# Health Department.

## FOOD AND HEALTH.

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From the *point* of view of the political economist, the idle man has no right to participate in the food-supply of the active worker. Whatever may be the correctness and force of the arguments which the economist may use by way of proving that the non-worker and non-producer has no right to participate in the ordinary nutritive supply of his fellows, the physiological stand-point assumes another and different aspect. The idle man grows hungry and thirsty with the regularity of the man who works. He demands food and drink as does his energetic companion; and the plea that idleness can need no food-support, may be met in a singularly happy and forcible fashion by a plain scientific consideration. In the first instance, the idle man might, by an appeal to science, show, that whilst he apparently spend life without exertion, his bodily functions really represented in their ordinary working an immense amount of labor. Sleeping or waking, that bodily pumping-engine the heart does not fail to discharge its work, in the circulation of the blood. The rise and fall of the chest in the sleeping man remind us that it is not death, but his, 'twin-brother sleep," that we are observing. If we make a calculation respecting the work which the heart of a man, idle or active, performs in twenty-four hours, we may discover that it represents an amount of labour equal to one hundred and twenty foot-tons. That is to say; if we could gather all the force expended by the heart during its work of twenty-four hours into one huge *lift*, such force would be equal to that required to raise one hundred and twenty tons-weight one foot hight. Similarly, the work of the muscles of breathing in twenty-four hours, represents a force equal to that required to lift twenty-one tons one foot high. These are only two examples out of *many*, which the ordinary work and labor of mere vegetative existence, without taking into consideration any work performed—in the popular sense of the term—involves.

We thus discover that, apart altogether from the every-day labour of life which brain and muscles engage, an immense amount of work is performed in the mere act of keeping ourselves alive. Nowhere in nature is work performed without proportionate waste, or wear and tear of the machine that works. The dictum holds quite as true of the human body as of the steam-engine. And as the engine or other machine requires to be supplied with the conditions necessary for the production of force, so the living body similarly demands a supply of material from which its energy (for the power of doing work) can be derived. As the engine obtains the necessary conditions from the fuel and water it consumes, so the living body derives its energy from the food upon which it subsists. Food in this light is therefore merely matter taken from the outside world, and from which our bodies derive the substance required for the repair of the waste which the continual work of life entails. In the young, food serves a double purpose—it supplies material for growth, and it also affords substance from which the supply of force is derived. In the adult, whilst no doubt, to a certain extent, the food supplies actual loss of substance, it is more especially devoted to the performance of work, and of maintaining that equilibrium or balance between work and repair, which, as we have seen constitutes health.

Viewed in this light, the first important rule for food-taking is founded on the plain fact, that in the food we must find the substances necessary for the repair of our bodies, and for the production of the energy through which work is performed. Food-substances in this light fall into two well-marked classes—namely, into *Nitrogenous* and *Non-nitrogenous* substances. Another classification of foods divides them into *organic* and *inorganic*, the former being derived from animals and plants—that is from living beings—while the latter are derived from the world of non-living matter. Then, animal and plant substances represent organic foods; while water and minerals, both of which are absolutely essential for the support of the body, represents inorganic food materials. It would appear that from living matter alone, do we obtain the materials for generating force. The inorganic water and minerals, however, appear to be absolutely necessary for the chemical alterations and changes which are continually taking place within the body.

Adopting the classification of foods into the *Nitrogenous* and *Non-nitrogenous* groups, we discover examples of the first class in such substances as *albumen*, seen familiarly in white of egg and other substances; *gluten*, found in flour; *gelatin*, obtained from hoofs and horns; *legumin*, obtained from certain vegetables; *casein*, found in milk; and allied chemical substances. These substances possess a remarkable similarity or uniformity of composition. It would appear that in the process of digestion they are reduced to a nearly similar state, and on this account they can replace one another to a certain extent in the dietaries of mankind.

The nitrogenous foods have often been popularly termed "flesh-formers," and doubtless this name is well merited. For, as the result of experiment, it would seem that the chief duty performed by the nitrogenous parts of our food is that of building up and repairing the tissues of the body. They also produce heat, through being chemically changed in the blood, and thus aid in the production of force or energy. But it would also appear tolerably certain, that in a complex fashion the nitrogenous parts of our bodies assist and regulate in very exact manner the oxidation or chemical combustion of the tissues.

It should be noted that nitrogenous foods are composed chemically of the four elements, carbon, hydrogen, and nitrogen; the presence of the last element giving the characteristic name and chemical features to the group. Most of these foods in addition contain small proportions of sulphur and phosphorous.

An interesting advance in our knowledge of the part played by nitrogenous foods in the work of the body was made, when an idea of Liebig was overthrown by later experimentation. Liebig supposed that the nitrogenous foods required first be actually converted into tissue—that is, into bodly substance—before their energy or work-producing power could be liberated. In this view muscular force, though which we move, was believed to be dependent on the changes, destructive or otherwise, which takes place in the muscles. The substance called *urea*, chiefly given off as a waste product by the kidneys and chemically representing nitregenous waste, was in Leibig's view regarded as representing the results of muscular force which has been exerted. But two scientists, Fick and Wislicenus of Zurich, proved, by a laborious series of personal experiements in mountains ascents, that a non-nitrogenous diet will maintain the body for short time during the performance of severe work, no great increase in the amount of urea given off being noticed. The work in question was proved to have been performed on the carbon and hydrogen of the food consumed. These exeriments have led to the now accepted view, that a muscle, instead of losing substance during the work and thus wasting, in reality consumes nitrogen, and grows. The exhastion of the muscle is dependent not so much on chemical waste, as on the accumulation within it of the waste products of other foods. The muscle, in other words, is merely the agent whereby so much energy derived from the food, is converted into actual and applied force. Did muscle reatily waste, as Liebig supposed, the heart's substance would be entirely consumed by its work of one week!

Such being the functions and nature of nitrogenous foods, we may now glance at the non-nitrogenous division. Four groups of foods are included in this latter class—namely (1) Starches and sugars, or "amyloids" as they are often termed; (2) fats and oils; (3) minerals; (4) water. The *starches and sugars* include not merely starch and sugar, as ordinarily known, but various gums, and certain acids, such as lactic and acetic acids. Starch, in bread, is a most important food. These foods appear to go directly to maintain animal heat, and to give energy, or the power of doing work, to the animal frame. The heat-producing powers of starches and sugars are certainly inferior to those of the fats and oils. But starches and sugars can be converted into fat within the system; and hence persons who suffer from a tendency to obesity are warned to exclude these foods from their dietaries. Starches and sugars likewise appear to assist in some measure the digestion of nitrogenous foods. That *fats and oils* are heat-producing foods is a fact taught us by the common experience of mankind that northern nations consume the greatest proportion of fat. The heat-producing powers of fat have been set down at two and a half times as great as those of starch and sugar; and there is no doubt that, in addition to assisting in the conversion of food into body substances the fatty parts of our food also assistin the work of removing waste matters from the body. Fat, in addition, being chemically burned in the blood, gives rise to the force which we exert in ordinary muscular work.

The *mineral* parts of our food play an important part in the maintenance of the frame. We thus require iron for the brain and nerves, and lime for the bones; whilst a variety of other minerals is likewise found in the blood and other fluids of the frame. The uses of the mineral constituents of our body are still a matter of speculation. Small as may be the quantity of certain minerals required for the support of the body, serious health-derangement may result when we are deprived of these substances. Thus, scurvy appears to be a disease associated with the want of the mineral potash in the blood; and the cure of this disease is therefore accomplished when we supply to the blood those *mineral elements* which have previously been deficient. Common salt, or chloride of sodium, as it is chemically termed, although not entering into the composition of the body, appears to form an important part of all the secretions; and there can be little doubt that this mineral aids the formation and chemical integrity of the gastric juice of the stomach.

*Water* forms the last item in the list of non-nitrogenous foods. Of all foods, perhaps, water is the most important, seeing that it is a substance which, in the absence of all other nourishment, can sustain life for a period numbering many days. Thus, whilst a man dies in from six to seven days when deprived of solid food and water, life may be prolonged to as many as sixty days on water alone. The high importance of water as a food is abundantly proved, when we discover that it constitutes about two-thirds of the weight of the body, that it enters into the composition of the brain to the extent of eighty per cent; that the blood consists of nearly eighty per cent of water; and that even bone contains ten per cent of every fluid and tissue of the body, and being perpetually given off from lungs, skin, and kidneys in the ordinary work of life, there is little wonder that water assumes the first place amongst foods. Regarding the uses of water as a food, we see that it dissolves and conveys other foods throughout the system; that it assists in removing waste products; and that it also takes a share in regulating the temperature of the body through its evaporation on the skin.

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The female giraffe has a tongue seventeen inches long, but she can't talk.

### Laughter as a Medicine.

A short time since two individuals were lying in a room very sick, one with brain fever and the other with an aggravated case of the mumps. They were so low that watchers were needed every night, and it was thought doubtful if the one sick of fever could recover. A gentleman was engaged to watch over night, his duty being to wake the nurse whenever it became necessary to administer medicine. In the course of the night both watcher and nurse fell asleep. The man with the mumps lay watching the clock, and saw that it was time to give the fever patient his potion. He was unable to speak aloud or to move any portion of his body except his arms, but seizing a pillow, he managed to strike the watcher in the face with it. Thus suddenly awakened, the watcher sprang from his seat, falling to the floor, and awakened both the nurse and the fever patient. The incident struck the sick men as very ludicrous, and they laughed heartily at it for some fifteen or twenty minutes. When the doctor came in the morning he found his patients vastly improved; said he never knew so sudden a turn for the better, and now both are up and well. Who says laughter is not the best of medicines? And this reminds the writer of another case. A gentleman was suffering from an ulceration of the throat, which at length became so swollen that his life was despaired of. His house hold came to his bedside to bid him farewell. Each individual shook hands with the dying man and then went away weeping. Last of all came a pet ape, and shaking the man's hand went away also with its hands over its eyes. It was so ludricrous a sight that the patient was forced to laugh so heartly that the ulcer broke and his life was saved.—*Sanitarian.*

### How to Boil Water.

I must tell you the old story of how the late Charles Delmonico used to talk about the new hot water cure. He said the Delmonicos were the first to recommend it to guests, who complained of having no appetite. "Take a cup of hot water and lemon and you will feel better," was the formula adopted, and the cup of hot water and lemon was simply a little hot water with a drop of lemon juice in it to take away the insipidity. For this antibilious remedy the caterers charged the price of their best liquors—twenty-five cents or more—and it certainly was a wiser way to spend small change than in alcohol. "Few people know how to cook water." Charles used to affirm. "The secret is in putting good, fresh water into a neat kettle, already quite warm, and setting the water to boiling quickly, and then taking it right off for use in tea, coffee, or other drinks, before it is spoiled. To let it steam and simmer and evaporate until the good water is in the atmosphere, and the lime and iron and dregs only left in the kettle—bah! that is what makes a great many people sick, and is worse than no water at all." Every lady who reads the recipe of a great and careful cook should never forget how to cook water.

### Sunshine and Sleep.

Sleepless people—and there are many in America—should court the sun. The very worst soporific is laudanum, the very best sunshine. Therefore it is very plain that poor sleepers should pass as many hours as possible in the sunshine, and as few as possible in the shade. Many women are martyrs, and yet they do not know it. They wear veils, parasols, and do all possible to keep off the potent influence which is intended to give them strength and beauty and cheerfulness. The women of America are pale and delicate; they may be blooming and strong, and sunlight will be a potent influence in this transformation.

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An opera glass—The one taken between the acts.