to advocate the gospel of preventive medicine, and save valuable lives! Much of what is called curative medicine, is swallowed up in preventive medicine, of which we have evidence in the stamping out of Small-pox, Scurvy, Leprosy and Cholera, under the guidance and direction of sanitary authorities, and the medical profession are always ready and energetic, in this noble work, even at the expense of their own living. In this direction the department of Public Health, under Dr. Bryce, has accomplished most practical results. It is undoubted that Boards of Health, Vital Statistics and Public Hygiene are important factors in prolonging life. Woman's work in sanitation is an evidence also of the progressive spirit of the age. The woman's health protective association of New York, is a striking example of what can be accomplished in spreading the principles of health. In the sanitary betterment of Bakers' shops, and in the conduct of slaughter-houses, a remarkable change for the better has been wrought. Large play grounds and public parks for children have been secured, and school hygiene, as a whole, much improved. It has been well said, that the children of a nation constitute the physical capital of the future, and it is a national duty to safeguard our national capital. Societies of a like character have been formed in England and the continent, through which sanitatation, with special reference to drainage, plumbing, ventilation, water supply and laundry, are subjects of most careful enquiry. Plumbers should be specially educated, and licensed, particularly as it is a well known fact, that defective sanitary arrangements in houses, and consequent escape of *sewer gas* causes the development of sore throat, diphtheria, scarlet fever, blood-poisoning, puerperal fever and even pneumonia. Sewage and general refuse matter, should be regularly and carefully removed. If consumed by fire, sawdust mixture, will supply the want. Pure air, sun light, and common earth, are first class disinfectants, and prudent direction, as to house premises cannot be overestimated.

FOOD.

"The physiological principle of the preparation of food, is summed up in the postulate that it shall produce the highest efficiency in the individual and the 'race.'" (Thudichum).

Food supply is the controlling factor in all life, animal and vegetable alike. The quick transportation of food stuffs from various parts of the world has effected a remarkable change in food materials, and we no longer depend upon local production, keeping before us the important fact that the cost of food is no measure of its nutritive value. In the list of food

materials, oatmeal is not surpassed as a producer of physical power. It makes more muscle, than beef-steak. The great Dr. Johnston was once informed, oatmeal was only fit for English horses and Scotchmen, and said he, "Where will you find such horses and such men." "Food is the only source of human power, to work or to think," and extends to the infant, the school child, the youth in college, the shanty-man, the military man, the aged; and the chief source of danger to the system is more in quality than quantity, and more people die from over-eating than from alcohol. A lack of knowledge as to the fundamental principles of the digestive system in many, is a source of common troubles in that direction. The infant requires pure milk, sterilized and pasteurized, as in the drama of life, milk plays the most important part in the act of nutrition. The best and safest food for the infant is mother's milk, if free from disease. Society life contributes largely to the artificial method of rearing children, contrary to the plan of nature. The absence of teeth indicates the digestive power, and so in advanced age, even improved by the dentist, as the enthusiasm of youth abates, the quantity and quality of the food, must be carefully guarded. Here appetite frequently exceeds physiological need, hence it is necessary that the middle aged, as well as the advanced, should eat rather moderately, than too much. Frequent sudden deaths, in advanced life, are recorded, as the result of overloading the stomach. Such warnings of nature pass unheeded, and overwork bears the blame of sudden death at mealtime. Man frequently treats the stomach as if a machine, and not a part of the system, under the impression that *will power* is equal to any irregularity. Food is that which builds up the system, and constitutes the required force and energy, and no article, solid or liquid, should be taken, which will not supply *some part of the human structure*. Food for the child at school is only second in importance to that for the infant. *Scrap diet*, at this particular time, is not suitable for mental or physical development, and so with the university student, he must have blood, rich enough in nutritive material, to supply the requirements of the system, so that after graduation day, he may be able to take his place in whatever line is chosen, for the duties and responsibilities of manhood. To the man whose brain is his capital, when enjoying his usual meal with *strength giving*, and not *strength sappling viands*, which make not one atom of the body, the mind should be directed to the meal and not the business of life. The brain digests more than the stomach, and unless direct normal nerve force is given to the digestive organ, the gastric juice supply is defective, and in time followed by serious results. The practice of drinking iced water at meals is injurious, causing a reduction of the normal temperature necessary for active digestion. Water should be taken in moderate quantity, at meal time, as an excess reduces the specific gravity of the gastric juice and retards digestion. According to Sir Bordon Sanderson, M. D., of Oxford, a

human body weighing 132 lbs. contains 111 pounds of water, the balance is made up by the various salts in the system,—hence its necessity, and the benefit of change in this liquid by the unsurpassed mineral springs of Canada, which wash and purify the various organs quietly and gradually, and thus exert a decidedly beneficial influence. Strength of stomach is as necessary to a soldier as strength of muscle, without which he is unequal to the trying duties of military life. Instruction in camp cooking, if made an element of the annual drill, would prove of great service to our troops, and add considerably to ordinary vitality. Food adulteration has assumed considerable proportions, particularly due to preservatives in food out of season and out of place, e.g., summer fruits in winter, and oysters 1000 miles inland. The ordinary preservatives are salicylic acid and boracic acid, which are harmful to the stomach. Alum is frequently used in baking powders, and bakeries, to whiten bread even from inferior flour. Thus alum poisoning is recorded. The cheap sweets of the present day are said to frequently contain an appreciable amount of free sulphuric acid, which dentists point out as a cause of a great degree of *dental caries*. Fortunately adulterated foods are now a subject of careful enquiry by Government Analysts, and thus the health of our people is guarded in keeping with the scientific progress of the age.

ALCOHOL.

At the present time, there are few influences of such wide and far-reaching effect, as arise in various ways, from the use and abuse of alcohol. Alcohol and crime, alcohol and poverty, alcohol and lunacy, have the strongest possible correlations. Intemperate agitation cannot, and will not, accomplish much good. The remedy is not in "passionate declamation or coercive legislation." True, alcohol is one of the most active agents in the degeneracy of races. Alcoholic drinkers are by far the most subject to epidemic diseases, when such are prevalent, and with a lessened prospect of recovery. Arctic explorers, Rae, Kane and Nansen, required no alcohol for their crews, all of whom returned home enjoying the best of health and spirits. The brick and the mortar of the human frame are not held together by alcohol. It quietly and gradually undermines the vital forces, and establishes foundations of disease of an undoubted character. Alcohol at times, for therapeutical purposes, is advantageously prescribed by the physician, to which there can be no reasonable objection. Beer and porter are safe beverages when necessary in cases of debility of the system. The liver, the brain and kidneys are the chief organs which suffer from the use of alcohol, as they are said to receive the largest percentage, and from our public prints we note the frequent records of death from liver disease and Bright's kidney.

The general consensus of opinion at the present time is that the use of alcohol as a beverage is gradually going out. In fact it is becoming more and more fashionable daily not to use stimulants, and it is remarkable what power there is in fashion.

" New Customs,
Though they be never so ridiculous,
Nay, let them be unmanly, yet are follow'd."

—H. VIII., I, 3.

Our chief public gatherings are celebrated with the use of tea and coffee, and what can possibly be more in the line of common sense. The late Sir Benjamin Ward Richardson accomplished a great work in England by his efforts in educating the masses, through his writings, as to correct ideas on the subject of alcohol. What we require in Canada is the introduction in our schools of short lessons on hygiene and alcohol, to impress the youthful mind with the importance of these subjects, and in time, more will be accomplished by a reasonable and intellectual method rather than by the introduction of prohibitive measures into the Federal or local Parliaments of this country. As evidence of decrease in the use of alcohol, cases of delirium tremens, which came under observation almost monthly, thirty years ago, are not now seen in practice, once in two years.

An important movement is now in operation in England, fighting intemperance with alcohol, termed "The People's Refreshment House Association," with headquarters in London. Chief in this common sense idea, are eminent philanthropists and christian people, with the Bishop of Chester as President. Tea, coffee and cocoa are obtainable at all hours, and kept in the front. Spirits and beer of every kind are in stock and served to all comers of proper age, not giving evidence of inebriety. This association only four years in operation, has already accomplished a good work. An association of more recent date is "The Public House Trust," operating chiefly in towns and counties. Chief in this movement are Earl Grey, Cardinal Vaughan, the Bishop of Rochester, Earl Stanforde, Lord Goschen, and many other equally distinguished men. The ordinary public house they are opposed to, is run for private gain, when it should be in the interest of the public. What is aimed at, is respectable places of refreshment, giving a better chance to non-intoxicants, than to intoxicants, and associating drinking more generally with eating. As the result, many have been led to see the error of their ways. This form of education in the hands of many leading persons in England, cannot fail to be productive of excellent results. Prior to coercive legislation in Canada, it is reasonable that a progressive move in this direction, should merit careful consideration, which would in time guide our people "how to live in order to prolong life."

EDUCATION.

As to education, the first requirement of a school is to preserve the children, scholars, in good health. A school cannot create health, but it can endeavor to preserve it. Imperfect ventilation, excessive studies, *too frequent cram examinations*, all contribute to overtax the mental and physical ability of the child, or even the adult. In child life, the home and the school are inter-dependent, and in strength of character as well as intellectual attainment there should be an even balance in the home and the school.

Within a few years only have the Boards of Health fully recognized these points. Medical inspection of schools was introduced in Boston in 1894, and in many of the American cities, is now an established principle; the good and practical results, disarming all opposition. School hygiene in the widest sense, is not merely for the avoidance of contagious or infectious diseases, but to ascertain any disease whatever of the system, and take immediate steps for the preservation of health and life. In the whole vegetable world no two blades of grass are precisely alike, and the same diversity is noted either as to facial expression, or mental capacity, and yet thousands of young people pass out of our schools and colleges on the same exact pattern. Thus in our active centres of trade and commerce, many are unable to obtain employment, not being equal to the occasion. Teachers, as far as possible, should endeavour to make out the natural bent of the scholar, and shape the course of study accordingly. A compulsory uniform method of intellectual development is not likely to produce the greatest degree of usefulness in after life. Chicago has given evidence of a progressive spirit in educational policy. It is now required in their schools that candidates as teachers shall pass a physical examination, as well as an educational, before being licensed. The health of both teachers and pupils is guarded, thus securing better health, better temper and increased efficiency. This is an age of specialty, and when the inclination of the youth's mind is known, greater excellence will be attained in the future, by the direction of education to meet natural capacity.

As Gorst has well expressed it (*19th Century*, May, 1901) "the aim of education should be to get the best out of each individual and not to obtain an average of mediocrity, and that the enormous expenditure of public money upon the production of machine made human automata is sheer waste."

Fortunately a marked change for the better is now in progress in educational matters. Manual training, industrial training and technical education are coming to the front in Canada, due to the philanthropic efforts of Sir William Macdonald, and the able and lucid exposition of the subject by Professor Robertson. Such education tends towards the achievement of practical results to our Canadian youth so instructed as to be equal to any emergency in life with mental and physical development unimpaired.

TUBERCULOSIS.

Tuberculosis is to-day one of the most serious problems before our people. The world-wide interest in this subject has arisen from the discovery, that attention to a few simple rules of hygiene, has lessened to a remarkable degree, the death-rate from this disease. That tuberculosis is an infectious, and not an hereditary disease, is the general belief. The experience of the profession has shown that, in the majority of cases, prolonged exposure is necessary for infection from this disease, also that many cases will not produce infection, and that tuberculosis in general is conveyed, as in other infectious diseases, through food, meat, milk, butter, or the atmosphere laden with dry germs from the sputa of consumptives. As to the actually infectious character of this disease, it is prudent that the public should not be alarmed. The welfare of the public, as well as the tuberculous, should be carefully considered. This whole subject rests on the discovery of Dr. Koch, in 1882, of the specific "Bacillus Tuberculosis". According to the most recent statistics, every 6th or 7th death is due to tuberculosis, and the most common form is consumption. The Registrar General's returns (Toronto, January 21,) show that in a death rate of 25,736 in Ontario in 1901, the largest number of deaths in any class was 2,286 from tuberculosis, as compared with 2,300 in 1900. In 1898 there were over 3000 deaths from consumption in Ontario, more than the entire contingent sent to South Africa, who fought so nobly for the defence of "The Empire".

"How can we check this disease?" is a question frequently asked. In all places where people congregate, there should be properly placed cuspidors, well kept, and systematically cleaned. Carpeting in churches should be avoided to prevent saturation by impure expectoration carried from the side walks, and gradually as fine dusts, impregnating the air of the chamber, and particularly as human sputum is the main source of human tuberculosis. A handkerchief held before the mouth and nose of a consumptive while coughing, is a desirable precaution. In such cases all interviews should be brief.

Dr. Ferguson, Hartford, Connecticut, made the following statement, May 25th, 1899: "A house was vacated by a consumptive, and occupied by a family of whom *three* died shortly after of consumption". Such experience has been frequently recorded by the medical profession. In fact it is known that Tubercle Bacilli may remain active in a house for years. It is of the utmost importance that houses rented should be thoroughly purified and freed from such germs. A very consoling fact to the parents of consumptives is, that there is no danger of living with a consumptive patient, if proper precautions, such as simple measures of cleanliness, are observed. The Michigan State Board of Health, and the New York Board of Health, now require notification and registration of

consumptives, and of tenement houses where such live. After death, official disinfection takes place, without which, it is illegal to re-let any room or house. Like action has been adopted by the City Council of St. Louis, and the Provincial Board of Ontario, Public Health Act, 1897, Section 101.

Fortunately, in keeping with the scientific progress of the time, such regulation against the spread of tuberculosis is becoming very general. The Council of "*The National Association for the prevention of consumption*", London, (Nov. 11th, 1901) passed the following resolution : "That, in the light of our present knowledge, the time has now come "when the whole question of tuberculosis, including the treatment of "suitable cases, in Municipal Sanatoria, should be undertaken by municipal corporations, and county councils, throughout the country". The act recently passed by the Ontario Legislature is precisely in these lines, with proposals of financial assistance, of a most commendable character. Statistics from sanatoria for consumptives in all stages of the disease, state that fully 25 per cent. leave cured, and 40 to 50 per cent. leave much improved and able to earn a good living. Public encouragement should be given to such desiring work, particularly as it is neither wise nor prudent at this stage to exclude the tuberculous from work.

An important record as to treatment in the *early stages of this disease* is, that from 70 to 75 per cent have been cured; hence the importance of early diagnosis. The yearly death-rate in Canada is estimated at between 7,000 and 8,000. In the United States, the death-rate annually is placed at 150,000, and in Great Britain, from 60 to 70,000. How truly saddening are such records and what a degree of apathy exists in our very midst, and more particularly when the most advanced ideas have changed from heredity and incurability to communicability and curability ! This undoubtedly mortality has aroused the public to action. Conferences have been held in Vienna, London, New York and Ottawa City in 1901, the latter under the patronage of Their Excellencies, the Governor General, and The Countess of Minto. Fully 300 delegates from the Atlantic to the Pacific assembled, and much valuable information was given to the public. Executive meetings are now held monthly, and literature on this subject, published systematically, in many of the leading papers of Canada.

At this stage, with the able assistance of Church and State, we hope for practical results in lessening the prevalence of this disease. Our sanitaria, Laurentian Mountains, St. Agathe, also at Gravenhurst and the Toronto Home of Playter, are doing excellent work with most practical results. The sanitarium in the Adirondacks, under Dr. Trudeau, has contributed most valuable data on this subject, and thrown fresh light on obscure points in the pathology and treatment of consumption. The idea of a California Climate for treatment of tuberculosis is no longer considered a necessity in Canada. Fresh outside air, sun light, and

hygienic precautions are the chief requisites, all of which we have within a reasonable distance of our homes and firesides. What we most require at present, are Sanatoria for the poor who cannot afford expensive institutions, and until such suitable buildings are erected, our hospitals should have one or more pavilions specially set apart for such cases. Verandahs and balconies are desirable additions for fresh air and outside life, in the event of a consumptive as an inmate, and in addition a hospital room in the house would prove a comfort alike to parent and patient. Would we had a second Sir Ernest Cassel who recently placed in charge of His Majesty King Edward the VII, the munificent gift of \$1,000,000 to be expended in the cause of consumption.

In conclusion, let me say I have referred briefly to sanitary science, food, alcohol and education, inasmuch as in these lines of action the want of proper care and watchfulness may bring about in the human system a *soil*, a fit resting place for the "*Bacillus Tuberculosis*" and contrary to the *defined principles of health*, so necessary to our people having so bright a future in store, enabling each and every one *so to live as to prolong life*.
