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ON DRINKS AND DRINKING.

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I THINK it a mistake to drink strong tea when we merely need water; but as to suggesting a practical substitute, I confess to being often in considerable difficulty, owing chiefly to people's acquired tastes. One would premise by asking the reader, Do you eat and drink to live, or do you live to eat and drink? For such as practically live in order that they may eat and drink, I think it matters but little in what way they wear out their viscera and extinguish themselves. But for refined *gourmets*, who, while enjoying their eating and drinking, as healthy people enjoy the performance of all their natural functions, yet eat and drink in order to supply their bodies with energy in the best way, and not as a mere animal indulgence, the question is one of large and practical interest. Now, such people in eating and drinking should aim to get the largest amount of energizing food at a minimum of cost, and at a minimum of wear and tear to the digestive and scavenging viscera of the body fed.

To enter upon these interesting food questions would be to travel beyond the question. But the question of drinking has to be considered from the same standpoint, inasmuch as, though drinking is not intended to supply the body with food, yet it should be regulated upon the same principles. While the food may accurately be compared to the fuel in the furnace of a steam-engine, drink has no very perfect analogy in mechanics that occurs to me at this moment. But want of water is much more rapidly and painfully fatal than want of food. Water in the system plays the part, first, of a solvent; second, as a vehicle for carrying the dissolved food into the system, and afterward from one part of the system to another in a ceaseless circle of water-carriage movements; thirdly, of dissolving out of the tissues all effete matters and carrying these off to the scavenging organs; such as the lungs, kidneys, bowels, and skin. Now, in cholera, where vast quantities of aqueous ejections occur, the blood becomes thick and viscid, and all the functions of the body are obstructed inversely in the order of their necessity for the maintenance of existence. First, the oxidation of food is diminished, and the temperature of the body rapidly falls; secondly, the elimination of refuse matter other than by the bowels is diminished variously, and practically, effects of poisoning by these retained matters take place. Such are the violent muscular cramps which torment the patient for hours previous to death. In slower forms of death from want of water, as on shipboard or in boats at sea, maniacal symptoms are ushered in by the fearful thirst, and these are largely due to retention within the blood of effete matters, which, while the blood is adequately liquefied, are carried off in solution by the kidneys.

Now, these forms of death are only extreme developments of the appetite for water which we call thirst. In quenching thirst, it should be recollected that water is the only substance by which thirst can be met; and that intermixing alcohol, coffee, tea, etc., with water in order to relieve thirst is a mistake. Neither alcohol nor any other liquid would do aught but hasten death from thirst. Much salt in the food makes one very thirsty. Why?—Because, an excess of salt having been taken into the blood,

the kidneys hasten to turn it out of the system; and in turning out the salt, they have to eliminate a large quantity of water in order to dissolve it and carry it off; thus the blood is left too thick, and the person feels thirsty. Now, one reason why beer-drinkers go back so soon and so repeatedly to the public house is because salt is put into their beer for them; and, taking the effect of the salt and of the alcohol together, there is no doubt that beer aggravates thirst instead of quenching it. Beer-drinkers imagine that abstainers from alcohol drink "a lot of cold water;" but, in point of fact, it is the beer-drinkers who drink the "lot of cold water."

Any beer-drinker who goes to the food department of the South Kensington Museum, will there see the constituents of beer all separated in a visible form in their proper proportions; and he will learn that out of twenty pints of beer that he buys, nineteen are water! Nearly one pint is alcohol, and the rest is treacly residue, with salt and other unimportant constituents. The treacly matter represents the food material or residual barley, left in the beer. The alcohol may be partially oxidized in the system, but its effects are chiefly felt in taking the edge off those sensibilities by means of which the system is conscious of fatigue; and a large part of the alcohol is exhaled by the lungs and skin, as is shown by the smell which emanates from the drinker. The salt gives a certain piquancy to the flavor of the beer by irritating the nerves of the tongue, and it serves also to set the kidneys going, and bring the customer back to the public house. Beer, when taken at meal times by those whose stomachs have been trained to look for it, provokes a secretion of gastric juice, and its alcohol is rapidly washed out of the stomach, in order that the solution of the food may not be hindered.

If stronger alcoholic beverages are taken, such as wine or spirit, digestion is more completely arrested, pending their removal; and as is well known, if the glass of wine be repeated too often, digestion is altogether prevented, and a few hours afterward the food has to be returned by the way it entered. In this case it is generally said that "the salmon has disagreed" with the unfortunate diner-out; but I have generally observed that the capacity for walking straight is as much impaired as is the capacity for digesting food, and unless when wine had been taken largely, I never saw "the salmon" make a man ill. Against tea or coffee not very much is to be said, and I never knew of a police-court case in which the defendant ascribed his violence to having taken too much tea or too much coffee. But for the quenching of thirst, tea and coffee are bad. The habit of drinking strong tea or black coffee directly after dinner is especially bad, and certainly interferes with digestion. At breakfast time a healthy man has all his sleep in him, and surely it is then unscientific for him to inflict upon his system strong tea or coffee.

Most nations that drink coffee largely get a sallow skin; and I am inclined to think that the carbonaceous matter of the roasted coffee, when so largely and frequently taken, may perhaps have something to do with this. For hard-working people, who are not corpulent, I should suggest the thick flake-cocoa as the healthiest and most nutritious breakfast beverage. For those who do not want fattening drinks, and who often cannot digest cocoa, I should say, drink hot water at breakfast. Those who dine late, and make their dinner their main meal, need a diluent drink an hour or two afterward; and if they drink tea, it keeps them awake or makes them irritable and nervous. I find for myself that dining solidly, as I am obliged to do when I have done my work (7.30 P.M.), and often needing to work from nine to eleven, a tumbler of hot water brought into my study or laboratory is the best and most wholesome drink, and, after a few evenings, it will be as much relished as the usual draught of tea. The hot water assists to complete the digestion of residual food; it acts upon the kidneys, and rinses out the effete matters, and thus will be found to wake one up sufficiently, and neither to injure the stomach nor to keep the brain awake after bedtime.

In cold weather, warm water is by far the best drink at dinner-time; and in hot weather a draught of warm water is far more wholesome and cooling than cold or iced water. Upon my own dinner-table I always have some lime-juice cordial (a pure, finely-flavored syrup of lime juice, which is very cheap, and keeps perfectly in a decanter); a tablespoonful or two of this, and then hot water to fill up a tumbler, makes a nice, wholesome drink at dinner-time or otherwise, when a mild sort of lemonade is fancied, and needs to be had without preparation from the fresh lemon. The use of iced-water is

one of the destructive habits in which our American cousins indulge, not because it cools them or quenches their thirst, but simply because they have acquired bad habits, and have demoralized their palates. At a hotel in the United States, guests will be seen sipping hot coffee, iced milk, and other things alternately, as well as devouring, in no time, a vast quantity of viands, on the principle of "devil take the hindmost," and mixing up in their mouths substances which to an ordinary Englishman seem to make a strange medley.

It may be that the "devil takes the hindmost" at the hotel tables, but I am certain that afterward the doctor gets the foremost: for nowhere else do we see such a nation of dyspeptics and such need for dentists. The difference between the heat taken into the body by a glass of iced water or a glass of tepid water is trivial, and is more than outweighed by the fact that the warm liquid relaxes the skin and promotes free perspiration and evaporation therefrom. The cooling effect produced by this evaporation may readily be noticed by observing the coolness which an afternoon draught of warm tea affords as soon as the skin relaxes. In fact, the hankering after iced water is a mere itch of the palate, analagous to that which a chewer or a smoker is subject to with regard to his quid or his pipe.—*English Mechanic.*

A GRAIN OF STARCH.

BY AN ANALYST.

THERE may not seem much in a grain of starch, and in point of bulk there *is* very little; but we shall endeavor to show that there is a good deal of interesting and valuable information to be derived from a careful study of the little granule.

We are all familiar with such commodities as flour, potatoes, Indian corn, sago, pease, and arrowroot, and are consequently to some extent acquainted with what starch is; for all these substances consist essentially of starch, along with water and some minor admixtures. If we take a slice of potato, for instance, and rub it on a grater of any sort in a basin of cold water, the water will soon become turbid; and a drop of it examined with a microscope will be found to contain a number of minute oval granules, which would in time sink to the bottom of the basin, forming a white deposit. These are grains of starch; and so minute are some varieties, that three thousand of them laid end to end would barely make an inch.

The starch of every plant differs from that of its neighbors both in size and shape, and this has a considerable influence on the character of the vegetable-organ in which it is stored up; the hardness of rice, for instance, is due to the fact that rice granules are extremely minute, with angular corners which fit closely and firmly together; whereas potato starch is large and round, with considerable interspaces filled with water, and so forms a comparatively soft mass. But, notwithstanding their outward points of difference, in chemical composition the starches are all identical, consisting of carbon, hydrogen, and oxygen—exactly the same materials as sugar is composed of, and better known as the component elements of coal and water. Leaving the many varieties of starch in the meanwhile, let us consider one species, namely, that of wheat, because it is the most important in this country, forming the basis of our daily bread.

An ordinary grain of wheat, if sliced through the middle and examined as to its structure, will be found to consist of several layers, the outer, a hard coating which contains mineral salts, lime, sand, etc. Beneath this is a zone of matter very rich in gluten, the flesh-forming constituent of the wheat; while the central portion of the grain is occupied by a white powdery mass, which is nearly pure starch. In manufacturing flour, the two outer layers, which together form the bran, are usually removed, leaving the white starchy flour of the central portion.

Let us now briefly consider the chief points in the chemistry of bread-making. If flour be worked up with water, it forms a sodden, insipid, indigestible mass; but if heated to the temperature of boiling water, the starch granules burst, thereby rendering it a little more digestible, although still forming a close, stiff, and not very palatable cake. Such is the character of unleavened bread, and of sea-biscuits, a slightly different form of the same thing. To be fit for digestion, starch must be dissolved or softened by boiling or baking; hence the reason why raw nuts are so indigestible as compared with the favorite roasted chestnuts; and hence one reason for cooking food, which mankind had been taught by experience, ages before chemistry could give a scientific explanation of the reason why. Cooking is, in

fact, a partial digestion; and the same is the case with baking, both being preliminary aids to the changes which take place in the mouth and stomach before the food is in a fit state for the preparation of the blood. Accordingly, we bake our bread; and we bake it in the way we do because a soft spongy loaf is more readily moistened and acted upon by the saliva and the juices of the stomach.

There is a good deal in the chemistry of bread-making; and our bread might be much improved if bakers had a more intelligent understanding of the science involved in their business; for although several improvements have been introduced of late years, the most of our bread is still prepared in the old fashion. The necessary quantity of flour is put into a trough with about half its weight of water, and sufficient salt and yeast, or leaven, then throughly mixed up into what is known as the "sponge." (Here we may remark that the best flour takes up the largest quantity of water; and a rough test of the quality of two samples of flour may be made by comparing the quantity of water required to obtain a dough of similar consistency.) After the sponge is made, it is left for about five hours in a warm place to ferment, after which it is kneaded with the rest of the flour, and again left to rest some time. The dough is then weighed into lumps, which are put in tins, and set aside till they have risen to twice their previous bulk.

It is to the yeast, or leaven, that the rising of bread is due, and the action is identical with that of the fermentation of beer. The flour contains a small amount of a nitrogenous substance, which changes a portion of the starch into sugar; the yeast then attacks the sugar, splitting it into alcohol and carbonic acid gas, the little bubbles of which try to escape from the mass of the dough, but get entangled by the gluten and gum which the flour contains; and thus every part of the bread becomes penetrated with little cavities. Eventually the fermentation would cease, and the bubbles of gas would find their way to the outside, thus leaving the dough much less light and spongy than we wish it to be; but the baker guards against this by putting it at the proper time into a hot oven, the heat of which at first increases the fermentation. In a few minutes, however, the temperature becomes sufficiently high to kill all the yeast germs; the fermentation is thereby stopped; and by continued heating, the starch granules are burst, and the mass is fixed in the porous form it has then attained. A little of the alcohol is retained in the bread; but practically almost the whole of it—in London amounting to some three hundred thousand gallons per annum—is driven off by the heat. During the baking, the starch of the outer portions of the bread has been browned by the heat, and thereby changed into a sugar known as dextrine, or British gum; and perhaps this fact accounts for the fondness of some children and even grown-up people for crusts.

Of late years a system for making what is called aërated bread has proved very successful, and is free from the slightest objection. The dough is made by mixing the flour with water saturated with carbonic acid gas, which on heating is expelled from the water, and thus distends the dough, producing a light spongy bread, with no loss of starch or sugar, and without any injurious or objectionable ingredient having been introduced.

Having dealt with the baking of the bread, let us now briefly consider its further progress in being adapted to the wants of the body. As soon as a piece of bread is put into the mouth, an abundant flow of saliva takes place; and in fact it needs no actual tasting to induce this flow, for even the sight or smell of anything nice is quite sufficient to "make the mouth water," as we express it. The saliva is poured into the mouth by three pairs of glands, to the extent of some twenty ounces a day. It consists in great part of water, with a little salt and a peculiar substance called ptyaline, which possesses the property of changing starch into sugar, the change being accomplished most completely when the starch is dissolved or baked, and at a temperature of about ninety-eight degrees Fahrenheit, the normal temperature of the body. Although this ptyaline is present in the saliva to the extent of only one part in five hundred, yet on its presence and action, the heat, and consequently the life, of the body is largely dependent; hence the importance of avoiding any unnecessary waste of it, such as frequently and unnecessarily accompanies smoking. Hence, likewise, we see the importance of chewing the food slowly and thoroughly, that it may be all brought under the influence of the ptyaline; and thus we can understand how indigestion, or dyspepsia, may be caused by hasty chewing or by exces-

sive spitting, the starchy portion of the food in either case lying in the stomach as an undissolved mass.

Bread-making, we have already stated, is a form of cooking. The heat of the oven has converted the outside of the bread into sugar; and the starch in the inside has in fact been boiled in the steam of the water which the dough contained, so that it has become capable of being readily converted into sugar. The porous nature of the bread favors this conversion; for the saliva easily penetrates through the whole of the spongy mass; and the change is still further assisted by the water which the bread contains to the extent of some forty per cent. Biscuits, on the other hand, being as a rule dry and non-spongy, are less suitable for ordinary use, although containing in the same weight far more food-material than bread.

It may surprise some of our readers to be told that the starch of bread has small nutritive properties. Its sole office is that of a heat-producer; and just like the coal of the engine, the starch or sugar is burned up inside us to keep up the temperature of the machine. It is the gluten, the sticky, tenacious matter in the grain, which is the nutritive, flesh-forming material; but in the present article we have no space to follow the changes which *it* undergoes in the system, for we are simply treating of starch at present; and we trust we have made it clear how it is changed into sugar, and thus made soluble and fit for absorption into the juices which keep the body at a uniform temperature and in good repair.

It is a common but mistaken notion that sago and tapioca are very nutritious. On the contrary, they consist almost wholly of starch, with only about three per cent of gluten, so that unless cooked with milk or eggs, they form a very insufficient food. The same is the case with arrowroot; hence it is a great mistake to feed an invalid or a child on such materials. They are no doubt useful as easily-digested heat-producers, but they must be cooked with milk or eggs before they are of much use for natural nutriment; and many a child has been starved to death through its parents' ignorance of this fact. It is true, medical men often recommend arrowroot for those in delicate health, as it is of great importance to keep up the natural heat of the body with the least exertion of the digestive organs; but it cannot be too widely known that arrowroot, pure and simple, is a mere heat-producer; and milk, soup, or other suitable flesh-forming food, must be given with it, if the child or invalid is to be kept alive. On the other hand, semolino, hominy, lentil-meal, pea-flour, etc., contain a much greater amount of flesh-forming material than sago, arrowroot, etc.

The starches are largely used in several important manufactures. Dextrine, or British gum, is prepared by heating starch to a temperature of about four hundred degrees Fahrenheit, and is preferred to gum-arabic, because it is not so liable to crack or curl up the stamps or other paper prepared with it. Immense quantities of starch are used, too, in the manufacture of glucose, or grape-sugar, which has exactly the same composition as starch, and is prepared by acting on the starch with sulphuric acid (oil of vitriol), which has the same effect as the ptyaline of the saliva. Linen rags are largely used for the same purpose, too; and, indeed, it is wonderful how few things are altogether useless at the present day. Old boots and horns provide some of our most brilliant colors; while dye-colors innumerable are made from the refuse of our gas-works; and the wash-heaps of our factories are proving mines of wealth, instead of mounds of rubbish.—*Chambers's Journal.*

CONDIMENTS.

BY MRS. DR. J. H. KELLOGG.

By condiments are commonly meant such substances as are added as seasoning to food, to give it "a relish" or to stimulate appetite, but which in themselves possess no real food value. To this category belong mustard, ginger, pepper, pepper-sauce, Worcestershire sauce, cloves, spices, and other similar substances.

That anything is needed to disguise or improve the natural flavor of food would seem to imply either that the article used was not a true alimentary substance, or that it did not fit the purpose for which the Creator evidently designed it. Disparaging to the wisdom of Providence as is this idea, it is, nevertheless, the very least of the evil.

True condiments, such as pepper, pepper-sauce, ginger, spice, mustard, cinnamon, cloves, vinegar, etc., are all strongly irritating in character. This fact may be readily demonstrated by applying any of the substances named to a raw surface. The intense smarting and burning are ample evidence of their irritating charac-

ter. Some of them, as pepper and mustard, are capable of producing powerfully irritating effects, if applied to the healthy skin where wholly intact. Every one is familiar with the common use of mustard as a counter-irritant, and it is surprising that it does not oftener occur to the mother who applies the mustard plaster to the feet of her child to relieve congestion of the brain, that an article which is capable of producing a blister upon the external covering of the body is quite as capable of producing similar effects when applied to the more sensitive tissues within the body. The irritating effects of these substances upon the stomach are not so readily recognized as when they are applied upon the skin, simply because the stomach is supplied with very few nerves of sensation; and accordingly mischief may be done to its lining membrane without producing any great degree of discomfort. That condiments do induce an intense degree of irritation of the mucous membrane of the stomach, was abundantly demonstrated by the experiments of Dr. Beaumont upon the unfortunate Alexis St. Martin, who received a gun-shot wound in the abdomen, which in healing left a permanent opening in the stomach, through which the action of various foods upon this organ, and the effects of condiments and other articles upon its lining membrane, could be accurately observed. Dr. Beaumont records that when St. Martin took mustard, pepper, and similar condiments with his food, the mucous membrane of his stomach became intensely red and congested, appearing very much like an inflamed eye.

It is, in fact, this irritating effect of condiments which gives occasion for their so extended use. The irritation which they induce produces an artificial appetite, and the desire for food thus induced is no more a natural appetite than is the incessant craving of the chronic dyspeptic, whose irritable stomach is seldom satisfied, no matter how large a quantity of food is taken, nor how frequently. The very fact that condiments do create appetite is a sufficient argument against their use. This property of condiments is one of the greatest causes of gluttony, since their use removes the sense of satiety by which Nature says, "Enough."

To an unsophisticated taste, one which is thoroughly normal and unperverted, irritating condiments of all sorts are very obnoxious. It is true that Nature accommodates herself to their use with food to such a degree that they may be employed for years without producing apparently very grave results; but this very condition is a source of injury, since it is nothing more nor less than the going to sleep of the sentinel which Nature has posted at the portal of the body for the purpose of giving warning of danger. The nerves of sensibility having become benumbed to such a degree that they no longer offer remonstrance when irritating substances are taken into the stomach; the sleepy sentinels allow the enemy to enter into the citadel of life, and there the work of mischief is carried on insiduously year after year, new inroads being constantly made upon important vital organs, until by and by the individual breaks down with some chronic disorder of the liver, kidneys, or some other important internal organ. Physicians have long observed that in tropical countries where curry-powder and other condiments are very extensively used, diseases of the liver, especially acute congestion and inflammation, are exceedingly common, much more so than in countries and among nations where condiments are less freely used. A traveler in Mexico, some time ago, described a favorite Mexican dish as composed of layers of the following ingredients: "Pepper, mustard, ginger; pepper, potato, ginger; mustard, pepper, potato; mustard, ginger, pepper." The common use of such an article is sufficient cause for the great frequency of diseases of the liver among the Mexicans, which has for many years been noticed by physicians traveling in that country.

That the use of condiments is wholly a matter of habit is evident from the fact that different nations employ as condiments articles which to people of other countries would be in the highest degree obnoxious. For example, the garlics so freely used in Russian cookery would be considered no addition to the natural flavors of food by Americans; and still more distasteful would be the assafetida so frequently used as a seasoning in the cuisine of France and some other portions of continental Europe.

The habit of using condiments is unquestionably a strong auxiliary to the use of intoxicating drinks. It is a common observation that persons addicted to the use of intoxicating liquors are, as a rule, fond of stimulating and highly seasoned foods; although the converse is not al-

ways true, yet it is apparent to every thoughtful person that the use of a diet composed of highly seasoned and irritating food institutes the conditions necessary for the acquirement of the habit of drinking intoxicating liquors.

The false appetite aroused by the use of food that "burns and stings," craves something less insipid than pure, cold water to keep up the fever the food has excited. Condiments, like all other stimulants, must be continually increased in quantity, or their effect becomes diminished; and this constant demand for increase leads directly to a demand for stronger stimulants, both in eating and drinking, till the probability is that the tendency will be toward the dram-shop at last.

In this matter, the mothers of our land bear a weighty responsibility seldom realized. The appetite for strong drink is often created at home; in many cases it may be at the very tables of those most earnest in trying to uproot the Upas tree of intemperance. A child's appetite is pampered with highly-seasoned viands, until abnormal cravings are excited, and there is a dislike for all plain food and a ravenous desire for "something good." These false appetites are the first step in the downward course; and if pandered to as they develop, the taste becomes more and more perverted, and stronger stimulants are craved and indulged in, until it becomes a hard matter to place restraint upon the appetite; and especially is the danger great if there be an inherited appetite for stimulants.

There is a Spanish proverb to the effect that it is easier to keep the devil out than to turn him out; and we who hope to do a work for future generations, as well as to assist in overcoming a great evil now, ought carefully and candidly to study this phase of the temperance question.—*Union Signal.*

NOTES ABOUT TEETH.

PROFESSOR OWEN tells us that the teeth of the lower animals perform many more kinds of work than those of man,—weapons of offense and defense, aids to locomotion, means of anchorage, instruments for uprooting or cutting down trees, and apparatus for the transport and working of building materials. As to our own species, he proceeds to say that the milk teeth or children's teeth ought to be twenty in number; comprising four front teeth, or *incisors;* two dog teeth, or *canines;* and four double teeth, or *molars*, in each jaw. When we come to man's estate, however (or woman's), the permanent teeth should be thirty-two in number, to enable us to seize, tear, divide, pound, and grind our food—four *incisors*, two *canines*, four *premolars*, and six *true molars*, in each jaw. It is rather mortifying to learn that the pig (who is his own dentist) beats us in this respect, since he has no less than forty-four teeth.

Some old folks cut their teeth when far advanced toward centenarianism. An old woman named Dillon, living near Castlerea, in Ireland, cut an incisive tooth in the lower jaw when seventy-five years old; it confirmed a strange hallucination with which she had long been possessed, —that she had been dead, and was come to life again, with the usual infantine career of teething, etc. Mrs. Fussell, living at Acton about a dozen years ago, cut an entirely new set of teeth when about eighty years old, after having been many years toothless. In 1732, Margaret White, of Kirkcaldy, in Scotland, cut eight new teeth in the eighty-seventh year of her age, thus winding up a toothless period of many years. Mrs. Page, a dame of Southwark, after being toothless from the time she was seventy till she was ninety years of age, cut several new teeth.

The Rev. Samuel Croxall, translator of Æsop's Fables from the Greek, "died of fever occasioned by the pain he underwent in cutting a new set of teeth at the great age of ninety-three." Edward Progers, aged ninety-six, died in 1713, "of the anguish of cutting teeth, he having cut four new teeth, and had several ready to cut, which so inflamed his gums that he died thereof." The late Sir George Cornewall Lewis was very skeptical as to people ever living to the age of a hundred; he would probably, therefore, have poohpoohed the story of Robert Lyon of Glasgow, who cut a new set of teeth at the age of a hundred and nine; and still more that of James Hook, of Belfast, who, in the time of Queen Elizabeth, and at the age of a hundred and twelve, "gott a new sett of teeth, w^{ch} has drove out all y^{e} old stumps."

As if to take revenge for these duplications, or rather triplications of teething, nature sometimes requires us to dispense with dental apparatus altogether. At Gayton-le-Marsh, in Lincolnshire, there

is the following epitaph: "Elizabeth Cook, a poor woman, aged 86, and who *never had a tooth*, was buried June 11th., 1798." On the other hand, some folks greatly exceed the orthodox number of thirty-two.

Dampier, in his account of the Philippine Islands, says: "The next day, the sultan came on board again, and presented Captain Read with a little boy; but he was too small to be serviceable on board, and so Captain Read returned thanks, and told him he was too little for him. Then the sultan sent for a bigger boy, which the captain accepted. This boy was a very pretty, tractable boy; but what was wonderful in him, he had *two rows of teeth*, one within another, in each jaw. None of the other people were so; nor did I ever see the like."

The "pearly teeth" of the poet and novelist would not be valued by some of the Eastern and Polynesian nations. The Chinese blacken their teeth by chewing the fruit of the areca, or betel nut. The Tonquinese and Siamese gents and belles, in bringing about the same result by nearly the same means, almost starve themselves for three or four days, while the dyeing is going on, lest the food should disturb the dye. The Sunda Islanders sometimes blacken all the teeth but two with burned cocoa-nut, covering the two excepted teeth with thin plates of gold or silver. The Macassar people sometimes pull out two front teeth, in order to supply their place with teeth of pure gold or silver! Two Italian girls, twins, have been known to have natural teeth of a light red rose color—both the milk teeth and those which succeeded them.

The charms, omens, signs, panaceas, relating to the teeth, constitute quite a formidable item in folk-lore. In some parts of Sussex, England, there is a superstition that if you put on your right stocking, right shoe, and right trouser-leg before the left, you will never have toothache. To drink out of a skull taken from a graveyard; to take a tooth from such a skull, and wear it round the neck; to apply the tooth to your own living but aching tooth; to put a double nut into your pocket; to pare your finger-nails and toe-nails, and wrap up the parings in paper—all are charms against toothache. If you catch a mole in a trap, cut off one of his paws, and wear it as a charm, you will "soon see the effect" provided a right paw be used for a left tooth, and *vice versa*. When an aching tooth is extracted, mix it with salt, and burn it. There is in Norfolk, England, a custom of calling the toothache the "love-pain," for which the sufferer is not entitled to any commiseration; whether he (or she) fully assents to this, may perhaps be doubted. Many other items of tooth-lore have no connection with toothache. For instance, if the teeth are set wide apart, there will be good luck and plenty of traveling for the fortunate possessor. When a tooth is drawn, if you refrain from thrusting your tongue into the cavity, the new tooth to grow in its place will be a lucky one. Lady Wentworth, in a letter written in 1713, to her son, Lord Stafford, spoke of the efficacy of wolves' teeth set in gold to assist children in cutting their teeth: "They ar very luckey things; for my twoe first one did dye, the other bred his very ill, and none of y^e^ rest did, for I had one for al the rest." Bless the good lady; her grammar and logic are about on a par!

Why do some people's teeth come out more readily than others? The reasons for this are probably many. About the middle of the last century, Peter Kalm, a Swede, visited this country, and wrote sensibly about what he saw. He observed a frequent loss of teeth among settlers from Europe, especially women. After discussing and rejecting many modes of explanation, he attributed it to hot tea and other hot beverages; and came to a general conclusion that "hot feeders lose their teeth more readily than cold feeders." Mr. Catlin, who some years ago had an interesting exhibition of Indian scenery, dresses, weapons, etc., noticed that North American Indians have better teeth than the whites. He accounts for the difference in this strange way, that the Red men keep the mouth shut, whereas the whites keep it open. The teeth, he says, require moisture to keep their surfaces in good working order; when the mouth is open, the mucous membrane has a tendency to dry up, the teeth lose their needed supply of moisture, and thence come discoloration, toothache, tic-douloureux, decay, looseness, and eventual loss of teeth. Mr. Catlin scolds the human race generally for being less sensible than the brutes in this respect, and the white race especially in comparison with the red. We keep our mouths open far too much: the Indian warrior sleeps, hunts, and smiles with his mouth shut, and respires through the nostrils. Among the virtues attributed by him to closed lips, one is excellent—when you are angry, keep the mouth shut.—*Sel.*

DISEASES PRODUCED BY DRINK.

BY A. EMRYS-JONES, M. D., SURGEON TO THE ROYAL EYE HOSPITAL, MANCHESTER, ENG.

(Concluded.)

DISEASES OF THE EYE.

CERTAIN functional derangements are aggravated, if not actually caused, by alcohol. Black specks, little rounded beads or bands, or sometimes fly-like bodies called muscæ volitantes, are seen floating before the eye; these often are not due to any structural change, but they are very troublesome and annoying. Alcohol may produce them, or at any rate render them much more noticable, by its tendency to disturb digestion, by its effect upon the nervous system and upon the blood supply of the eye. A chronic congestion or inflammation of the delicate lining membrane of the lid and eye, called conjunctiva, is often produced by drink. In its normal condition it is pale, white, and clear. When irritated, the blood-vessels become dilated and engorged with blood, thus giving it an injected, red, painful appearance. This is often noticed in free partakers of wine; the vinous injection is almost characteristic.

Cataract.—It is very difficult to say what share alcohol takes in the production of this disease, which is an opacity of the crystalline lens of the eye. Some have attributed to it a very great share. I cannot, however, say that my own experience at the Manchester Eye Hospital enables me to form very definite conclusions. As the disease is undoubtedly caused by deficient nutrition, due to an impoverished supply of blood and a consequent loss of the watery constituents of the lens, and as the disease is often found in such diseases as diabetes, where "the watery constituents of the blood are very deficient, so that it assumes great density;" and "this gives rise to an endosmosis (or interchange) of the watery constituents of the lens," which consequently becomes opaque; and furthermore, as alcohol has an insatiable thirst for water, and as it undoubtedly acts injuriously on the blood, it is admissible to infer that it has a decided tendency to produce such changes in the eye. One thing is certain, that the prognosis in the cataract operations of heavy drinkers is never so satisfactory; we always look upon them with suspicion as to the result; the wounds do not heal well, there is a tendency to low forms of inflammation, and, altogether, such cases are tedious and troublesome at best.

Ambelyopia l'otatorum.—This is a name given by ophthalmic surgeons to a disease frequently observed in the out-patient room of any eye hospital. The sufferer, often an apparently healthy, able-bodied man, complains of his sight. He says that it has been failing him for some time, that he has noticed a sort of veil or haze in front of his eye, that he cannot see anything distiuctly, that everything is faint and without definition or outline. He cannot read any but the largest type; glasses are of no service. On examining the eye with an instrument called the ophthalmoscope, by means of which the interior of the eye can be illuminated, we are often not able to detect any structural change. Then we naturally endeavor to find out the cause, and we can find none other than too great an indulgence in drink. The patient admits that he has taken "pretty fair," especially of spirits, and on Saturday nights. What convinces me that drink is the real cause, is that in a large number of cases that I have carefully recorded and watched, I find that where alcohol is entirely abandoned, and the system is brought up by tonic treatment, the sight is restored to its normal condition The blindness is caused by the disturbance of blood circulation and imperfect supply of blood to the retina, that beautiful and wonderful nervous layer where the images are formed. If drink is persisted in, nutritive and structural changes take place, and the optic nerve, which conducts the impressions formed to the brain, becomes quite atrophic, or wasted, and the case is hopeless. It has been my sad lot to see more than one such extreme case, where a strong healthy-looking man, led by an anxious wife to the hospital, had to be told that there was no hope for him, and that drink had been the cause of all this terrible affliction. Such cases occur among men who are by no means hopeless drunkards, but are apparently regular and hard-working men, but at the same time regular and constant drinkers.

DISEASES OF THE LUNGS.

All physicians of note are agreed that drink predisposes to and causes a large amount of lung disease, congestion, and catarrh, leading to further mischief, and that most terrible and fatal disease, consumption. "In the course of an inquiry on the causes of consumption, Dr. Bowditch, the President of the Board of Health in the United States, sent circu-

lars to 210 medical men, asking them whether, in their opinion, alcoholism caused phthisis. Of the 210 appealed to, 109 answered in the affirmative, while 13 were inclined to the same view. To the question whether phthisis in children could be traced to the drinking habits of the parents, 100 answered yes, and 19 were undecided."

Dr. Richardson, who has given great attention to the subject, describes a special form, and calls it alcoholic phthisis. It is most commonly met with in persons about 48 years of age, who have been heavy drinkers, but rarely intoxicated. They have been apparently in good health up to the time of the attack, and have none of the ordinary characteristic appearances of the consumptive. They first suffer from acute pleurisy, an inflammation of the lining membrane of the lung, and feel great pain or "stitch" in the side. Then vomiting of blood from the lungs comes on, and the course downward is hurried. Dr. Richardson says it runs into a fatal termination more rapidly than is common in the other type of the disorder. The alcoholic bears a proportion of 2 per cent to all other forms of phthisis. It is scarcely possible, however, to compute the percentage of cases where drink is an accessory cause. It prevents the proper performance of the functions of the lungs by the deteriorating influence on the blood, which is consequently unable to take up the necessary amount of oxygen from the air. The lung tissue must therefore suffer. Koch, an able German physician, in his last researches on consumption, proves that it is produced by the virus of a special contagion. "He found the tubercles infested with a minute rod-shaped parasite, which, by means of a special dye, he differentiated from the surrounding tissue." This explains why consumption is communicable. I refer to these interesting and important discoveries merely to say that it is possible that alcohol renders the lung tissue more liable to the infection, and, perhaps, a more fertile nidus for these bacilli. Certain it is that inflammation of the lungs proves rapidly fatal in alcoholic patients. They have no strength to withstand it, and it is in the hour of need that alcohol generally proves itself an enemy.

DISEASE OF THE LIVER.

This organ suffers oftener than any other from the influence of drink. Its functions are varied; it purifies the blood by abstracting from it its hydro-carbonaceous products; it forms glycogen, a substance readily convertible into sugar, and it secretes from three to five pounds daily of bile, which possesses powerful antiseptic properties, and aids in the digestion of fatty matters. In structure "the liver is made up of an agglomeration of minute lobules of about 1-20th of an inch in diameter, and composed of the minutest branches of the portal vein, hepatic artery, depatic and hepatic veins, while the interstices of these vessels are filled by the liver cells. These cells, which make up a great portion of the substance of the organ, are rounded, and from 1-800th to 1-1000th of an inch in diameter. Each lobule is invested by areolar tissue." An enormous quantity of blood passes through it, and it should be constantly subjected to the influence of the liver. There is no doubt that alcohol, arsenic, strychnine, and other poisons, linger in the cells of the liver, and in this way their effect upon its structure is intensified. Alcohol undoubtedly increases the functional activity of the gland, and taken in large quantities produces active congestion, a frequent recurrence of which gives rise to structural changes. It is this active congestion that so often causes those bilious attacks some people complain of; too much bile is formed, and so instead of aiding digestion, it disturbs it, and produces headache, sickness, retching, giddiness, etc., etc.

Excessive indulgence in drink is ranked among the causes of inflammation of the liver—hepatitis, a disease that often runs a fatal course.

Fatty degeneration of the organ is also caused by drink. In this affection the cells of the liver are loaded with fat globules, and their true character is completely changed.

Cirrhosis, or Gin-drinker's Liver.—The frequency of the above disease as a result of drink has given it the name of gin-drinker's liver, and its appearance has given it another very expressive name, *i.e.*, hob-nailed liver. In the early stages, the liver is enlarged from exudation into the connective tissue. After a time, this becomes organized into fibrous tissues, and these fibrous bands contract, and press together the blood-vessels and cells of the liver, and both become atrophied and ultimately destroyed. This pressure on the lobules causes an uneven, rugged appearance, well expressed by the term hob-nailed. The organ becomes much smaller

in size, and greatly reduced in weight. In the earlier stages, indigestion, bilious attacks, flatulence, constipation, feverishness, are the most prominent symptoms; later on, from interference with the portal circulation, dropsy is induced, and death occurs from hemorrhage or exhaustion.

Diabetes, a disease in which an enormous amount of grape sugar is formed, and found in large quantities in the urine, is said to be induced by alcohol, but I can find no satisfactory evidence on this point.

DISEASES OF THE KIDNEYS.

Functional derangement of these organs is frequently induced by the enormous extra work thrown upon them mechanically through the consumption of a large quantity of drink. If these are continued, the changes become organic, the structure of the walls and membranes becomes changed into a fatty or granular condition; and by inflammatory and exudative changes, that tedious and fatal affection called Bright's disease is produced, and by it the albumen—one of the most important constituents of the blood—is allowed to pass through its membranes, and can be detected in the urine in large quantities. A tendency to the formation of calculi, or stone, is undoubtedly induced by drink, and by the failure of the eliminatory functions of the kidneys, etc. Gout and rheumatism are often developed; therefore persons suffering from these affections should most scrupulously avoid all intoxicating drinks.

DISEASES OF THE NERVOUS SYSTEM.

As I find material enough for another lecture on this head, I will merely enumerate the different diseases produced under this division, and hope to present before you during the next year a detailed account of them. We often find a greater tendency to inflammation of the brain in inebriates. Alcohol, by its deteriorating influence upon the nervous matter and its covering, upon the blood-vessels and the blood, frequently induces apoplexy, epilepsy, and paralysis. Delirium tremens and dipsomania are types of diseases peculiar to drunkards.

Five types of insanity are due to it, and of these I hope to give you some account.

I must also leave the hereditary diseases produced by drink. I have, however, laid before you a large number of diseases, and I hope at any rate it will induce you to think of these disastrous results, and that by the exercise of your reasoning powers it will induce you all to do your part to prevent them, so as to produce a more healthy community in the present generation, and a vastly improved one, physically, morally, and intellectually, in the next.—*Medical Temperance Journal.*

THE LATEST FOLLY.

"THE *New Orleans Picayune* gives the following description of the manufacture of artificial eyebrows, the latest form of fashionable folly:—

"At a certain 'professor's' artificial leg, arm, nose, and eyebrow factory, yesterday, a number of young women were working at small tables, each table covered with little instruments and things, the like of which I had never seen before. At one, table two girls were threading needles with fine, silky hair, and sewing them in little squares on a thin, transparent gauze.

"'These girls,' said the professor, 'are making some of those beautiful arched eyebrows which you may sometimes see in ball-rooms. These sown on the net are the less expensive kind, and are only used on special occasions. The real brow is very expensive, and can only be made by a person of great skill.' I begged him to explain the operation of giving a person eyebrows who was born without them; and leading me into an elegantly furnished parlor, in which was a large dentist's chair, he continued:—

"'The patient sits here. In this cushion to my left are stuck a score or so of those needles you saw being threaded. Each stitch only leaving two strands of hair, to facilitate the operation a number of needles must be at hand. As each thread of hair is drawn through the skin over the eye, it is cut, so that when the first stage of the operation is over, it leaves the hairs bristling out an inch or so, presenting a ragged, porcupine appearance. Now comes the artistic work. The brow must be arched, and cut down with the utmost delicacy, and a number of hours is required to do it.'

"'It must be very painful and tedious.'

"'They don't say that it is a picnic excursion,' laughed the professor; 'but eyebrows, small as they are, are very important in the make-up of the face. You can have no idea how odd one looks when utterly denuded of hair over the eyes. The process I have described is painful, but it makes good eyebrows, and adds

100 per cent to the looks of a person who was without them. It is, too, much better than the blackening and cosmetics so many people use, especially people who have mere presence of brows, comprising only a few colorless hairs.'

"'Do your sewed-through-the-skin eyebrows last?'

"'For years.'"

INTOXICANA.

Alcoholic fluids are by no means the only intoxicants known and used by oblivion-seeking humanity in different parts of the globe. Bhang, or Indian hemp, is consumed largely among the Hindus and Malays, and produces wild temporary delirium, during which homicidal mania is constantly prominent. If the practice be continued, it invariably ends in incurable and rapidly fatal madness. Opium eating and smoking, unfortunately, are not confined to China or the Chinese. There are houses in London, known to the initiated, where the dreamy pipe is always glowing hot, with charcoal ready for the tiny ball of precious resin, and seldom out of requisition; while the statistics of wholesale and retail druggists lead us to infer that much is taken habitually in private in various forms.

The consumption of opium is said to be especially great among the laboring classes in the Fen districts, by whom, however, it is probably taken not as a luxury, but as the only relief they can obtain for the ague and rheumatism which rack and burn them chronically every second or third day. Quinine costs more than laudanum, and so the latter grows on them, till, from the relief of pain, it becomes an ineradicable vice. The habit of opium-smoking is far more pernicious, if persisted in, than that of opium-eating; but the hideous nausea and headache which follow the trance, even with seasoned smokers, must often act as a deterrent. The pleasurable effects produced by the pipe are said to far exceed those which follow the internal use of the drug. In cities where this practice prevails, one can always tell an opium-smoker at a glance by his ghastly pallor, yellow lips, and wandering, far-off eyes.

Opium, though less expensive than quinine, is still costly enough in this country to prohibit its general use, the best being worth about seventy shillings per pound.

Intoxication by this agent seems to be the most absorbing and ineradicable of all vicious propensities; and the victim is obliged to constantly increase the amount of his daily poison in order to arouse the sensations it produces; so that in some cases laudanum has been swallowed by the wine-glassful, and solid opium by drachms, the medicinal dose of the former being from five to thirty drops; and of the latter, half a grain to two grains.

Scarcely one opium-drunkard in ten thousand is ever reclaimed. When a man has once acquired the habit, he may be looked upon as having less chance of rescue than the most inveterate inebriate from other causes. De Quincey and others have left us graphic accounts of the agonies they endured in giving up the drug, and the almost superhuman fortitude necessary to accomplish the sacrifice. In countries where there is much Chinese immigration,—Guiana, Cuba, and the Western States,—the most stringent restrictions on the import and sale of opium are established; otherwise, John Chinaman would rapidly degenerate, from being the most decent fellow in the world, into a burden and a nuisance.

There is a curious distinction to be drawn between the alcohol-drunkard and the consumer of bhang, opium, sativa, and other brain-heating narcotics. The former drinks for the pleasure of drinking, for the gratification of the palate, and may be said to get tipsy accidentally, though commonly with a sufficent knowledge and recklessness of the result of his potations to constitute him guilty of "culpable negligence" at the very least. In spite of all the boisterous adages about "drowning dull care," and odes to Bacchus and the "bowl," and the "cup," few men sit down with the deliberate intention of drinking themselves into a state of unconsciousness, or temporary insanity. On the other hand, he who swallows or inhales the fumes of the above-mentioned drugs, which are extremely nauseous, does so expressly for the sake of the stupor, fantasy, or frenzy they induce, and usually evades the flavor of them as far as possible. Chloral and Eau-de-Cologne have been declared to be secretly much in vogue, especially with ladies; but the inhalation of nitrite of amyl and of chloroform are the latest vices laid to the charge of the fair sex. Ether, no doubt, is more extensively employed; but for some unexplained reason, its use is almost confined to the lower classes in the north of Ireland

where it actually supersedes whisky to a great extent. Spirit of wine is not allowed to be sold in this country (England) except for medicinal purposes, unless it is first "methylated" with wood-spirit, which gives it an odor and flavor too unpleasant to allow of its substitution for more expensive and less powerful brandy or whisky. It is a very fortunate circumstance that in sugar-growing countries, where the distillate of the refuse—nearly pure alcohol, known as *canha*, *cana*, *cachasse*, *aguadiente* or white rum—is cheaper than milk, the inhabitants are not much given to inebriety, intemperance being very fatal in such climates. In the south of Russia, the peasants become intoxicated on a certain kind of fungus, which is found to develop narcotic properties if dried and stored for some time.—*Sel.*

VEGETABLE POETRY.

A HISTORICAL poet has been trying his hand at vegetables. It is needless to say that our vegetable poet resides in England.

Potatoes came from far Virginia;
Parsley was sent us from Sardinia;
French beans, low-growing on the earth,
To distant India trace their birth;
But scarlet runners, gay and tall,
That climb upon your garden wall—
A cheerful sight to all around—
In South America were found;
The onion traveled here from Spain;
The leek from Switzerland we gain;
Garlic from Sicily obtain;
Spinach in Syria grows;
Two hundred years ago or more,
Brazil the artichoke sent o'er,
And Southern Europe's sea-coast shore
Beet-root on us bestows;
When good Queen Bess was reigning here,
Pease came from Holland, and were dear;
The south of Europe lays its claim
To beans, but some from Egypt came;
The radishes, both thin and stout,
Natives of China are, no doubt;
But turnips, carrots, and sea-kale,
With celery, so crisp and pale,
Are products of our own fair land;
And cabbages, a goodly tribe,
Which abler pens might well describe,
Are also ours, I understand.

—*Young Folks Rural.*

THE LIQUOR TRAFFIC.

THE extent and expense of the liquor traffic in Great Britain, the United States, and Canada, is truly enormous. It has been estimated that 100,000,000 bushels of grain are annually destroyed in the Anglo-Saxon world, to make beer; an amount that would give two barrels of flour during the year to every family in the three countries mentioned. During the last seven years, Great Britain has spent £987,000,000 for liquor, or £200,000,000 more than the national debt of Great Britain. But this was not all; for it cost at least £100,000,000 to pay for the mischief caused. So that the liquor traffic of Great Britain annually costs £241,000,000; or "as much as would support 600,000 missionaries at $1,200 a year, 500,000 schoolmasters at $500, build 5,000 churches at $10,000, 5,000 school-houses at $4,000; would give to the world 200,000,000 of Bibles at 25 cents each, and 500,000,000 of tracts at $1 per 100; would give 100,000 widows $100 a year, and 200,000 poor families $50 per year. In short, would provide a machinery that would evangelize the world in a short time, or pay off the national debt in four years." In the United States the liquor traffic causes a direct and indirect outlay of over $1,400,000,000; while in the Dominion, the present cost of the traffic is about $52,000,000, or over $11 per head of population. An interesting comparison is made to show that a decrease in the consumption of liquor would more than compensate for the temporary loss of revenue, by the restraining of crime and consequent diminution of expenditure. In Vineland, N. J., there is total prohibition. Yonkers, N. Y., licenses 145 saloons, and has in addition 75 places where liquor is sold in violation of the law. Vineland has about 12,000 inhabitants, and Yonkers less than 15,000. Yonkers spends on its police $37,000, and the police duties of Vineland are performed by one constable at the annual expense of $75. Yonkers has a police judge at a salary of $4,000, and a clerk that is paid $800. Vineland has no police court, and needs none. The paupers of Yonkers cost the town $12,000; Vineland has only six; pays $400 for the same. Altogether, these articles of expense cost Yonkers $43,800; in Vineland $475. Making proportionate allowance for the difference in population, the government, so far as the expenses are concerned, costs more than ninety times as much as that of Vineland.—*Christian Guardian.*

—Observe a tree, how it first tends downward, that it may shoot forth upward. Is it not from humility it endeavors to rise? There are those who grow up into the air, without at first growing at the root. This is not growth, but downfall.—*St. Augustine.*

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.

BE TRUE.

THOU must be true thyself,
If thou the truth wouldst teach;
The soul must overflow, if thou
Another's soul wouldst reach;
It needs the overflow of heart
To give the lips full speech.

Think truly, and thy thoughts
Shall the world's famine feed;
Speak truly, and each word of thine
Shall be a fruitful seed;
Live truly, and thy life shall be
A grand and noble creed.

—*H. Bonar.*

SKETCHES OF TRAVEL.—NO. 5.

BY MRS. E. E. KELLOGG.

SALISBURY AND THE STONEHENGE.

BEFORE leaving England, we made an excursion to Salisbury, famed for its beautiful cathedral, the loftiest in the kingdom. It is the pride of the place, and as is common with many large buildings in England, has a legend, as follows :—

"As many days as in one year there be,
So many windows in this church you see ;
As many marble pillars here appear
As there are hours throughout the fleeting year;
As many gates as moons one here does view ;
Strange tale to tell ! yet not more strange than true."

The cathedral is built in the shape of a Greek cross, and is the best example of pure gothic architecture in England. It contains many monuments of interest and beauty, among which is one to Bishop Thomas, who, at his fourth marriage, had this cheerful inscription upon his wedding ring : "If I survive, I'll make it five."

A drive of nine miles over a gently undulating country of woodland and field, past groups of farm-houses with picturesque lanes and hawthorn hedges, solitary shepherd's huts, and an occasional ivy-grown church, brought us to Salisbury Plain, a vast meadow of velvety green grass, flecked with the white blossoms of English daisies. Its broad acres are unconfined by hedge-rows or fences, and unadorned with human habitation. Here, alone and solitary upon this broad expanse of meadow land, stands the Stonehenge, or hanging stones, the most perfect existing ruins of the ancient open temples built by the early Britons as sanctuaries for worship in their strange and cruel religion, the religion of the Druids. In an area some three hundred feet in circumference stand three concentric circles of massive granite boulders, some of them twenty feet in height and weighing from eleven to seventy tons; many of them still connected by enormous flat stones lying across their tops, as perfectly fitted in their places as modern masonry could have arranged them. In the center is a large stone altar, and adjacent is the *cursus*, or auditorium, where the assembled people are supposed to have stood during the Druidic ceremonies. Just what these ceremonies were, is not known; but it is supposed their religion was a mixed worship of the sun, moon, and other heathen gods, and that their forms of worship included human sacrifices, the torture of criminals, and on special occasions the burning alive of immense cages full of animals or human victims. The priests, or Druids, were careful to keep all ceremonies as secret as possible, and taught the ignorant people to believe them wonderful magicians.

The Stonehenge was doubtless designed as a temple to the sun, since the altar upon which the victims were slain, and which is still to be seen, was so placed that the rays of the rising sun upon the longest day of the year fell directly across it.

One remarkable feature of the Stonehenge is the fact that no stone like that of which these ruins are composed has ever been found within an area of more than fourteen miles, and there can be no doubt that these huge blocks of granite were brought from a great distance; and when we recollect the meager facilities of those early times for transporting and placing in their present position such enormous boulders, we can but regard these ruins as a most wonderful monument of human skill and strength.

Upon the Plain are many ancient burial mounds, or *tumuli*, of later Roman times. A few miles distant are the ruins of Old Sarum, once a Roman citadel, and afterward a Saxon town, famous for the privilege it had, until the passing of the Reform Bill in 1832, of sending two members to Parliament, though without a single inhabitant.

A TOUR IN MAINE.

BY JULIA COLMAN.

ABOUT fifteen years ago, I had come to a point in my temperance investigations where I desired to examine for myself the condition of things in this foremost temperance State. I wished to know the truth about the actual absence of in-

toxicating drinks in Maine; but I wished still more to know what peculiarities had led to her being in advance of other States, and what particular lines of work were followed in bringing about this result.

Circumstances favored my desire, and in due time I found myself, under favorable auspices, booked for a course of lectures in the Dirigo State, extending from Bangor in the northeast to Saco in the southwest, taking in most of the principal cities, many of the smaller towns, and some country places, so that I had the variety that I desired. In the larger places I would be sure to see the signs of the traffic if it existed; and in the smaller, I would be more likely to meet with those enthusiastic people who take the lead in all good works, and who are always ready to discuss the situation with those who either fall in with their line of thought, or directly oppose it,—those who suggest anything really hopeful or helpful. It was understood that I was a "radical of the radicals" on the scientific aspects of the question, my principal lecture being "Alcohol our Enemy," so that I had some prospect of calling out latent thought in that direction.

At that date a female lecturer was more of a novelty than at the present time, and it was perhaps some addition to the novelty that this one hailed from the wicked city of New York, and proposed to come up to Maine and talk to them on temperance! Sooth to say, the venture did seem rather bold; but the facts of science are the same the world over. If the ladies appreciated the importance of these facts, they would be glad to have them presented to the people in a new dress; and if they did not, then it was high time they should; for the facts of science lie at the very foundation of this reform, and the better they are understood, other things being equal, the more wisely will the reformers build. If alcoholic liquors are adapted to the needs of the human system, if they really warm, or nourish, or help digestion, men will be likely to go on using them. If they do not, if they act only the part of the deceiver, then it is a great help to have that fact shown, and these deceits exposed, as by this means many will be led to correct their own practices, and to join others in earnest and intelligent efforts to banish the deceiver. In either case I saw plenty of good, honest work to be done; for I was already sufficiently read up in the literature of temperance to be pretty sure that they had not a very large supply of scientific reading, and if they had, I desired to get at it.

The results justified my anticipations in many respects. It was a good place to learn; the people were active and thoughtful, willing, and often glad to talk on the philosophical aspects of the question, and highly appreciative of such scientific facts as I was able to put before them. It was to them a live subject. Houses were filled; long leaders in the daily and weekly press contained resumés of the lectures; physicians attended, sometimes by the half-dozen; and men of social rank were not afraid to indorse advanced positions. "You have got down to hard pan now," said a minister. "I enjoyed your lecture; it helped me refresh my chemistry"—this from a doctor; while a statesman and editor took some pains to come to me and say, "This is the doctrine I have long been urging. We *must* dispense with the use of alcohol in medicine." And he set forth the whole subject amply in his widely circulated journal. But what I valued still more was the quiet assurance of a stylish lady, wife of a prominent railroad official not known as a temperance worker, who said, "I liked so much that part of your lecture where you spoke of alcohol as a medicine. It always seemed to me the only consistent thing to do—banish it entirely. I have never had a drop in my house for any purpose during the twenty-five years of my housekeeping." This indicated a strong motive power somewhere in the past

In many ways during this trip, as elsewhere, did I receive proof of the deep interest that can be awakened by the discussion of the scientific aspects of the question in popular lectures. Believing, as I do, that this knowledge must become general, in order to place our redemptive and legislative efforts on a secure foundation, I hail with the most unfeigned delight the increasing number of scientific lecturers who are patronized by the public to their great satisfaction, and the increasing number of speakers of all sorts who introduce scientific facts into their public addresses. These are the *raisons d'etre* of our temperance work.

During my stay in Maine, I found that these scientific ideas had gained far stronger hold among thoughtful people than in most other States. I found more people here who believed they could dispense with alcohol as a medicine (which was a sort of test point) than during three times as many lectures in other States. I had reason to believe that this was largely owing to the lectures and publications of such men as Dr. Jewett and his co-laborers in Massachusetts, who did quite an amount of publishing and other work in the scientific line, even previous to the Washingtonian reformation. Maine, being a colony from Massachusetts, was greatly influenced by the latter, and received much of her literature from that source. At the same time, she received it into a better soil, so to speak. Her population was more uniform, and had less of the fresh foreign admixture. It was very much as though Massachusetts had sent off some of her original Puritan stock into a quiet corner by themselves to work out some great problem; while she took care of the foreign element, which came in, and settled all through her territory, partly attracted by her manufactures. Maine was at first mostly agricultural, and has only of late gone largely into manufactures. This gave her a uniform population, capable of education, which she gave them all. Proof of all this can be seen even now, throughout the greater part of the State. The domestic help, farm hands, stage drivers, and other employes of all sorts, are native Americans, with comparative refinement, culture, and intelligence. Oliver Wendell Holmes tells the same thing in his poetic way, when he speaks of

finding a "prince in disguise" as a common sailor, handling the ropes of a vessel from Maine.

In common with all the other New England people, the inhabitants of Maine inherited the drinking customs of Old England, renewed during the French war, when, serving with the British troops, they received their regular rations of West India rum. It is on record that after this, West India rum became popular in New England, the farmers buying it by the barrel.

But Puritan thrift, intelligence, and religious principles were all antagonistic to the drink habit. The Puritans of Cromwell's time very suitably presented to the Protector the drunkards and the drinking habits of their times, as nuisances that should be abated. I believe that if the New England people could have lived by themselves, say after the Revolution, without being constantly diluted by an immigration which then began to come for money more than for religious freedom, they would long ago have solved the temperance problem. In Maine a small section of this people, in comparative isolation, have had a better chance than the rest, and they have come much nearer to success. What they have done is enough to give anybody courage. You may travel all through the streets of the most of their principal cities, and not see a rum shop. I am not saying that one could not be found if it were searched for. I did not search; but I went through all sorts of streets promiscuously, and I saw no saloon doors standing open to entrap either the thirsty or the unwary. I rode in all sorts of conveyances, public and private, and I did not even see a hostler with the signs of drink upon him. Upon only one person did I see them, and he was unmistakably an Englishman on the Grand Trunk Line, near the Canadian border.

Certainly temperance has achieved a very remarkable degree of success in Maine; and though it is evident that we cannot very well in any other State have the original elements of success which have given them the advantage, yet I believe we may be able to learn some excellent lessons from their experience, which will be a very great help to us in our future efforts in the same direction.

GETTING A COUNTRY PRACTICE.

BY ROSALIE GRAY.

(Concluded.)

THERE was an air of command in Dr. Minturn's manner which enforced obedience, and mechanically the men and women, who had seemed almost like mummies, proceeded to execute his orders. The sick woman was soon moved, and quickly began to revive under the influence of the fresh, cool air. Her numerous attendants, having nothing further to do, proceeded to arrange themselves against the walls of this room.

"I cannot allow this," said the doctor. "You will undo all that I have done. But one person at a time must stay in the room with her. I wish her to have pure air to breathe; and there is to be no whispering here; if you have anything to say, say it in an ordinary tone."

And he held the door open in such a decided way that all but the commander-in-chief passed through.

"Boys, you had better go out to play," he remarked, as George Washington and Thomas Jefferson were bunglingly trying to walk on tip-toe.

They needed no second admonition, but were soon rolling on the grass, and our friend was henceforth enshrined in their hearts as "a bully doctor."

The recovery of this patient was rapid, and Dr. Minturn, in consequence, won some reputation as a skillful practitioner. His prompt, decided manner had gained for him the respect of those who had been made to yield to his power, and the result was some little practice. Finally, another case fell into his hands, which proved to be of the utmost value to him.

Miss Dickford had been confined to her bed for many years, and her case had already baffled the skill of twelve physicians. It had been her custom to send for every new one who came into the neighborhood, and each one in turn had doctored her for pretty much every disease that human flesh is heir to, but in vain; she was still burdened with every imaginable pain and ache, and was unable to turn without assistance. Assistance, however, she always had in liberal quantities, as it was well known that she possessed a large fortune, and it seems to be human nature to sympathize most deeply with those who are thus situated. She had heard of Dr. Minturn's skill in the case just cited, and therefore sent for him. He had also heard of her, and had made up his mind that a diseased imagination was the sole cause of her illness.

A drive of a few miles brought Dr. Minturn to the residence of his new patient. After he had carefully felt of her pulse, examined her tongue, and made a few inquiries, she languidly opened her eyes, and asked, in a suppressed whisper, as though she was almost afraid of disturbing her own departing spirit,—

"Do you think there is any hope for me, doctor?"

"Hope for you?—Yes, to be sure I do. I will have you out in two weeks, if you will only follow my directions faithfully. I saw several such cases in the hospitals. All that is required is a physician who

understands your disease, and, on your part, perfect obedience to his orders."

A faint smile flitted across the countenance of the invalid, and she found the strength to shake her head slightly. "Oh, no, doctor! you do not know how sick I am; if you have me out in two years, you will go beyond my most sanguine expectations."

"Very well, ma'am," said her visitor, rising.

"Why, doctor," she asked, in alarm, "are you not going to do anything for me?"

"No; there is no use in attempting the case unless I can have strict obedience; and I see that you are not disposed to give it."

"I will promise to do whatever you say; pray do not leave me, for I was really in hope that you might give me some relief."

"My relief will be a perfect cure; but, in order to effect this, you must not vary one iota from my instructions."

Faithful acquiescence in all his orders was solemnly promised. And the patient, thoroughly aroused and excited by so much earnestness, and such perfect certainty on the part of her companion, watched his movements with the utmost interest.

Taking from his package of medicines a small bundle of pulverized carbonate of magnesia, colored with tincture of cochineal, which he had prepared expressly for this occasion before leaving home, he proceeded to measure it very carefully on the point of his knife-blade, and make it up into tiny powders.

Miss Dickford's eyes dilated as she watched him, and she forgot to talk in a whisper.

"What a very beautiful color!" she exclaimed. "I never saw any medicine like that before."

"No, of course you never did; it is something entirely new, and probably has never been heard of by the doctors of this neighborhood. You know I have just come from the city hospitals; there are constant improvements going on in our profession." And holding his knife-blade, which contained some of the powder, critically before his eyes, he carefully removed an atom or two before doing it up in bits of paper.

When he had finished, he counted his powders twice, and then seemed to be buried in a brown study, from which he finally merged with the remark,—

"I don't know whether it will be quite safe to leave these with you."

"Why?"

"Because they will have a very powerful effect, and it is absolutely necessary that my instructions should be followed to the letter."

"But I will promise faithfully to follow them. I will not vary one iota," said the excited woman.

The doctor laid down the powders, saying,—

"Let me see your watch."

The time-piece was handed to him, and he compared it with his own.

"Yes, it is right; you may time yourself by this. Take a powder now, and in just three hours and a half, (three and a quarter will not answer,) you may take another. Continue to take them at intervals of three hours and a half through the day, until six in the evening; after that, if it is only a minute after, you must not touch them until six o'clock in the morning; then begin again, on the very minute, and continue them through the day, as before. The effect of these powders will be quick and wonderful, if the rules are strictly adhered to, but if not, I will not be responsible for their effects. By to-morrow you will feel like sitting up, but there again I must caution you; if you exert your newly acquired strength too soon, you will lose it. Lie still until the day after to-morrow; then you may allow yourself to be propped up with pillows, and sit up in bed as long as you like; but you must not leave the bed until I see you again. I will call day after to-morrow. I have given you powders enough to last until then."

"But, doctor," said the lady, hesitatingly, "if I do not feel even like sitting up in bed?"

"You will feel like it," was the reply, in a decided tone. "I know the power of my medicine. The trouble will be to keep you from going further." And the doctor went home, having already effected half of the cure.

In two days he called again, and found his patient sitting up in bed, her eyes bent attentively upon her watch, which she held in her hand, waiting for a half minute to expire before she could take her medicine.

"This is just as it should be," said the doctor, in a cheerful voice. "I see, by your improvement, that you have kept your promise."

Miss Dickford swallowed her powder, and looked up at her visitor.

"Now you are restless and tired of bed, and would like to make another move," said the doctor, in a confident tone.

"Yes—may I?"

"Not to-day," was the decided reply. "I will call again to-morrow, and if you continue to improve so rapidly, which you certainly will if you follow my orders strictly, you may occupy a rocking-chair."

By the next day Miss Dickford was ready to move on.

"Your medicine is really wonderful, doctor," said she. "Just think how many years I have lain there, unable to raise my head, and now you are curing me so quickly!"

"I knew there would be no difficulty if I could have my orders obeyed," was the reply.

The next step in her recovery was walking. This had to be undertaken very cautiously; for she had been out of practice so long that she had entirely forgotten how, and the lesson of her babyhood had to be taught her over again. It was all accomplished, however, in good time; and at the end of two weeks she had thrown aside crutches, and all other assistance, and was walking with as steady a step as any one.

Miss Dickford could not say enough in praise of the new doctor. His wonderful cure was looked upon by the whole community very much in the light of a miracle. Patients poured in upon him constantly.

The little unpretending house of three rooms became a formidable opposition to the imposing mansion on the other side of the street. Dr. Jagger continued to shake hands with the same bland smile; and he congratulated the young man upon his success, while he unwillingly admitted to himself that this "clever boy" was a little to be feared. Finally, he called upon his young brother in the profession, and proposed a partnership upon equal terms, to which our friend acceeded.

It was not many years before the house of three rooms, which Dr. Minturn had, in the meantime, purchased, became a wing to the larger edifice which arose beside it. Annie always laughingly declared that this was built upon a foundation of cochineal and magnesia.—*Peterson's Magazine.*

THE pleasure of doing good is the only one that never wears out.

ADULTERATION OF WINE.

THE following facts should be interesting to wine-drinkers:—

The American Consul in Paris calls the attention of his Government to the manner in which French wines are adulterated otherwise than by mixing those of poor quality with stronger wines or brandy, such mixing not being necessarily prejudicial to health. A liquid is largely sold as wine which is manufactured of water, vinegar, and logwood, with a tenth part of common wine from the south of France to cover the fraud. Not only is wine falsified by adding cider, sugar, molasses, tartaric, acetic, tannic, or sulphuric acid, lime, alum, bitter almonds, leaves of the cherry-laurel, etc., but it is largely manufactured without the slightest pretense of being associated with the grape. The result of the fermentation of the juice of the grape is imitated by means of fermentation with water of sugared substances, such as syrup of fecula, dried fruits, and raw sugar, or of juniper berries, corriander seeds, and fresh rye bread. After fermentation, the liquor is racked off, and if it is not sufficiently colored, an infusion of red beet or myrtle berries is added. In order to correct the acidity, some makers are unscrupulous enough to use litharge, thus affording to the drinkers the probable chance of an attack of colic. In the Departments of Hérault, Pyrenees, and Var, lime is used to heighten the color of the wine and reduce the lees; but by so doing chemical changes supervene, with the effect of a purgative and even corrosive nature to the liquid. Alum is principally used to produce the styptic which belongs to Bordeaux wine. The coloring matters generally used are dwarf and black elderberries, myrtle and phytolacca berries, Brazil and Campeachy wood, beet juice, rose mallow, cochineal, fuchsine or aniline red, and, more especially, grenat, the residue of the fabrication of fuchsine of red or violet aniline, and rose aniline salts. Some of the coloring wine tinctures sold under fancy names contain arsenic. The most successful of all these coloring matters is the brown grenat, which imitates as nearly as possible the natural color of wine, while its elements are nearly the same. The logwood appears to be most in favor in the Paris manufacture of wine, as it gives young wine the color of the old; while beet, fuchsine, and cochineal are the usual agents in the south of France, and elderberries

are most used in Portugal and Spain. This latter offers to the consumer the advantage of being of a purgative character, and thus enables him to kill two birds with one stone.

PROCRASTINATION.

MRS. WHITNEY says, in one of her books, that "the things that are crowded out of a life are the test of that life," and we believe that the saying is true in its widest sense. Examine our lives closely, and we shall find that we constantly delude ourselves with the idea that we would accomplish certain things if we had time, when in truth we have no real desire for those things. One person will say that reading is out of the question, another will bewail the impossibility of maintaining social relations, a third will avow that charitable or benevolent enterprises would delight her if she might only engage in them; and all the time the good people are comforting themselves with a fallacy. The things for which they do find time are the things they prefer. The things which are crowded out are the things which they would not choose if life lay unemployed before them.

Scores of wives and mothers are busied constantly with their family cares, but not one in every score loves music enough to steal time for practice. Hundreds of young men are forced by stress of circumstances to work hard for daily subsistence, but only one in a thousand, perhaps, conquers the difficulties of his position, and makes a name for himself. This one might not have found his way easier, or its upward steps less toilsome; but he wanted to succeed, and so wanting, he let nothing needful be crowded out.

And what is true of things mental or moral is true of things spiritual. If we neglect the duties that bring peace to our souls—prayer and reading God's holy word—we need not excuse ourselves by saying or thinking that we have "so little time." We must find time. Hours and opportunities must yield their fruit to us; conscience must not be soothed by evasions too flimsy to bear the test of serious thought.—*Christian Intelligencer.*

—Mr. Gladstone, the English premier, has said, that the intemperance of the Anglo-Saxon races, especially Englishmen, Scotchmen, and Americans, has injured us more than war, pestilence, and famine.

WITNESS MY HAND AND SEAL.

IN the year 800 after Christ, what was the state of Europe? The Goths, the Vandals, the Franks, the Huns, the Normans, the Turks, and other barbarian hordes, had invaded and overthrown the Roman empire, and had established various kingdoms on its ruins. In the then so-called Christian nations, there existed no science worthy of the name, no schools whatever. Reading, writing, and ciphering were separate and distinct trades. The masses, the nobility, the poor, and the rich were wholly unacquainted with the mysteries of the alphabet and the pen. A few men, known as clerks, who generally belonged to the priesthood, monopolized them as a special class of artists. They taught their business only to their seminarists, apprentices; and beyond themselves and their few pupils no one knew how to read and write, nor was it expected of the generality, any more than it would be nowadays that everybody should be a shoemaker or a lawyer. Kings did not even know how to sign their names, so that when they wanted to subscribe to a written contract, law, or treaty, which some clerk had drawn up for them, they would smear their right hand with ink and slap it down on the parchment, saying, "Witness my hand." At a later day some genius devised the substitute of the seal, which was impressed instead of the hand, but oftener beside the hand. Every gentleman had a seal with a peculiar device thereon. Hence the sacramental words now in use, "Witness my hand and seal," affixed to modern deeds, at least serve the purpose of reminding us of the ignorance of the Middle Ages.—*Sel.*

HISTORY OF GLASS.

IN the year A. D. 676, "messengers were sent out," according to Bede, from Wearmouth, England, to Gaul, France, to fetch makers of glass (artificers), "who were at this time unknown in England, that they might glaze the windows of the church, with the cloisters and dining-rooms." Bede adds that "they taught the English nation their handicraft, which was well adapted for inclosing the lanterns of the church, and for the vessels required for various uses." About this time Archbishop Wilfred, of York, "filled with glass" the windows of the cathedral, previously "open to the weather," and "such glass," says one, "as permitted the sun to

shine through;" from which it may be inferred that glass was made that was impenetrable to the sun's rays. It was recorded, in connection with this cathedral, that "great astonishment was excited, and superstitious agency suspected, when the moon and stars were seen through a material which excluded the inclemency of the weather." Still, the adoption of glass was slow; for in 1214 Robert de Lindeley, Abbot of Peterborough, employed glass "in beautifying thirty of the windows of his monastery, previously stuffed with straw to keep out the wind and rain;" and for some generations later the domestic windows of England were not furnished with glass, but lattice. When glass windows were first introduced, they were not fixtures, but were regarded as movable chattels, and were so considered until about A. D. 1600. —*Sel.*

WHY NOT?

GASPAR BECERRA, in Longfellow's beautiful poem, had taxed his utmost skill to carve an image of the Virgin in precious wood brought from an Eastern island; but work as he might, his ideal baffled and escaped him, until a voice came in from the night bidding him seize the burning brand of oak and shape his thought from that; and straightway the image grew into beauty under his touch.

"That is best which lieth nearest;
Shape from that thy work of art."

The world is full of Gaspar Becerras, who neglect the thing that lies next, and are always waiting for the rare and precious thing which is to come from out of the dim distance. The present opportunity is too small and mean, the present work too menial, the present duty too insignificant, to be done with heart and soul; when the great chance comes, and the great call is heard, then the man will bestir himself and show his mettle! But how is the great enterprise to be carried through, when there has been no preliminary training in lesser undertakings? how is the great leader to be written by the pen that has never been taught to turn the terse sentence that puts the heart of the matter into a few ringing words? how is the poem of the century to be composed when the poetic instinct has rejected all minor inspirations?

Every craft that has power or excellence in its exercise has its apprenticeship, and there is no way to mastery except by this way of probation. Goethe will try his hand at many things before Faust lies finished upon his writing table! Carlyle will spend years in hard study, and fill the pages of encyclopedias with laborious articles on many themes, before he astonishes the world with the essay on Burns; Huxley will serve a long apprenticeship of drudgery before he wins the attention of scientists; Edison will make numberless experiments before he sends half a dozen messages simultaneously along the same slender wire.

The thousands in small towns, and with small opportunities, who are idly bewailing their exclusion from the great world, and flooding the newspapers with inquiries as to how they shall better their condition, are anxious to reverse the whole order of nature, and produce perfect fruit without the preliminary stages of growth. They expect their flabby muscles to win in the struggle with trained athletes, their untrained speech to drown the voices of veteran orators, their poor, half-wrought work of the pen to eclipse the work that has come to symmetry and power by virtue of long years of effort, self-denial, and patience. There is no royal road to any worthy success, and the greatest misfortune that can befall a young man is to win honors before he has grown up to them. He who respects his work so highly, and does it so reverently, that he cares little what the world thinks of it, is the man about whom the world comes at last to think a great deal. To save one's life by losing it is a mystery which underlies all forms of activity as truly as it underlies religious experiences.

There is nothing wrong in the discontent with meager opportunties which all aspiring natures feel, but the true way to make great openings for one's self is by putting all one's soul into present work. Flood the narrow channels of your activity with the enthusiasm and the spirit of fidelity, and they will inevitably broaden to meet the current of your soul. If the precious wood is not at hand, take the burnt fagot, and carve it with whatever of truth and skill are in you. Test it. Why not?—*Sel.*

—"I believe that mine will be the fate of Abel," said a devoted wife to her husband one day. "How so?" inquired the husband. "Because Abel was killed by a club, and your club will kill me if you continue to go to it every night."

WHAT TO DO WITH GIRLS.

SOME time ago, a writer published a book, entitled, "What will my Boy Be?" and a certain reviewer said of it: "If your boy turns out no better than your book, he'll be hanged." A lecturer in Kentucky has announced as his subject for a lecture, "What shall we Do with our Girls?" How would it do to give them three square meals a day, make them wear clothing that fits them easily, keep "yellow-covered" books and papers from them, prevent them from hiding their foreheads with hair, and try to raise them to help their mothers in all household affairs, until they are called to help their husbands? We merely suggest, and do not dogmatize.—*Best Words.*

Ideals.—Every man has his ideal of some sort; some goal toward which he is pressing. There is a farther shore of human desire and effort. To some it lies among the pleasures or riches of the world; to others, in the direction of mere worldly wisdom; to still others it may be that just visible line of perfect being, where the soul, in the exercise of all its powers, shall give praise in its every moment. This impulse, which lies buried in human nature, does not always result in progress, either for the individual or for society, owing to the perverted judgments and depraved tastes by which it is often misdirected. We are all filled with a restless energy which is pressing us forward toward something beyond. Well it will be for us if that something is true, lofty, spiritual. If any man is satisfied with present attainments, with what he is or what he has accomplished, he is blind to his own defects, and has lost the ambition of life. Ripe fruit is garnered, or falls to the ground and perishes. This is the law of nature. The shock of corn that is matured, God garners. Continued life gives room for continued advance and service.—*Sel.*

—A young lady who had been married a short time, lately told a "bosom friend" that there was only one thing more astonishing than the readiness with which Ned gave up smoking when they became engaged, and that was the rapidity with which he took to it again after they were married.

POPULAR SCIENCE.

—The people of Virginia are engaging in a new industry,—the manufacture of flour from peanuts.

—Among the various substances which have been found on the "coating" of human tongues, as shown by microscopical examination, are the following: Fibers of wool, cotton, linen; fibers of muscle, in one case eight hours after eating; starch, grains, cheese-mold, scales, moths, etc.; hairs from legs of bees; hairs from legs of spiders; pollen of flowers; hairs of cats, quite frequently; and many other fragments of different kinds.

—Two aeronauts, a Belgian and a Frenchman, have recently succeeded in accomplishing the feat of crossing the English Channel in a balloon, so often unsuccessfully attempted. In his account of the voyage, one of the participants says, "Not only the land lay below us like a map, but the bottom of the sea was clearly seen in all directions; every channel and shoal was easily marked, and formed a fibrous net-work. By the aid of instantaneous photography and the balloon, our knowledge of the sea could be very greatly increased; charts of greater exactness than any existing could be made of the bottom of the sea, at least of shoals shallow enough to offer danger to sailing crafts."

A Forest at the Bottom of the Lake.—A Nevada paper gives the following interesting account of a curious formation in Lake Tahoe, which, until recently, was supposed to be a bank of moss: "It looked as if a lot of trees had sunk to the bottom of the lake, and that moss and slime had collected there until the whole presented a wavy, semi-transparent appearance about fifty feet below the surface. During the past few weeks, the moss and debris have disappeared, and now when the water is clear, a forest of pine trees can be plainly seen, with every limb and twig perfect. On Wednesday last, some fishermen went out there in a boat, and lowering some grappling irons, secured several splendid pieces of the petrifaction. One is a pine branch about three feet long, which, held a few feet from the eye, has the exact appearance of a pine branch just taken from a living tree, and apparently fresh and green, the brittleness and weight distinguishing it from the freshly cut branch. The forest occupies about two acres, and seems like a forest immersed, except that its stony branches are forever still, and the tall weeds and vines which cluster about the trunks of the giant trees are as motionless as the rocks. No wind ever stirs this strange verdure, and the birds, which sang in the branches centuries ago, have given way to fish, which swarm through the forests."

GOOD HEALTH.

BATTLE CREEK, MICH., SEPTEMBER, 1883.

J. H. KELLOGG, M. D., EDITOR. TERMS, $1.00 A YEAR.

A HYGIENIST ABROAD.

IN ITALY.

WE believe we left our readers in Italy, with a promise to invite them to ascend Vesuvius with us, and we now fulfill our promise. We must take an early start, as we have planned to see Pompeii and Herculaneum on the road, and we have a very large day's work before us.

Our guide and carriage, having been engaged the night before, are on hand in good season; and taking an early breakfast of hot milk, graham bread, and oranges, we are off in good time. Our road leads us the whole length of the city of Naples, and thence along the shore of the beautiful Gulf of Naples, through a number of little villages, to the objects of our journey. As we pass along the busy thoroughfare, we meet long trains of peasants coming in with their loads of vegetables,—some carrying the products in huge baskets upon their backs, others driving before them great heaps of lettuce, radishes, greens, and other early vegetables, beneath which one is barely able to discover a pair of long ears in front and a tufted tail behind, indicating that underneath the mountain of green stuff a patient little donkey is trudging along with his ponderous load. Here comes a sturdy peasant woman, with a great pile of onions upon her head, strong enough to bring tears to the eyes of a sphynx. A little farther on, we meet a goat-herder, with his two dozen goats, which he brings into the city every morning, and drives around from house to house, supplying his customers with fresh, warm goat's milk, which they feel confident is not adulterated, since with their own eyes they see it brought fresh from the fountain. But we must not be too sure about the adulteration. A careful investigation may perhaps reveal the fact that our Italian milkman is quite a Yankee in the way of inventing means for adulteration without detection. Perhaps he never made wooden nutmegs, but he has constructed a little rubber pouch to be carried under his arm beneath his coat, and supplied with a long tube passing down his sleeve to the palm of his hand, by means of which he can water the milk at pleasure, without fear of detection, unless he makes too great a dilution, and even then it would be easy to explain that the goats had been unusually thirsty.

Ah, here is a macaroni factory! We have never been quite able to believe that yarn told by the Autocrat of the Breakfast Table, to the effect that macaroni and vermicelli are produced by the bread-tree, the former consisting of the larger stems, and the latter of the small twigs; nor that incredible assertion of his that the government of the macaroni-producing country requires that the tubes be each provided with a piston, for the purpose of dislodging from the interior various small insects which take up their habitation there, although we have no difficulty in believing that the insect inhabitants are something more than a myth. However, here we have an opportunity to solve the mystery of macaroni, and we must improve it.

We understand that the manufacturers keep their process something of a secret; but fortunately for us, in this one case at least, the morning is so sultry that the workmen are obliged to have the front doors open for ventilation, and so we can take a sly peep inside, and observe what we can. The first thing we notice is a couple of boys hopping up and down on a spring-pole. They seem to be having a jolly time, and we wonder that their overseer should allow them to spend their time in such a frivolous manner. On expressing as much to our guide, he explains to us that the spring-pole is a kneading apparatus, and points out the fact that near its stationary end is a large roll of dough, which is being squeezed and kneaded in the most thorough manner while the boys are having a jolly time at the other end, the dough having first been made by mixing with boiling water. After it has been sufficiently kneaded in this curious manner, it is placed in another machine over at the right, through which it is forced, coming out in the shape of cylindrical tubes about two feet in length, which are hung over poles and carried away to dry. Every vacant space in the large factory is filled with these poles of freshly-made macaroni, and for several rods in front of the building, one-third of the street is occupied in the same manner. The street is a very dirty one, and hundreds of vehicles of every description are passing, so that the air is constantly filled with dust; and the macaroni is very well adapted to catch and hold this flying dirt of miscellaneous character. Perhaps this is what gives to it its usual gray

color. Be this as it may, the manufacturer has no particular concern about it, as any addition of this sort will only add weight to his product. Our guide assures us that this particular firm is famous for its fine quality of macaroni. For ourselves, our relish for this particular variety of food was never very strong, and a more intimate acquaintance with it has not increased our love for what a friend of ours denominates "boiled pipe-stems."

But we must hasten on our journey, or night will overtake us before we get down from the mountain Here is an interesting sight, however, and we must pause a moment. We are just passing a large tannery, and twenty or thirty workmen, most of whom seem to be boys of fifteen or sixteen years of age, are taking their breakfast. It is the custom here to begin work about six o'clock in the morning, and take breakfast between eight and nine. What do you think they are eating? "Beef-steak," says an English friend, who imagines that no one can work without meat, pork, and potatoes. An American backwoodsman argues that nothing "sticks by the rib" like fat pork. "Bread and butter and black coffee," says a friend who has heard that that is the breakfast dietary in most European countries. You are all mistaken. Our tanner boys are making a breakfast of boiled chestnuts. They are gathered around an old woman who keeps a chestnut stand at the street corner, and has a large iron pot boiling over a cheerful fire, from which she ladles upon little tin plates a small quantity of chestnuts for each, which disappear into hungry mouths as rapidly as they can be conveyed there, by fingers not over-scrupulously clean. This is the way these workmen take their breakfast every day; and when night comes, and their day's work is ended, they regale themselves with a generous dish of boiled macaroni, seasoned with tomatoes. These men labor incessantly many hours a day, and yet many of them do not taste meat half a dozen times a year, except now and then a little fish.

But while we have been telling you all this, our driver has been hurrying on his horses through one village after another, and now we have reached a large stone building, which our guide informs us is an entrance to Herculaneum. We purchase tickets and a special guide-book, and, accompanied by a government guide, who supplies us each with a torch, descend several flights of stairs, until we reach the level of the long-buried city. Here are streets, temples, private houses, squares, and fountains, all showing traces of former opulence; while here and there are to be seen traces of the magnificence of rich ornamentation, although all works of art of any value were removed to the museums of Naples and Rome as soon as discovered by the excavators. Most notable of all is a great theater, in which may be seen the seats for the audience and place for the musicians, private boxes for the royal patrons, dressing-rooms for the actors, with the accompaniments of a modern place of the same sort. The whole was buried in lava, which had become hard as the firmest rock, and the excavations have been made with the greatest difficulty. But a small part of the ancient city has been exhumed, as it extends under the most populous portion of the adjacent city, and the work could not be carried on without undermining thousands of costly edifices, and thus destroying a vast amount of property.

We have neither space nor time to describe the relics of this wonderful old city, and so will ascend to her sister in calamity, Pompeii. One hour's drive brings us to the place where tickets are purchased, and we mount a long staircase, instead of descending, as in case of the Herculaneum, and soon find ourselves among the entombed streets and ruined palaces of a city which was for ages so completely buried in ashes from the crater of Vesuvius that its very site was forgotten. Here are the veritable old pavements over which the chariots used to roll, two thousand years ago, made of broad slabs of lava, exactly like those composing the famous Appian way, over which Paul traveled when he journeyed from Puteoli, now Pozzuoli, to Rome.

One curious feature which quickly strikes the visitor, is the street-crossings, which seem to have been arranged more for the convenience of foot-travelers than for that of vehicles, every crossing being provided with large broad stepping-stones, placed about eighteen inches apart, so that a person can easily step across from one side of the street to the opposite one without soiling his feet by the mud or dampness of the streets. These crossings are so numerous that it seems difficult to reconcile their existence with the use of vehicles in Rome, unless it be true, as has been conjectured, that the carriages used in ancient Pompeii were drawn by slaves instead of horses. But we must not attempt to describe in detail the many interesting features of this wonderful city. A mere mention of one or two other points must suffice for the present.

Near the central part of the town, we find a large public bath in a state of perfect preservation, nothing but a portion of the roof being destroyed. Here are rooms for Russian or steam baths, hot-air or Turkish baths, swimming baths, and full baths, either hot or cold, with leaden pipes to convey the hot and cold water from one room to another, furnished with taps exactly like those of modern construction; flues for conveying hot air through double floors with an air-space between, and double walls made to economize heat; and furnaces constructed in a scientific manner. Here are many ingenious devices, which antedate our modern inventions in the same line by a couple of thousand years, and let down our conceit about modern sanitary improvements a great many degrees. Here are dressing-rooms, also reading-rooms, and rooms for conversation—in fact, no mod-

ern establishment with which we are acquainted is more complete in its appointments than this long-buried bath of ancient Pompeii.

A short distance beyond, we find a bake-shop, not different in any essential particular from the modern brick oven used by small bakers. Loaves of bread found here, and preserved in the museum of Naples, are of exactly the same shape as those to be found on the counters of Italian bakers at the present day.

As we wend our way slowly among these marvelous relics, we are constantly surprised at the familiar look of things so very old. Here is a street of shops. The first store was occupied by an oil-merchant. The huge jugs in which he kept his different grades of oil still remain in the very spot where he left them when he hastily gathered up a few valuables, and fled from that terrible rain of mud and cinders and ashes, which buried his home, with that of thousands of others, eighteen centuries ago. The next shop is a tailor's store, and near by is a shop which, we learn from the inscription on the door-post, was that of an apothecary. Here is a ruined tower, from the top of which we can take a survey of this twice entombed city, or of that small portion which has already been excavated. From our elevated point of view, we can see public squares, the remains of stately columns, gorgeous temples, ruins of grand palaces, and thousands of roofless houses once occupied by the wealthy, and, there is every reason to believe, desperately wicked, citizens of the Pompeii of the past. The impressions made by such a picture sink into one's mind so deeply as to last a lifetime. Strange pictures rise before one's eyes; solemn reflections crowd the mind. The moment is one never to be forgotten. But we must not attempt to describe our feelings here; one must see Pompeii to appreciate it.

Let us hurry down, and take our lunch while our donkeys are being made ready, and prepare for the great event of the day, the ascent of Vesuvius.

As we are hurrying on, our guides stop us one moment to watch the workmen who are making new excavations. How carefully they take out each shovelful of earth, and, spreading it over the ground, inspect each little module with the greatest care. They are disentombing a private dwelling, from which they removed one or two charred corpses a few days ago. How carefully they are propping up that tottering partition wall, so as to preserve everything in its original form as nearly as possible.

Our tramp of several hours among the ruins has given us a good appetite; and we eat with a relish our lunch of nice graham bread, which we brought from the hotel, and a few nespoli, a luscious Japanese fruit which has within a few years been introduced into Italy, and has proved a valuable addition to the fruit productions of the country, as it ripens in April, long before any other fruit is mature. We have eaten our dinner, and are getting somewhat impatient at the long delay of our guide, whom we suspect is having an extra bottle of wine in the back room, when a loud bray at the door announces that our donkeys are ready. Our guide quickly makes his appearance, and, mounting our long-eared musicians, we form in single file and start for the foot of the mountain, which is three or four miles distant. We are obliged to take another guide with us, as the guides to Vesuvius are appointed by the government, it being necessary that a man should be especially trained for the purpose, on account of the constantly changing site of the crater, and the lava pouring out from the mountain-side. As Mrs. K. was not much accustomed to riding, we also took an extra boy to aid in the management of her donkey. Armed with a stout, short stick, our donkey-driver seized the creature by the tail, after the usual fashion, and, trotting along behind him, belabored the poor creature's calloused flanks from time to time in a way which seemed to us cruel, but which, nevertheless, appeared not in the least to disturb the absurdly grave expression which these animals always carry upon their faces. Our ponies and donkeys seemed to be possessed of the general slow-going disposition which seems to pervade the whole south of Italy, and it was only by much belaboring, and the guide's constant cries of Eeh! eeh! that we were occasionally able to induce them to a greater speed than a slow walk.

After pursuing the traveled road for a short distance, we turned off into a narrow path which led by the mountain-side through the most luxuriant vineyards we ever beheld. Although in other parts of Italy the vines were only just budding, here we found them in full leaf, and the laborers—men, women, and children—busily employed in digging about the roots, supplying them with fertilizing material, and digging trenches about each individual vine, destined to be filled with water three times every week during the dry season. After a two hours' ride, we found ourselves filing through the last vineyard, having reached the highest point upon the mountain-side where vegetation could be maintained. Beyond, there was only a waste of lava, which had been thrown out in successive eruptions of the crater smoking two thousand feet above us. From this point on, the ascent was exceedingly difficult and arduous, and we respected our four-footed friends for the good sense they had shown in preserving their strength for the last of the journey. A narrow path winds about among sharp crags and rough, jutting points, the lava having remained just as it cooled when turned out hundreds of years ago. When about one hundred feet from the top, the ascent became too difficult to be made otherwise than on foot; so leaving our donkeys in charge of a man stationed at this point for the purpose, we began the most difficult part of our journey.

We had previously arranged for a chair for Mrs. K. from this point, but found that the chair which had been designed for us had been used to carry down the

mountain a lady who had fainted at sight of the crater, and was unable to descend on horseback. We were a little chagrined at this disappointment, but quickly recovered our spirits when our two guides volunteered to substitute their shoulders for a chair, and so, clasping their arms together, Mrs. K. seated herself aloft, and we began the most difficult climbing we had ever seen. Two young men were very desirous of assisting us by grasping our hands, or pushing us behind, but we did not feel willing to be deprived of the honor of climbing to the top without other assistance than what could be derived from a stout stick.

We have climbed mountains in Colorado and among the Alps, but never found anything so difficult as Vesuvius. For the last few hundred feet before the top is reached, the ground is covered with pulverized lava, which, through the action of the elements, has been reduced to a fine gravel, and lies upon the mountain-side several inches deep; so that a person in making the ascent finds scarcely any foothold, but is continually slipping backward almost as rapidly as he proceeds, and consequently progress upward is exceedingly slow and difficult. The top was gained at last, however, much to our relief, although it was by no means a comfortable place, as the heat of the volcano, added to that of a scorching sun, made our situation anything but agreeable. Indeed, it was not wholly free from danger, as the crater was in a state of unusual activity, every few seconds sending out with a terrific roar a huge shower of molten masses of lava, which rose hundreds of feet in the air, and in descending seemed certain to fall upon us, and often did drop at our very feet. We were glad to make our stay in this perilous situation very brief, and made the descent to the lava-bed, using our umbrella for a parachute, thus descending many feet at a leap, as the pulverized lava always made a safe landing-place.

The bed of molten lava afforded a spectacle quite indescribable. Imagine, if you can, an ink-black sea covering several acres in extent, frozen solid while in a state of the highest commotion; and then picture in its center the mouth of a gigantic furnace, pouring forth huge volumes of molten metal, which slowly rolls upward, spreading itself in layer upon layer, and building the most uncouth and fantastic shapes, which, cooling, gradually become dense as the hardest flint. For hundreds of feet of the descent from the center, the lava is so hot as to heat the feet uncomfortably, even through a thick sole; and as the lava seemed unusually active in its egress, we were glad to hasten our departure. We soon reached the ponies, and mounting, resumed our downward journey by the same path by which we had climbed.

As we slowly wound our way down the mountain-side, our guide suddenly called our attention, by an exclamation of surprise, to one of the grandest spectacles we ever beheld. The sun had set behind the mountain, and the twilight had deepened to evening, so that the display made by three huge streams of lava which had burst out of the mountain-side while we were upon it, was more gorgeous than the most magnificent display of fire-works we ever beheld. For many miles of our journey home, we could see these three lines running parallel for a long distance down the mountain. We were glad to find our carriage had come part of the way up the mountain to meet us, and we were happy enough to leave our hard saddles for a more easy conveyance. A rapid drive along the sea-shore, with a clear Italian sky overhead, and a gentle breeze from the Gulf fanning our sunburnt faces, brought us to our hotel about nine o'clock, as tired and dirty travelers as you ever saw, with fine gravel-dust penetrated through every article of clothing, and completely covering us from head to foot. We never more fully appreciated the value of a good bath, and never slept more soundly than the night after our visit to Vesuvius.

HALLUCINATIONS.

LADY FLORENCE DIXIE, one of the English nobility who is stated to have made herself particularly obnoxious to the members of the Irish Land League, claims to have been recently assaulted by two ruffians, who attacked her in her own grounds, and who, as she asserts, attempted to stab her, her life being saved only by the point of the weapon being turned by one of the steels of her corset (one of the rare instances in which a corset has rendered valuable service). The investigations made by the police force have thrown grave doubts upon the report of Lady Dixie, and there are many who believe that the transaction had no existence outside of the lady's own inner consciousness. Refering to this incident, the *British Medical Journal* makes the following remarks under the heading of "Female Hallucinations":—

"Recent circumstances have directed attention to certain remarkable delusions to which females of unstable nervous epuilibrium are subject, either through hysteria or through similar disorders of the nervous system. Charcot and Bourneville give instances of the extraordinary self-deceptions that are frequent among hysterical patients. Dr. Legrand du Saulle, physician to the Saltpetrière,

Paris, describes in his standard work, 'Les Hystériques,' some remarkable cases of hallucination, where females labored under the belief that they had been struck or stabbed by others, even after having inflicted blows and wounds upon themselves. In one instance a young woman was found by her husband lying on the floor of her room in a fainting fit, her face covered with blood. On reviving from her swoon, she stated that she had been attacked by armed men; the Paris newspapers related the case, and within three weeks two similar events occurred in the French metropolis. All these cases proved to be fabricated by the supposed victims. A young girl wounded herself slightly with a pistol. She gave the police authorities the most minute details about an imaginary assassin, who, according to her account, fired the weapon; but she was found to be highly hysterical, and it was proved that she had willfully wounded herself. In a third case in Dr. Legrand's experience, a young woman was found in a railway carriage, stabbed in the left side. The incident caused great excitement, but it was proved, contrary to her assertions, that she had inflicted the wound herself, and was a hysterical subject. A housemaid was found lying behind a door, bound, gagged, and covered with bruises. She stated that she had been brutally attacked by two burglars with blackened faces; but she was a highly hysterical woman, and there appears to have been strong evidence that she had contrived to tie her own hands and to gag and bruise herself.

"Perhaps the strangest case of all occurred in M. Tardieu's practice. A young lady living at Courbevoie wished to make herself an object of public interest by passing as a victim of a political conspiracy, which she pretended to have discovered. One night, she was found in a state of the greatest mental perturbation at the door of her apartment. She could not talk; but stated, in writing, that she had been attacked outside her own house by a man, who had attempted to garrote her, at the same time striking her twice with a dagger. Only the lady's clothing was injured, and the body of her dress and her corset were found to be cut through, but at different levels. She tried to make out that the attempt at strangulation had caused dumbness. M. Tardieu remarked, in her hearing, that this infirmity rapidly disappeared when produced under circumstances of this kind. She soon managed to regain her speech; and in a short time admitted that the whole narrative had been developed out of her inner consciousness. Eccentricity in relatives is ever strongly presumptive of self-deception when a female makes any statement or charges of ill-treatment of any kind. The constant fear of assassination, especially if based on reasonable grounds, is particularly liable to predispose nervous or excitable subjects to extraordinary delusions of this kind."

AN ASTRONOMER IN A CORSET.

MR. R. A. PROCTOR, the eminent English astronomer, recently gave the public the benefit of his experience in corset-wearing, as follows:—

"When the subject of corset-wearing was under discussion in the pages of *The English Mechanic*, I was struck," he says, "with the apparent weight of evidence in favor of tight-lacing. I was in particular struck by the evidence of some as to its use in reducing corpulence. I was corpulent. I was also disposed, as I am still, to take an interest in scientific experiment. I thought I would give this matter a fair trial. I read all the instructions, carefully followed them, and varied the time of applying pressure, with that 'perfectly stiff busk,' about which correspondents were so enthusiastic. I was foolish enough to try the thing for a matter of four weeks. Then I laughed at myself as a hopeless idiot, and determined to give up the attempt to reduce by artificial means that superabundance of fat on which only starvation and much exercise, or the air of America, has ever had any real reducing influence. But I was reckoning without my host. As the Chinese lady suffers, I am told,

when her feet-bindings are taken off, and as the flat-head baby howls when its head-boards are removed, so for a while was it with me. I found myself manifestly better in stays. I laughed at myself no longer. I was too angry with myself to laugh. I would as soon have condemned myself to using crutches all the time as to wearing always a busk. But for my one month of folly I had to endure three months of discomfort. At the end of about that time I was my own man again."

CLOTHING OF CHILDREN.

WE find the following excellent remarks under the above heading in a recent number of the *British Medical Journal*, the leading medical publication of the world:—

"From both the lay press and the public platform we have heard of late a good deal as to the unhealthfulness and unsuitability of the present form of female dress. Much that has been said is useful and true, although the subject has been associated with some intemperate denunciation of the costume of the day, and some violent suggestions as to the attire of the future. While sympathizing in the main with this matter of dress reform, we think that some of the attention at present absorbed by the costume of the adult may well be bestowed upon the apparel of the child. In many respects the dress of young girls is more outrageous to the principles of health, and more in need of the strictures of a vigorous criticism, than is the costume of the fully developed female. Note for a moment the usual dress of the little girl, as sanctioned at the present time. One of the first principles in dress is that the clothing should so cover the body as to maintain it in all parts, as far as possible, at an equable temperature. How is this principle observed in the attire of a child five or six years old? About the thorax and abdomen there are many layers of clothing of a somewhat incongruous character and somewhat indiscriminately applied, that are capable, collectively, of maintaining a reasonably even temperature. The arms, however, are commonly bare from the shoulders, and the child can exhibit upon those limbs the familiar effects of external cold upon the circulation of the surface. The lower limbs also are covered by a short and scanty skirt, and by meager petticoats separated from the extremities they are supposed to warm by an encircling ring of cold air. From the united effects of unsuitable material and inconsiderate application, it comes to pass that the little girl of modern days wears more clothes than she needs, and is saddled with a burden, that, while it impairs the free use of the limbs, involves at the same time a fair amount of needless muscular effort.

"Linen, it is unnecessary to say, is, from its poor hygroscopic qualities, and from its active properties as a good heat conductor, a very unsuitable substance to be worn next to the skin, especially in a climate subject to abrupt changes of temperature. In the clothing of young girls, then, some woolen fabric should be worn next to the skin, and should clothe the entire body as evenly as possible. For this purpose no better garment can be adopted than the so-called 'combination' garment. The dress should be suitably long, and should be so made as to be suspended from the shoulders, and not from the waist. The petticoat also should be attached to an under-bodice, which, like the dress, should receive its attachment from the shoulders. The stockings should be suspended from this bodice, and socks should be entirely discarded, as affording but a partial covering to the limbs. The neck, again, should never be left wholly uncovered. The ornamentation of the dress should be as scanty as possible, and should aim at making the least possible addition to the weight of the attire. We venture to think that if such an attire be worn, we shall hear more of boisterous health, and less of 'backaches' and 'growing pains.'"

Cold Bath in Typhoid Fever.—The following paragraph shows more strongly than any argument can the utility of water as a means of subduing fever:—

"In Lyons, France, the cold-bath method of treating typhoid fever has been adopted with marked success. In the civil hospitals the death rate was reduced from 26 to 9 per

cent, and in private practice to 1 or 2 per cent."

The method of application is fully set forth in the "Home Hand-book of Rational Medicine."

A DELUSIVE DANGER.

ARSENIC has sometimes been used by vain persons for the purpose of producing clearness of complexion, as it seems to have some remarkable effect upon the skin. This fact has also led to its employment in the treatment of some common maladies of the skin. For either purpose it is usually employed a long time. We have often known specialists of skin diseases to prescribe the drug to be used for a year or more.

Recently two French physicians, MM. de Poncy and Livon, have been administering the drug to animals in this way, and find that "cats so treated seem improved at first; they eat more, and fatten, and have all the signs of very good health. But by and by they begin to grow lean, are subject to diarrhea, lose appetite, and seem languid; and at length they die in a state of poverty of blood (anæmia) and leanness. On examination, one finds the muscles (the heart included) extremely pale; the liver, lungs, kidneys, and mesenteric ganglions have the characteristics of fatty degeneration."

It has been claimed that mercury, in small doses, increases the number of blood corpuscles, and apparently improves the health, very similarly to the first effects of arsenic. The two drugs possess many points of similarity in their relations to the system; hence, is it not possible, even probable, that the apparently beneficial effects are as delusive in one case as in the other? Let us have some experiments on animals on this point, before the experimentation on human beings goes on much longer.

Disgusted with Glucose.—A prominent Chicago newspaper very appropriately applies to glucose, or corn sugar, the epithet of "food-shoddy." If it can justly be termed food in any sense of the word, it must be classed among the poorest of the elements, and proof that it possesses any food value whatever is yet to be produced. We are glad to see that the public are becoming somewhat aroused to the deceptive character of this commercial product, and that a re-action is taking place from the immense popularity which it seemed to enjoy for a brief period. According to the statements of reliable authorities, it appears that nearly all of the numerous companies organized to carry on the manufacture of this chemical sugar have failed, only five or six of the heavier companies having survived the panic. We cannot say that we feel any great degree of sympathy for the sufferers, since the losses which they have incurred are insignificant when compared with the injury suffered by the public, upon whom their products have been imposed.

An Advance Step in the Temperance Work.—A recent number of the London *Daily News* chronicles a new departure in temperance work in England, which speaks well for the progress of reform in that country. There is no room for doubt that a great and good work has been accomplished by the Blue Ribbon movement in both England and America; and with the new feature, the addition of which is stated in the following paragraph, the results will be more than doubled; for while reforming men from the use of a poisonous drug scarcely, if at all, inferior to alcohol in its pernicious influence, the reformation of alcoholic drunkards will be found much more permanent, as is clearly shown by the statistics referred to in the paragraph, statistics which quite agree with our own observations upon this point. We have been surprised to find that some of the most prominent temperance workers in England are still doubtful of the propriety of a warfare against tobacco, and question whether its use is specially deleterious. We trust that this movement, and the facts below referred to, will serve to call their attention to this important question, and secure their earnest co-operation:—

"A new departure is to be taken in the Blue Ribbon movement. At a 'Gospel Temperance Mission' to be conducted in Manchester by Mr. Francis Murphy, of America, the originator of this now wide-

spread organization, pledge takers will have the option of donning either the ordinary ribbon, signifying total abstinence from alcoholic liquors, or a ribbon with a white line running up the center of the blue to denote, in addition, abstinence from (or, in the case of females, opposition to) the use of tobacco and all other narcotics. It is alleged that 'a careful statistical investigation among the Good Templars of an entire county has proved the smoking teetotalers to be over five times more liable to break their pledges than those who abstain from tobacco; and as the temperance pledge requires the "discountenancing of the practices and causes of intemperance," it is felt by a growing section of teetotalers that consistency demands a "thorough-going" badge to indicate their attitude toward this fruitful cause of violated pledges. They urge, moreover, in support of their view, the confession of multitudes of smoking drinkers that the slavery of the pipe is much more difficult to break free from than that of the pot.' In 1876 the national drink bill reached its culminating point of £147,288,759. Since the rise of the Salvation Army and Blue Ribbon movements, it has fallen to £126,000,000. It remains to be seen how far this new onslaught upon the revenue will lessen the consumption of a narcotic which is in such extensive use by the male sex."

Tobacco-Using among Children.—The following paragraph from the *United Presbyterian* is very much to the point, and we are glad to see that so excellent and influential a journal is willing to speak out so plainly in regard to this gigantic evil:—

"The use of tobacco by children is said to be greatly on the increase, and efforts are being made in some quarters to have it stopped, or at least limited. The best way to do this is to have it curtailed among grown people. So long as it is proper for fathers and brothers to smoke, chew, snuff, etc., the children will consider that they have a right to do so; and so long as it is esteemed a luxury for those who are grown, it should be so regarded for all. Children should have more luxuries than their elders, rather than fewer. If tobacco is to be done away with on the ground that it is an injury, it must be proven wrong for those to use it who are supposed to be able to avoid such evils."

The *Michigan Christian Herald* gives the following interesting incident bearing on the same point:—

"It is not often that the inscription is worth more than the gift. A Detroit tobacco manufacturing company gave a special prize last week to a promising boy exhibited at the baby show in Grand Rapids. It was a sealed box of tobacco on which was inscribed the first-class advice, "Never use tobacco until your mother breaks this seal." A striking feature of this sage counsel, given by parties who knew what they were talking about, is more than disinterestedness. If boys would let tobacco alone until their mothers opened the package, the business would certainly perish."

Bad Effects of Cod-Liver Oil.—The "Council of Health" of Paris has called the attention of the Academy of Medicine to the fact that much injury has been done to infants and children by the use of cod-liver oil. They argue that all physicians are aware "what disastrous influence is exercised on the health of young infants by defective alimentation, and especially animal nourishment; fatty matters are as little suited to the alimentation of the newly-born infants as albuminoids, excepting always casein, which exists normally in milk, and is found to be perfectly assimilable. In fact, in the first period of life, the juices necessary for emulsifying fatty matters are almost entirely wanting. The liver, in spite of its enormous development in this stage of existence, secretes only a small quantity of bile; and the researches of Langendorf and Zweifel have proved that, in young children, pancreatic juices possess an emulsive power which is almost *nil*, or, at least, very slightly marked. These physiological considerations sufficiently indicate that, far from being profitable to the infant, fatty matters, and especially cod-liver oil, can only injure its health, and gravely compromise the integrity of its digestive functions."

Gluttony among Great Men.—The fact that some men of genius have been prodigious eaters, in fact gluttons, has led many to the erroneous conclusion that heavy food is essential for the best quality and greatest quantity of mental labor. A writer who evidently holds this opinion, ridicules Charlotte Brontë because she became disgusted with Thackery on seeing him eat, while sitting beside him at the table on the occasion of first meeting him, although she had formerly idolized him and worshiped his productions. Johnson, Dickens, Thackery, Bayard Taylor, and other characters whom we might mention, were almost as notorious for their gormandizing as for their literary productions, but their literary fame was achieved in spite of their dietetic abuses, rather than by their aid. It would be very easy to show that several of the literary characters named were cut short in the midst of their brilliant careers by habitual abuse of the stomach. A temperate life and a simple dietary would have enabled several of them to prolong their lives to the present moment, with increasing ability in the lines of literary effort for which they were celebrated.

For the Sick Room.

SLOW DIGESTION AND ACID DYSPEPSIA.

THIS, the simplest and most common form of the malady, is sometimes called simple dyspepsia. It is more common in men than in women, and especially affects sedentary persons, and those nervous individuals who eat rapidly, swallowing their food without proper mastication. It is also common in persons whose teeth are defective. Its immediate cause is deficient activity of the muscular walls of the stomach and intestines, and also deficient quantity or quality of gastric juice. The symptoms are much the same as those which follow the taking of an excess of food, but are felt when only a moderate amount has been taken. An hour or two after eating, a sensation of weight and oppression is felt. The discomfort continues for some hours, gradually wearing off before the next meal. The appetite is usually pretty good, but often will not be prepared for the reception of food at meal-time, as the work of digesting the previous meal has not yet been accomplished. Sometimes there is considerable flatulence of the stomach, the eructations being tasteless, however, never offensive; often pain between the shoulders, or beneath one shoulder-blade, and not infrequently in the region of the heart. Palpitation of the heart often occurs in the night, causing great alarm on the part of the patient and his friends, who entertain fears of sudden death. Sleep is disturbed and unrefreshing. The tongue is often foul in the morning, with a bad taste in the mouth. All the symptoms mentioned are greatly exaggerated by a late supper, or by any unusual excess in quantity or quality of food. The bowels are usually constipated, but may be regular. When the difficulty has been long continued, there will be observed a marked disposition to sleep after meals, or unnatural sleepiness at other times, and a decided loss of natural vivacity and energy.

Acid dyspepsia is that form of indigestion in which the slowness of digestion is such that the food undergoes fermentation, forming acids which irritate the stomach and give rise to the same symptoms, much exaggerated, which have been mentioned as attending slowness of digestion, with several others, the principal of which are heart-burn, regurgitation of intensely sour liquid from the stomach, acid eructations, a white tongue, frequently with transverse fissures, often flabby and indented at the edges, acid saliva, causing decay of the teeth, bowels likely to be either constipated or unnaturally loose, grinding of the teeth at night, and a reddish sediment in the urine. No one patient presents all of these symptoms, but more or less of them. There is quite likely also to be pain at the pit of the stomach, with soreness on pressure.

On account of the extreme slowness of digestion, farinaceous foods always aggravate this form of dyspepsia. Starchy food, sugar, fruits, and especially vegetables of all kinds, cause great increase of acidity and heart-burn. In some cases, even bread and all sorts of preparations from grains will disagree. Sugar, or any food containing it, will give rise to great distress. A meal consisting of animal food almost entirely, may be digested without difficulty, though milk frequently sours.

The digestion being very slow, portions of fermenting food remain in the stomach from one meal to another, so that acidity becomes habitual.

Patients suffering with this form of dyspepsia are usually very thin, and bloodless. Occasionally, however, we meet a case of the opposite kind, in which there is an abundance of tissue, though of a loose, flabby texture. Women suffer from acidity more than men.

PERSONS suffering with acid dyspepsia should avoid starchy foods and those containing sugar. Vegetables must be discarded for a time. Sugar and all articles containing it must be wholly discarded. The idea many people have that sugar neutralizes acids, is quite a mistake. The grains can be taken better than other farinaceous foods. Often fermented bread cannot

be eaten without distress. Aerated bread, or light unleavened bread in the form of rolls, crisps, or crackers, is much preferable. Toasting until crisp and slightly brown renders bread much less likely to sour. Fermented bread should never be eaten until it is a day or two old.

A Few Rules for Dyspeptics.—1. Eat slowly, masticating the food very thoroughly, even more so, if possible, than is required in health. The more time the food spends in the mouth, the less it will spend in the stomach.

2. Avoid drinking at meals; at most, take a few sips of warm drink at the close of the meal, if the food is very dry in character.

3. In general, dyspeptic stomachs manage dry food better than that containing much fluid.

4. Eat neither very hot nor cold food. The best temperature is about that of the body. Avoid exposure to cold after eating.

5. Be careful to avoid excess in eating. Eat no more than the wants of the system require. Sometimes less than is really needed must be taken when digestion is very weak. Strength depends not on what is eaten, but on what is digested.

6. Never take violent exercise of any sort, either mental or physical, either just before or just after a meal. It is not good to sleep immediately after eating, nor within four hours of a meal.

7. Never eat more than three times a day, and make the last meal very light. For many dyspeptics, two meals are better than more.

8. Never eat a morsel of any sort between meals.

9. Never eat when very tired, whether exhausted from mental or physical labor.

10. Never eat when the mind is worried or the temper ruffled, if possible to avoid doing so.

11. Eat only food that is easy of digestion, avoiding complicated and indigestible dishes, and taking but one to three kinds at a meal.

12. Most persons will be benefited by the use of oatmeal, wheat meal, or graham flour, cracked wheat, and other whole-grain preparations, though many will find it necessary to avoid vegetables, especially when fruits are taken.

LITERARY NOTICES.

☞ Every horse-owner, or any one interested in this most valuable of all domestic animals, will be glad to learn that a work on the subjection, education, and general treatment of the horse, is about to be published by Prof. D. Magner, who is pronounced by Robert Bonner and others as without an equal in this important sphere of usefulness. The work is to comprise nearly one thousand pages, with seven great value to all in any way interested in horses. Full information may be had by addressing D. MAGNER, Battle Creek, Mich.

THE POPULAR SCIENCE MONTHLY for September begins with a clear exposition of "The Germ-theory of Disease," by Dr. H. Gradle, who, in plain words, showing his command of the subject, explains the theory, defines the extent to which it has so far been found surely applicable, and sums up the evidence on which it rests. Dr. Felix L. Oswald continues his pungent prescriptions and recommendations of "The Remedies of Nature" with a paper on "Asthma" and its treatment. "Insanity," by one who has been insane, is a picture, from the inside, of a disease whose moving springs and workings can be only most obscurely perceived from the outside, and offers suggestions, derived from the author's own experience, as to points in which the treatment of the insane and the management of asylums should be improved. Many other articles of equal worth make this number of this popular magazine a most intetesting and valuable one. Subscription price $5.00 per annum. D. Appleton & Co. Pub's. 1, 3, 5, Bond St. New York City.

THE NORTH AMERICAN REVIEW for September is an admirably constituted number, whether we regard the timeliness and importance of the subjects presented, or the eminent competence of the authors chosen for their discussion. First comes "State Regulation of Corporate Profits," by Chief-justice T. M. Cooley, of Michigan, showing how far, by wise legislation and by applying in the spirit of enlightened jurisprudence the principles of the common law, the harrowing exactions of corporate companies and monopolies in general may be restrained, and the interests of the people effectually conserved. John A. Kasson, M. C., writes on "Municipal Reform," and offers suggestions for the abatement of the evils of misgovernment in our great municipalities that will command the earnest interest of all good citizens without respect to party. Richard Grant White treats of "Class Distinctions in the United States," a subject that is destined to occupy more and more the attention of the American people as great fortunes increase. "Shooting at Sight" is the subject of some pertinent reflections by James Jackson, Chief-justice of the State of Georgia. In "Facts about the Caucus and the Primary," George Walton Green unveils the tricks practiced by political managers in large cities. The well-known English essayist, W. H. Mallock, contributes "Conversations with a Solitary,"

Publishers' Page.

☞On returning home, we found a very large accumulation of unanswered correspondence, which we have been endeavoring to give as prompt attention as possible; but the pressure of many other duties, together with the attention required by more than two hundred patients at the Sanitarium, has made it impossible for us to find time to carefully read and answer all the numerous letters which had accumulated during our absence. We trust our friends will still be patient with us.

☞Last week the number of patients at the Sanitarium was 205, the largest number ever here at one time. The total number of inmates of the Institution, including boarders and helpers is at present nearly 350.

☞The attention of delinquent subscribers is called to the fact that they are expected to pay for all numbers of the journal received. If they do not wish to continue taking it, they should notify the publishers that they wish it discontinued, or ask the postmaster to do so. Notices have been sent to all who are in arrears, but quite a number have failed to give the matter attention.

☞The Sanitary Convention was held at Muskegon, Mich., last week. We were unable to attend, but from the arrangements which had been made for the convention, we think it must have been a very interesting occasion. We hope to be able to give our readers something of a report next month.

☞The publishers are obliged to announce that the edition of "Healthful Cookery," which has been offered with the "Household Manual" as a premium to subscribers to this journal, has become exhausted, and that consequently they are obliged to withdraw the premium offer for the present. Some equally valuable premium will be prepared to take the place of the Manual and Cook-book, however, and will be announced as soon as ready.

☞Our experimental kitchen, mentioned last month, is just being started, and will be in full operation within a week. We shall be glad to hear from those of our readers who have made discoveries or inventions in the line of hygienic cookery, or who may have any suggestions to make in this direction. We have long felt the need of some thorough-going work in this line, and Mrs. K. has consented to take the supervision of the matter, and will be glad to hear from all who are interested in the subject. We shall give our readers from month to month some of the results of the work done. We hope to be able to send out the prospectus of the Training School for Nurses and the Cooking-school, within two or three weeks.

☞All of our readers who have heard of the sad death of Prof. Stone, will be glad to know that his wife, who is stopping at the Sanitarium, is making excellent improvement.

☞In the Sanitarium Department in this number will be found a brief sketch of Dr. P. M. Lamson, whose recent death has brought sadness to many thousands who have become acquainted with her during her long service as a member of the medical corps of the Sanitarium.