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### THE LIVER.

[CONCLUDED.]

A LECTURE DELIVERED IN THE SANITARIUM  
PARLOR, AUG. 16, 1882.

BY J. H. KELLOGG, M. D.

I WANT to talk about the liver again this morning. Perhaps some of you have become quite tired of hearing me say so much about the same thing; but you must remember that the liver is one of the most important organs of the body. It is the largest gland in the body. Natural history brings out an interesting fact in regard to the liver; namely, that it is one of the most universally present organs in the animal economy. If you go down the scale of animal existence to the oyster and clam, and other creatures of that class, you will find that the liver is present in all of them. The large red portion of the oyster, that most people consider so savory, is nothing but the oyster's liver. I used to wonder why I did not like oysters. I suppose it was because I did not like the taste of bile. The oyster is the scavenger of the sea; he lives upon the decomposing fish and vegetables found at the bottom of the sea, and of course he needs a very large liver to cleanse his system from the deleterious properties of such food. Oysters are very abundant around the harbors of large cities, where they can live on the refuse matter of the sewers emptying into the sea. At a certain point on the European coast, it was observed that at certain seasons of the year the oysters obtained in that vicinity made people sick. The oysters might be eaten at other times of the year without any apparent harm; but at a certain season they seemed to be

poisonous to whoever ate them. There was considerable speculation as to the cause, and by a little investigation it was found that at a certain time of year the sewerage was carried a little farther down the coast than usual, and out to the oyster-beds. Consequently, the livers of the oysters became very bad, and poisoned the people who swallowed them. In some parts of France there is grown a very peculiar sort of green oyster, which is considered a great delicacy by epicures. Some years ago, a naturalist who was curious to find out whether they were a new species of oyster, made an investigation, and discovered that they were simply common oysters that had been subjected to a peculiar process. They were placed in large tanks which were allowed to stand until the water became stagnant and covered with a green scum, and it was by becoming permeated with this green matter that they acquired their peculiar color. No wonder the oysters were tender and delicate and highly flavored. Doubtless they had very bad livers.

In many of the lower classes of animals the liver is present when the other excretory organs are absent. In the clam the liver is arranged around the stomach so as completely to envelop it. In other animals we find the kidneys and liver combined; and this is a most interesting fact; for you will remember my telling you that the liver prepares the excretory matter for the kidneys. The liver converts the uric acid into urea, and the kidneys take up this urea and eliminate it from the body. When these two organs are combined, the work of the liver becomes very intricate and complicated. One thing generally observable in the



lower forms of life is that a single organ will do a great many different kinds of work. In the amoeba, for instance, you can find neither ears, eyes, brain, stomach, nor any of the organs of man, and yet this creature is capable of performing the functions of all these organs. It can make any portion of its envelope into a mouth, or nose, or finger; it can jut out legs behind or in front. It has a very complicated function to perform, and yet, so far as we can tell, it is perfectly structureless.

As we rise higher in the scale of animal life, the work becomes more and more subdivided among the different organs, until in man each organ has its own work to do, and can do no other. In the case of the liver, however, we find an affinity to these lower forms; for, as you will remember, the liver has several different kinds of work to do.

This morning I wish to talk particularly about the relation of meat as an article of diet to the liver. When a man has a torpid liver, we tell him that he must not eat much meat. The reason for this is that excessive meat-eating produces torpidity of the liver. The proper business of the liver, or at least one of its lines of work, is to convert uric acid into urea. Some of you may not understand chemical terms, and so that does not mean anything to you. I will try to explain. Whenever a muscle contracts, some of its particles are worn out and carried off. These particles of dead muscle must be converted into some other form before they can be carried out of the system. After undergoing a variety of changes, they are finally converted into uric acid. This is the reddish brick-dust deposit that is sometimes observed in the urine. If it is allowed to remain in the circulation, it makes a great disturbance in passing through the body, and it is the business of the liver to change it into a different sort of a substance known as urea, which makes less disturbance in the system, and is quickly carried off by the kidneys.

If a piece of beef-steak is examined under the microscope, it will be found to be almost entirely composed of muscular fibres. This dead muscle must be converted into uric acid just like the dead muscle of the human body, and this uric acid must in turn be converted into urea before it can be gotten out of the system. What goes in as beef-steak or chicken or fish, must come out as urea. This proc-

ess does not, however, always take place at once. A person can utilize only about three ounces of nitrogenous matter daily. If a person eats only three ounces of meat, it will be converted into living human muscle. If he eats six ounces, then three ounces will be converted into live muscle, and the rest must be turned into uric acid. If we examine the secretions of an individual, we will find that there escapes from the body each day about three ounces of the nitrogenous matter of which the muscles are composed. The liver has to do the work of converting that amount of matter into urea. If a person takes double the quantity of meat that he can utilize, the liver has to do extra work in eliminating the extra quantity. Consequently the liver will be overworked; and if overworked day after day, its tissues will after a time become impaired, and a torpid liver will be the result. It is evident, therefore, that a person who has a torpid liver should eat very little meat, in order that his liver may have as easy a time as possible.

There is another fact respecting meat that goes to show that it is an injurious article of food to any one who has a torpid liver. The meat itself contains uric acid and urea. These two substances are held in solution in the venous blood, and it is this which in part constitutes the difference between venous and arterial blood. When an animal is killed, the large arteries empty themselves in a very short time; but very little of the venous blood, which contains all the impurities of the body, escapes from the veins. The veins do not empty themselves, for the reason that the heart stops beating, and the blood in the veins soon ceases to flow. The tissue-changes, however, continue some little time after the animal dies.

Did it ever occur to you that when a person is alive the process of disintegration and decay is much more rapid than after death? If an animal is left dead on the ground, in a very short time it decomposes and returns to earth again, and yet this change is much more rapid in life. Just think how much a person has to eat in the course of a year to supply the waste of the body. If he eats one and one-half pounds of food in a day, he will eat over five hundred pounds in a year,—an amount equal to perhaps four times the weight of the body. If you take a live animal and remove its kidneys, it will die in a very short time through the accumu-



lation of urea. If you take out its liver, it will die through the accumulation of the biliary elements in the circulation. When a man falls into the water, he dies, not from a lack of oxygen, but from poisoning by carbonic acid gas. I have mentioned these facts for the purpose of showing you how rapidly these elements accumulate in the body, and how poisonous they are. I will give one more illustration. Let any one hold his breath for a minute, and notice how blue his face will become. This is not wholly because the blood accumulates in the face, but because the arterial blood has become blue through the accumulation of carbonic acid gas.

Now, as I remarked before, this tissue-change goes on even after the animal is dead; and by the production of uric acid through the destruction of muscular tissue, the blood becomes filled with poisonous elements. The venous blood left in the dead body of an animal is exceedingly impure, and what arterial blood is left in the arteries is forced on into the tissues, and thus becomes venous blood.

If a piece of beef-steak is thoroughly washed in water, it will become almost white. This white portion is about the only nourishment that is contained in the beef, though it is not very palatable. The part that has been washed away is almost wholly stimulating. The beef extracts sold in the stores are almost pure urea. You have heard of Liebig's Extract of Beef, which is supposed to compress into one pound of extract the nutritious elements of forty pounds of beef. The fact is that it does not contain ten grains of nourishing material to the pound. Liebig's Extract is made up of those elements which the kidneys carry off as poisonous, and this is true of almost all the other extracts. It is the business of the liver to remove these poisonous elements; and the man who persists in eating a large quantity of meat while suffering from torpidity of the liver, is like a farmer who hires men to clear the stones from his fields, and then spends all his own time throwing them back again. A farmer who pursued that course, or who would sow weeds in his field after he had been to great expense to have them rooted out, would be rightly considered a fit candidate for the lunatic asylum; but this is exactly what a man with a sluggish liver is doing when he eats an excess of meat. While the liver is trying to get out the

poisonous substances, he is all the time putting them in.

The question may be asked whether it would not be better if the use of meat were avoided altogether. There are circumstances under which it is better for a patient to eat some kind of meat; but I confess I believe it would have been better for the whole human family if they had never eaten any meat at all. It would be better for the human family in the future if our children should never eat anything but fruits and grains. It would be easier for people to be good if they could be made to adopt an unstimulating diet. A man who is the owner of a very fine dog told me the other day that he had noticed that when he fed his dog on meat, he was ugly and savage, and when he fed him on bread and milk, he was mild and gentle, and much easier to get along with. You will remember that there was a man here a short time ago exhibiting trained dogs. A gentleman asked him what he fed his dogs, and he said he never gave them anything but bread and milk. He had noticed that when he fed them on meat, they were very likely to die off as soon as he had them thoroughly trained. They could not stand the strain of their profession on a meat diet. Besides, he had found that they were much more tractable and easily trained when fed upon a hygienic diet, and were less quarrelsome among themselves.

The same thing is true of human beings. Members of the human family who live almost exclusively upon beef, are nearly as quarrelsome and savage as animals. The animals that are long-lived and quiet in their dispositions are vegetarians. The North American Indians are a good instance of a people who are carnivorous in their habits. They are the most short-lived of all people. The races who are driving them out were originally almost strictly vegetarians.

The beneficial effects of a vegetarian diet have also been shown by experiment. In England, a short time ago, a committee of the House of Commons was appointed to determine upon the best dietary for prisoners. After considerable investigation, a report was made in which a vegetarian diet was recommended, not as a penalty, but as a matter of economy to the State and improvement in health to the prisoners. In prisons where the change has been made, it has been found that the death-rate is much lower than



formerly, while the prisoners are more tractable, and are able to do a much greater amount of work without injury.

I want to say one word more, and that is in regard to the disadvantage of eating animal food in the hot season of the year. I have no doubt that a large share of the diseases so prevalent in the summer are due to meat-eating. At that season of the year there is a surplus of heat, which is very likely to give rise to febrile disease of some sort. It is a well-known fact that fevers are most rife between the months of June and October, and one reason for it is found in the increase of heat. If a person has eaten a hearty meat dinner, and happens to overheat his blood, it is almost certain to bring on some febrile difficulty. Of the thousands who die from sun-stroke each year, the larger part will be found to be persons who habitually eat large quantities of meat, or who use liquors to a greater or less extent.

There are, as I remarked before, certain conditions under which meat can and should be eaten, and these conditions I will talk about at another time.

#### THE CHEMISTRY OF SEWER-GAS.

[The following able article, if a little technical, will well repay a careful reading.—Ed.]

Dr. Letheby, of London, found by analysis that the elements of sewer-gas are sulphureted hydrogen, sulphide of ammonium, carbureted hydrogen, oxygen, nitrogen, and carbonic acid gas. It also contains organic matter. The constituents are not always the same, nor do they always exist in the same proportion. The noxious effects of the gas are due to the sulphureted hydrogen, sulphide of ammonium, and the organic matter. These are always found in sewer-gas, in varying quantities; and it is an important fact for every one to know that the two gases named are among the most dangerous known to chemistry, at least of those about which anything is popularly known. Even when greatly diluted, the first is a deadly poison to man and animals. Air otherwise pure, containing one part in two thousand of sulphureted hydrogen, will instantly kill birds. Air one two-hundredth part of which is sulphureted hydrogen will kill dogs; and a mixture of one part in two hundred and fifty will

end the life of a horse. Although it has never been practically tested, it is believed that air containing one per cent of this dangerous gas will cause the immediate death of man. The danger which it brings to man's life, in the company of those other elements with which it forms sewer-gas, is apparent.

Advantage was taken of the destructive power of sulphureted hydrogen, some years ago, to rid the garden of the Luxembourg, in Paris, of the crows which infested it. These annoying birds had become so numerous that they were actually a terror, and were driving people from the garden. It was not safe to attempt to shoot them, since there was a possibility of doing injury to the people themselves. The device was adopted of placing in the hands of the gardeners a small bag containing sulphureted hydrogen, to which was attached a tube that could be thrust into the foliage of a tree, and into the midst of a flock of the birds, without disturbing them. The gas was then allowed to escape, when the crows immediately fell to the ground lifeless. The proceeding was so noiseless that it was easily carried on till all were killed, and the garden freed.

This extremely poisonous gas may be produced by acid liquids turned into drains. It frequently seems to become concentrated, and causes death quite unexpectedly. Men have dropped dead while at work in the sewers of London, apparently from breathing it; and in some instances it has found its way into bedrooms through waste-pipes, not sufficiently diluted, and has caused instant death. If in a comparatively pure state its effects are so exceedingly dangerous in small quantities, it must, under other circumstances, be considered capable of doing much harm. Its known effects are, when present in air which is breathed, headache, vomiting, drowsiness, etc. This is observable in the rooms of the chemist, where, for experiment or otherwise, the noxious gas is generated. A simple trace of it in the air will often produce a debilitated condition resembling typhoid fever. In chemical analysis the operator and those around him frequently suffer from chronic poisoning of the blood by it; it is also the cause of typhoid or malarial fevers.

The effects of sulphide of ammonium on the system are similar to those of the first-named gas. A good many experi-



ments have been made to determine the manner in which sulphureted hydrogen and sulphide of ammonium produce their noxious influence. The results have been interesting, and throw much light on sewer-gas poisoning. It is a well-known fact that the red corpuscles of the blood are its most important constituents. Their chief office is to take up oxygen in the lungs, and convey it to all parts of the body. The most important function of the body, probably, is the carrying power of these corpuscles. The body will do without food or drink for a number of days; but if this function is interfered with, even for a few minutes, death ensues. This is illustrated in suffocation by drowning or otherwise. No person is in a condition of health unless the red corpuscles perform their duty properly and efficiently. Chemical research has shown that the active principle of the red corpuscles is a very interesting compound, to which the name of hemoglobin has been given. In plainer terms, this compound is a portion of the substance of the red corpuscles, and upon this the oxygen-carrying power of the corpuscles depends. Hence anything which interferes with this hemoglobin interferes with the oxygenation of the system.

Experiments on the blood of animals have shown that sulphureted hydrogen and sulphide of ammonium have a very destructive influence on the hemoglobin of the red corpuscles. Whenever they are brought into contact with these corpuscles, each is robbed of its oxygen; and if the action continues, the gases will utterly destroy the hemoglobin, and reduce the corpuscles to a condition which renders them worse than worthless. The hemoglobin is not only deprived of its oxygen-carrying power, but it is deadened, and becomes extraneous and *effete* matter in the blood. The result is apparent. The body cannot live for an instant without oxygen. It is the stimulus which supports vitality. Shut off the oxygen, and death follows at once; cut off a portion of the supply, and some derangement, even though not immediately fatal, must ensue. The condition of the blood of animals which have been poisoned by these gases shows the action to be that given above. The blood is black and thick, like the dead blood which has flowed from a wound.

From this destructive influence upon the red-blood corpuscles, it may be easily

understood what the nature of the danger is which persons who are exposed to sewer-gas must encounter, and how they may be injured by it. The peculiar, marked anæmia, or blood-poisoning, of those who have suffered from sewer-gas poisoning, is explained by these facts. There still seems to be an influence in sewer-gas, derived from the organic constituents, which, also, not infrequently modifies the action of the other two gases. There is no doubt that the organic elements, wherever found, are as poisonous, or deleterious, as the decaying particles of animal or vegetable matter, for that is all they are.

In many diseases the poison of the maldy seems to be eliminated largely by the bowels, and the fecal discharges evolve gases which are capable of propagating disease. This is particularly true of typhoid fever, and does not fail in the case of cholera, and possibly of cholera morbus, which is held by many to be cholera in an incipient stage, though there is reason to doubt it. Many leading scientists discredit the germ theory of the spread of disease. They believe that chemical gases generated by disease in one organism may produce a ferment, so to speak, in another, and the result is the reproduction of the same disease. It is known that strychnine produces a certain effect on the blood, as the wourali used by the South American Indians in poisoning their arrows does, and that it results in death. There are no germs of disease in either case. There are no specific disease germs in the decomposing flesh of a corpse; and yet a few particles of the putrid flesh introduced by accident into the blood, as a student works in the dissecting-room, will poison the system, and may produce death. So the poisonous particles which are given off by a diseased person may float through the sewer, and on the wings of its gas be transmitted to the living and sleeping apartments of any family whose house has defective drainage, and when in contact with blood already deteriorated by sewer-gas, cause a ferment, or disease, in the system, the whole action being precisely analogous to that of yeast. Small-pox may be transmitted in this manner from the discharge of the pustules. Yellow fever may be propagated by fecal, vomital, and urinal discharges; but in this case it seems that the poison itself must come in direct contact with the person. The noxious gases of the sewer may be oxidized, and con



sequently destroyed. All that is necessary is to give them the benefit of plenty of pure air.

To summarize: The poisonous elements of sewer-gas are sulphureted hydrogen, sulphide of ammonium, and organic matter. The first is a deadly poison, and in sufficient quantity its fatal effects are immediate. In small quantities it weakens the vitality of the system by counteracting the oxygen-carrying power of the blood. It is always present in sewer-gas, and a very small amount will produce, or pave the way to, disease. The noxious gases which by fermentation reproduce the disease from which they originated, are borne hither and thither by sewer-gas through defective drains, and into houses in distant parts of a city.—*Sewer-gas, and its Dangers.*

### HOW TO REST.

BY MRS. MARY WEEKS BURNETT, M. D., SUPERINTENDENT OF DEPARTMENT OF HEREDITARY IN THE W. N. C. T. U.

THE time has come in this great work for God and humanity, when something more is required of the women of the W. N. C. T. U. than the keen spiritual insight, courage, and faith with which they are so gifted. Every thoughtful observer among us must acknowledge that feebleness of body is one of our greatest obstacles to progress, and that good physical health is one of our greatest needs.

The apostle says, "Present your *bodies* a living sacrifice, holy, acceptable unto God, which is your reasonable service. And be not conformed to this world." How can we hope that our bodies will be acceptable to him, when we have conformed to the world's customs and dictations until physically we are unable to perform the work he has placed us here to do?

As civilization has advanced, we have created, or allowed to be created for us, a vast number of factitious habits and customs. Some are comparatively harmless, but many are fraught with sickness, wretchedness, and premature death to us in their prolonged use. We do not realize this. Their deadly work is slow and insidious; and while we would prevent their application to our horses, birds, or plants, knowing from the very law of the case that they would be fatally injurious, we, from ignorance on the one hand and fear of our neighbor on the other, do

not hesitate to inflict the deadly dose upon ourselves, our neighbors, and the precious lives committed to our care.

It is only by the strictest investigation into the minutiae of our own health needs that we can hope to reach a thorough knowledge of God's laws concerning us. Divine wisdom has given us certain absolute rules for the government of our bodies; and of these, the *first* on record is the setting apart of each seventh day for *rest*. "And He rested on the seventh day." Why? Not that *God* needed it, but Christ tells us that the Sabbath, or *rest-day*, "was made for man;" and it is an established fact that we cannot continuously violate this law without sooner or later experiencing premature loss of vigor and vitality. That day is "blessed and hallowed" to us in exact proportion to our recognizance of the divine purpose in it.

The prevailing tendency of American people is to disease of the nerve centers, and our lack of observance of the rest-law is fostering this. "Men work from sun to sun, but woman's work is never done," is accepted by us without a murmur, as though it had come from within the lids of the Bible, instead of being, as it is, merely a "rhythmical statement by some acute observer of a self-evident fact." It is certainly an excess of industry (and excesses of even good things are always injurious) to work after the sun goes down. All nature's laws, as we observe them in the lower animals, forbid it. There are physiological reasons for not working much in the latter part of the day. In the morning, after the refreshing sleep of the night, all the nerve forces of the body reach their highest degree of vigor; therefore this is plainly the time for the greatest activity. As the day passes, and the vital forces become exhausted by use, the severity of the work should lessen, and should *cease entirely* when the instinct of fatigue first gives warning that the strength is being exhausted. It is a very dangerous thing to constantly carry exercise to the fatigue point; for some incurable disease, as nervous prostration, hypochondria, or paralysis, will inevitably follow. Every woman should make it an inflexible law of her life to *lie down* in the middle of the day for at least fifteen minutes, closing the eyes and shutting off, as far as possible, all anxious thought.

Rest is synonymous with repair and growth. In the recumbent position every



muscle of the body is placed at perfect rest; all tension is removed from the nerve centers, and this little fifteen-minute rest gives them opportunity for repair and to assimilate nutrition, so keeping them in healthy condition. The beautiful physiological action of rest is well illustrated in this way,—the woman who observes this midday rest, closing the eyes, and so putting at rest, not only the muscles, but the nerves supplying them, does not become wrinkled nearly so easily as the woman who “scorns to do so lazy a thing.” After the morning’s work of housekeeping or shopping, business life strictly or the demands of society, we should not sit down to the heartiest meal of the day without a preparatory rest. The nerve centers of the brain and spine have probably already been overtaxed to their utmost; yet we fill our stomachs with food, and deliberately call upon these centers to do another half-day’s work in disposing of it. They rebel and refuse; for they have their morning’s waste of tissue to make good before they are ready to take up fresh work, and the consequence is, the food is not half digested, the blood does not receive and carry to muscle and nerve the nutrition they need, and ill health speedily follows. Many of the most distressing symptoms attending dyspepsia have been alleviated by a faithful observance of this fifteen-minute rest in the horizontal position, before dinner.

Said a member of the Canadian Parliament to me once: “I think one reason for our greater longevity and our longer continued mental activity is this, we *will* rest our brains frequently. It is a very common thing for our members to take two or three short naps in the course of the day; and what gentleman does not take his nap after dinner?”

Let me beg of you, do not call your neighbors lazy, nor care if they call you so, if you take at midday a dose of God’s own recuperative remedy for tired hearts and weary brains,—*rest*. Especially does the impressionable temperament require plenty of rest. Our young growing children *must* have it. If they fail to take all the rest and sleep that the rapid development of body and mind demand, nature will in later years require double for the sin, and persistent insomnia or morbid conditions of mind or body, will result.

There is a growing tendency on the part of our women to wear their bonnets

and hats at all public and social gatherings. Our old-fashioned “teas,” where ladies were expected to lay aside their wraps, have been supplanted by receptions, readings, lawn parties, and lectures, where wearing the head-gear is the rule. This may have partly grown out of our sensitiveness at having our style of hair-dressing criticised; but to say nothing of the imminent danger of baldness from the undue amount of heat about the delicate hair follicles, and the tension upon the roots from the pulling of the large pins used to hold the bonnets on, the pressure upon the brain and spine is terrible. This unnatural weight causes a corresponding unnatural exertion of the spinal nerves and muscles. The burden is carried day after day, month after month. That significant plea for rest from the nerve cells, the headache, is disregarded, until worn out with abuse, the brain and spine become the seat of chronic congestion and inflammation, with all their dreadful attendant consequences.

Let us, as *temperance* women, strive against *intemperate* customs. Space forbids mention of many other violations of the rest-law, of which we are guilty; but if we once *begin* in earnest to live rightly, with our *bodies* as well as our souls, the knowledge of His will concerning us will grow in us. There is a soul rest, a spiritual repose, a peace which passeth all understanding, a communion with God, which cannot be attained while the body is fatigued with hard work, or tortured by pain in much-abused nerves, or while the mind is engrossed with the multitudinous cares of home and society. Christ said to his disciples, “Come ye yourselves apart, and rest awhile,” and by this peaceful, quiet rest of body and soul he oftentimes renewed his own strength.

Even though our little world seems all wrong at times, the children peevish, the home cares overpowering, the society officers incapable or indifferent, and friends seem to have forgotten us, all will soon be righted if we “go apart and rest awhile.” When the body has been rested, and fatigue no longer oppresses our senses, the spirit hears the knocking at the door, and we hear the voice of our Lord, and let him in and feast with him. “There remaineth therefore a rest to the people of God.” “Let us therefore fear, lest a promise being left us of entering into his rest, any of you should seem to come short of it.”—*Union Signal*.



**PHYSIOLOGY IN OUR COMMON SCHOOLS.**

BY CHARLES N. COOPER, M. D.

MANY of the recent State gatherings of our educators have been unusually full of interest and profit. Physical culture, normal schools, compulsory education, and other topics of importance, have received the attention they deserve; but so far as I can learn, nothing was done toward the introduction of physiology into our common schools. In those States that have placed this science on their list of studies, comparatively little attention is paid to it. Probably not one in ten of our public-school teachers has ever learned more than the alphabet, if even that, of this important branch of science. I have grave doubts as to whether this ratio of our academy and college professors, taken together, have very lucid ideas of how wonderfully they are made, or what are the functions of many of the organs of the body. The study of all the natural sciences is interesting to most minds, but to me there is none more pleasing than that of physiology.

A week spent in the study of the ear is not time lost, if it gives a clear conception of the beautiful apparatus through which the brain is able to perceive and distinguish sounds. However high or low the note, however soft or loud the tone, whatever the modulations of the voice, the normal healthy ear is always a trusty medium of communication to the brain. The position of the eye, its means of protection, its wonderful internal construction, so delicate, yet so perfect, and in every way adapted to the purpose for which it was designed,—all clearly indicate that One wiser than man planned it, and that a more cunning workman than man made it.

Throughout the body we see the highest degree of wisdom and skill manifested. There is perfect adaptation of every part to its functions. Notwithstanding all this, the majority of the people of our enlightened land in this advanced age are as ignorant of their own bodies as of the great Corliss engine which was at once the wonder and admiration of all beholders at our late Exposition. They knew it was supplied with water and fuel; that in the consumption of these, steam was generated; that power was conveyed in some way throughout that vast hall, which moved every connected piece of machinery as by life or magic. They

knew that as long as the engine was fed and worked properly, and all the connections were perfect, there was perfect action, but as soon as this central power ceased to impart its apparent life-force, every machine was silent and powerless. As to their bodies, they eat and drink, and know that in some way a certain life-fluid is generated; and that this is forced to all parts of the body, giving vitality and power of action. They know that as long as this life-force is generated, conveyed, and properly appropriated, there is life and health; but so soon as the heart ceases to throb, there is death-silence in all members. This is all they seem to know or care about it. Yet there is no invention of man, however beautiful and intricate in design, however perfect in construction or complete in action, that will bear comparison with the human body. To-day we admire a splendid machine which shows a wonderful breadth of mind and grasp of thought in its designer. We call it perfect. Within two years, or three at most, it will be so much improved as to require a new patent. He who fashioned the human body pronounced the work good, and during these thousands of years no improvement has been found necessary or possible.

The farmer who buys a new machine deems it necessary to understand all its workings,—how he must use it to get the greatest profit from it, and how he may best preserve it from wear, rust, and decay. He is careful to conform to all the rules laid down to accomplish these ends. All this time his body is suffering from neglect and ignorance. When he should be at the summit of life, he finds himself half-way down the western slope, or perhaps just entering the valley, or, what is worse, that he has outlived his usefulness. He looks back, now, with regret, and says, "If I had only known." Through ignorance of the laws of his being, he has lost years of mature judgment and hard-earned knowledge, in which he might have accomplished so much for himself, his family, and the world. What an army of women, who have scarce reached their score and ten, are to-day reaping a painful harvest of ignorance and indiscretion. Nature's laws may seem flexible for a time, and be triflingly set aside; but we may not break them with impunity. The penalty may be delayed, but if so it will come with added rigor. A broken-down human body is not easily renovated. You



may patch it with drugs and elixirs, or brace it with artificial stimulants; yet it is old, whatever the number of its years, and you cannot rejuvenate it.

I would not speak a word against anything now in the curriculum of the common schools, but plead that physiology may have its proper place there. Encourage the girls to cultivate their taste for music and art as thoroughly as they may wish or be able; but do not send them from the home roof, where a mother's experience, sad it may be, compensates a little for their ignorance, till they have learned some of the laws of their being, and the necessity of keeping them inviolate. There is no reason why our children must grow up and go out into the world utterly ignorant of the different organs of their bodies, and the work they are meant to perform. Any school-boy will tell you why the Mississippi River runs south instead of north; but few college seniors can say why the head may not long retain the dependent position as well as the feet. The average scholar may tell you how long it takes light to come from the sun to the earth; but his teacher is beyond the average if he knows how long it takes the blood to pass from his hand to his foot. The backwoods boy, ignorant of letters, will tell you at once whether the stick you pick up grew in a maple tree or in an ash; but the most advanced scholar in school will be puzzled to say whether the rib you show him is the bone of a sheep or a man, and his teacher will be quite as slow to inform you whether that vertebra belonged originally to a horse or a human being.

It is as much the aim of every true physician to prevent disease as to cure it. The prevailing influence of the masses with reference to physiological laws and the demands of the human system, greatly cripples his efforts in this direction. Many people reject the advice of an educated physician for the loud-sounding phrases of a brazen-faced but ignorant charlatan. Not long ago, one of these in the guise of an oculist wisely informed a patient that he was suffering from cataract of the *os calvis*. The merest tyro in physiology would have known that article to be located in the heel, and not in the eye; yet the best surgeon in the country could not convince the man that the oculist was a rogue. Physiology is second to none of the higher branches now taught in our common schools, and I am

persuaded that its careful study would greatly tend to lessen disease and consequent misery. Let me urge upon the educators of our land a careful consideration of this subject.—*The Teacher*.

#### NOTHING BUT LEAVES.

"NOTHING but leaves"—the words came low,  
In saddened tones so full of woe;  
My heart with anguish then was stirred,  
While to my ears there came a word—  
Tobacco.

"Nothing but leaves;" yet many a slave  
Has early filled the drunkard's grave,  
And sadly owned the tempter's power,  
And cursed the day and cursed the hour  
When first he used tobacco.

"Tobacco is a poison weed,  
It was the devil who sowed the seed;"  
To raise a crop of gin and rum,  
Dear friends, I think, most every one  
Commences with tobacco.

"Nothing but leaves;" yet something more  
When once we see the dreadful power  
It has upon the sons of men  
Who chew and smoke, and chew again,  
The filthy weed—tobacco.

A slave to just a few poor leaves,  
No matter whose dear heart it grieves—  
Whoever is a slave like this  
Can never find in endless bliss  
A place for his tobacco.

In heaven tobacco has no place,  
On earth it is a foe to grace;  
And the devil, who sowed the seed,  
Will say: "Come home, slaves of the weed,  
My harvest from tobacco." —*Sol.*

#### THE PHYSIOGNOMY OF CONSUMPTION.

THE idea that a certain type of face indicates a tendency to certain diseases is widely diffused not only in the medical profession, but among the public at large, as is shown by the frequent occurrence of such phrases as "consumptive-looking" and "apoplectic-looking." With a view to ascertaining how far these generally entertained ideas are true, and of substituting for mere personal impressions the test of exact and unprejudiced investigation, the authors of this paper have made a number of observations by the method of composite portraiture, already described by Mr. Galton in *Nature*.

The countenance which is supposed to indicate a tendency to phthisis, or consumption, is one of the best marked and most commonly recognized. The authors



have begun with this disease, and at present have limited themselves to it. A large number of portraits of phthisical patients were first taken, and were then grouped into composites, clinical facts being first taken as guides for grouping. Thus, cases of advanced disease were grouped first, but they gave no result beyond that of well-marked emaciation. Cases grouped according to the rapidity of their course also yielded no characteristic type; nor was anything very definite at first obtained from those in whom the hereditary taint was strong; but on further investigation this last group of hereditary cases was found to fall into two main divisions, not separated by any abrupt line of demarkation. In the first division the faces were broad, with coarse, blunted, and thickened features; while in the second the faces were thin, narrow, ovoid, with thin, softened, and narrow features. These two groups correspond to the two types well recognized by physicians as strumous and tubercular. On comparing the phthisical with non-phthisical cases, however, it was found that the percentage of narrow ovoids was almost exactly the same in phthisical and non-phthisical patients.

Although the authors do not say so, we may perhaps be justified in regarding these two types of face as possibly radical. Their results lend no countenance to the belief that any special type of face predominates among phthisical patients, nor to the generally entertained opinion that the narrow ovoid tubercular face is more common in phthisis than in other diseases. Whether it is more common than among the rest of the healthy population, they cannot at present say. In comparing composites, both of the broad faces and of the narrow ovoid faces in phthisical and non-phthisical patients, they found that in each case the phthisical patients presented a more delicate form of each type, with finer features, a lighter lower jaw, and an altogether narrower face. Although their conclusions seem to indicate that there is no foundation for the belief that persons possessing certain physical characteristics are especially liable to tubercular disease, yet it may hereafter be proved that some explanation of the doctrine may be found in the course of the disease when it attacks such persons.

Thus, the delicately-organized individuals called "tubercular," and characterized by their "narrow ovoid" faces, have been

compared with horses and cattle that have been what is called "overbred;" such animals are described as having too much nerve and too little bone and muscle; they have no "staying power," and readily give out. So these delicately formed individuals are less able to stand the strain of disease, and are more liable to its attacks than their more robustly built fellows. Again, if it be true, as is frequently asserted, that those having the features called "strumous" probably inherit a more or less diluted syphilitic taint, it is not surprising that they should be especially liable to inflammatory changes of a low type, and that disease in them should be readily amenable to treatment, especially by mercury, a result commonly seen in the so-called "strumous diseases of children, and often in those of adults."

This paper opens quite a new field of inquiry which is of great interest, and is likely to lead to important practical results.—*Nature*.

#### SIMPLICITY OF DIET.

ADVICE about eating or avoiding particular beverages or articles of food, is never of much account as a general rule, because experience shows that what is good for one may harm another. An observing person without a vitiated appetite, can be safely trusted in such matters; but there are rules relating to health and diet which can always be borne in mind, and one of them relates to simplicity. There can be no sort of doubt that a departure from this rule is the cause of a vast amount of sickness and misery. The stomach is sometimes called a "delicate organ," and yet it must be a little like old Weller's turkey, "pretty tough," to stand, through childhood and youth, up to full manhood often, more overloading with good and bad things and unnatural condiments than a horse or a mule can stand for half the time. What would be expected of a horse, if his appetite craved such stuff—and he got it, too—as is found on thousands of civilized tables? He would have more cramps and stomach-aches, toothaches and neuralgias, headaches and shortness of breath, weakness of lungs and heart palpitations, than a hundred other horses around him; and if he did not die at eight or ten years of age instead of thirty, it would be a marvel. But a human stomach, which cannot digest hay, or unground corn, or raw pota-



toes, or even succulent clover, is yet competent to take to itself hot tea, and coffee about as thick as glycerine or mucilage, bread, short-cake, meat of various kinds, eggs, butter, cheese, lard, milk, vegetables of about every sort, along with the everlasting pie or other pastry, puddings, cakes, and condiments that are sweet, sour, fiery, mild, laxative, and *humatic!* What a spectacle it would be to see them all mixed before eating! And the stomach is expected to be run on this plan day after day for seventy years at least; anything short of that is "a mysterious dispensation of an inscrutable Providence"!

Men are animals, differing from the brutes mainly in the mind given them, and the delicacy of those senses which, with some training, give us what we know as intellectual tastes. An animal has no such tastes. If his surroundings minister to his physical wants, the animal is content; the landscape is of no account to him. A horse, a cow, or an ox, with a wooden stall and manger, is just as happy as though it had the Roman emperor's stable of marble and manger of ivory. A horse's spirit is never depressed by a shabby harness, nor because his driver is not a liveried flunky. He is an animal all the while. A man has noble, intellectual tastes, and to gratify them when circumstances are favorable adds to his credit. But physically he still remains a good deal of an animal, and he cannot get so very far away from the animal standpoint without harm. When he eats, certain conventionalities are to be observed, known as "manners;" but as to the amount he eats and drinks, the animal rule can hardly be improved upon, which is to satisfy nature, with a healthy appetite as the judge as well as the "sauce." The animal does not overeat when it can obtain food at will, nor does it hanker after new and curiously prepared mixtures. I think cooking an improvement over raw food, but it is not easy to say that all the vagaries of civilization are improvements to the same extent. When the appetite is first jaded by over-indulgence and irregularities, and then is tempted by condiments to over-indulge again, until all simplicity is distasteful, and nothing "tastes good," the inscrutable dispensation of Providence is in order. Children born of such parents, and educated to the same tastes, may be of service to the doctors in accumulating fortunes; but honest doctors know very well that the

tables of longevity are not improved by dealing with such patients.

Nature has indicated very clearly what is the proper food for the infant, and observation and experiment have shown that very much the same food will answer admirably through quite a series of years. But how long after weaning is it, usually, before civilization comes in with its "recipes" that are to take the place of simple bread and milk, and pamper the child with sugar in some form, along with custards, jellies, cakes, pies, meat peppered and salted, besides tea, coffee, or chocolate, all strong, with perhaps cider, wine, or even whisky? The natural repugnance to such stuff is unheeded, because "the child must learn to eat;" and often these things are almost forced down, when simple milk would be taken with delight. And what more painful sight than to see half-grown children stuffing cake and pie until they can hardly hold any more, or their stomachs retain it! Then follow cramps by day or night, restlessness, nervousness, a want of appetite at times and a voracious appetite at other times, headaches, nausea, bad temper, a dislike of all plain food, and a ravenous desire "for something good." And when they grow up—if they live long enough for it—they are the ones who furnish recruits to the army of fast men and women. They grow up with unnatural appetites, and all sorts of sensual desires.

Mothers are most largely to blame for this sort of false education. Nor are these mothers to be found alone in the families of the rich and fashionable; they are in thousands of farm homes. Some of these mothers write to the papers in advocacy of prohibitory liquor laws, and tell sad stories of the horrors of drunkenness in husbands or sons,—sons reared under their own eyes and teachings,—and want the public to interfere, and put down all liquor-selling with a strong hand. That would be well; but would it not be well for these same mothers to review the influences—physical influences, I mean—under which the boys grow up, and see if unnatural drinks and unnatural food at home have not played a part in laying the foundation for the intemperate appetites of which they complain? Why should a tender child be taught to drink tea or coffee about as soon as it can walk, and to eat candy, cloves, cinnamon, pepper, pickles, and pastry without limit, when milk, bread, and pure water can be ob-



tained? These people complain that farmers' wives so often become insane from hard work and care, and the small opportunity for recreation which the narrow incomes of farm-life afford. It *does* take considerable income and a world of cooking and cleaning to gratify tastes which ought not to exist.—*Country Gentleman.*

Written for GOOD HEALTH.

### A QUESTION OF PURITY.

BY MATTE M'CASLIN.

PICKING up a newspaper the other day, I noticed a vignette consisting of a calf encircled with a wreath. The accompanying notice stated that the animal would be killed that day, and served to customers; and such words as "juicy steaks," "choice cuts," "tenderloins," "slaughter," etc., were made prominent. I wondered if seeing the calf's portrait decorated with flowers, contemplating the doomed victim, and studying his *expression*, was likely to sharpen the appetite for his carcass. But such is the fact, else the shrewd advertiser would never have inserted the illustrated notice.

It is possible to partake of flesh prepared by a painless death without associating it in any way with the living victim. A young lady who was extremely fond of animal food, especially the tender tidbit known as "veal," happened to pass a slaughter-house, and hear the bellowing of the murdered (I must use the word) animals. From that moment she could not contemplate flesh of any kind without extreme loathing.

It is a significant fact that butchers are not allowed on the jury in a case of murder on account of the imbruted state of mind which their calling engenders; and this fact shows that men recognize the principle that so far as the mind familiarizes itself with the slaughter of animals, it retrogrades from the path of purity; for it is only by slow degrees that the butcher reaches a condition of mind wherein his verdict would be detrimental to the cause of mercy and humanity. The first life taken is the first step; and there being no difference whatever between the death-agony of an animal and that of a human being, he comes to regard the life of the latter almost as indifferently as that of the former.

Viewed from this standpoint alone, the eating of meat becomes at once degrading to all the finer faculties.

### ANECDOTES ABOUT DIET PRESCRIPTIONS.

To show what gluttons people may unconsciously make of themselves, producing derangements in the system which they cannot account for, the following conversation between Abernethy and a gentleman farmer may be introduced: "Do you make a good breakfast?" inquired Mr. Abernethy. "Pretty good," answered the patient. "You lunch?" "Yes; I take luncheon." "Do you eat a hearty dinner?" "Pretty hearty." "You take tea, I suppose?" "Yes; I do." "And, to wind up all, you sup, I suppose?" "Yes; I always sup." "Why, then, you beast," said the surgeon, "go home and eat less, and there will be nothing the matter with you."

This eminent but eccentric physician was remarkable for the stress he laid upon overeating as a cause of disease; and was fond of addressing his patients in such words as these: "Your stomach being out of order, it is my duty to explain to you how to put it to rights again; and in my whimsical way I shall give you an illustration of my position; for I like to tell people something that they will remember. The *kitchen*, that is your stomach, being out of order, the *garret* (pointing to the head) cannot be right, and every *room* in the house becomes affected. Repair the injury in the *kitchen*, remedy the evil there, and all will be right in *parlor* and *chamber*; this you must do by *diet*. If you put improper food into your stomach, you play the deuce with it, and with the whole machine besides."

The Duke of York once consulted Abernethy, who treated him with the greatest indifference. The Duke, astonished at his conduct, said, "I suppose you know who I am?" "Suppose I do," said the surgeon; "what of that? If his Highness of York wishes to be well, let me tell him he must do as the illustrious Duke of Wellington often did in his campaigns,—*cut off the supplies*, and the enemy will quickly leave the citadel."

Strict as Abernethy was in regard to the diet of others, he was not very particular as to his own; hence, in common with other physicians at the present time, he was often asked why he did not practice what he preached. To such taunts he would reply by reminding the inquirer of the sign-post: it points the way, but does not follow its course; it is none the less useful for that.



The exact opposites of the gluttons are the hypochondriac men and nervous women, who almost starve themselves to death for fear of injuring themselves by eating improper food. To such persons, the advice of Sir Richard Jebb may be recommended. He says: "My directions will be few and simple. You must not eat the poker, shovel, or tongs, for they are hard of digestion; nor the bellows, because they are windy; but anything else you please."—*Kneeland.*

### TROPICAL FRUITS.

NATURE has provided a lavish supply of luscious and nourishing fruits for human food in all tropical climes, where the conditions of life are such as to reduce the cost of subsistence to a minimum in a variety of ways. Among the most useful of all tropical fruits are the banana and the plantain. According to a contemporary, "a pound of bananas contains more nutriment than three pounds of meat or many pounds of potatoes, while as a food it is in every sense of the word far superior to the best wheaten bread. Although it grows spontaneously throughout the tropics, when cultivated its yield is prodigious; for an acre of ground planted with bananas will return, according to Humboldt, as much food material as thirty-three acres of wheat or over one hundred acres of potatoes. The banana, then, is the bread of millions who could not subsist without it. In Brazil it is the principal food of the laboring classes, while it is no less prized in the island of Cuba. Indeed, in the latter country the sugar-planters grow orchards of it expressly for the consumption of their slaves. Every day each hand receives his ration of salt fish or dried beef, as the case may be, and four bananas and two plantains.

"The banana—it should be called plantain, for until lately there was no such word as banana—is divided into several varieties, all of which are used for food. The platino muzanito is a small, delicate fruit, neither longer nor stouter than a lady's fore-finger. It is the most delicious and prized of all the varieties of the plantain. El platino guieno, called by us the banana, is probably more in demand than any other kind. It is subdivided into different varieties, the principal of which are the yellow and purple bananas we see for sale in our market; but the latter variety

are so little esteemed by the natives of the tropics that they are seldom eaten by them. El platino grande—known to us as simply the plantain—is also subdivided into varieties, which are known by their savor and their size. The kind that reaches our market is almost ten inches long; yet on the Isthmus of Darien there are plantains that grow from eighteen to twenty-two inches. They are never eaten raw, but are either boiled or roasted, or are prepared as preserves."

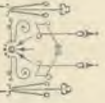
*The Novel-Reading Disease.*—Physicians are familiar with a complaint which, although sufficiently specific, has yet no name of its own. The patient suffers from an alarming and morbid thirst, and consumes a perfectly fabulous amount of fluid, almost always of an unwholesome nature. Tea, in a highly diluted shape, raspberry vinegar and water, soda-water, or some other such abominable mess, is taken by the gallon, and the unnatural craving is stimulated by indulgence. Wholesome food is refused; no exercise is taken; and the patient finally sinks into a flabby and sickly condition, which nothing but severe and determined treatment will shake off. This dropsical habit of body finds its exact analogue in the species of mental dropsy which is produced by over-indulgence in three-volumed novels. This terrible complaint is one of the worst evils which modern civilization has brought with it. Its progress is gradual, very insidious, and often almost imperceptible. At first all that is noticed is that the sufferer is apt to be found bent over a novel at unnatural hours. Soon, however, the disease becomes more pronounced, and in its worst stage novels are read through at the rate of three or four, or even five, a week, or, at an average, in a severe and chronic case, of some two hundred and fifty, or three hundred a year.

—Two things are essential, humanly speaking, to any man's success in life. He must have both ability and opportunity. Unless he has ability, all the opportunities in the world would be no help to him. The more trials he makes, the more failures he has. On the other hand, unless there comes an opening for his abilities,—an opening made for him, or an opening of his own making,—no man can show what there is in him.





# TEMPERANCE AND MISCELLANY,



Devoted to Temperance, Mental and Moral Culture, Social Science,  
Natural History, and other interesting Topics.

Conducted by MRS. E. E. KELLOGG, Superintendent of Hygiene of the National W. C. T. U.

## A PARODY.

BY RUTH C. THOMPSON.

O WATER! 'tis of thee,  
Drink of the noble free,  
Of thee we sing;  
Drink of the pilgrim's pride;  
From every mountain side  
Gushes thy flowing tide,  
Bright health to bring.

O water! pure and free!  
Our songs shall be of thee,  
Thy name we love;  
When thy refreshing rills  
Come sparkling from the hills,  
The heart with rapture thrills,  
Like that above.

Let music swell the breeze,  
And ring from all the trees  
Sweet Temperance' song;  
Let mortal tongues awake;  
Let all that breathe, partake;  
Let rocks their silence break,—  
The sound prolong.

Our fathers' God, to thee,  
Who sendest water free,  
To thee we sing:  
Long may our land be bright  
With Temperance' holy light;  
Save us from rum's dark blight,  
Great God, our King!

Written for GOOD HEALTH.

## QUENCHING THIRST SAFELY.

BY JULIA COLMAN.

FLUIDS in large proportion are essential to the normal working of the human system. The food must be dissolved; and the saliva, the gastric, pancreatic, and intestinal juices, almost as fluid as water, are freely poured out during this process. The blood carries it to its destination, and keeps the living particles in moist, working condition; and when they are used up and thrown out, the blood carries them away. Through the breath, urine, and perspiration, large quantities of fluid carry much of the waste matter out of the system. It is estimated that seven-eighths of the healthy human body are water. How to supply this water safely and in the

best manner, is a problem well worthy of our careful attention, when we consider what fearful mistakes the human family has made in this line.

Water is the most obvious source of supply, but even water requires to be used with discrimination. The running water of large sections of country is greatly impaired for drinking and cooking purposes by the large proportion of lime and other minerals held in solution. We have continual and frightful warnings of the ease and frequency with which water is contaminated in wells by sewerage and drainage of various sorts. Rain-water cannot easily be kept pure a long time in reservoirs. Filters are expensive, and not always available for hard water. Freezing does not always purify perfectly, and ice-water is not the safest of drinks nor the most wholesome. And when large quantities of drink are demanded by rapid perspiration, simple water, even of the best quality, is not found to answer the purpose satisfactorily, as even the most temperate hayers and harvesters practically acknowledge every year.

This may not sound much like temperance talk. It certainly does not *seem* to harmonize with all the laudations of water which gem our temperance literature and spangle our songs; but water *is* the fluid we need, after all, and the only question at present is to find the safest mode of taking it. We find in all this no reason for taking it mixed with one-tenth or one-twentieth of a deadly poison like alcohol, and colored and flavored with any quantity of dead and decaying matter, as those do who take it in wine, beer, cider, and the stronger alcoholic drinks. We do find water from springs and carefully isolated wells, even when collected and kept running as in city aqueducts and reservoirs, very safe and wholesome, only illustrating the fact that we need to take some pains to secure anything good and pure. Even fresh air and sunshine need to be provided for in our dwellings.



But this is not all the provision we can safely make in the line of drink. There are such delightful sources of supply in nature, so admirably fitted to cover the whole question,—natty little bottles and flasks of the most wholesome, satisfactory, and agreeable fluids,—that we wonder they are not sung and praised and talked about far more than they are. We refer, of course, to the juicy fruits which grow more or less abundantly in warm or cold climates, as they are more or less needed or cultivated. Many of those in cold climates are capable of preservation in their own envelopes for use during the unproductive season; while some of those in the tropics, like oranges and lemons, hang on the trees ready for use the whole year. It is no hyperbole to call these precious receptacles of the most delightful liquids, in their curiously devised skins, bottles and flasks; while some of the melons might be called little barrels, in which the charmingly flavored fluids are stored up in the most portable and inviting form to wait our convenience for days, weeks, and in some cases for months; and then to grace our tables with their bright colors and exquisite shapes, so that art, with all her bright array of glasses and decanters, has never been able to equal them.

And then how much more portable! Many sorts can be carried in the pocket or the reticule without danger of breaking; or if it is a question of going to market, they can be taken in bags, baskets, or barrels, or they can be piled into the open wagon; while the more delicate are easily preserved in cans without any previous expense for fermentation and *refining*! All this may be poetical enough, but it is also practical. It comes into our every-day life, and it could and should do so much more than it does. If fruits were used more freely, there would be far less thirst. They should be on the table, either cooked or in a natural state, at every meal. A free use of stewed fruits would enable us much more readily to dispense with tea, coffee, and other drinks with our meals; and the fruits are far more wholesome.

One of the greatest objections to drinking at meals is that it prevents the flow of saliva, but the use of fruits promotes it most freely. Fruits can be used without salt, and commonly they are so used (excepting in the case of tomatoes), a fact which is much in their favor. They make the best kind of a dessert, and should usually be made to take the place of pies

and puddings. Some prefer to take them at the commencement of a meal, especially taking an apple or an orange as the first item for breakfast. This is a most commendable practice, and an excellent promoter of the appetite. Those who find a light supper better than a hearty meal can often improve on it by taking only a banana or a baked apple or two; and if it is necessary to sit at the tea-table for social reasons, the conventional dish of fruit can furnish the dietetic substance of the sociability. When the stomach is properly toned up by such treatment, the old saying that "fruit is golden in the morning, silver at noon, and lead at night," loses all its meaning.

Fruit juices also make excellent and natural condiments. A great variety of fruits, especially stewed fruits, can be used with bread to the exclusion of butter. Pies and puddings can be flavored with lemon juice, and the juices of canned fruits, especially plums. Most delicious pudding sauces can be made from the juices of grapes, oranges, or strawberries, flavored with pine-apple, etc., etc. The taste soon becomes accustomed to these delicate and refined flavors, especially if the sharp condiments are discarded, and this removes a great exciting cause of thirst, and promotes health, to which all strong condiments are prejudicial.

Another most noteworthy point in which the free use of fruits is superior to much water-drinking is in the case of the traveler, with whom the water of any new locality is likely to disagree. This is one of the most common pleas for the use of wine and beer, especially in Great Britain and "on the continent." A free use of fruit will enable the traveler to dispense entirely with any kind of drink, and yet be abundantly supplied with the requisite fluids. People traveling through malarious regions, or even living in them, will find the use of fruits a great safeguard. Farmers, and other people who use much drink in hot weather, will find fruit juices, especially lemon juice, much better than vinegar and ginger to mix with the water they drink. (If these are not available, fine oatmeal—Schumacher's A—mixed in the proportion of a table-spoonful to a tumbler of water, is much more satisfying than the water alone, because it is food as well as drink.)

The safety of these methods is great, because the person who pursues them thoroughly has his thirst so fully satisfied



that he ordinarily does not wish to drink anything. Many people who have tried it faithfully say they do not drink anything for months together. Some of them even contend that man is not naturally a drinking animal; that in view of the great variety and abundance of juicy fruits, the ease with which they can be raised, and the fact that man's original employment was the cultivation of fruits, these afford the best, and under ordinary conditions the only, necessary means for quenching thirst. It is very possible that originally these formed the main supply of the necessary fluids of the human system; and that man, instead of eating the fruits, perverted the gift by expressing the juices, and drinking them, and in trying to preserve them in that shape for drink, first learned and practiced the vice of using fermented and other alcoholic drinks. Whether this be true or not, we certainly can learn wisdom by the things they and we have suffered in the line of using fermented fruit juices; and it will be a piece of practical wisdom on our part to avoid all unnecessary causes of thirst, and to take our fruit drinks in the original package, as put up by Dame Nature herself.

### HARRY BROWN'S LESSON.

BY MATTIE D. MERRIAM.

PRETTY little Mrs. Brown had been crying, a luxury she did not often indulge in; but, if the truth must be told, she was getting tired of married life. Not that she did not love her handsome young husband, and her two lovely children, but she began to realize that all men are not angels, and that Harry Brown, especially, could never hope to aspire to such a heavenly appellation. It was not that he was absolutely cruel, or did not love his sweet young wife, but it was the old story of "the little foxes that spoil the vines."

Harry Brown had been reared in the ways that too often make only sons imperious and exacting; and he was, in consequence, a little selfish without knowing it, and he had a habit of requiring of his wife a daily recital of all moneys spent by her, and "What did you do with that ten cents?" was such a frequent inquiry of his that, like a dependent or a beggar, she was obliged to sue for every cent she received from the masculine purse; and to her, who before mar-

riage had supported herself right royally, with never a lordly dictator to criticise her movements, and had given up sweet freedom to become house-keeper, mother, nurse, cook, dairymaid, laundress, mender of made apparel, etc., it was a deep thorn.

That her work had been well done, was apparent; for her sleek, happy husband, and the perfect bearing of the little lady and gentleman who called her mamma, loudly testified thereto. But her work had never been appreciated; and here she sat, deep in sorrowful reverie, and decidedly "blue."

Harry had told her only this morning—and it was not the first time by any means—that he thought she might get along with a little less money, and that if she went on at this rate she would surely ruin him. Just as though a woman could furnish a house and a table, and dress a family of four with decency, on twenty-five cents a week! It was cruel; and oh, how she wished she could only put him in her place for just a few weeks. She would show him how humiliating it is to a proud, sensitive woman to be thus treated. Her wish was to be granted sooner than she thought.

Harry Brown was only a clerk in a wholesale dry-goods store with \$1,500 per annum as salary; but with good management on the part of his wife, they had, in the five years of their married life, managed to pay for their handsome home, and financially all was well. But on the evening of the day upon which our story opens, Harry was brought home with a broken limb, caused by being thrown from a carriage in which he was riding with a friend.

Here was a dilemma! Husband, children, and home must be cared for, and how could it be done? But it was not a problem long, for the plucky little wife was equal to the emergency. If they must have bread, she knew how to earn it; and so before the week was ended a house-keeper was installed in her place, and Mrs. Brown stood behind the counter in her husband's stead. She once more tasted the sweets of independence, and now her woman's fertile brain set to work to take advantage of the opportunity for which she had so long sighed; and her plans were very soon made.

\* \* \* \* \*

"Say, Sadie, can't you give a fellow a little money? Johnson is coming with his carriage to take me riding this morn-



ing, and I want to make a few purchases while out."

Her bright eyes danced, but with an assumed stern accent she said, "What do you want to do with it?"

Mr. Brown, a little surprised, looked up and said, "Why do you ask?"

"Simply because I wish to know," she said.

"Well," said he, a little humbly, "I want to buy a cigar, for one thing."

"Very well," she answered, holding her well filled purse in her tiny hand, "here is ten cents; that will buy you a cigar, but you ought not to smoke so many cigars; it will ruin me."

He looked up quickly, with surprise and mortification depicted upon his countenance, but he saw only a demure little face as she handed him the money.

A few days afterward, Harry, with great reluctance, asked his wife for a little change.

"Where is that ten cents I gave you last week? I *should* think you might get along with a little less money; I declare, I cannot endure such extravagance," and she gave him no money.

His thoughts and feelings can better be imagined than described, as, after his wife had left him, he lay upon the sofa, helpless, a *dependent*, and very desponding. Before his brain, in ugly panorama, passed the long array of past evil conduct, accompanied by the relentless lashings of a stern conscience. Under their influence, Harry Brown resolved to make amends for the past,—for he was very far from being a bad man,—and never again to forget that women have hearts and souls, and that they possess the same sense of dignity and independence as do men; and also that, if the experience he had undergone during the last two months, shut up in the house, the care-taker of children, and the overseer and director of the thousand departments of domestic life, were samples of woman's work, he would never again, even in his inmost soul, think that a woman does not earn all she gets, and only too often much, much more. Far sooner would he choose the position of breadwinner as the least laborious and far less arduous task.

A subdued, thoughtful man knelt at confessional that night, at that purest of all altars, a true woman's heart, and sought forgiveness; and never was wife happier than was sweet little Mrs. Brown

when she found how well her little plan had worked. After that Harry Brown had all the luxuries he wanted without begging for them, and when his wife resumed her old place in her home, she enjoyed free access to the family purse.

### THE JUG OF WHISKY.

[Not very long ago in London a sale of newspapers nearly a century old was made to a grocer, who began to use them for wrapping his goods. An antiquarian happened in upon him at a timely moment, and rescued some of them from this wanton destruction. Among other things of value he found the poem given below in the issue of the *London Star* for June 12, 1792. It shows that the real contents of the whisky jug were known even before the days of the total-abstinence reform.—*Ed. Signal.*]

Within these earthen walls confin'd  
The ruin lurks of human kind;  
More mischiefs here united dwell,  
And more diseases haunt this cell,  
Than ever plagued the Egyptian flocks,  
Or ever cursed Pandora's box.

Within these prison walls repose  
The seeds of many a bloody nose,  
The chattering tongue, the horrid oath,  
The fist for fighting nothing loath,  
The nose with diamonds glowing red,  
The bloated eye, the broken head.

Forever fasten'd be this door—  
Confin'd within, a thousand more  
Destructive fiends of hateful shape  
Even now are planning an escape.

Here only by a cork controlled,  
And slender walls of earthen mold,  
In all their pomp of death, reside  
Revenge, that ne'er was satisfied;  
The tree that bears the deadly fruit  
Of maiming, murder, and dispute;  
Assault, that innocence assails;  
The images of gloomy jails;  
The *giddy thought* on mischief bent;  
The *evening hour*, in folly spent—  
All these within this jug appear,  
And—Jack, the hangman, in the rear!

Thrice happy he, who, early taught  
By NATURE, ne'er this poison sought;  
He with the purling stream content,  
The beverage quaffs that NATURE meant;  
In Reason's scale his actions weighed,  
His spirits want no foreign aid—  
Long life is his, in vigor passed,  
Existence welcome to the last—  
A spring that never yet grew stale;  
Such virtue lies in ADAM'S Ale!

—It is indisputable that the successful man is the satisfied and contented one.



### THE BROKEN BOTTLE.

"Come on, boys; let us go in and take a parting drink."

The speaker was William Scott, a hard-working mechanic, who, with three of his shopmates, was on his way home at the close of the week's labors. All of them had taken several drinks, and were beginning to show the effects of it, especially Scott, who staggered slightly as he walked.

The four went in and stood before the bar of the saloon, which was but a short distance from Scott's home, and had for years been patronized by him. Drunken men seldom drink and leave a saloon when there are two or more together, and on this occasion Scott and his friends stood at the bar and conversed, as one after the other treated in turn.

Suddenly their conversation was interrupted by Scott accidentally dropping the bottle, from which he was about to pour a dram, from his unsteady grasp.

"Halloo!" said he, "that was an accident."

"Accident or not, you'll pay for that liquor and bottle," retorted the saloon-keeper, whose attention had been directed to Scott by the crash.

"You don't mean that, Lawrence," said Scott; "it was an accident."

"That's all right," replied the saloon-keeper, "but the price of that bottle and liquor will take the profit off many a drink; I can't afford to lose it, and you'll have to pay it."

"But," pleaded the mechanic, "I've but a dollar of my wages left, and I must take it home."

The saloon-keeper, however, was inexorable, and Scott handed over the dollar note which was to have given his wife and little ones a Sunday dinner.

When he got his change, he turned to the saloon-keeper and said,—

"I didn't think you would do that, Lawrence, after I've been spending a good part of my wages here for the past ten years."

"Well, if you have, I guess you got the equivalent of every cent you spent," gruffly responded Lawrence.

"Did I?" said Scott, quietly, and picking up the pieces he started from the saloon.

There was something in his manner that Lawrence did not like, and taking the amount he had received from the me-

chanic from the drawer, he threw it noisily on the counter and called to Scott to come back; but the latter had reached the door, and went on out.

He proceeded directly to his home, and meeting his wife, he placed the pieces of broken bottle in her hand, saying,—

"There, Betty, I paid several hundred dollars for that, and I think you'll consider it cheap before we get through."

Mrs. Scott did not for a moment understand him; but looking at the pieces of the bottle and inhaling the fumes of the liquor, she intuitively grasped his meaning, and with a glad feeling in her heart, she said,—

"What do you mean, William?"

"I mean," said Scott, "that for ten years that bottle has been swallowing my earnings; but now I've bought it, and I am going to see if the broken bottle is not better than the whole bottle."

Scott kept his promise. He never drank again, and in after years, when he had a comfortable little home and a profitable business of his own, he always told his friends that it all came through "the broken bottle."—*Baltimore Presbyterian.*

### ORIGIN OF THE WORD TEETOTAL.

THE origin of the word *teetotal*, and of the total-abstinence movement in England, is given in the following paragraph which we quote from a little tract by Wm. Livesey, published by the National Temperance League of London:—

"The movement first originated in America in 1826, was brought from there to Scotland in 1829, and thence to Bradford in England, from which place it spread over the kingdom in 1829-32. This day's great gathering is to commemorate the commencement of the advocacy of the only sound temperance principles,—those of total abstinence from all kinds of liquor that contain an intoxicating property, regardless of their mode of manufacture, or their name, color, flavor, or strength. And the first national effort put forth for the advocacy of these principles undoubtedly began at Preston, and from thence, by means of Preston men, spread throughout the kingdom. But we are better known by the briefer term of teetotalers than total abstainers. The word *teetotal* is now familiar not only to us, but throughout the world. And while we now find it in every dictionary and encyclopedia, fifty years ago it was not to be found in any



of them. At the time it was first uttered by Dickey Turner (for that was his familiar name), it had never been heard in Preston. Turner was quite an unlettered man, but most earnest and often impetuous in the speeches he delivered, and it was his impetuosity of speech that caused him to coin on the instant the word *teetotal*. He seemed to be filled with the feeling that abstinence from all intoxicating liquors was so immeasurably superior to the abstinence only from those of the most fiery character, that he wanted to speak of his abstinence in the superlative degree. He had evidently the word total upon his lips, but felt that it was too poor to express his burning thought, and hence he added a prefix, and out rushed the word *teetotal*, at the utterance of which the crowded audience loudly cheered. Mr. Livesey, placing his hands upon Turner's shoulder, exclaimed, 'That shall be the name, Dickey!' And that is how we total abstainers came to be called teetotalers."

#### A DOCTOR'S OPINION OF ALCOHOL.

ALCOHOL is like fire,—a good servant but a bad master; and it becomes us, as the conservators of the public health, to be on our guard, lest, through our incautious prescription, it should gain the mastery of any of our patients. The fact that many practitioners have ceased to administer alcohol in their practice without any diminution in their success, ought to be sufficient evidence that its wholesale administration must be very prejudicial. Alcohol is only one of the many drugs which we have at our disposal, and those of us who feel compelled to be careful in our prescription of it need not feel ourselves embarrassed for an efficient substitute in very many instances.—*Dr. J. M. Horne.*

*The Rum "Business."*—"This business removed to next door," is the placard fastened on the front of an old grogshop in New York. The word *business*, somehow, sets forth the office and work of the liquor-dealer in a very instructive light. The business which has removed from the old stand to the new, is the business of lightening men's pockets and adding to their burden of care; of stealing away their brains at the price of a wife's shawl or a child's shoes; of helping them to become worse citizens, and no Christians at all; of turning people from

church doors toward police courts and barred windows. As one thinks of the "business" that will go on without change, in the new and more pretentious quarters of that "merchant" and "importer," the mind instinctively recalls the brimstone labels that suddenly flashed forth from the barrel-heads in Deacon Giles's distillery. We do not wonder that liquor-dealers ransack the dictionaries for euphemistic titles, to be applied to their establishments. Plain English has an unfortunate habit of telling the truth; and therefore it happens that not all rum-shops bear, even unintentionally, such veracious placards as that which we have quoted.—*S. S. Times.*

*Take Comfort.*—It is well enough to provide for a rainy day, but that man is very foolish who saves his umbrella for a future storm while he is allowing himself to be drenched with rain. We do not take pleasure and enjoy contentment as we should do. We live too much in the future and too little in the present. We live poor that we may die rich. We get all ready to be happy; and when we are quite ready, infirmity or disease steps in, and the chance to take comfort in this life is gone. If we could only be content to seize upon the little pleasures that lie just outside, and often within, our daily pathway, they would make a large sum total at the end of our lives. Too many of us often scorn pleasures that are cheap and near and within our grasp, and complain because we cannot have such as are costly and remote. But if we would only magnify the little things that make life pleasant as we do those that make it unpleasant, the cup of our joys would continually overflow. Be content to take life as it comes, and always make the best of the present, and let future sorrows be future, and let them not intrude upon the present by unnecessary apprehensions and forebodings.—*Collegian.*

—It is claimed that the Chinese' use of opium is more than the American's use of tobacco; but there are two sides to that question. When a Chinaman uses his opium, he goes into a "den," and stays there until he has had his smoke out. No one but himself is contaminated by it. But the American is puffing his tobacco in everybody's face. He is not willing to be confined to a tobacco den.—*S. S. Times.*



## POPULAR SCIENCE.

—A church has been built in Bavaria of papier-maché. It is capable of accommodating one thousand persons, and in appearance represents the finest marble.

—The city of Honolulu, Sandwich Islands, contains several hundred telephones, and the planters are cutting their cane at night with the assistance of electric lights.

—A benefactor of the race has appeared in the form of a Californian who has invented a method whereby stove-pipe is easily adjusted, being connected by screw joints.

—A relic of the time when watches were placed in finger rings, remains in a Swiss museum. It is a miniature watch three-sixteenths of an inch in diameter, inserted in the top of a pencil.

—A king-oak in Windsor forest is one thousand years old, but the city of Amarapoora, Burmah, claims the oldest tree in the world, said to have been planted 288 B. C. After the leaves have fallen they are taken by pilgrims as relics, but the tree is too sacred to be touched by a knife.

—Dr. Salviatti of Venice, who resuscitated the lost art of stained glass and glass mosaic, and several years since presented to the United States a portrait of Lincoln in mosaic, is soon to make a companion present in the form of a portrait of Garfield in the same style of workmanship.

—It has been discovered that an article resembling celluloid can be produced from potatoes by removing the skin and soaking them in water impregnated with sulphuric acid, then drying and pressing between sheets of paper. When the pressure is sufficient, it is said to rival ivory in hardness.

—Bessemer steel is to have a rival. A Western railroad will soon make a trial of paper rails. The pulp from which these are manufactured is subjected to a pressure that renders the rails more solid and durable than those made from steel, while they have the advantage of the latter in being unaffected by atmospheric changes.

—The process of preserving fruits and other perishable foods by hermetically sealing immediately after submitting the articles to a boiling temperature, or submitting the substances to be preserved to the same degree of heat after sealing, was discovered by M. Appeart, a French scientist, seventy-three years ago, for which he received a reward from Napoleon.

—A celebrated physician has proposed an improvement upon cremation, which is to possess all the advantages of the latter without its objec-

tionable features. The body is to be placed in an opaque glass coffin, the air removed, and replaced by carbonic acid gas, or other antiseptic, and the coffin hermetically sealed. In this way the body is kept in as good preservation as if embalmed.

**Soldering without an Iron.**—The parts to be joined must first be fitted accurately, and made bright by means of a file; then moisten the surfaces with soldering fluid, and place the ends together with a piece of tin-foil between. Press the pieces firmly together, and wire tightly. Now heat over a fire or lamp till the tin-foil melts. When cool, the pieces will be found firmly united, and the joints scarcely perceptible.

**English Heads Diminishing in Size.**—Some scientific gentlemen in London have been investigating the size of the heads of their contemporaries compared with the heads of the last generation. A Mr. Tuckett insists that heads have diminished in the last twenty-five years fully three-eighths of an inch in average circumference. He bases his assertion upon that of the London hat-makers, who claim that the average size of hats has decreased one size in the last generation.

It is claimed, in reply, that the cause of the lessened average size of hats is that the wearing of stiff hats at the present time is most popular among small headed men.

Mr. Tuckett gives the sizes of hats worn by a number of prominent people, as follows:—

“Lord Chelmsford wears a  $6\frac{3}{4}$  hat only; the late Dean Stanley,  $6\frac{3}{4}$ ; Lord Beaconsfield, 7; the Prince of Wales, 7; Charles Dickens,  $7\frac{1}{8}$ ; Lord Selbourne,  $7\frac{1}{8}$ ; John Bright,  $7\frac{1}{8}$ ; Lord Russell,  $7\frac{1}{4}$ ; Macaulay, the historian,  $7\frac{1}{8}$ ; Mr. Gladstone,  $7\frac{3}{8}$ ; Thackeray,  $7\frac{3}{8}$ ; Louis Philippe,  $7\frac{3}{8}$ ; M. Julien, the celebrated musical conductor,  $7\frac{3}{4}$ ; and the Archbishop of York, 8. The prelate must possess a head of nearly 24 inches in circumference, while that of Dickens was average, that of Thackeray beyond the average, and the pumpkin-head of Louis Philippe was very large.”

**Cutting Glass by Electricity.**—Mr. Fahdt, of Dresden, uses metal wires which have been made red hot by electricity for cutting glass. The apparatus consists of two screws, which are fastened on a plate at a distance from each other varying with the size of the object which is to be cut. The screws are in communication with the poles of a battery, and carry at their tops a metallic wire, which is placed around the object which is to be cut. The glass is carried by supports. When the circuit is closed, the wire becomes red hot, and the places where the wire touches the glass (the glass can be turned around by the hand) become heated, so that by sudden cooling, or the contact with a humid body, a severance of the glass takes place. In order to remove the inequalities on the sections which have been obtained, the glass pieces are placed on an apparatus in which the section is exposed to the flame of a chalumeau, the glass piece being made to revolve, in order that all parts may be touched by the flame. The glass is then taken to a heating furnace, in order to prevent the heated parts becoming broken by too quick cooling. The glass is then removed to a room where it is left to cool.—*Sel.*



**Ancient Mortar.**—In examining the other day the remains of Old Sarum, an old Roman fortress in the south of England, near Salisbury, we were surprised at the remarkable strength of the mortar by which the flints and sandstones were held together. We find the mystery explained in the following paragraphs from an authority on the subject:—

“The ancient masons were so very scrupulous in the process of mixing their mortar that it is said the Greeks kept ten men constantly employed for a long space of time to each basin; this rendered their mortar of such prodigious hardness, that, Vetruius tells us, the pieces of plaster falling off from old walls served to make tables.

“It was a maxim among the old masons to their laborers that they should dilute the mortar with the sweat of their brows; that is, labor a long time, instead of drowning it with water to have it done the sooner.

“The weakness of modern mortar, compared to the ancient, is a common subject of regret; and many ingenious men take it for granted that the process used by the Roman architects in preparing their mortar is one of those arts which are now lost, and have employed themselves in making experiments for its recovery.

“But the characteristic of all modern artists, builders among the rest, seems to be to spare their time and labor as much as possible, and to increase the quantity of the article they produce without much regard to goodness; and perhaps there is no manufacture in which it is so remarkably exemplified as in the preparation of common mortar.”

**A Petroleum Hill.**—One of the companies formed for the purpose of developing the petroleum fields in Russia is actively prosecuting its work in the McKean district. The clay soil of this region is saturated with oil. “The natives bore with a pod auger thirty or forty feet, and bail out about one-half barrel of oil a day, which is worth in the city of Kertch about \$5.00.

“One of the curiosities of this country is a hill of petroleum, which the company proposes shipping to Paris. This company is very wealthy, having a capital of \$3,000,000. It has \$38,000 invested in oil-well supplies in the city of Kertch alone. It has seven ships on the Black Sea, and expects that there will be one thousand shiploads of the petroleum hill. This hill is composed of a mixture of clay and oil. Hills of this character are formed by boiling springs, which abound all over this part of the country. These springs boil up out of the level ground, and form a kind of hill. The water runs away, leaving an argillaceous mound, and when the spring becomes extinct, the hill of petroleum remains. The company proposes reducing the material, at Paris, to an article of commerce. It claims that it can manufacture a good article of illuminating oil from this raw material; also asphaltum.

“The occupation of the people around Kertch is stock-raising, and they live in villages. The hair of the natives turns gray at the age of thirty, and becomes perfectly white. Everybody's teeth are sound, and dentists are unknown. There are no trees in this country except those planted out, but vegetation is very luxuriant. As an oil field, it therefore contrasts strongly with Pennsylvania.”

## RESEMBLANCE OF PLANTS TO ANIMALS.

A CONTEMPORARY has compiled the following interesting facts respecting the curious resemblances which have been traced between some species of plants and the animal kingdom:—

Animals feel; so do plants. Animals sleep; so do plants. Animals eat and drink. Plants eat and drink, too, and some are exceedingly fond of animal food. The “sun-dew,” a little plant that grows in low, marshy land, has small, round leaves with a hairy fringe. At the end of each hair is a drop, apparently of water, but really of extremely sticky secretion. An insect comes along and alights on the leaf. If but one of his toes touches the shining drop, his doom is sealed. He becomes the sun-dew's dinner.

In marshy places in North Carolina grows the Venus's Fly-trap. Every leaf has a row of spikes so arranged that when the lobes of the leaf are closed, the spikes interlock so that nothing can pass them. If a fly alights on the leaf, he gets a pressing invitation to dinner, which he is always compelled to accept. The strangest thing about the plant is that its leaves will not close upon a piece of wood, or a button, or anything else that is not food.

Nepenthes, or pitcher-plants, of India, also catch and digest insects. The leaves are shaped like pitchers. The rim of each pitcher is smeared with something which looks like honey, and which continues some distance into the pitcher. Then the surface becomes as smooth as the smoothest glass. The insect slides down this inclined plane to the bottom of the pitcher, and plunges into an acid which kills it. These pitchers are in reality stomachs, and they digest a fly or a bit of beef or mutton exactly as a human stomach digests its food.

There grows in stagnant water a plant having minute translucent bladders attached to its leaves. Each of these bladders is full of water, and has a little trap-door which can be opened only from the outside. If the larvæ, which are so abundant in stagnant water, touch the trap-door, it opens hospitably and lets them in. As soon as they get in, it shuts with a bang. They are prisoners for life. Fortunately, life in that cell does not last long.

It is said that animals have instinct, at least, if not reason, and vegetables have not. Do not be too sure of that. Mr. Darwin saw the tendril of a climbing plant voluntarily withdraw from a hole in a wall after it had chosen it, and remained fixed in it for thirty-six hours; and it is a fact that the tentacles and leaf of the sun-dew will move a little distance upward after a fly—and catch him, too!

Perhaps some wise person will ask if animals can be propagated by slips, as plants can, and smile while he asks. Certainly; that's the easiest thing in the world. The common hydra, abounding in ponds, can be cut into twenty pieces, and each piece will become a perfect hydra. If the body be cut in two lengthwise, the parts will grow together again; and if the two parts be kept separate, each will become a hydra. The same is true of jelly-fishes.

Prof. Huxley says: “The difference between an animal and a plant is one of degree rather than of kind, and the problem whether, in a given case, an organism is an animal or a plant may be essentially insoluble.” So, to be on the safe side, I shall call such things as the sun-dew, Venus's fly-trap, etc., vegetable animals.



# GOOD HEALTH.

BATTLE CREEK, MICH., JUNE, 1883,

J. H. KELLOGG, M. D., EDITOR.

TERMS, \$1.00 A YEAR.

## HYGIENE IN LONDON.

ONE cannot long remain in London without becoming acquainted with the fact that very great attention is given to public hygiene, or sanitation. Probably no other country in the world has so excellent a code of sanitary laws, and so effective machinery for securing their enforcement, as England. The almost universal cleanliness of the streets of London is certainly remarkable. With such an immense amount of traffic as is carried on through its rather narrow streets, making them alive with horses, mules, and donkeys, it would be anticipated that by night the thoroughfares would be anything but clean, no matter how perfect may have been the cleansing of the night preceding. Most of the filth disappears from the streets as rapidly as it is deposited, through the agency of small boys, who, with scoop and brush, dodge furtively about among the passing vehicles, half of the time apparently under the wheels of the carts or the heels of the horses, so that there is little accumulation of filth. This, we believe, is a custom peculiar to London, although several other cities which we have visited, for example, Paris and Rome, sweep the streets during the day.

We shall find many other things to commend, as well as some to condemn, in a cursory review of matters of interest in London from a hygienist's point of view.

One of the first things of a disagreeable nature which forces itself upon the hygienic traveler, is the difficulty of obtaining such food as he desires. Indeed, within twenty-four hours after getting on board the steamer at New York, he makes the discovery that respecting diet he must either submit as gracefully as possible to an order of things to which he is quite unaccustomed, or contrive some stratagem by which to escape from that which is seemingly inevitable, since the ocean steamers follow the English customs in dietary and table service. Not being prepared to make a graceful surrender of dietetic habits based upon principle, and faithfully followed for years, we set our wits at work to discover some means of escaping from our unpleasant dilemma. Seeing no other resource, we decided for once to waive our opposition to the feeling system, and to hold a private conference with the chief cook, whose good offices were readily secured by the tender of a few shillings,

so that we were liberally supplied during the entire voyage with oatmeal porridge, rice, milk, and such vegetables as the ship's store afforded, and thus were delivered from the necessity of depending upon such unwholesome viands as Irish stew, boiled ham, pickled tripe, kidney soup, and plum-pudding. We felt a real sympathy for our fellow-passengers, as we saw them preparing the way for a tempest within at the slightest suggestion of a tempest without, by swallowing the indigestible compounds spread before them; but the commiserating and sometimes contemptuous glances which our frugal fare elicited, gave us reason to doubt whether our sympathy was appreciated, even when we beheld for the first time, with mingled feelings of pity and horror, the consumption by our unhygienic fellow-passengers of a plum-pudding which a moment before had been enveloped in a blue flame from the ignition of a quantity of alcohol which had been poured upon it.

We were able to get along better at the hotels, after arriving in London, as at most of them, as well as in all continental European cities, meals can be obtained *a la carte*. The cooking at first-class hotels in England is excellent, not the least of the good qualities to be mentioned being the sparing use of salt. Grains, according to our observation, are usually cooked without salt, and vegetables are salted very slightly,—a quality which we were prepared to appreciate at its full value after having been compelled, while on shipboard, to swallow more salt than we had eaten before in several years together.

The American finds in England many dishes to which he is quite a stranger, most of them with French names, indicating their origin; for fashions in cookery as well as in dress emanate from Paris; and many of the most common American dishes are equally strange to English palates. We were forcibly impressed with the latter fact by an episode which afforded us not a little amusement. We one day ordered baked beans for dinner; and we were prepared to enjoy with a relish the nutrient *legume* which has contributed so largely to the fame of Boston, when the waiter-girl made her appearance with a covered dish containing the coveted esculent. Imagine our surprise, when, upon removing the cover, we beheld our beans roasted to a nice brown, each as hard as a bullet, having been placed in the oven raw, and heated like raw coffee-berries preparatory to grinding,



We then understood the puzzled expression of our honest waiter, who was evidently at a loss to understand our mode of eating bean bullets.

The English proclivity for flesh-eating is clearly indicated by the hotel bills of fare. Animal food of almost every description, cooked in every conceivable style, makes up the greater portion of the list; while the few vegetable dishes are quite inconspicuous, and are served in a very simple manner. Meat seems to be the chief food of the wealthier classes, although the markets afford an excellent variety of wholesome, nutritious, and palatable vegetable foods, many of which are not seen in America, or at any rate are not in common use. Among these are sea-kale, and two very different varieties of artichoke, one being an edible root, the other a curious sort of fruit.

Good apples are almost unobtainable. We purchased a few at fourpence a pound (eight cents in American currency), which at home would be counted hardly fit for making cider, and would by most farmers be left to rot upon the ground or fed to the hogs. Indeed, we have not seen a single good apple since leaving America, with the exception of the few we brought with us.

A commendable feature of English dietetics is the very extensive use of graham and whole-wheat bread, which is undoubtedly in a great measure the result of the persistent efforts of the vegetarians and of the Food Reform Society. The bread is of good quality, also, which cannot always be said of American bread, a fact probably attributable to the want in America of that close official supervision of food supplies which has long been customary in England. By a careful system of inspection, adulteration has come to be comparatively rare in that country. Occasional instances are brought to light; but the knowledge on the part of those engaged in this nefarious business that any purchaser may obtain from the public analyst an analysis of suspected articles without expense to himself, has a powerful restraining influence upon this class of criminals, who in America, for the want of an equally efficient provision for the protection of the public health, carry on their nefarious business in an open manner and on the most gigantic scale.

The greatest danger to health in London through food supplies is in the use of diseased meat. Many thousands of pounds are annually condemned in the markets, and yet it can hardly be supposed that more than a small proportion is detected.

The rapid advance made in temperance work in England during recent years, is a source of great satisfaction, not only to reformers in England, but to those in America as well. Never have we attended such enthusiastic temperance meetings as in London; and never have we seen elsewhere so general and deep an interest in the scientific branches of the question. This fact is undoubtedly due to the personal influence of such men as Drs. Richardson, Norman Kerr, Edmunds, and other medical men whom we might mention. The experiments of Dr. Richardson, establishing upon a scientific basis the opposition

of the temperance people to alcoholic drinks, are known to temperance workers in all lands. Dr. Norman Kerr has established most important statistical facts which show the actual fatality arising from the use of alcohol to be an enormous total annually. Dr. Edmunds, in spite of many obstacles and in the face of much opposition, possibly hampered somewhat by personal prejudices, has succeeded in demonstrating to the world the important fact that a hospital can be conducted as successfully and in every way as satisfactorily, without the use of alcohol as with it, and that, too, when many of the patients have, previous to admittance, been habitual users of alcoholic beverages in one form or another.

There appears to be a much more general interest in sanitary matters in England than in America. The common people seem to know more of the possible dangers from such things as sewer-gas, drains, cess-pools, etc., than in America. We observed that advertisements of premises for sale or rent usually contained a statement of the sanitary condition. We think it but fair to attribute this unusual intelligence on a subject usually left to sanitary experts and boards of health, in considerable part at least, to the persevering and ably-conducted efforts of the Ladies' Sanitary Association, the secretary of which, Miss Rose Adams, we had the pleasure of meeting. For more than twenty years this society has been at work through tracts, lectures, and in almost every way imaginable, enlightening the people on all subjects relating to domestic sanitation. The good they have accomplished is incalculable, and their influence will be felt more and more.

We were surprised to find nearly all the hospitals and public buildings which we visited defective in the important particular of efficient ventilation. The hospital for consumptives at Brompton, and the Houses of Parliament, are the only exceptions we can make. Of these, the latter structure only, better known in England as the Palace of Westminster, is ventilated in a really scientific manner. This building is, in our opinion, as nearly perfect in respect to its air-supply as a structure of its size, situated in a large city, can be. The fresh air is admitted through the floor, which is composed of perforated iron, having previously acquired the proper temperature by passing over steam pipes in the basement. Before passing to the heating-pipes, the air is filtered through cloth screens to remove dust and other suspended matters, and in cold weather receives an extra supply of moisture, just as it passes over the heating surfaces, by means of long evaporating troughs. In this manner the air is cooled by passing over ice, the circulation being maintained by means of immense air-pumps.

The foul air from this mammoth building, some rooms of which are often densely packed, is removed by means of immense ventilating shafts, at the ends of the long building, one in each of the two towers. In each shaft an open fire is kept constantly burning, securing a very strong and continuous upward cur-



rent at all seasons of the year. The ducts communicating with the ventilating shafts are connected with the base of the rooms ventilated, thus securing the prompt removal of the most impure air, and a complete change of the air.

It occurred to us while looking over this admirably ventilated building that it would be a capital thing for the architects of some of our public buildings at home to make a visit to Westminster to study ventilation for a week or two before again undertaking the responsible task of regulating the air-supply of five hundred or a thousand persons in a State prison, a reformatory, or an insane asylum.

We have stated that most of the hospitals were poorly ventilated. We do not mean to say that we found the air foul in all of them, although it was decidedly tainted in several which we visited frequently, but the system of ventilation was such that in severe cold weather, when the doors and windows must be closed tightly, the air would necessarily become very impure.

A general air of neatness was universally present in the London hospitals. The nurses, with their plain, neat dresses and white caps, appeared to be very intelligent, and no friends to dirt. We must remark, however, that we saw some very dirty patients, several of whom had been in the hospital over two months, and could not have had a bath during that time, and perhaps not for a generation before. Bathing is much practiced among the upper classes in England, and also among the middle classes, many being accustomed to take a cold sponge-bath every day immediately upon rising; but the lower classes are by no means on so intimate terms with the bath. In this respect London is probably no worse than other cities, and the city authorities have done their duty in providing excellent public baths, where a warm bath can be obtained at any season for twopence. We were not a little surprised to find the bath so little used in the hospitals, and trust that some prominent medical gentleman connected with some one of the great hospitals will ere long make the discovery that water is a sovereign remedy for many maladies, if well applied externally and internally.

One would naturally expect to find a very high death-rate in a city like London, with its more than 4,000,000 inhabitants, in some places huddled together like sheep; with the atmosphere densely charged with the smoke of a million chimneys, the noxious vapors from ten thousand manufactories, the poison-laden breath of a nation of human beings and half a million animals, and an almost perpetual fog; with a climate so cold and damp that one may say with perfect truth that he is never warm in England; but although nearly double that of a healthy country town, the death-rate is not nearly so high as that of many smaller cities. Even some of our American cities, half a hundred of which would be required to make a city equal in size to London, are unable to present so favorable a mortuary report. This is a

problem which we have not yet fully solved. Perhaps we may give a little credit to the insurance companies, which are particularly numerous, offering insurance for both man and beast, and even for some inanimate objects, as plate glass. Business men are very sagacious in discovering ways and means for advancing their interests, and have learned that one of the best means of increasing their dividends in the life-insurance business is to encourage the education of the people respecting the care of their health. We believe some of our American societies are making efforts in the same direction.

The superior robustness of English ladies has long been a subject of remark, and from our observation we think that American ladies may well envy their cousins across the water. The excessive consumption of animal food, the unfavorable climate, and the unhealthful frequency of meals,—the majority among the upper classes eating four meals a day, and many five,—especially the late suppers, would certainly soon suffice to destroy the digestion and quite undermine the nervous system of an American woman of average good health; but an English lady at forty or fifty looks as fresh, and when not excessively stout, seems to be as active, as an American woman at twenty or twenty-five. Women in England do not seem to grow old so fast as in America. An American maiden of sixteen looks as old as an English lady of twenty or twenty-two. We know of nothing to which to attribute the superiority of English ladies in point of health, unless it be their devotion to the morning bath, and the universal habit of out-of-door exercise. We believe the daily cold bath is habitually employed by a great majority of English ladies of the middle classes. Every house contains a bath-room, with tub and water-supply convenient for use. Most English ladies, except among the poorer classes, are habitual walkers, and good walkers, too. The English woman does not boast of so *petit* a foot as her American rival; but as a pedestrian she demonstrates the utility of a large, well-developed foot and strong limbs. The numerous parks in London afford ample opportunity for walking and horseback-riding. This latter is a very common mode of recreation with ladies able to afford the luxury, and on pleasant afternoons the spacious parks and favorite streets are crowded with ladies and children. Tricycling is also coming to be quite a common means of exercise for ladies, and we think it much more healthful, and decidedly less dangerous, than horseback-riding.

The English people take many more holidays than Americans. Besides their Christmas and New Year holidays, they have at Easter a holiday of five days in which business is almost totally suspended, a large proportion of the shops being closed from the Thursday preceding Good Friday until the Wednesday following. Several "bank holidays" and fête days are scattered through the year, besides the annual boat-race between the Oxford and Cambridge crews, which is frequently witnessed by half a million people, most of whom have to travel from five to ten miles to reach



the points on the Thames which the competitors pass. Another English peculiarity we should mention. Living-rooms are kept at a much lower temperature than in America. Open grates are the most common means of heating; and as they seem to be constructed with reference to the consumption of the greatest possible amount of fuel with the utilization of the least amount of heat, at least ninety-nine per cent of the caloric goes up the chimæy, making it almost an impossibility to well warm an outside room in cold weather. We believe the average temperature of living-rooms in England to be less than sixty degrees. In the hospitals, the regulation temperature is 60° Fah.; but we often found it several degrees lower, never higher. We walked about the wards shivering with an overcoat on; but the nurses and patients seemed to be perfectly comfortable. We are inclined to think that this custom has much to do with enabling the English people to endure their damp, chilly, changeable climate, and perhaps by encouraging the surface circulation, accounts for their rosy complexions.

The London fire did a good thing for the metropolis as a disinfectant, putting an end to a terrible epidemic which had raged for years previously. From what we observed, we believe a moral disinfectant of equal efficiency is as greatly needed at the present time. In some portions of the city vice stalks abroad in most hideous forms. Mr. Comstock would find here a rich field for operations in suppressing obscene literature, and would have no trouble in discovering plenty of culprits; for the principal streets are thronged with young men who offer for sale the most filthy and debasing pictures and literature imaginable. There is a law against the traffic, but it is carried on constantly before the eyes of the police without their interference. Probably there are few cities in the world in which licentiousness is so common as in London. No city has so vast an army of wretched women devoted to infamy; and the consequences are to be seen upon the streets at every turn, in the human forms rendered hideous by disease, the faces exhibiting a mind sunken to the depths of depravity. The scores of hospitals are overflowing with the victims of vice, dragging out an existence the most wretched possible,—a living death,—to whom the grave would be a most welcome relief if it were but oblivion; although the most graphic pictures of future retribution drawn by Jonathan Edwards could scarcely suggest an augmentation of misery.

We find in our note-book many other items of interest of which we would like to write, but we have already presumed upon the patience of our readers, and must bid them good-by for another month, when we shall take a look at Paris through our hygienic eyeglasses.

—If I were to be asked what are the first, second, and third requisites to become a genius, I would reply, in the manner of Demosthenes, application, application, application.—*Horace Bushnell.*

### A NEW RACE IN RUSSIA.

ACCORDING to the *Revue Scientifique*, a new race has been discovered in Russia by a Mr. Le Bon, who accidentally encountered them in an obscure mountainous region. In the following description of the people and their discovery, the reader will observe the writer's remark that these people are "living in a most remarkable state of prosperity" in spite of a diet "consisting mainly of oats, milk, and water," which is characterized as a Lacedæmonian diet. Is it not a fair inference that the remarkable physical and mental development of these people is in a measure, at least, due to the simplicity of their diet? The Lacedæmonians and numerous other nations of antiquity prospered upon a similar diet.

"Peculiar circumstances having induced the author to visit the Tatra Mountains, a very curious and beautiful region, and one very little known, since he was apparently the first to traverse it, he found there a territory surrounded on all sides by steep mountains, and inhabited by a people speaking a different language from the nations surrounding them, and with whom they had no intercourse. These people, although less than a century ago given up to brigandage, as the author learned in his study of them, are now very industrious and honest. In spite of a climate so harsh that it would be necessary to go to the extreme north to find a similar one; in spite of a very infertile soil; and in spite of an almost Lacedæmonian diet, consisting mainly of oats, milk, and water, they are living in a most remarkable state of prosperity. They are clearly distinguished from all their neighbors in their external aspect, in their quick intelligence, and in their artistic and literary tendencies.

"The villages inhabited by these new people are situated in the territory called Podhale, at the foot of the above-named mountains. This territory, as before stated, being surrounded on all sides by



steep mountains, difficult of access, is almost as isolated from the rest of the world as if it were an island in mid-ocean.

"As regards its origin, Mr. Le Bon thinks the original stock was Polish, which in past ages became intermixed with individuals coming from different peoples. In isolating itself more and more, and not uniting with outsiders, and in constantly being submitted to the action of the same environment and of the same selection, the primitive agglomeration has become more and more homogeneous, and finally formed a new race, whose homogeneity may possibly still increase, but which already possesses common hereditary characteristics that permit it to be clearly differentiated from all surrounding races."

#### THE SECRET OF SUCCESS AT CARLSBAD.

THE noted Springs at Carlsbad have long enjoyed great fame for the cure of various maladies, and have been the resort of invalids from all parts of Europe, and to a considerable extent, from America also. In numerous instances, cases which have been for years treated unsuccessfully by the most eminent physicians, have here found very complete relief. It must not be supposed, however, that this success should be attributed to any occult virtues in the water, as will be seen by the following report of a newspaper correspondent who was visiting the place:—

"Nothing could be stricter than the rules here in regard to eating and drinking. This one may eat no fruit, that one no meat. One may drink no beer, another no wine. Most of them, indeed, drink neither. I know of one young man who walked five miles up the valley of the Töpel in search of a glass of beer one warm afternoon, because at all the different roadside inns at which he stopped he saw people drinking only coffee or mineral water, and being a stranger to the place, fancied there must be some German variety of the 'local option' law, and that he had gotten into a

temperance neighborhood. And so he had. And it is this temperance, enforced by precept and example, which makes of Carlsbad the admirable health-resort which it is, quite as much as its hot springs. One could not be dissipated here, even if he wished it."

#### CANNED DONKEY.

ACCORDING to the *London Standard* of a recent date, two potted-meat manufacturers have lately been arrested in the city for filling their tin cans with the diseased carcasses of horses and donkeys instead of with mutton, beef, veal, and pork. In one establishment visited by the inspector, a large quantity of donkey flesh was found partly boiled preparatory to being canned, together with a bag full of pork rinds garnered, no doubt, from the table refuse of metropolitan hotels. As horses and donkeys are usually worth more alive than dead, the creatures whose carcasses were so tastefully put up in little tin cans for use at breakfasts and luncheons, undoubtedly died of some disease, probably the result of overwork and London smoke. How extensively this business is carried on in London, no one knows; but it is said to be a notorious fact that no one ever sees a dead donkey, from which it may be inferred that most of the dead donkeys are eaten. The perpetration of the fraud is not difficult, as the inspector cannot always be at hand; and unless caught in the very act of stewing a dead donkey, the manufacturer is quite safe from detection, as when cooked, seasoned, and potted, donkey-veal cannot easily be distinguished from the real article.

We do not publish this paragraph because we suppose London to be any worse than other large cities, although the fact that donkeys are more numerous here than in American cities probably leads to their more frequent use for this purpose. At home we have heard of several cases in which defunct dogs, cats, and other domestic animals besides those usually



considered fit for food, were used in the manufacture of sausages and other prepared meats.

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**"THE DEVIL'S OWN."**

PASSING a London cigar store the other day, we noticed the above words on a flaming placard as the name of a new brand of cigars just produced by the manufacturers. The name impressed us as exceedingly appropriate, and we wondered that so expressive a cognomen had not before been utilized. The cigar is undoubtedly one of the devil's favorite instruments for converting boys who might become respectable citizens and useful men, into loafers, vagabonds, drunkards, and criminals of every description.

Notwithstanding the repeated exposures which have been made of the dangers to life and health incurred by the use of the filthy weed, the number of its devotees seems to be constantly upon the increase. The tobacco habit must be regarded and treated as a moral disease which has fastened itself upon society,—one of the "devil's own" means for degrading and depraving humanity. How perverted indeed are the instincts of the human being who deliberately defiles the image of his Maker till every trace of the divine workmanship is obliterated by the scourge of the stinking weed, and it becomes fit only to be labeled the "devil's own."

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**THE BIBLE AS A CURIOSITY.**

IN a recent announcement in a prominent London paper, the Bible was named as among "the latest additions to the various objects of interest in the War Exhibition now being held in the metropolis." A correspondent criticises the propriety of exhibiting the Bible as a curiosity in such a place, evidently not having recognized the fact that the inspired book is becoming more of a curiosity every year. We have many times looked over large libraries in which not a single copy of the Bible could be found, notwithstand-

ing the fact that it is published in nearly every language of the globe, and through the generosity of various charitable societies, is furnished gratis to every one who is not able to buy. Perhaps the correspondent objected to the Bible being shown in company with guns, swords, cannons, and other implements of death, since its pages proclaim "peace on earth, and good will to men," rather than war and bloodshed. Such an exhibition, however, is quite in harmony with a sermon preached by Canon Farar not long ago, in which he is reported to have said to the company of volunteers to whom his sermon was especially directed: "The pages of the Old Testament ring with war. They are full of battles of the warrior, with their 'confused noise, and garments rolled in blood.' And when we turn to the New Testament, we find Christ giving the injunction to his followers, 'He that hath no sword, let him sell his garment and buy one.'"

The walls of Westminster, the church in which Canon Farar most frequently speaks, are lined with monuments erected to the memory of military heroes, bearing as inscriptions the most glowing eulogies of their warlike deeds.

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**Leprosy in America.**—For a number of years it has been occasionally remarked that that horrible Oriental disease, leprosy, was becoming more or less established in this country. Numerous cases have been observed in various parts of the United States. Indeed, the disease has for a long time had a foothold in California and in New Brunswick. It has lately been observed among emigrants in the Northwestern States. There has been a good deal of controversy as to whether this disease is contagious or not. From an able article recently contributed to a medical journal by Prof. White, of Harvard, there seems to remain but little room to doubt that the disease is contagious in character, and likely to extend if it obtains a firm foothold here.



**Dead Drunk for Two Pence.**—Sir. Wilfred Lawson states that there was a time in the history of England not too remote to be remembered by the oldest inhabitant, when the following inscription was emblazoned over the door of the liquor-vender in many parts of England: "A mug of beer for a penny, DEAD DRUNK FOR TWO PENCE, and *clean straw free.*" The significance of the last item is too plain to need comment, and certainly secures for the whisky-dealers of the past generation the credit of honesty and candor. There is also an intimation that the rumseller of olden time possessed a sufficiently keen sense of the fitness of things to appreciate the propriety of his making provision to care for his customer, after having made him beastly drunk and unconscious, instead of turning him out of doors like a worthless dog, as his average successor would do.

**Mortality of Liquor-Dealers.**—In the Registrar-General's report of the death-rate in England, some years ago, it was found that of all classes of men,—merchants, weavers, cobblers, carpenters, blacksmiths, laborers, miners, tailors, bakers, butchers, and liquor-dealers, the last named were the shortest lived, their mortality being so great that first-class insurance companies refused to grant them policies, or granted them only for a short time.

### For the Sick Room.

**How to Treat a Sprain.**—The treatment should be applied immediately after the accident occurs, or as soon thereafter as possible, the sooner the better. The neglect of this precaution has frequently resulted in the loss of the use of a limb for months or years, and in several instances which have come under our observation, has disabled the person for a lifetime. If taken in hand promptly, nothing is easier than the cure of a simple sprain. Hot water is a panacea for sprains and bruises. This fact has been long known to hydropathists, but is re-

cently announced as a new discovery by an eminent Philadelphia physician, who directs that the injured limb be placed in hot water, and boiling water slowly added until the highest endurable temperature is reached. The limb is to be retained in the water a quarter of an hour, when the pain will have gradually disappeared.

**How to Avoid Infection.**—The best way is, of course, to keep away from its source; but as this cannot always be done, it is useful to know what precautions may be taken to avoid contracting such dangerous maladies as small-pox, scarlet fever, diphtheria, typhus fever, and similar diseases. The popular notion that medical men possess some sort of charm by means of which they are protected from the contraction of disease, has long prevailed among the ignorant classes, but is, of course, without foundation. Medical men are as liable as others to contract contagious diseases, and not infrequently fall at their post while attending patients suffering with this class of maladies.

An English physician who has had a large experience, especially with typhus fever, a most infectious malady, offers the following useful rules to be observed by physicians. With one or two exceptions, they may also be observed to advantage by nurses in attendance upon patients suffering with contagious diseases, although so far as possible nurses for such patients should be selected from those who are protected from the disease by having had it previously.

1. Always have the window open before entering the patient's room or ward.
2. Never stand between the patient and the fire, but always between him and the open window.
3. If possible, change your coat before entering the room.
4. Do not go in for any unnecessary auscultation or other physical examination.
5. Stay as short a time as possible in the room.
6. Never, while in the room, swallow any saliva.
7. After leaving the sick-room, wash the hands with water containing an antiseptic.
8. Rinse out the mouth with diluted 'toilet Sanitas' or Condy's fluid, also gargle the throat with it, and bathe the eyes, mouth, and nostrils.
9. Expectorate and blow the nose immediately on leaving the sick-room.
10. Keep up the general health by good food, exercise, and temperance.
11. In addition to the



above recommendations, which are all pretty generally known, I would suggest another, which is, in my opinion, the most important of all. This is to filter all the air you breathe while in the sick-room or ward through an antiseptic medium."

A convenient method of filtering the air is to tie a pocket handkerchief over the mouth and nose. The same thing may also be accomplished, though not quite so effectually, by placing tufts of cotton in the nostrils, and taking care to breathe through the nose, and removing the cotton immediately after leaving the room. These methods are not so effective as though the regular inhaler were employed, as the latter provides a receptacle into which can be placed cotton saturated with carbolic acid or some other strongly antiseptic substance.

**Albumen Water.**—Dissolve the whites of two eggs in a pint of cold water. Sweeten by the addition of a little glycerine, and flavor, if desired, with a little liquorice root or some other herb. This will be found a very valuable preparation, especially for use in treating the digestive disturbances of infancy.

**Aconite in Dysentery.**—The New York *Medical Journal* publishes an account of the treatment of one hundred and fifty cases of acute dysentery by a Dr. Owen, who employed only a very weak solution of aconite, of which he administered about one drop an hour. This treatment was substituted for the regulation treatment with ipecac. The Doctor commends the treatment very highly, and says that patients like it very much better than the nauseating doses of ipecac.

We have no doubt that Dr. Owen's method is an improvement over the old one, but we have successfully treated fully as large a number of cases without either aconite or ipecac, employing chiefly the hot enema, with sufficient satisfaction to the patients to lead them to declare that they would afterward employ no other treatment in the event of a similar attack.

**Good Suggestions.**—The *Sanitarian* makes the following good suggestions, which many sick persons will do well to attend to:—

Courage is a wonderful agent in throwing off disease. A walk of five miles would cure many an occupant of the

lounge. Will-power will surpass pill-power in nine cases out of ten, if not in every one. To hold a bottle of smelling salts in the hand on account of headache may be just the thing at times, but to fling a pound of fruit cake into the alley, and then walk a furlong as a reward for not eating the compound, is nearly always a much better thing.

### Talks with Correspondents.

**A Critic.**—The following letter from one of our English friends has reached us, after twice crossing the ocean; and though numerous other letters are waiting for attention in this department, we will give this precedence, as it has had so much trouble to reach us. Though acting the part of a critic, our correspondent seems to be actuated by no unfriendly spirit, and we shall take pleasure in giving him candid answers to the several inquiries which he makes.

I have read your journal, *GOOD HEALTH*, for two years, and am more in love with it now than at any previous time. This eulogy must, however, be tempered with a small reservation. I am a two-year-old vegetarian, and I presume, from your writings generally, that you are of the same persuasion yourself. This being so, I am naturally surprised at finding so very little of vegetarianism advocated in your journal. Tobacco, ventilation, temperance, dress, receive that attention which they properly deserve; but vegetarianism, occupying as it does the base of the pyramid of health, receives but scant recognition.

Under the imprimatur of the Sanitarium food department, "beef and bread combination biscuit" is advertised. Is not this a deliberate compromise? and invalid foods, forsooth!

Again, while on the article "Measles," in the February number, a rare opportunity presented itself to point out the origin of the disease,—the eating of pig's flesh,—and of insisting on this being given up to prevent it. You content yourself with merely warning the people to avoid contracting the measles, without hinting that the sole cause of the disease is the consumption of that objectionable comestible.

"Parasites in Fish" and "A Startling Fact" both offered opportunities to moralize on the evils risked in eating animal food.

I am also surprised that the learned Doctor could find no room for a repudiation of the remarks of a contemporary journal attributing Carlyle's dyspepsia to oatmeal instead of (possibly) tobacco.

While the pen is in my hand, I may as well record my surprise that Dr. Kellogg, so much accustomed to deep research, should still cling to the old-fashioned, unscientific vaccination superstition. Sanitation naturally goes in antagonism to vaccination.

Hoping these few remarks will not be taken in an unfriendly light, and that the journal may have an ever-increasing circulation, I remain, very truly yours,

1. Why do we not say more about vegetarianism? Our correspondent is correct in the supposition that we are a vegetarian. We have been theoretically and practically such for nearly twenty years, and become with each year more and more thoroughly grounded in our faith and practice. The mission of *GOOD HEALTH* is a broad one, and vegetarianism is only one branch of hygienic reform. In England, vegetarianism is, as our correspondent suggests, the foundation of health reform; but this is owing to the accident that vegetarianism was the first phase of hygienic reform to receive general attention in England. We cannot attach that importance in rank to vegetarianism which our correspondent gives to it; and trust-



ing that we shall not be misunderstood, we shall venture to remark that we have long felt that the cause of hygienic reform in England would make a much more healthy and vigorous growth if more attention were given to hygiene in general, and less to this special department of vegetarianism. Indeed, in looking over the recipes for cooking, prepared by some of our vegetarian friends, the thought has frequently occurred to us whether a beefsteak or mutton chop would not do less physical and moral harm when introduced into the human stomach than some of the compounds proposed.

We must say further, however, that scarcely a number of our journal goes to press without containing something on the subject of vegetarianism. We have not wished the readers of the journal to regard it as making a hobby of any one branch of hygienic reform, and hence have pursued the course stated. It is not because we think less of vegetarianism, but because we think more of hygienic reform as a whole. If we believed, as our correspondent does, that "vegetarianism is the base of the pyramid of health," we should certainly devote to it much more attention.

2. We have never taken the position that animal food should never be used under any circumstances. We frequently prescribe it as an article of diet, just as we prescribe baths or medicines, when, in our judgment, the condition of the patient is such as to require it. We not infrequently have patients whose digestive organs are affected by some form of stomach disorder which renders them incapable of digesting a sufficient amount of vegetable food to obtain the requisite nourishment. To such persons we recommend animal food as a medical diet, but only as a remedy, not as a practice to be followed for a prolonged period. Our experience in the treatment of several thousand patients suffering with various forms of digestive disorders, has convinced us that this is the only rational course to pursue, and we have seen much harm result from a contrary course. Our beef-and-bread biscuits are made and advertised as "invalid foods," not for use by healthy persons. They possess the advantage that while disguising the appearance and flavor of animal food, they present to the diseased stomach a kind of nourishment which it can utilize to the best advantage. If we had some form of vegetable food which possessed the same properties in relation to the digestive organs that are found in lean meat, we would gladly bid good-bye to beef-steaks forever, for invalids as well as healthy persons. It is true that the gluten of wheat is almost a perfect substitute for the nitrogenous elements of flesh food; but although we have made numerous efforts in that direction, we have thus far failed to secure it in such quantities and at such a price as would enable us to utilize it to any great extent in cases in which we think nitrogenous food necessary. If our friend will devise some means by which this want can be met, we shall gladly throw beef and all its congeners to the dogs.

3. Now about measles and pork. Our corre-

spondent must bear with us if we lead him to discover that his criticism on this point is the result of ignorance on his part. The measles of hogs is a very different thing from measles in human beings. Measly pork is by no means a rare thing, but measles in the hog is not an eruptive disorder, or, in fact, anything akin to the disease in human beings bearing the same name. In measles in hogs, cysts form in the muscular tissues by the development of the embryos of an animal parasite, which, when introduced into the human stomach, develops into a tape-worm. We very frequently call attention to the fact that the eating of measly pork is a cause of tape-worm; but it is quite a mistake to suppose that measles in the hog will cause measles in human beings. At any rate, we have not yet seen any evidence which would lead to such a conclusion. The mistake on the part of our correspondent is certainly pardonable, however, as older vegetarians than himself have committed the same error. We remember reading, a few years ago, a tract on "Pork," by a hygienic physician of considerable eminence, in which the writer asserted that the eating of pork was the common cause of measles, and declared that measles was very common in hogs (which was true), and that he had frequently seen animals suffering with the malady *presenting a genuine measly eruption* (which is impossible, as the measles in the hog never affect the skin, but only the muscles).

If our correspondent will look back through the files of this journal, he will find that we have done the very thing which he chides us for not doing, namely, repudiated the attributing of Carlyle's dyspepsia to oatmeal instead of tobacco. It was on this account that we did not again call attention to this point in the recent reference to the same thing, taking it for granted that our readers would make the criticism for us. We think it is just as well, sometimes, to let the reader point the moral of facts presented, as to do it ourselves.

4. About vaccination. We have not had the same opportunity to study the subject of vaccination in America that our English friends have enjoyed, and are perhaps not prepared to take quite as strong ground in opposition to it as a sanitary measure. However, we are as utterly opposed to compulsory vaccination as the most radical anti-vaccinationist could wish us to be. Avoidance of the cause of disease is clearly the most rational method of combating all human maladies; but we think the evidence is pretty clear that vaccination will prevent small-pox, and on this account, under certain circumstances, is preferable to allowing the disease to prevail without restriction. While in Europe, we are looking into the subject with a good deal of care, and certainly without bias. If we find reason for changing our views with reference to it, our correspondent, with our other readers, will hear from us.

*Charcoal.*—A correspondent asks, 1. Is charcoal from common hard wood more injurious than that from cocoanut shells or box-



wood? 2. Does it have the same effect on the acidity of the stomach?

*Answer.*—1. The source of the charcoal is immaterial, provided it is finely powdered; but it is important that it should be pulverized as fine as the finest flour. 2. Yes.

## Health and Temperance.

### LESSON DEPARTMENT.

This department has been added to the journal at the suggestion of the Executive Committee of the American Health and Temperance Association. It will contain each month a lesson on the subject of health or temperance, together with a synopsis of the lesson, articles relating to the subject-matter of the lesson, and suggestions respecting the conduct of health and temperance schools and club meetings.

#### TOBACCO.

1. How did the habit of tobacco-smoking first become known to civilized nations?
2. What was the origin of tobacco-chewing?
3. How did snuff-taking originate?
4. Is it true, then, that the habit of tobacco-using in all its phases originated with the barbarians?
5. What is the essential element, or active principle, of tobacco?
6. How much nicotine does a pound of tobacco contain? *Ans. About 380 grains, or more than two-thirds of an ounce.*
7. What is the effect of nicotine upon lower animals?
8. How much of this poison is required to kill a dog?
9. How much nicotine is contained in a single cigar?
10. Why do not tobacco-users die at once, if the poison is so fatal?

#### SYNOPSIS.

TOBACCO-USING is a relic of barbarism, or, rather, a barbarous custom which has been adopted by nearly all civilized nations.

In the month of November, 1492, when Columbus discovered the island of Cuba, he sent two sailors to explore it, who reported, when they returned, among many other strange and curious discoveries, that the natives carried with them lighted fire-brands, and puffed smoke from their mouths and noses, which they supposed to be the way the savages had of perfuming themselves. They afterward declared that they "saw the naked savages twist large leaves together, and smoke like devils."

In 1503, when the Spaniards landed in Paraguay, the natives attempted to repulse them, and came out against them in large numbers, beating drums, throwing water, and "chewing herbs and spurring the juice toward them." The herb employed was tobacco, and the object of its use in the peculiar manner indicated was to get the poisonous juice into the eyes of the intruders, and thus disable them by depriving them of sight. From this it would seem that

tobacco-chewing was first practiced as a means of defense, for which purpose the expectorated juice was undoubtedly quite effective.

It appears that the taking of tobacco in the form of snuff was also discovered among the savage natives of this continent upon the second visit of Columbus to America, in 1494. A Roman friar, named Pane, who accompanied the expedition, thus describes the custom as it then existed among the Indians: "After reducing the leaves to a fine powder, they take it through a cane half a cubit long; one end of this they place in the nose, and the other upon the powder, and so draw it up, which purges them much."

The purging referred to evidently describes the violent sneezing which resulted from the inhalation of the powdered poison.

Thus it appears that tobacco-using, together with the implements of its use and all the different modes of taking it, originated wholly with the heathen barbarians who roamed like wild beasts over the plains and through the dense forests of this continent four centuries ago. Civilized men have made no improvements or discoveries of any account in connection with its use; they have simply followed the example of those naked savages whom the discoverers of America saw chewing, snuffing, and smoking "like devils" almost four hundred years ago.

The active principle of tobacco, that is, that to which its narcotic and poisonous properties are due, is *nicotine*, a heavy, oily substance which may be separated from the dried leaf of the plant by distillation or infusion. The proportion of nicotine varies from two to eight per cent, Kentucky and Virginia tobacco usually containing six or seven per cent. A pound of tobacco contains, on an average, 380 grains of this deadly poison, of which one-tenth of a grain will kill a dog in three minutes. A case is on record in which a man was killed in thirty seconds by this poison.

The question is often asked, "If tobacco is so deadly a poison, why does not death more frequently result from it?" To this we answer:—

1. One reason why so few persons are reputed to die of nicotine, or tobacco-poisoning, is the wonderful faculty the system possesses of accommodating itself to circumstances. Through this means the worst poisons may by degrees be tolerated, until enormous doses can be taken without immediately fatal effects. Corrosive sublimate, strychnia, belladonna, and many other poisons, may be thus tolerated.

2. The majority of tobacco-users do die of tobacco-poisoning. Death as surely results, ultimately, from chronic as from acute poisoning, though the full effects are delayed, it may be, for years. A man who dies five or ten years sooner than he should, in consequence of tobacco-using, is killed by the poison just as truly as though he died instantly from an overdose.

—There is no sort of wrong deed of which a man can bear the result alone. Men's lives are as thoroughly blended as the air they breathe; evil spreads as necessarily as disease.



## Publishers' Page.

☞ We are obliged to edit this number from the city of Paris, France, and of course labor under some disadvantages on account of prolonged absence from home. We expect to return, however, in a few weeks, and trust we shall be able to make the facts garnered through our journeyings useful and interesting to our readers. We have made many interesting observations in the several countries we have already visited; and in traveling through Switzerland, Germany, Italy, and Northern Europe, and visiting the principal medical establishments of those countries, we expect to gather much more valuable information, to which our readers shall be welcome as we find time to write.

☞ Before leaving England, we spent a few days with Eld. J. N. Loughborough and family at Southampton. We found all actively engaged in the mission to which they are devoted, and were glad to see many evidences of success, although the field is a most difficult and perplexing one, presenting many obstacles not to be found elsewhere. We met a number of refined and excellent people who had become interested in the work of the mission, and were especially delighted to see such a degree of intelligence and advancement in the direction of hygienic reform. We know a good many people in America who might profit by the good example set by these beginners in reform in England.

☞ It does us good to receive an appreciative word occasionally from our friends, and especially from co-laborers in the work of improving our degenerate humanity. Our friend, Rev. J. L. Douthit, of Shelbyville, Ill., paid us the following compliment in a recent issue of his journal, *Our Best Words*, which is one of the brightest and most wholesome of the numerous monthlies that come to our table. It gives numerous tangible proofs of the hearty interest which our friend takes in the advancement of the cause of health reform: "Do you read GOOD HEALTH? If you do not read this or something like it, then, ten to one, you are missing what you greatly need. One of the happy memories we have, as the old year draws to a close, is the fact that we have been partly instrumental in causing GOOD HEALTH to visit several families of our congregation during this year. Some may have neglected to read it, as they may their Bibles; but we imagine that we see, feel, and taste the effects of reading it in some of the homes we visit. Only one dollar a year, and cheaper in clubs! Is not this cheap for health and happiness? Send to the publishers, Battle Creek, Mich., for some specimens, and get up a club for 1883."

☞ While stopping in London, the pleasure and profit of our visit was very greatly enhanced by the numerous courtesies of Rev. W. M. Jones, who, with his accomplished wife and family, bestowed upon us many favors which will be long remembered. Eld. Jones is a profound student of archeology, and a philologist of great research, being almost as familiar with the languages spoken four or five thousand years ago, and for ages buried in the ruins of ancient temples, as with his native tongue; and he reads readily dozens of modern languages which are scarcely known even by name to the majority of scholars. Although quite advanced in years, he is still patiently and laboriously continuing his researches among the rich mines of ancient lore in the British Museum, the results of which he gives in his paper, the *Sabbath Memorial*, which is issued as a neat quarterly, and published at fifty cents a year. Subscriptions should be addressed to Rev. W. M. Jones, 15 Millyard, Leman St., Goodman's Fields, London, England.

We take particular interest in mentioning the quarterly, as it contains information on subjects of great interest to Bible students not to be found elsewhere. The journal is too little known on our side of the Atlantic, but we trust many of our readers will become acquainted with it.

☞ Quite a number of our subscribers are a little behindhand in sending their subscriptions for 1883. We have continued to send the journal as usual, but of course do not expect to furnish it gratuitously, and trust that those who have not yet paid up will recollect that our terms are cash in advance.

## Popular Health Works.

**A Text-Book of Anatomy, Physiology, and Hygiene.** 350 pp., 150 cuts, 15 colored plates. \$1.50.

**Plain Facts for Old and Young.** A book for the times, treating upon all subjects pertaining to the anatomy and physiology of reproduction. 20,000 sold last year. Octavo, 512 pp. **Good Agents Wanted.** Send for Circular.

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**Uses of Water in Health and Disease.** Careful explanations and instructions are given respecting the uses of water as a preventive of disease, and as a valuable remedy in nearly all classes of maladies. In cloth, 166 pp., 60 cents; paper covers, 136 pp., 25 cts.

**Alcoholic Poison.** Or, the Physical, Moral, and Social Effects of Alcohol as a Beverage, and as a Medicine. Its statements are brief, concise, and to the point. Every temperance worker ought to have it. Paper covers, 128 pp., 25 cts.

**Diphtheria.** A concise description of the nature, causes, modes of prevention, and most successful mode of treatment of this now prevalent and fatal malady. Every family should have it. Four colored plates. This book has saved many lives. 64 pp., 25 cts.

**Evils of Fashionable Dress, and How to Dress Healthfully.** This little work considers the subject of fashionable dress from a medical standpoint, and thoroughly exposes its evils. Ultra and peculiar notions of a character obnoxious to good taste find no place in this work. 40 pp., 10 cts.

**Proper Diet for Man.** A scientific discussion of the question of vegetable versus animal food. Ultra notions are avoided, and the subjects treated are handled with candor. Paper covers, 15 cts.

### Health and Temperance Tracts.

**Wine and the Bible.** A demonstration that the Bible in no degree sustains the habitual use of alcoholic drinks of any sort. Just the thing for temperance work. 24 pp., 3 cts.

**The Drunkard's Arguments Answered.** Leaves no excuse for tipplers, either moderate drinkers or habitual drunkards. 16 pp., 2 cts.

**Alcoholic Medication.** A protest against the wholesale employment of alcoholic compounds in the form of bitters, tonics, blood purifiers, etc. 18 pp., 2 cts.

**Pork.** This tract exposes the filthy scavenger in all his uncleanness. It destroys all appetite for ham and sausage. Republished in England. 16 pp., 2 cts.

**Moral and Social Effects of Intemperance.** A forcible statement of facts and statistics. 8 pp., 1 ct.

**Cause and Cure of Intemperance.** A very valuable tract. Especially designed for wide circulation. 8 pp., 1 ct.

**Bound Volumes of the Health Reformer.** These valuable volumes contain more practical information of a vital character than any others of their size. Each volume contains 384 pages of reading matter, well bound. \$1.50.

**True Temperance.** This tract views intemperance as a far-reaching evil which includes every form of artificial stimulation, as well as alcoholic intoxication. 4 pp., ½ ct.

**Alcohol; What Is It?** An explanation of the nature of alcohol, and the mode of its production. 4 pp., ½ ct.

**Evil Effects of the Use of Tea and Coffee.** 8 pp., 1 ct.

**Ten Arguments for the Use of Tea and Coffee Briefly Answered.** 8 pp., 1 ct.

**Tobacco-Poisoning.** 8 pp., 1 ct.

**Tobacco-Using a Cause of Disease.** 8 pp., 1 ct.

**Tobacco-Using a Relic of Barbarism.** 4 pp., ½ ct.

**Our Nation's Curse.** Fearful statistics of the liquor business. Excellent for temperance work. 4 pp., ½ ct.

☞ Any of the above publications will be sent free of postage to any address upon receipt of retail price. A liberal discount to Health and Temperance Associations, and others who buy large quantities.

Good Agents are wanted. Send for Agents' Circular.

Address, HEALTH PUBLISHING CO., Battle Creek, Mich.