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CATECHISM

OF

PRIVATE AND PUBLIC

HYGIENE

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TRANSLATION.

Catechism of Private and Public Hygiene 0 10

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CATECHISM

OF

PRIVATE AND PUBLIC HYGIENE

BY

DOCTOR J. I. DESROCHES

*Member of the Board of Hygiene of the Province of Quebec,
Honorary Member of the French Society of Hygiene of
Paris, formerly Editor in Chief of the Journal of
Popular Hygiene, Author of an Elementary
Treatise on Private Hygiene, etc., etc.*

TRANSLATED FROM THE FRENCH AND EDITED

BY

ALEXANDER WRIGHT

*Reporter and Official Court Stenographer, Author of "Dic-
tionary of Select Phraseology," "English and French
Manual of Conversation," and "English and
French Students' Companion."*

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TRANSLATOR'S PREFACE.

The fact that three editions of the Catechism, which I have translated at the author's request, have been published, and that it has received very gratifying testimonials from leading Canadian and European physicians and editors, first inspired my efforts to be useful to the English-speaking people of Canada, and to devote to my new undertaking the energy requisite to success.

There are several such works already in the hands of the public, but they are either too dear or too voluminous to warrant their general use. In the present case, the question of cost cannot arise, as the low price of the book puts it within the reach of all, while there is very little loss of time involved in the perusal of questions of health which should be indelibly fixed in the mind. A strong confirmation of these facts is afforded by the large number of French copies (30,000) sold by the author.

It remains for me to assure those who interest themselves in the book, from conviction, and share my anxiety to see its general adoption, that they will render me great service by recommending it.

ALEXANDER WRIGHT.

INTRODUCTION.



When I wrote my Elementary Treatise on Private Hygiene in 1887, it was my intention to publish later on a little classic book embodying in a simple, concise and methodical form the leading principles of hygiene, feeling, as I did, that the treatise would prove most useful to teachers, professors and advanced pupils, but too profound for children.

This little book to which I have given the name "Catechism of Private and Public Hygiene" (the better to convey the scope of my work) is intended to be memorized by children, in reading exercises, my object being to give them a short course of hygiene, and thus imprint on their minds the first of all sciences so well expressed by the Socratic maxim: "Know thyself."

It seems to me superfluous to discuss the opportuneness of teaching hygiene in schools, its necessity in the present state of civilization being self-evident. Let us listen to one of our worthy Canadian prelates, who fully confirms what is stated in this preface: "In my opinion,"

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says His Lordship Bishop Lafleche, "the hygiene of the body should follow that of the soul, the health of those two constituent elements being man's most valuable possession in this world."

It is important, then, to understand well that hygiene and morality, which are so intimately connected, constitute the real basis of all true education.

The object which I have had in view in writing this little catechism is a simple one, and may be summed up in a few words; viz. : to point out whatever might prove beneficial to the pupil's health; for it is essential that the child going to school should not find in it conditions calculated to foment his morbid tendencies, to weaken his constitution and to contract deformities; in a word, to expose himself to disease and death. The child's morals and character should, therefore, if bad, be corrected, and he himself taught to contract habits of order and cleanliness; his surroundings, too, should be in strict conformity with all hygienic requirements; in fine, it is hygiene, as applied to schools, which codifies all nature's precepts by promoting the child's physical, mental and moral development.

Such is the aim of our catechism. Have we succeeded? The flattering reception accorded our first edition, in Europe and Canada, warrants, we submit, the belief that we have. It has been reproduced in the "Revue Fenelon", "L'Hygiene Pratique" and the "Petit Médecin des Familles", of Paris; "L'Hygiene de la Famille", of Bordeaux; "La Science Pratique" and the "Coin du Feu", of Vevey (Switzerland). It has been translated by the "Salud Publica" and the "Giornale d'Igiene", of Italy; by the "Higiene", of Madrid; and Doctor Benito Aviles, director of the "Higiene" of Madrid, has made a manual of it, to be used in teaching hygiene in Spanish schools.



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CATECHISM

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CHAPTER I.

Hygiene.

Definition.—Its object.—Its utility.—Its economic value.—Its origin.—Health.—Disease.—Health is a treasure.—The body and soul.—Usefulness of hygiene in education.—Hygienic teaching.

Q. What is hygiene?

A. It is the science which teaches individuals living alone or in community how to preserve and perfect their physical, mental and moral health, and to prevent and combat weakness and disease. Hygiene cannot, of course, enable us to escape the fatal law of death; but it will enable us to live as long as possible under the best physical, mental and moral conditions.

Q. What is the object of hygiene?

A. To enable man to enjoy life and be happy. Man does not find, as the animal

does, the principle and rule of his actions in his instincts, but is obliged to consult his reason and intelligence, as experienced guides in his career through life. Hence, hygiene teaches him, under the influence of moral training, how to use everything with prudence and moderation, and so render life's hours honorable, useful and agreeable.

Q. Is hygiene useful only to individuals?

A. It is applicable not only to individual existence, but also to the health of all the inhabitants of a parish, town or country. It superintends whatever may be useful or injurious to one and all; it invites everyone to participate in the general welfare, to befriend his neighbour in all the vicissitudes of life, and practise christian charity by endeavoring to protect the health of others.

Q. What is the economical value of health?

A. The ideal of health, from an economical point of view, is a robust constitution ensuring a long life and enabling its possessor to accomplish the largest possible amount of work. It is clear that the prosperity and wealth of a nation are intimately associated with the physical, mental and moral development of its subjects. "All civilization is traceable to

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hygiene; that is to say, all progress and amelioration of man" (Roger Collard). It is this fact that elicited from Mr. Rochard the patriotic and true words: "Every expense incurred in the name of hygiene is a saving, there being nothing so expensive as sickness and death; the waste of human life is to society the most ruinous of all. Materially speaking, human life is then really very precious.

Q. From what does hygiene derive its origin?

A. Hygiene was born the day that man understood that he should take care of his health and guard against disease; it was known to the Jews, Greeks and Romans. The ancient legislators, Moses, Solon, Lycurgus, etc., were careful to mingle wise, hygienic precepts with their laws. In the course of time, hygiene had the prophet, the legislator and the philosopher as its patrons. But it was reserved for the nineteenth century to see it take a prominent place among the other sciences.

Q. What is health?

A. It is the condition of the body in which all its functions are performed with ease and

regularity. He who enjoys health experiences a general feeling of comfort, contentment and happiness.

Q. What is sickness?

A. It is a trouble of a more or less serious nature, sometimes fatal, which manifests itself in the organs or their functions. Sickness arises, in the great majority of cases, from our own carelessness or the imprudence of those in our neighbourhood.

Q. How should we appreciate health?

A. Health is the greatest of all material blessings, a real treasure, which every man of common sense should try to preserve intact or recover when he has had the misfortune to lose it.

Q. Of what is man composed?

A. Of a body and soul so closely united that the health or sickness of the one inevitably rebounds on the other, thus illustrating the truth of the saying:—"A sound mind in a sound body."

Q. Hygiene is useful then in the education of children?

A. It is an indispensable adjunct to their education embracing, as it does, whatever contributes to their development and physical,

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mental and moral perfection ; hence, their future depends on the education they receive, and hygiene holds the teacher responsible, to a certain extent, for the life and health of those under his control.

- Q. Is hygienic teaching of any utility in educational institutions ?

A. It constitutes, from its material, moral and social value, a real necessity in houses of education ; for the welfare and strength of a nation demand that hygiene and morality should go hand in hand. Thus the teaching of hygiene in schools is one of the most efficacious means of strengthening our race, and preparing for the future fatherland, healthy and intelligent subjects.



CHAPTER II.

Man.

Man in creation.—The study of man.—Brief description of the human organization.—The functions of organic life.—Respiration.—Circulation.—Digestion.—The nervous system.—The cerebellum.—The brain.—The kidneys.—The solidarity of the organs.

Q. What rank does man hold in creation ?

A. In the midst of the grand and harmonious display of nature, man stands out as the beau ideal of the visible creation. Being endowed with intelligence, he exercises supreme sway over all other creatures of a like or inferior nature, while the whole world lies open to him as his country, as the only being who enjoys perfect liberty of action, everywhere supporting himself by his industry. His soul raises him up to and brings him back again from God, his Creator, as the sole object of his destiny. With all these prerogatives, man is then king of the visible creation.

Q. What interest does the study of man present ?

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gence, there is nothing more wonderful or interesting than man himself. The human organization is the most admirably constructed of all creation, and it is the soul which sets it in motion. But man, most frequently through ignorance of himself or forgetfulness of his dignity, abuses this mechanism and thus shortens his life. Hence, the utility of knowing one's self well and living prudently.

Q. Describe briefly the human organization ?

A. Our body receives its form from a bony frame called skeleton. The bones of the skeleton, to the number of about two hundred, are joined together by ligaments. Around the bones are grouped lumps of flesh called muscles. The arrangement of the bones and muscles constitutes the members, together with three cavities which contain and protect the vital organs. The skull contains the brain ; the chest contains the lungs and the heart, and the abdomen contains the stomach, the liver, the spleen, the kidneys and intestines. The skin covers the whole body and gives it a pleasing appearance. Man has, by his upright position, a majestic bearing and proud attitude, with his eyes turned towards heaven.

Q. What are the principal functions of organic life in man ?

A. Nutrition and relation, the former comprising the respiration of air, the circulation of the blood and the digestion of food, while those of relation are performed by means of the senses which are controlled by the brain.

Q. What about respiration ?

A. The lungs are the organs of respiration. The air enters into the lungs by the mouth or nostrils, and directly the chest expands and then contracts. Respiration is effected by two movements ; namely, inspiration or inhaling and expiration or exhaling. The object of respiration is to convert venous blood into arterial by the oxygen of the air. Respiration in adults is reproduced on an average at the rate of eighteen times a minute.

Q. What is meant by circulation of the blood ?

A. The heart is the motive power of the circulation of the blood. The arteries, which begin at the heart, are the channels through which the blood is distributed among our organs, and the veins carry it back again to the heart. During the circulation of the blood through the organs, it loses its vivifying part, oxygen, which it recovers in the lungs by respiration. So that circulation and respiration

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Q. Speak of the organs of digestion.

A. The movements of life consume the constituent elements of our body every moment, and this consumption is repaired by food. The stomach and the intestines are the digestive organs. The food, when digested by these organs; that is to say, modified, transformed or rendered liquid, passes from the intestines into the blood, which (thus bearing the materials of reconstitution) distributes them among the organs. This is how the human machine is repaired.

Q. What is the nervous system?

A. The brain is a large nervous mass located in the fore part of the skull, the hind part being occupied by the cerebellum. The spinal marrow is a long nervous cord extending from the encephalon and contained in the canal of the spine. The nerves are little, white filaments which take their origin in the brain and spinal marrow and serve as conductors of sensibility and motion. They branch out in all directions, insinuate themselves into our muscles, penetrate into our organs and furrow through every part of our body. The nervous

system extends its action over all our organs, and is influenced by each of them. It controls the functions of relation and even the vegetative functions whose action it regulates. It seems to be the great regulator of general nutrition.

Q. What is the cerebellum?

A. It is a nervous substance communicating with the spinal cord through the medulla oblongata. The cerebellum's function is to balance the movements of the body, to moderate them, when necessary, and regularize them. When the brain commands the movements, the cerebellum co-ordinates and harmonizes them; in other words, the cerebellum is a balancing power.

Q. What is the brain?

A. It is the supreme regulator of all the acts of our animal life, and controls the whole machinery of our organism. It is the organ of intelligence, the centre, where sensibility and the passions resound, and the motor power of all our movements. Respiration, circulation, digestion, nutrition, absorption, secretion and growth are also influenced by the brain which regulates them and makes them work together in harmony in the sustenance and continuance of life. Finally, the brain is the true point of

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union, though inexplicable, between matter and spirit,—between our body which is perishable and our soul which is immortal.

Q. Could you say a word or two about each of our senses ?

A. The brain, through the medium of nerves having special properties, animates our eyes, ears, tongue and hands, and thus produces the sensations of sight, hearing, taste and smell. It is the brain that presides over the sense of feeling. We understand the importance of the part that our senses play in the acquisition of knowledge from the fact that education is required for the development of all the sensations; that is to say, the perceptions of the varieties of sound, the shades of colors, the differences in taste and the innumerable delicacies of feeling. The sensations which the senses impart to us are the result of an internal or external cause, which the sensitive nerve transmits to the brain. It is the knowledge of this sensation which constitutes perception and which is recorded and retained by the brain for reproduction when necessary (memory).

Q. Are all the organs of the human machine dependent on one another ?

A. No organ can be isolated in action from the others, and the action of each is constantly felt throughout the system. So that the great vital functions are equally affected by the action of thought and of the muscles. It is because attention is to the mind what effort is to the muscles that these two functions, apparently so different, equally require, though in a different manner, the brain's intervention. Indeed, there are no conscious muscular acts possible without the brain's co-operation; hence, to ensure the harmonious development of the system, recourse must be had to hygiene, which comprises both physical and mental culture. There is then a moral hygiene, or hygiene of the passions, as well as a physical hygiene.



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CHAPTER III.

Individual Conditions.

Individual Conditions.—The Ages of Life.—The Constitution.—Temperaments and Their Hygienic Treatment.—Habits.—Inheritance.

Q. What is meant by individual conditions?

A. The differences in ages, constitutions, temperaments, habits and inheritance, which exist between individuals and which constitute the vigor of life in each.

Q. Into how many periods is the life of man divided?

A. Into four, each representing a different physiological state. These periods, which are called the ages of life, are childhood, youth, maturity and old age.

Q. What is the duration of each?

A. Childhood extends from birth to the age of fourteen. Youth succeeds childhood and lasts until the individual attains his full development, which occurs towards his thirtieth year. Maturity is the longest period of life, extending from the thirtieth to the sixtieth year. Old age is the decline of life, when man loses his strength and vigor and the fatal law of life is put in all its force.

Q. What is meant by the constitution ?

A. It is the mode of organization proper to individuals, which shows the amount of vitality in each, the force of his resistance to disease, and consequently, the relative degree of his physical strength.

Q. What are temperaments ?

A. The differences in the constitutions of men which are due to a diversity of activity and proportion between the various parts of the body. These differences are such as to modify the chances of life in every individual.

Q. How many temperaments are there ?

A. Science recognizes four standard temperaments: the sanguine temperament, the lymphatic temperament, the nervous temperament and the bilious temperament. There is often a mixture of two temperaments which constitute a compound temperament.

Q. How is the sanguine temperament known ?

A. People with a sanguine temperament have a red face, a short neck, strong muscles, are quick of apprehension, have a good memory and a fertile imagination, are usually gay, light-hearted and of strong passions. They generally please by their frank

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and cheerful manner, their good humor and sociableness. The brain, heart and lungs are the organs which are the most liable to disease in sanguine people.

Q. What should be the hygienic regimen of sanguine people?

A. They should avoid heating meats and drinks, excessive fatigue, violent passion, excessive cold and heat, and food which gives too much blood (preferring vegetables and white meats) and drink water. They should ensure, by bathing, friction and exercise in the open air, a rapid circulation in the skin. To this end, they must be moderate in eating and abstain from spirituous liquors, have an equable temper, and take much exercise.

Q. How is the lymphatic temperament known?

A. The waist of a lymphatic person is pretty large and full, the physiognomy inexpressive, the face pale or slightly flushed, the hair red or fair, the eyes, in most cases, blue and dull, the nose, ears and lips largely developed, with a languid look and general, torpid vitality. The disposition is cold and timid, the mind calm and passionless, the senses dull, and thought, will and action are produced slowly. This

temperament is usually peculiar to children and women, but its excesses die out in course of time. This is certainly the temperament which agrees best with general health.

Q. What should be the regimen of lymphatic people?

A. It should consist especially of red meats, mollusks, sea fish, salt food, condiments, coffee, good wine and well hopped beer. But, if the appetite be ravenous, it must be remedied in time to avoid disorders of the stomach. It is also good to apply oneself to every possible kind of work. This is the best way for people with a lymphatic temperament to keep healthy.

Q. How is the nervous temperament recognized?

A. People with the nervous temperament are lean, thin, active and sharp, with brown or black hair and full beard; they have a lively imagination and sharp wit, and go to work unwillingly, but accomplish it with ease and deep cunning. Nervous people, though generally of miserable appearance, manage to keep healthy.

Q. What course of hygiene should a nervous person follow?

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should be purified by a tonic medication, he should eat substantial food and take much exercise in the open air. Emotions, late hours and mental excesses must be avoided. Cold baths are most beneficial in cases of nervous temperament.

Q. How is the bilious temperament known?

A. A person with a bilious temperament is of medium height, with large bones, yellow or brown skin, black hair, quick, bright eyes, a well-developed intellect, a firm, decided character, stubborn ambition and strong passions. This is the temperament which predisposes most to diseases of the digestive organs.

Q. What should be the diet of a person with a bilious temperament?

A. He should be moderate in eating and drinking, avoid deep emotions, especially anger, and guard against constipation. He would do well to avail himself of anything that might diminish the acidity and secretion of bile. With this end in view, he should prefer a vegetable diet, drink nothing but water, eat little meat and still less fatty substances, and abstain from spirituous liquors.

Q. What is meant by a mixed temperament?

A. The mixture of two temperaments ; for instance, the bilious and nervous temperaments together constitute the bilious-nervous temperament. A very large number of people reunite in themselves several temperaments ; hence, the numberless shades which distinguish men from one another. But one of those temperaments always predominates in such people. This is how people with the various temperaments should live.

Q. What is habit ?

A. The faculty acquired by man of repeating certain acts already performed. Habit becomes second nature ; so that the education of the man who ruins his health or forfeits his life is really nothing but a contracted habit. Hence, the importance of accustoming oneself from early childhood to regulate the functions of material, mental and moral life. In short, we should always bear in mind the German proverb : " A habit contracted in the cradle lasts till death."

Q. What is inheritance ?

A. It is the transmission by parents to their children of their physical or moral, healthy or morbid qualities or defects ; so that the passions, the feelings and the various characters

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are influenced by inheritance. We do not hesitate to say, then, that education, whose aim is to develop good qualities and check bad ones, very materially modifies the law of inheritance. Hence, the hygiene of the soul and body shapes the future conduct of the child towards the family, society and itself. In brief, inheritance is the solidarity of future generations, and it would prove a very powerful factor of the material and moral progress of mankind were everyone aware that every act of his life recoils on his descendants.

CHAPTER IV.

Air and Respiration.

Air.—Its composition.—Its utility.—The oxygenation of the blood.—How we breathe.—Vitiating of the Air.—Cubic air space.—The dangers of impure air.—Open, pure air.—Town and country air.

Q. What is air?

A. It is a gaseous mixture whose entire bulk forms the atmosphere which envelops the earth, and is the result of chemical changes occurring constantly in vegetable and animal life.

Q. Of what is the air composed ?

A. The principal constituent elements of the air are oxygen (1 part) and nitrogen (4 parts). The air also contains watery vapors in variable quantities and traces of carbonic acid. In the air over prairies and sunny woods a certain kind of gas forms called ozone, which is very good for health, its effect on our organization being more powerful than that of oxygen ; it also destroys miasma, and renders marshy ground less noxious.

Q. What is the use of air ?

A. It is the first aliment that we absorb ; in fact, breathing is the first principle of life ; it is life itself. Air is then the principal source of life and happiness. The state of our health depends much more on what we breathe than on what we eat and drink. Hence the utility of having in our surroundings fresh air which alone is vivifying and tonic.

Q. What is meant by oxygenation of the blood ?

A. The blood, in circulating in our body, assumes a dark color, and so becomes vitiated and unfit for the support of the vital functions ; this is venous blood. But it is purified again in passing through the lungs, where it

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becomes a brilliant red ; this is arterial blood. This purification is due to the fact that the blood takes from the air introduced into the lungs by breathing, a portion of its oxygen and dislodges the carbonic acid. This aeration of the blood in the lungs is then obviously essential to the support of life. But people ignore or refuse to understand the fatal effects of an imperfect oxygenation of the blood ; thus, thousands of people are exposed to disease by inhaling the close, foul air of their surroundings.

Q. How do we breathe ?

A. We breathe at random and as well as we can, seldom troubling ourselves about the condition of the air around us. Yet, it is important, in order to ensure the efficacy of respiration, that we should have very pure air in our vicinity. To that end, we should know the chief causes of its deterioration to be enabled to nullify them.

Q. What is the principal cause of impure air ?

A. Breathing is one of the principal causes. In effect, an adult consumes in breathing 20 litres of the oxygen of the air per hour on an average, and a child of 8 years of age, 9 litres,

which are replaced by an equal weight of carbonic acid. Confined air, vitiated by carbonic acid, conduces to a general morbid predisposition and a cerebral state incompatible with attention. This explains the necessity of ventilating every part of dwellings properly in order to ensure the renewal of the air which is so essential to the health of all.

Q. Will you mention the other usual causes of impure air?

A. Amongst the usual causes we find:

1. The putrefaction of vegetable and animal matter which generates deleterious gases and miasma that may develop terrible diseases.
2. The gases produced by industry, such as chlorine, nitric acid, sulphurous acid, phosphorus, etc.
3. All sorts of dust (mineral, vegetable and animal) which induce grave distempers in the respiratory passages.
4. The germs of contagious diseases which find an easy entrance into our organization by respiration.

Q. What is meant by cubic air space?

A. The object of calculating cubic space is to preserve the purity of the air in a closed room and to exclude impure air therefrom. To accomplish this, we should know the maximum

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quantity of carbonic acid that the air may conveniently contain. Now, a person confined in a room measuring 30 cubic metres in size, will have exhaled at the end of eight hours a quantity of carbonic acid gas equivalent to 0.7 p. 1,000, and, as the air becomes unhealthy and dangerous when it contains more than this proportion of carbonic acid, a room that is occupied should contain a cubic space of 30 to 32 metres per person. Workshops should have 60 cubic metres and hospitals at least 80 metres, as they furnish numerous causes of contaminated air.

Q. What are the dangers arising from impure air?

A. Impure air is unwholesome, its effect on our existence being more or less pernicious according to the extent of its vitiation. Confined air of a noxious character is poisonous to those who breathe it again. The putrefaction of animal and vegetable matter, owing to the deleterious gases which they give off, exercises a very injurious influence on man, and may cause dreadful diseases, such as cholera. Gases, vapors and all kinds of dust are dangerous because they induce coughing and inflammation of the respiratory organs. In short,

the air often serves as a vehicle for the germs of contagious diseases which may end in death.

Q. Is it necessary to pass some time every day in the open air?

A. Vital energy and intellectual activity are the result of exercise in the open air. Open, fresh air is a most valuable tonic. The bad state of health prevalent in modern society is mostly attributable to sumptuous houses and indolent habits. Let us, then, breathe pure air, and admit it freely into our dwellings; let us take as much of it as possible, for it is more essential to life than the food we eat.

Q. Why is residence in the country more healthful than in towns or cities.

A. Country life is much healthier than town or city life, owing to the fact that vegetation through the action of the sun's rays constantly gives out oxygen. Moreover, country air is charged with ozone which renders it still more tonic and vivifying. In cities, on the contrary, the dense population and the huddling together of crowded tenements, and all sorts of factories, corrupt the atmosphere and make the citizen long for the country and the open sky, nature's temple. Country life has then a decided advantage over city life.

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CHAPTER V.

Foods.

Food.—Food and life.—Nature of food.—Properties of food.—Restorative food.—*Combustible* or respiratory food.—Meat, its nutritive value and digestibility.—Cereals, their nutritive value and digestibility.—Fruits.—Milk.—Milk and patient.—Cheese.—Broth.—Condiments.—Law of alimentation.—Food poisoning and preventive measures.

Q. What is food?

A. Any solid liquid or gaseous substance capable of restoring the waste caused by the working of the human system, and thus contributing to the maintenance of the normal working of its organs.

Q. Is food essential to the support of life?

A. Life results from the activity of our organs and produces a constant waste of all our tissues. Death would not be long supervening if the food we eat were not converted into our living tissues. Hence, food is necessary to the support of life.

Q. Whence do we get the food we eat?

A. From three sources: From the animal kingdom, we get meat, eggs and milk; from

the vegetable kingdom, cereals, vegetables, and fruits; the mineral kingdom supplies very few foods, but they are indispensable; those foods are: water, salt or chloride of sodium and phosphate of lime.

Q. What properties should our food possess?

A. Two phenomena result from the working of the living organism: 1. a loss of heat and strength; 2. a waste of the organs themselves, as a consequence of their working. So that for life to continue, it is absolutely necessary that food should contain: 1. the ingredients which contribute to the formation and repair of the organs; 2. ingredients for the production of heat and strength. Thus there are two large classes of foods; to wit, restorative foods and combustible foods which are also called respiratory foods.

Q. What are the restorative foods?

A. The substances which contribute to the formation and repair of our organs are: nitrogenous or albuminous substances, mineral salts and water. Meat contains much more nitrogen than vegetables. Man is chiefly composed of oxygen, hydrogen, carbon and nitrogen, and restorative foods have the same composition.

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Q. What is the composition of the substances which produce heat and strength in the system ?

A. Those substances contain especially hydrogen and carbon. In burning; that is to say, in combining with oxygen, the carbon becomes carbonic acid, and the hydrogen, water. The two residues of combustion go out in the form of gas and vapor by breathing, and in a liquid state by perspiration through the skin. The principal respiratory foods are sugar, fat and starch.

Q. What is the best restorative food ?

A. Meat. It suits people with poorness of blood and a weak constitution; it is stimulating and heating; that is, it quickens the circulation and increases heat, and is usually easy of digestion.

Q. Speak of the nutritive value and digestibility of meats ?

A. Alimentary meats, considered from the standpoint of nutriment and digestibility, are classified as follows: 1. red meats (beef and mutton, which are the most commonly used, are also the most nutritious and most easily digested); 2. black meats, which are supplied

by wild animals, are more nutritious than those furnished by the poultry yard; their flavor favors digestion, but their frequent use is unhealthy; 3. white meats (veal, lamb, venison and fowl) are less nourishing than the foregoing, but are light on the stomach, except goose and duck, which are fat and difficult of digestion. Pork (which is both a restorative and combustible food), being very fat and compact, is difficult of digestion.

Q. What is the nutritive and digestive value of fish; batrachians, crustacians and mollusks?

A. Fish contains much phosphorus and lime, and is less nutritious than meat; its exclusive use is injurious to health. Salt fish is indigestible; frog contains but little nutriment. Lobster, crawfish and shrimps are nutritious but heavy; snail and muscles are indigestible. Very fresh raw oysters are easily digested and rather nutritious; but the too frequent use of crustacians and mollusks is dangerous and susceptible of disease.

Q. What is the nutritive value of cereals as foods?

A. The cereals used as foods are corn or wheat, rye, barley, oats, buckwheat, Indian corn and rice. They chiefly contain fecula or

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starch (nitrogenous matter). The flour of cereals is a food which is nearly complete ; but bread can only be made with flour containing a sufficiency of gluten (the best being wheaten flour).

Q. What is the nutritive value and digestibility of vegetable foods ?

A. Vegetable foods consist of feculent or starchy vegetables and herbaceous vegetables

1. Feculent, dry vegetables (kidney beans, beans, peas, lentils, vetches) contain more nitrogen, fatty matter and starch than cereals, and are, therefore, very nutritious, but they are usually difficult of digestion. Feculents (potatoes, carrots, turnips, beets and salsify) are deficient in nitrogen, but contain much starch, and are, therefore, not restorative ; (the best of them is the potato) ;
2. herbaceous vegetables (mushrooms, truffles, cabbage, asparagus, egg-plant, sorrel, tomatoes, chicory, garlic, onions, radish and horse-radish) contain but little nutriment, but are refreshing. Vegetables vary the diet and combat constipation ; but taken alone or in large quantities, they are weakening and indigestible.

Q. How much nutritive matter do fruits contain ?

A. Fruits vary alimention to advantage, but are not very nutritious. Sweet fruits (strawberries, plums, pears, grapes, gooseberries, oranges, lemons and melons) are refreshing and laxative. Chestnuts contain much starch. Almonds, nuts, hazelnuts and olives are oily fruits and heavy on the stomach.

Q. What is milk?

A. It is an opaque, yellowish white liquid composed of water, fatty matter (butter) albuminous matter (caseine, albumen), sweet matter (lactose or sugar of milk) and salts. Milk is a complete food (containing sufficient nutriment for an infant) and is easily digested. Milk is denser than water (1030 to 1033).

Q. What sort of food generally suits a sick person best?

A. Milk, in all its forms, is best for weak or sick people, being the food which contains under a form easy of digestion and assimilation, all that is necessary for the system. The only case in which milk should not be given pure is that of acidity of the stomach, in which case lime water or Vichy water should be mixed with it. In certain diseases, milk is both a food and a remedy. To be a wholesome food, milk should be fresh and pure and come from animals in perfect health.

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Q. What is butter?

A. It is a mixture of the fatty matter of milk with a certain quantity of caseine and whey. It is a wholesome, nourishing and easily digested food. On exposure to the air, butter undergoes an immediate change. A litre (quart) of milk should yield 30 grammes (1 ounce) of butter.

Q. How much nutriment does cheese contain?

A. Cheese contains much nitrogen, and is a good restorative food. Fresh cheese is very nutritious; old cheese is less nutritious, though rather easy of digestion, and facilitating the digestion of the other foods. It is dangerous to eat tainted cheese.

Q. Is broth a food?

A. Broth has no nutritive value, and is not, consequently, a real food; but it is a nervous stimulant, and so may restore and sustain strength and facilitate the digestion of food eaten after it.

Q. Say a word or two about condiments?

A. Condiments are substances the flavor and stimulating properties of which improve the taste of foods and render them more digestible. The condiments most commonly used

are salt, pepper, mustard, cloves, cinnamon nutmeg, vanilla, vinegar, etc., but they should be used in moderation.

Q. What does perfect alimentation consist in ?

A. One of the laws of human alimentation is the diversity and mixture of food substances. Alimentation plays a double part in the human machine: one consists in repairing it in all its parts as it becomes worn; the other, in supplying combustible matter to the vital centre. Hence the necessity of eating at every meal both restorative and respiratory foods.

Q. What is meant by food poisoning ?

A. Accidents caused by the spontaneous changes in foods which render them poisonous, and, therefore, unfit for use. The flesh of sick or overworked animals, or of game caught in traps, is poisonous, as it decomposes very quickly. Preserved foods are often poisonous as a result of the changes they undergo.

Q. What precautions should be taken to prevent poisoning by foods ?

A. Markets and slaughter-houses should be minutely inspected, private butcheries abolished, doubtful foods thoroughly cooked and doubtful drinks well boiled; canned food

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should be closely examined, and those cans that are bruised, or in which the jelly has become liquid and yields a disagreeable odor, rejected. Canned food should be eaten as soon as the can is opened. All those preventive measures are of primary importance.

CHAPTER VI.

Beverages.

Beverages.—Water and its properties.—Tea.—Coffee and its nutritive value.—Chocolate and its nutritive value.—Alcohol.—Wine.—Beer.

Q. What are we to understand by beverages?

A. All drinks (water or mineral substances) taken into the organs of digestion to repair the waste of the body or furnish the economy with a momentary stimulation and a little nutriment are called beverages. They are tea, coffee, chocolate and distilled or fermented, alcoholic drinks.

Q. Is water necessary to our organism?

A. Water is the most considerable element entering into the composition of the human body, being two-thirds of its entire weight. Its

component part of the blood is 80 per cent. The Creator, in distributing water throughout the universe, made it indispensable to the sustenance of life.

Q. What are the properties of drinkable water?

A. Water to be drinkable and good should be limpid, light, inodorous, tasteless and agreeable. It should dissolve soap without forming clots, cook dry vegetables, boil without becoming turbid and contain no organic matter. Prudence demands that water should never be used without knowing its chemical composition. Water is a mixture of hydrogen and oxygen, but it also contains gases and mineral and organic matter.

Q. What is tea?

A. Tea comes from the leaf of a small evergreen tree growing in China and Japan; its use is general in all countries. Tea contains theine and an oil which gives it its aroma. It is a stimulant and an *anti-waste*. Its stimulating and nutritious properties make it a very choice beverage. Green tea is better than black. As the abuse of this alimentary beverage causes serious nervous troubles, nervous people and children should not use it.

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Q. What is coffee?

A. It is the seed of a small tree of Upper-Egyptian origin. The coffee-tree, which is cultivated in various parts of the earth, produces the numerous varieties of coffee found on the market, but that which comes from Arabia, called Moka, is liked best.

Q. What is the nutritive value of coffee?

A. Coffee is a restorative aliment containing remarkable stimulating properties. It procures that expansive gaiety so well known to those who use it, and considerably facilitates digestion. Coffee should not be given to nervous people or young children in whom it produces dire effects.

Q. What is chocolate made of?

A. It is a mixture of cocoa and sugar; it is generally aromatized by vanilla. The quality of chocolate depends on the quality of the cocoa and sugar employed in its fabrication.

Q. Is chocolate very nourishing?

A. Yes, but it is not easily digested, owing to the fatty matter it contains. Chocolate is more digestible when prepared with water than when prepared with milk. Chocolate mixed with tea and coffee, constitutes a very aromatic and savoury food which agrees best with most stomachs.

Q. How is alcohol obtained ?

A. Alcohol is the product of the fermentation which vegetable substances containing sugar undergo, the quality varying according to the quality of the materials employed. Most alcoholic drinks are prejudicial to man's health and intellect.

Q. What is the effect of alcohol on man ?

A. Alcohol is a very combustible aliment, which stimulates the system by consuming it, thus producing terrible changes in all its tissues. Alcohol drunk in large quantities, causes considerable nervous troubles ; taken to excess, it results in drunkenness and undermines man's finest faculties. The use of alcohol leads to alcoholism, and it has been proved that alcoholism, in rendering all the tissues of the system prematurely old, hastens senility and death in individuals, and even in generations. In conclusion, alcoholism is the leading factor or stimulus of crime and insanity. The saying : " Alcoholism is man's greatest enemy," is, therefore, a true one.

Q. Of what is wine made ?

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composition of grapes; hence the numerous species of wines offered for consumption. The great variety of wines produced by the same vineyard is due to its mode of preparation.

Q. How does wine affect man?

A. Wine is at once a food, a stimulant and a tonic. It is of great nutritive value, and is a valuable aid to alimentation when taken in moderation. Wine drunk habitually to excess produces alcoholism. Women should drink only very little wine, and children none at all; but it is good for adults and old men.

Q. How is beer made?

A. It is made of hops and certain vegetable substances, such as barley, wheat, oats, rye, Indian corn, rice, potatoes, etc.; but barley is generally employed,

Q. Is beer healthy?

A. Beer has a certain nutritive value, being a restorative and respiratory food. All kinds of beer contain more or less alcohol, and so may cause drunkenness and alcoholism, like all alcoholic drinks. The abuse of beer is fraught with fearful consequences with regard to health.

CHAPTER VII.

Diet.

Diet and its influence on health.—Quality and quantity of food.—Regularity of meals.—How to eat.—Mastication.—Foods with regard to professions and ages of life.—Care to be taken in eating.

Q. What is regimen or diet?

A. The word "regimen" means good government of physical, moral and mental life. But it is usually used to imply all the hygienic rules bearing on human alimentation (such is the definition given to it in this chapter).

Q. Does diet affect health?

A. Health is the regular and easy working of all our organs; but this working of our organs continually entails a loss of strength and wear of tissue, and these losses are restored by food. Diet has, therefore, a most important bearing on health. In fact, the physician daily discovers that the abuse of the table is the cause of many of the diseases incident to human nature. It is important, then, to bear in mind the hygienic and moral saying: "We should eat to live and not live to eat."

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Q. What is the best way to eat?

A. To meet the wants of nutrition, it is important to establish a distinction between the appetite of the stomach, hunger, gluttony and the hunger-fit. Appetite is a desire to eat, as soon as the digestion of the last meal is accomplished; if we should then delay eating, such desire becomes intensified, and is called hunger. The man who delights in eating greedily and to excess, sacrifices his health at the table of gluttony. We must take care not to contract such a habit, for it masters us when once acquired. The hunger-fit is a sharp and sudden, but accidental hunger which indicates disease of the stomach, and which must not be satisfied.

Q. What do you mean by allowance of food?

A. It consists in the quantity and quality of food necessary for man to keep in good health. Such allowance varies according to one's mode of life. The working man, for instance, needs a larger and more nitrogenous quantity of food than the man who leads an idle, sedentary life. Moreover, man's instinct always suggests how he should act in such a case.

Q. Is regularity of meals of any importance?

A. It is one of the conditions of good digestion. To that end, we should breakfast at the beginning of the day, dine at noon and eat a light supper at the close of the day. There should be an interval of six hours at most between each meal.

Q. How should we eat?

A. At meal time we should suspend and forget all labour, for a cheerful disposition is essential to good digestion. During meals, pleasant and cheerful conversation has a beneficial effect on our nervous system, aids digestion as well as all the functions of our organization, and permits the air to enter freely into and mix with the food during mastication. Foods so taken into the stomach are easily impregnated with the gastric juice, and the work of the stomach is thus considerably lightened. It is important, then, to facilitate digestion by being cheerful at meals, and by giving ourselves up to calm and agreeable distractions for at least one hour.

Q. Is the habit of swallowing food without masticating it well, a bad one?

A. It is a very bad habit to swallow food without masticating it sufficiently, and surely leads to dyspepsia. Only very little iced foods

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should be swallowed at a time. Warm food substances or liquids, generally aid digestion. We should always drink slowly, and should never drink during meals for the purpose of swallowing food more quickly.

A. Is the exclusive consumption of restorative foods dangerous?

Q. The quantity of restorative or nitrogenous foods should be in proportion to the amount of muscular work. Hence restorative foods suit working people, convalescents and children better than those engaged in sedentary pursuits. The exclusive consumption of restorative foods by any one leading a sedentary life or employed at intellectual work determines dyspepsia, constipation and headaches, and leads to hemorrhages, inflammations, gravel and the gout.

Q. Is the abuse of feculents or sugars dangerous?

A. The abuse of feculents or sugars leads to diabetes and certain liver troubles. Those substances produce animal heat and fatten. People inclined to obesity should, therefore, avoid such food. Those afflicted with liver complaint, should make only a very moderate use of bread, potatoes, beans, sauces, etc.

Q. Whom do fats suit?

A. They suit people in cold climates best, being eminently fitted to fan the flame of the vital hearth, and consequently, to protect against cold. They also suit the poor, children, sickly people and consumptives. Those foods are like oil poured into a lamp that is going out.

Q. What should be always borne in mind in sitting down to table?

A. The great precepts of Fonssagrives, expressed thus: "The foods found on well provided tables may be divided into three parts, the first being for the restoration of strength, the second, for the gratification of the palate, and the third, for combating future disease." The rich sacrifice their health at the table of gluttony. Temperance, which consists in eating moderately and in feeling easy going from the table and during the process of digestion, should be practised in our early years.



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CHAPTER VIII.

The Hygiene of the Skin.

Hygiene of the skin.—Functions of the skin.—Uncleanliness.—Cleanliness.—Hygienic rules of bathing.—How to ensure bodily cleanliness.

Q. What hygienic importance is to be attached to bodily cleanliness?

A. Bodily cleanliness is absolutely necessary for the preservation of health, and is inseparable from man's dignity. The water, which the Creator has put at the disposal of all, tones the nerves and gives them strength and energy. Hence, hygiene proclaims cleanliness to be both a private and social virtue. Man is responsible for the health of others as well as his own.

Q. What are the principal functions of the skin?

A. That protective cover of man, the skin, is the seat of touch. Like the lungs, the skin expires, absorbs the oxygen of the air and inhales carbonic acid and watery vapors. The skin also serves as a safety valve for preserving in man his normal temperature. The cleanliness of the skin ensures the regular exercise of those functions. When bodily cleanliness is

practised from childhood, it becomes a habit which conduces to private and public health.

Q. To what does uncleanness expose its victims ?

A. Uncleanness, in impeding the functions of the skin, disturbs the normal working of the human machine and predisposes it to all kinds of diseases, especially contagious diseases. We have had a striking example of this in the East where the uncleanness of the people feeds that deadly malady, cholera.

Q. What attention should be paid to the skin, as regards cleanliness ?

A. Water and soap are the chief agents of cleanliness. The face, neck and ears should be washed every day with cold water, and the hands, at least three times a day—morning, noon and evening. The teeth are preserved by cleanliness. The hair should be combed and brushed every day ; the nails should be kept very clean, and neither too long nor too short, and the feet should be washed once a week in winter and oftener during summer. In short, to cleanse the body thoroughly, we should bathe several times a week during the hot weather and once a week during cold weather.

Q. What are the hygienic rules for bathing ?

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A. The cold bath and cool bath are suitable for young people and adults, and the tepid bath for children. Thousands of people have met their death by plunging into water immediately after meals or while perspiring profusely. A bath should never be taken immediately after violent exercise. The average duration of a bath should be about 20 minutes.

Q. What is the best method of ensuring bodily cleanliness?

A. To wash the whole body with toilet soap and then, use water freely with a towel, or, better still, with a sponge. A sponge facilitates the washing by a freer use of water. The body should then be wiped well before dressing.

CHAPTER IX.

Clothing.

The utility of clothing.—Quality of clothing.—How clothes should be made.—Hygrometrical properties of clothing.—Shape of clothing.—Clothing and chills.—Clean clothing.—The bed.

Q. What is the use of clothing?

A. Owing to the fineness and delicacy of man's skin, he is obliged to put on clothing to protect himself from cold, heat, light and

humidity. Man is the only being who can, by clothing himself, inhabit all the parts of the earth. Clothing is then of great hygienic importance.

Q. What should be the principal quality of clothing?

A. Clothing, to be very hygienic, should be a bad conductor of heat. Clothing possessing this property, prevents the heat of the body from escaping and outer heat from penetrating into the system. Clothing, so manufactured, serves the double purpose of protecting from cold and heat.

Q. Enumerate the principal substances which enter into the manufacture of clothing, according to their heat conductivity?

A. Flax, cotton, silk, wool, Indian rubber and the skins of animals. The color of clothing exercises, too, a varied influence as regards heat, dark colors being more pervious to heat than light ones.

Q. Have the different kinds of clothing the same hygrometrical properties?

A. No; those properties are different in them all. Among other materials we may mention cotton and canvas which are easily impregnated with water, but which have the

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property of letting it evaporate very quickly, thus exposing the wearer to a dangerous chill. Wool, on the contrary, gets well saturated with water and retains it better, and the water, in evaporating, cools the tissues slowly without causing a reaction in the body through the sudden depression of heat. Hence the superiority of wool as clothing.

Q. What should be the shape of clothing ?

A. It depends on the party whom it is intended to cover. Generally speaking, clothing should not compress any part of the body to the extent of impeding its movements or the circulation of the blood, breathing or digestion. The observance of this hygienic law is imperative for the due development of the body and the preservation of health.

Q. How does clothing, and especially under-clothing, protect us from chills ?

A. Our real clothing is the layer of air which surrounds the body. The sole function of clothing consists in keeping around the body a layer of air heated by the skin. The flannel undershirt is here fully described : the flannel, by retaining the air in its woolly woof, protects the body from the changes of temperature and absorbs the perspiration from the surface of the

skin and causes it to evaporate slowly, thus rendering chills extremely slight. We should then wear a woollen undershirt if we would avoid sudden chills.

Q. Is it dangerous to neglect cleanliness in our clothing?

A. Yes; underclothing which absorbs the perspiration should be frequently changed to preserve unimpaired the important functions of the skin. Coats, trousers and headgear should be frequently brushed, shaken and cleaned in order to remove all impurities therefrom, as they are often the bearers of infectious diseases. Cleanliness of clothing is a most important rule of hygiene.

Q. What hygienic rules should be observed regarding the bed?

A. The bed is the clothing of the man who sleeps and rests from the fatigues of the day. For this reason, hygiene especially recommends the use of the metallic, elastic spring-mattress, the hair, woollen or sea-weed mattress, the airing of the bed every morning, for at least an hour before making it up. After sickness, the disinfection of the mattress or feather-bed and pillows is indispensable. In conclusion, it must be borne in

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mind that the bed exercises a considerable influence on our existence, inasmuch as it is the scene of life and death.

CHAPTER X.

Labor.

Labor Law—Its Necessity—Manual Labor—Excessive Labor—Mental Work—Hygienic Conditions of Labor—Manual Professions.

Q. Are we obliged to work ?

A. The Creator has condemned us to work ; it is a law of expiation which is deeply engraved in the human frame. Every intelligent and free individual is commanded to obey this supreme obligation which has become one of the conditions or sources of his health and happiness.

Q. How do you explain the necessity of work ?

A. To explain this, you must know that life is, in a certain sense, nothing but motion ; that all the organs constituting the human machine are the seat of various motions ; that functional harmony ensures health, that mental work ennobles hand work, and that the latter renders

the former harmless. Knowing this, you will understand the necessity of combined bodily and mental work.

Q. Enumerate the advantages of physical labor.

A. Moderate physical labor increases the functional value of our organs and favors the renewal of our tissues. Under such conditions, our muscles become stronger, digestion easier and circulation more rapid ; and, as a result, our mental development becomes normal, physical strength is increased and health improved.

Q. Is excessive work detrimental to health ?

A. Yes. The effect of excessive labor is to wear out the system faster than it is repaired, which results in fatigue. The repetition of this labor leads to emaciation and general debility. We should, then, never forget that the first law of labor is to spend only what we have, and never to exceed our strength.

Q. In what light do you consider mental work ?

A. Thought is the product of our faculties ; it has its seat of action in the brain, and rules our whole being. The soul can only be perceived through thought. He who cultivates his intellect and who reasons, knows how to control his

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passions. Manual labor requires intellectual aid. Intellectual work dignifies man and directs his existence towards his Creator.

Q. What are the principal hygienic conditions of labor ?

A. To know how to work is not so easy as we think. The proper disposal of the hours of labor greatly benefits health. Hygiene cannot establish one uniform rule for all workers ; but it recommends that due attention be paid to the digestion of food and sleep, which are natural wants. All excessive or exhaustive labor is injurious. In brief, the mind and body should always work together and lend each other a helping hand.

Q. What manual profession is the most hygienic ?

A. The agricultural profession. To-day, the farmer with improved farming implements, accomplishes his task under conditions most favorable to health. As a consequence, the prudent farmer's life is the longest and happiest.

CHAPTER XI.

Exercise.

Exercise—Its Utility—Its Varieties—Gymnastics—The Voice.

Q. What is exercise?

A. By exercise is meant all the various motions communicated to the body for the purpose of ensuring the normal action of its organs. Exercise tends to impart to man an imposing bearing and firm step.

Q. What are the advantages of exercise?

A. Exercise is necessary to the development of the articular motion and strength of the muscles, and the flexibility and agility of the body; it also prevents fatigue and promotes the regular working of all our organs.

Q. What are the principal exercises usually taken?

A. Walking, racing, sports and military exercise. Those exercises are very good for the health.

Q. What do you mean by gymnastics?

A. Gymnastics are a series of disciplinary motions imparted to all our muscles: they are indispensable to the office man, and especially students. There are gymnastics which are

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executed by means of a special apparatus and gymnastics which require none. The latter are more accessible to all ages and professions and are the most hygienic.

Q. Describe the gymnastic exercises which require no apparatus.

A. They are as follows:—Make a circular motion with the arms, 20 times; thrust arms directly up, 12 times; thrust them forward, 30 times; outwards (behind), 30 times; take in a long breath, 8 or 10 times; make a circular motion with the trunk, 30 times; rub the hands, 80 times; bend and straighten the trunk, 12 times; raise the knee as high as the pelvis, 18 times; take in a long breath, 8 or 10 times; bring the legs together, 8 times; extend and bend the foot, 40 times; execute the saw motion, 30 times; raise the leg sideways, 12 times; take in a long breath, 8 or 10 times; thrust the arms forward and backward (in front) 10 times; sit on your heels, 24 times; thrust the legs sideways, 100 times; take in a long breath, 8 or 10 times; thrust the leg forward and backward, 10 times;—sideways, 24 times; jump up and down, 200 times; take in a long breath, 8 or 10 times. This gymnastic practice brings all the articulations and muscles into play.

Q. Is it good to exercise the voice?

A. It is very good to exercise the voice, as it strengthens and develops the organs of respiration. It is especially towards the tenth year that children should accustom themselves to a good pronunciation. Singing, reading aloud and declamation should be cultivated by the youth who studies, but with prudence and moderation.

CHAPTER XII.

Sleep.

Sleep.—The necessity of sleep.—The amount of sleep necessary.—It is dangerous not to sleep enough.—Best position for sleeping.—Sleep during the process of digestion.—What it is that disturbs sleep.—How to procure sleep.

Q. What is sleep?

A. It is, as the poet says: "The restorative balm of life," and is a special and indispensable function of the brain. During sleep there is an almost complete suspension of thought and consciousness, and a slackening of all the vital movements. It is during sleep that the daily losses sustained by the system are repaired. Briefly, sleep is a natural and

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Q. Is it necessary to sleep much?

A. Sleep is necessary for the preservation of health and the prolongation of life. Without a sufficiency of sleep the source of vital energy is sapped, and we decline like a tree deprived of its sap. He who sleeps enough guards against the attacks of disease, nervousness and mental prostration.

Q. What amount of sleep is necessary for the maintenance of health?

A. It varies according to age, temperament and occupation. Children need more sleep than adolescents and adults. During the first years of life, children should be let sleep as much as they like. From the sixth to the tenth year, they should sleep at least ten or eleven hours; adolescents, nine or ten hours, and adults, eight or nine hours. People with a nervous temperament need more sleep, than those having lymphatic organizations. Eight hours sleep is sufficient for the ordinary worker, while the thinker should have at least nine hours. This is due to the fact that vital power, which is used up rapidly, requires more time for its restoration.

Q. Is it dangerous not to sleep enough?

A. There is no fact more clearly established than this. The brain and nerves spend during the day and recuperate during sleep, and if the recuperation be not equal to the loss, the brain lacks sufficient nutrition, and if this continue, there is a grave violation of the laws of nature which always engraves its protest in indelible characters when abused. Sooner or later insomnia takes its revenge; for the individual who has so deprived himself of sleep, can no longer have his full share of it at night, and anæmia and all sorts of nervous disorders ensue. The deprivation of sleep may also cause insanity. Profound, regular and restorative sleep should then be ensured by all natural means.

Q. What is the best position to take in bed?

A. It is better to sleep on the right side, because this position is favorable to the passage of the food into the intestines. When we go to bed three or four hours after the evening meal, there is generally some food left in the stomach, and sleeping on the right side facilitates its digestion. Later on in the night we may lie on the left side. The habit of sleeping on one's back is bad, and occasions dreams.

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Q. How do we sleep during the process of digestion?

A. At no stage of digestion do we sleep well; we may, however, during the first stage (chymification) sleep soundly, except the work of the stomach disturb respiration and occasion uneasiness; but when the food has passed into the intestines, and chymification and sanguification have commenced, there is a natural tendency to activity in the system. So that the best time for sleep is when the process of digestion is complete. Nowadays, people have acquired the bad habit of taking the principal meal of the day in the evening, with the result that digestion is difficult, nutrition imperfect and sleep often troubled with dreams.

Q. What is it that usually disturbs our sleep?

A. When digestion is bad we sleep badly. When sleep is disturbed by painful dreams, it is a source of loss instead of being recuperative. The best way to avoid those enemies of our rest, dreams, is to take a light supper, to avoid all tiresome, mental work, and to go to bed only at least three hours after supper.

Q. How is sleep procured?

A. The difficulty of falling asleep is a very general evil, but in half the cases it may be remedied. Idleness being the most frequent cause of it, daily exercise in the open air and a cold bath with friction before going to bed will soon restore the old habit of falling asleep as soon as in bed. Healthy people sleep well; those who do not bathe often and take no exercise cannot be healthy.

CHAPTER XIII.

Dwelling.

The family dwelling.—Its site.—Its construction.—Its dimensions and ventilation.—Heating.—Cleanliness.—Dusting is unhealthy.

Q. Of what use is a house to man—to the family?

A. It protects man from the inclemency of the weather and keeps the family together in the midst of human society. The house is at once a material, moral and social necessity.

Q. What is the proper site for a dwelling?

A. The health of a dwelling depends greatly on its situation. Hence, before building, ground which is easily drained (the top or

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slope of a hill) should be chosen. It should also be exposed to the sun, which is the greatest of all hygienic agents.

Q. Will you give us some general instructions regarding the construction of dwellings?

A. The object of a dwelling shows the extreme importance attaching to its mode of construction. In this country summer should be the season for building. All the building material should be of superior quality; the foundation should be of stone and well cemented to prevent humidity from penetrating into it; the house should be built over a well-ventilated cellar; all the walls should be thick enough to protect the family from the changes of the weather. The most hygienic roofs are those of tile or slate. It is best to paint all the interior of the house, as it permits of washing occasionally.

Q. Why should a dwelling be large and well ventilated?

A. Man needs pure air to breathe and live. The air of a dwelling is easily polluted by respiration, heating, lighting, etc. Hence two conditions are indispensable in all houses: large dimensions and ventilation. It must always be borne in mind that every individual

needs at least 30 cubic feet of air per hour, and this requires very free and constant ventilation in all the rooms.

Q. What is the object of heating?

A. Artificial heat is utilized to raise and maintain a suitable temperature in the interior of dwellings, and so neutralize the pernicious effects of cold. The temperature of houses should be 15 degrees centigrade on an average. The best mode of heating is by hot water.

Q. What effect has lighting on health?

A. Lighting affects both sight and respiration. Hygiene recommends a light of medium brightness, the best being that which falls more obliquely on the left side than on the right. Respiration is affected by the deleterious gases and heat given off by artificial lighting. The only light which does not change the air is that of electric lamps. To diminish its brilliancy, it should be surrounded by an opaque glass globe.

Q. What does the hygiene of the lodging consist in?

A. Hygiene should apply to the exterior as well as the interior of a lodging. Order, which is the first of all virtues, comprises exactness, arrangement, simplicity and, above all, cleanliness which begins on the attic and ends no-

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where; for the greatest cleanliness should characterize the interior of the lodging as well as its surroundings. Its aim being the health of the individual, the family and the nation, it rises to the importance of a veritable, social question. "The best guarantee of civilization," says Beaconsfield, "is the lodging"; it is the school of all domestic virtues; for, without an agreeable interior, the practice of those virtues is impossible. We may add that cleanliness lends dignity to the family and a charm to the fire-side.

Q. Is it healthy to dust furniture?

A. The practice of doing so is very dangerous. In effect, in dusting furniture we merely displace the dust which escapes into the air and flies around for upwards of an hour. Lodgers breathe the air so charged with inorganic dust, and frequently microbes. This dust irritates and soils the respiratory organs and disturbs the hematosi; that is to say, the oxygenation of the blood. Very often, too, the blow of a duster suffices to put floating in the air myriads of dangerous germs which carry disease around in the midst of the family. Hygiene forbids, therefore, the use of the duster, and recommends wiping furniture, woodwork and walls with a damp cloth.

CHAPTER XIV.

Contagious Diseases.

Contagious diseases. — Microbes. — Contagion. — The microbe and the human system.—How to prevent contagious diseases.—The infectious patient.—The propagation of infectious germs.—The utility of the notification of their whereabouts.—The object of disinfection.

Q. What are contagious diseases ?

A. Under this heading comes a class of diseases which may be communicated by a sick to a healthy person. We shall mention here only a few: diphtheria, scarlatina, small-pox, typhoid fever and tuberculosis.

Q. What are we to understand by microbes ?

A. They are little live beings which can only be seen and studied through a microscope. They are found everywhere throughout nature, and are divided into two large classes, the first of which are useful because they rid the earth of an immense quantity of dead, useless or noxious matter by converting it into simple, chemical elements ; the others, which are dangerous microbes, are the bearers of diseases which strike man, animals and vegetables.

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Q. What is contagion?

A. The word "contagion" signifies the property possessed by certain diseases of passing from a sick to a healthy person. Contagion implies the existence of a microbe productive of disease and an individual predisposition for its receptivity.

Q. How is it that if two persons are exposed to a contagious disease, one sickens and the other does not?

A. Because the human system, like the earth, presents peculiarities; in one individual the microbe of disease hardly lives, while in another it thrives. There are incorruptible bodies in which the microbe does not grow, strong constitutions which it does not affect. These differences in individuals are found in their nature and constitution. Not knowing whether disease will attack us or not, we should always be on our guard.

Q. What should be done to prevent contagious disease?

A. We should put ourselves and everything in our vicinity in the hygienic condition which ensures health and increases vital resistance. Those conditions are perfect ventilation, absolute cleanliness, wholesome food and re-

gularity in all the functions of life. We must not forget that we are continually surrounded by the germs of disease, and that the least want of care on our part, the least negligence or imprudence may make us their victims.

Q. What should be borne in mind in presence of a contagious patient?

A. That such patient creates around him a morbid atmosphere which necessitates the observance of certain precautions—precautions in the patient's own interest as to the possible limitation of infection in his system;—precautions to warn those who have to be in contact with him; precautions in the interest of public health, to check the disease and prevent it from becoming epidemic. It is in a well understood hygiene that the means of stamping out disease and taking precautions against it, are to be found.

Q. What are the rules formulated by hygiene in connection with infectious disease?

A. These are the principal ones: The patient should occupy a separate room, to which his attendants only should be admitted; the room should be well ventilated and exposed to the sun as much as possible. It is better to have two beds; one for the day and

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the other for the night, in order to permit of the clothes of the empty bed being aired daily for several hours. The patient should be always kept as clean as possible. To prevent the propagation of the disease, all soiled linen, objects used by the patient, and especially the bed-pan and spittoon, should be washed with boiling water. Those who are in immediate contact with the patient should be extremely clean; should wash their hands and face often, and wear special clothes that are easily disinfected. They must never eat in the patient's room. During his sickness, the sweepings of the room should be removed every day and burned immediately. Before sweeping, the room should be wetted to avoid raising the dust. The patient must not leave his room till he has taken a soap-bath.

Q. How are we liable to be attacked by an infectious disease?

A. The germs of infectious diseases may attack us in two ways: 1. By coming in contact with people or things that are contaminated. 2. By respiration, absorption and the introduction of air, water and foods charged with disease—generating microbes. Hence, when an epidemic is prevalent in any locality,

the law obliges the municipal authorities to adopt measures to check it and prevent its propagation.

Q. Of what utility is the notification of contagious cases?

A. To check a contagious disease we must first know where it is. How can we know, except some one make it his duty to disclose its whereabouts? The administrative power, which does all it can to ensure the health of the public, imposes on the physician the obligation of making known contagious cases. This obligation, which is based on the fact that everyone is as responsible for the health of others as for his own, is imposed for the benefit of one and all.

Q. What is the object of disinfection?

A. To destroy the microbes of disease in the air, on clothing, on objects in general and in dwellings. Even when grief-stricken, we should not forget the interest of others. The linen of any one who has died of an infectious disease, should be disinfected before it is delivered to the washerwoman, as she or her help are liable to contract it. Would it not be shameful and cowardly to act otherwise? Let us do for others what we would wish they would do for us.

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CHAPTER XV.

How to live to an old age.

Q. What should we do to live to an old age?

A. Man is undoubtedly constituted to live longer than he usually does. "He does not die, he kills himself," said Seneque to his friend, Lucilius. The shortness of life is due to the constant violation of physical, intellectual and moral hygiene. Hygiene is really the true elixir of longevity; it is the only sovereign remedy against morbid tendencies. Hygiene and inheritance evidently influence longevity most. We are born with a predisposition to live long, which predisposition comes from our ancestors, and is influenced by hygiene. The fact that the duration of life has almost doubled within a century is especially attributable to the progress of this science. Physiologists agree in acknowledging that centenarians lead a perfectly regular life and have invariably regular habits. Every one spins out his life. If we desire, then, to attain longevity and avoid the disease of old age, we must learn to practise hygiene by moderating the ardent intensity of our life; by seeking pure air and the

vivifying light of the sun ; by avoiding the changes of the atmosphere, low and damp tenements, unhealthy professions, excess in drinking and eating, the harrowing emotions arising from gambling and politics, late hours and physical, mental and moral fatigue ; by being calm and cheerful, with a quiet and contented mind ; by going to bed early, and sleeping enough and eating regularly ; in short, by being moderate in everything. Such are the indispensable conditions for living to a happy old age. Let us, choose, then, the best mode of life, and habit will, render it easy and agreeable.

