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INTERNATIONAL HEALTH STUDIES.

BY FELIX L. OSWALD, M. D.
Author of "Physical Education;" "The Bible of Nature," Etc.

24.—Papua.

THE Immigration Committees of such States as Colorado and Tennessee ought to call attention to the fact that in every part of the world, mountaineers, and especially the inhabitants of wooded mountains, are superior to their kinsmen of the treeless plains. "Physically superior" would probably be the official version, but that qualified adjective implies a good many mental and moral advantages.

Take the contrast between a freedom-worshiping Circassian highlander and a cheese-worshiping Calmuck of the Steppes; yet both are members of the Turanian, or Mongol, family of nations. The swaggering, frivolous Gascon, and the proud and prudent native of the Scotch hill-counties, are both Celts; the servile Muscovite, and the unconquerable Montenegrite, are both Slavs.

The aboriginal population of Papua, or New Guinea, presents a still more striking case in point. The island is, next to Australia, the largest on the globe, and is situated east of the deep ocean-channel known as "Wallace's line,"—the dividing line between two regions of widely different zoölogical characteristics. No part of the globe, not even Hindostan itself, abounds in more varied forms of animal life than the island of Borneo,—the home of the orang, the gibbon-ape, and the wild cow; but of its hundreds of different mammals, only two species, a small panther-cat and a variety of wild hog, have found their way to the land of the Papuans. When Captain Vandyne visited New Guinea in 1793, the natives had no horses, cattle, sheep, goats, or domestic fowls. They had not even dogs, and their hunters had to rely on the acuteness of their own senses. It seems incredible that the island should have been colonized by the natives of the Malay Archipelago, who would certainly not have left all their household pets behind, nor failed to introduce their handicrafts and methods of agriculture. At certain times of the year, violent gales blow across the Indian Ocean in a northeasterly direction, and it seems by no means impossible that at some remote period the west coast of Papua was settled by shipwrecked natives of the African continent. The inhabitants of the east coast are clearly akin to the aborigines of Australia.

But on both sides of the island the descendants of those immigrants have improved on the original stock. The Papuans are quite as black as the average darky of the vast table-lands east of Senegambia; they have the long arms and gorilla fists, and even the frizzled hair, of the Ethiopian. But of that hair they have at least a good supply, and before a picked specimen of a Papuan highlander the prettiest native of negro land stands like a baboon before a black demi-god. The bulbous snout nose has got straightened out; the lower jaw has begun to form a chin; the hideous blubber lips have become smaller and finer; the pig eyes have acquired a human expression, and can flash in twinkles of humorous merriment or gleams of proud defiance. The average hight has increased about three inches. Men of six feet, or six feet two, are found among every tribe of the west-coast mountains.

The Araforas, as the Papuans call the natives of the east coast, are clearly of Australian descent, but they are stouter and far more active than their kinsmen of the North Australian desert; perhaps the only case in which a tribe of the human race has been improved by its removal from a higher to a lower latitude. New Guinea at one point approaches within fifteen miles of the equator, but its magnificent mountain ranges and forests greatly temper the heat of the vertical sun. Near Geelfink Bay on the southwest coast, an Alpine chain, known as the Charles Louis Mountains, rises in bold peaks and ranges due east, maintaining an average hight of 12,000 feet, but rising, in the far interior of the island, in summits of 15,000 and even 18,000 feet. That range has been traced to a distance of 200 miles — a mere trifle, compared with the length of the vast island—but seems to reappear on the east coast, where peaks of 14,000 feet and upward, tower above successive chains of steep foothills. The north coast has a lofty mountain chain of its own; and all these ranges, covering with their plateaus an area of at least 100,000 square miles, are clothed to their very summits with the most luxuriant forests of the tropics.

The Arabs have a pleasant tradition that the lions and wolves of paradise were as inoffensive as deer, and became carnivorous only after the fall of our forefathers. The natives of Papua, however, enjoy a similar and more permanent advantage in the almost complete absence of the larger beasts of prey. The coast jungles are haunted by a species of phalanger, a fox-like relative of the opossum; there are a few

WOMEN OF CENTRAL AFRICA.

bird-killing rats and one cat, frequenting the rocks of the highland glens, but no tigers, no leopards, no jackals nor wolves. Wild hogs abound in the coast swamps, so much so, indeed, that their peculiar odor often becomes perceptible on the sandy beach, even to Caucasian noses; but, luckily, they are extremely shy, and rarely trouble the plantations of the colonists. The boas and crocodiles of the Sunda Islands do not infest the rivers of New Guinea, but compensating nature has evolved mosquitoes in such numbers that their buzz has more than once routed the pioneers of a projected settlement. In the uplands they are rarer, and the natives of the coast regions manage to get rid of them without going to the trouble of wearing gnat-veils. The Italian naturalist Alberti, who visited the eastern peninsula of the island, often saw the aborigines camp in the open air with a light shawl of bombax-cotton for their only cover, but noticed that in the interval between supper and bedtime they devoted their leisure to the work of rubbing themselves all over with an aromatic ointment, a mixture of lard and pungent herbs. A European might consider gnat bites a lesser evil, but the sanitary disadvantages of the ointment plan are apt to be considerably overrated. The Emperor Augustus, who took a personal interest in the problems of hygiene, was once introduced to a jovial centenarian, and asked him how he had managed to preserve his vigor and good humor to such an extreme old age. "*Intus mulso, foris oleo*," said the old fellow; "honey-water for the inner man; oil as an external application." The human skin absorbs light oleaginous substances, and the belief in their insanitary tendency may probably be traced to the effect of more viscid or resinous ointments like that which cost the life of the *Era d' Oro* boy. During the preparations for a gorgeous allegorical pageant, Pope Leo of Medici conceived the idea of making a child rep-

resent the Golden Age, and after selecting a likely lad, got him varnished from head to heels and pasted with gold leaves. Before the end of the procession the little fellow was taken sick, and had to be carried home, where he was attended by the Holy Father's own physician. But no cordials would avail; the varnish had stopped the pores of the skin, and before it could be scraped off, the gilded child, like the Golden Age itself, was irrecoverably gone. An association of ideas derived from such incidents may have tended to bring ointments altogether out of fashion; but the custom of anointing the human cuticle from time to time, prevailed all through the long centuries of Roman and Grecian health-worship, and with certain modifications might be occasionally revived in mosquito emergencies.

Bananas, grapes, and a species of figs grow wild in the woods; and Captain Stacey informs us that no sportsman can have an idea of superlative angle-fishing till he tries his luck in the pools of the Fly River, which stream of the virgin woods the British steamer "Ellengowan," ascended for nearly one hundred and fifty miles. Full-grown specimens of wild boars often yield forty pounds of pork apiece; the nest of the bush-cock contains from ten to fifteen large eggs; and where such food is abundant, it cannot seem surprising that some of the natives should be sad gluttons. The idea that their kind of voracity cannot be rec-

PAPUAN DANDIES.

onciled with perfect health, is, however, due to the insane belief in the necessity of three daily meals. A Papuan highlander, after a day's hunt, may devour twenty pounds of miscellaneous comestibles, and preserve his health by simply following the promptings of his instinct, which would admonish him, as it never fails to admonish the Caucasian gormand, to give his burdened stomach a fair chance of rest for a number of hours or even of days. What! no breakfast the next morning? mutters our surfeited neighbor, who has just put himself outside of a quantum of provender sufficient to supply the needs of his organism for a full week. Well, the stomach will bear a repetition of the dose, and a number of repetitions, at six-hour intervals, till dyspepsia at last calls a grim halt. Even then the dyspeptic would reduce the size of his meals sooner than their number, and evades the stipulations of quantity with the shrewdness of that Bavarian farmer who asked his wife to curtail their ration of bacon dumplings: "Make only ten to-day; twelve would be too much for Good Friday. Yes, ten will be enough, but"—*sotto voce*—"you can make them a little larger."

A Papuan hunter would insist on his full dozen, and would possibly add that Good Friday comes but once a year; his idea of holidays and feast-days would prove wholly inseparable, but he would stick to his contract, and not gorge himself between feasts.

How the natives of New Guinea manage to escape the malarial influences of their coast swamps is a more abstruse problem; but their perfect immunity from climatic diseases may have something to do

with the circumstance that the mountains approach the coast at half a hundred points, thus offering the lowlander a sanitary refuge whenever the heat of the sultry season increases to an uncomfortable degree. And considering the national dress of the Papuans, that degree can be found only above the hundred mark of the Fahrenheit thermometer. A correspondent of the Illinois *Staats Zeitung* describes a street scene in Naples, where he saw a "child dressed altogether in dirt and climate." Scenes of that sort seem to be rather frequent among the natives of New Guinea, and under the protection of their gnat-ointments, they find nothing objectionable in their climatic surroundings at a time of the year when their Caucasian visitor pants for ice and quinine. I confess to a strong suspicion that in the cities of our Gulf coast the demand for quinine and other antiseptics could be reduced one half by reducing the weight of our superfluous summer garments.

A KROOMAN VILLAGE.

The climate of the uplands is pleasant enough to encourage the ambitious projects of the Dutch colonists; and the "paradise plateau" of Newera Ellia, in the mountains of Ceylon, could probably be matched in the summit regions of the Finisterre Mountains, near the northeast end of Papua, where the wooded ridges are diversified by lakes and highland meadows, forming a series of rural pictures.

It seems a perfect puzzle how a God-garden of that sort could be almost totally neglected for nearly two hundred years after its first discovery, while land-hungry settlers compete for the frozen plains of Manitoba, and West Superior ("West Siberia," its Duluth neighbors call it), in one of the chilliest corners of our own territory, could sprout up in five years from 1500 to 22,000 inhabitants. Is it a sort of instinct that draws us to regions where the consequences of our vices are apt to be averted by the antidote of hard frost (which, indeed, greatly helps to counteract the effects of meat-gluttony, and slightly of the alcohol habit); or do the laws of natural selection favor the survival of our species in latitudes where blizzards expurgate the atmosphere of our bedrooms in spite of weather strips?

At all events, some three thousand colonists from Holland and Great Britain seem inclined to try their luck on a different plan in the sunny uplands of a country abounding in spontaneous products that more than equal the fruits of incessant toil in a blizzard-climate. Camphor trees, wild nutmegs, sago-palms, dye-wood, copper, graphite, stone coal, and mica are all found within a few miles of the coast. Besides, the poverty of the fauna does not extend to the winged inhabitants of the forests. The island contains twenty-eight species of pigeons, some thirty different parrots, and about as many varieties of gallinaceous birds. The bird of paradise is still abundant in the uplands, and the family of singing birds is known to exceed one hundred and twenty different species.

Holland claims the western half of the island; but the east coast, too, offers a large area of healthy highlands, which have begun to attract the attention of British settlers. Sir Charles Nicholson has repeatedly published pamphlets on the incomparable resources of the uplands; and while a malaria-less square mile of New Guinea remains unsettled, a sensible colonist has really no business in the bleak interior of the Australian Continent.

GERMS AND SPONTANEOUS COMBUSTION.—A curious fact which has been elucidated by a series of exhaustive experiments made by Prof. Cohn, of Breslau, affords an explanation of the spontaneous combustion of heated masses of damp hay, which not infrequently occurs. According to Prof. Cohn, the heating and ignition of such masses of vegetable matter is due to the development of fungus called the *aspergilus fumigatus*.

SHORT TALKS ABOUT THE BODY, AND HOW TO CARE FOR IT.

BY A DOCTOR.

4.—The Nose.

If we examine the skeleton of the nose of a dog, we shall find that on the inside is a scroll-shaped bone, to the surface of which is attached the olfactory nerves. One reason why a dog has a keener sense of smell than a human being is that he has a larger smelling organ, and another is that he keeps his nose educated. Among civilized people, the nose seems to be falling into disuse. It has been the victim of catarrh and snuff so long that it has become demoralized. The nose is intended to act as a sanitary sentinel to warn us of the vicinity of unsanitary and unwholesome things, yet very little attention is ordinarily paid to the sense of smell. Sight and hearing and the other senses are much more used and cultivated among civilized people than the sense of smell, but among savages this sense is wonderfully acute. A savage is able so to recognize personal odors as to be able to tell in the dark, to what tribe another belongs, at the distance of several rods. Among the lower animals the sense of smell is very acute. A dog can recognize his master's footsteps twenty-four hours after he has passed, incredible as it seems that there should be any discernible particles left behind after so long an interval. A dog shown an article of clothing, will accurately trace the individual to whom it belongs, as has been frequently demonstrated in the use of bloodhounds. One often sees a dog making his way through a crowded audience room with his nose to the floor, tracing the step of his master among the hundreds of other steps with which it is confused.

The sense of smell of some birds is even more acute than that of dogs. In Florida, they have a class of scavenger birds which do the cleaning up of the streets. The cities are without sewers, and refuse and decaying animal food is thrown out, regardless of consequences. At a house where I was once stopping, the remains of fish were pitched into the back yard one day, and within half an hour I observed some huge birds circling at a great distance away, so small that they were scarcely visible. They kept drawing nearer in diminishing circles, until a great buzzard lighted within two rods of where the fish was. It seems marvelous that an odor diffused through so many million cubic feet of air should yet have been discernible to the olfactory sense of the birds.

Our habits of life have much to do with the obtunding of the sense of smell. This is demonstrated by a case which occurred in Europe, in the early part of this century. A boy was found at the gates of the city of Nuremburg, who knew nothing whatever of the habits of civilized life, and was unable even to speak. He had been reared in absolute seclusion up to the age of fourteen years, his food being passed to him through an opening in the wall of his pen. His diet consisted of bread, water, and fruits. His sense of hearing was remarkably acute, he being able to distinguish sounds at a much greater distance than ordinary people. He was also able to see in the dark, and his sense of smell was so acute that insanitary odors were absolutely distressing to him, and the vicinity of a cemetery made him sick. He had never tasted flesh food, and the sight and smell of it were very disagreeable to him. He was adopted by a gentleman of the city named, and was gradually accustomed to the use of flesh foods, condiments, etc. As a result, in a few years the wonderful acuteness of his senses disappeared, and ceased to be in any way remarkable. This instance was thoroughly authenticated, and reported in an English magazine. Mr. Graham calls attention to it in his "Science of Human Life."

The nose is hollow. Its walls are chiefly made up of thin bones. In fact, the whole face is a hollow shell of bone. The olfactory nerve is distributed over the bones of the upper part of the nose and on the septum which divides the nose into two portions. Connected with the nasal cavity are several chambers. In the cheeks are two cavities, which are connected by canals with the nose, and there are others in the bone which forms the floor of the cranial cavity. Two larger cavities in the frontal bone, above and between the eyes, are connected with the nose. The ears are also connected with the nasal cavity. The chief purpose of these numerous cavities is to give resonance to the voice. The vocalist can throw his voice into the roof of the mouth or into the nasal cavity or other of the cavities, and the different vibrations produced give to the voice the peculiar undulations or overtones by which its qualities are determined. This is the reason why, when a person has a cold, his voice is thick and muffled. The passages communicating with the several cavities are stopped

up. The mucous membrane lining them is swollen, and the air cannot pass freely in and out. A person with a cold often has a closed sensation, as if his head were obstructed. When the cold passes off, the voice becomes clear and resonant again. A person who often suffers from a headache just above the nose and eyes, is almost certainly suffering from nasal catarrh, for this disease affects not only the nasal cavity, but may include all the cavities connected with the nose. If, for instance, the disease has been communicated to the frontal sinus, a person is liable to attacks of severe brow headache. After a time he feels as if something had broken, and there is a profuse discharge, after which he is relieved. Sometimes, too, a person with catarrh will have a terrible pain in the back of the head, and may be treated for spinal disease and neurasthenia, when in fact the disease is due to catarrh at the back of the nose.

There are also tubes which connect the throat with the ears, called the Eustachian tubes. Nasal catarrh often extends into these. A person has a sensation of opening and shutting in his throat, which is due to the opening and closing of the Eustachian tubes. It is possible to open these tubes by holding the nose, and then trying to blow it, when the air passes into the ears. As a result of catarrh, these openings sometimes become closed, and deafness ensues. Ninety-six per cent of all cases of deafness are due to catarrh, but fortunately this is the most curable form of deafness.

I have been talking about the remote effects of nasal catarrh. There are others besides those mentioned. Sometimes we find serious brain diseases from this cause, the inflammation extending through the bones to the brain. There is an immediate connection between the circulation of blood in the scalp and the bloodvessels of the brain. That is why an application of heat to the head will remove headache, because whatever affects the bloodvessels of the scalp will affect the bloodvessels of the brain. About six months ago, I had a case in the hospital of a young man with inflammation of the ear, from which he suffered terrible pain. I became satisfied that he had an abscess forming in the brain, and upon opening the skull by removal of a piece of bone, I removed two ounces of pus, which gave him immediate relief; and in the course of a few weeks he was entirely well.

It appears, then, that inflammations of the nose and ear are not such trivial things as they are sometimes regarded. A child gets enlarged tonsils from a cold. The doctor says he will outgrow it by and by; but the inflammation extends to the ear. The mother puts on poultices and uses laudanum and chloroform, and the result of it all is that the child becomes deaf in that ear. The mother often consoles herself that the pain will be relieved "when the ear breaks," not knowing that the "breaking" involves a rupture of the delicate drum membrane, which may result in permanent loss of hearing. Parents often wrong their children by neglect of attention to difficulties like this. A child who becomes deaf in one ear through inflammation of this kind, is crippled, and some day may lose the use of the other ear by the same process.

Chronic catarrh may cause inflammation of the eyes. The tear passages may be swollen and an abscess formed, and ever after that, the tears constantly overflow the lids. There are still other remote consequences, among them catarrh of the stomach, due to the foul matter which passes down from the nose through the throat, during sleep. Very frequently disease of the eye is set up by wiping it with a handkerchief previously used for the nose, by which means germs are communicated to the eyes. Catarrh is often set up in the ears and other cavities by blowing the nose so violently that germs are scattered into all the cavities connected with the nose. Hence, violent blowing of the nose should be avoided.

As regards the cure of catarrh, there is no panacea. Each case must be carefully studied, and treated on its merits. A quarter of a century ago, the treatment of catarrh was relegated to quacks; but now it is in the hands of scientific medical men who make the nose, throat, and ear their specialties. These organs are naturally associated together because they are liable to become diseased together. A person often has a chronic throat trouble and deafness, both due to nasal catarrh.

Catarrh is doubtless a germ disease, and the principal reason why persons do not recover more rapidly is because there are in the nose so many hiding places for the germs. When a person takes a little cold from exposure, the cells lose their power of self-defense, and the germs develop rapidly.

In enlarged tonsils, there are often found pockets filled with a cheesy secretion. This is coughed up in little particles the size of grains of rice, sometimes mistaken for tubercles. Tonsils in this diseased condition have lost their useful ability to secrete a digestive fluid which acts upon starchy foods. Sometimes the pharyngeal tonsil becomes enlarged, and then mouth-breathing is developed. The germs accumulate in these little pockets, and are ready to set up suppuration as soon as the throat becomes congested from a slight cold. The little white patches often seen in the throat, are due to the growth of germs.

Sometimes the bones of the nose grow together, and then germs collect and multiply. These nasal cavities are made smooth and sloping by nature, so as to facilitate drainage. The cleansing fluid of the eye, which keeps that organ bright and glistening, is intended for the further offices of cleansing the nose and moistening the breath. But in case of disease, the nasal passages become obstructed, and perfect drainage is cut off, and a slight congestion very readily passes into first acute and then chronic catarrh. A person with nasal catarrh should submit himself to a good specialist. If there are obstructing projectives of bone growing in the nose, they should be drilled off. If there are soft growths or polypi, these should be removed. These operations are not formidable when skillfully done, the parts being made insensible by the use of cocaine. Enlarged tonsils should either be removed or else the pockets or enlarged glands should be destroyed. I have found pockets an inch deep, which afforded hiding places for millions of germs. These may be quickly destroyed by the application of galvanic cautery points.

TYPHOID FEVER.

THERE are probably few diseases the treatment of which has undergone more radical changes than has the treatment of this very common malady. Without stopping to review the mischievous results which have followed many of the methods employed in times past, let us at once consider the treatment of this disease from a rational standpoint. In typhoid fever, as well as in all other maladies of a curable nature, remedies must be addressed, so far as possible, first, to remove causes; secondly, to mitigate symptoms; and thirdly, to support the patient until the abnormal action of the disease has given place to normal conditions.

It is now well understood that typhoid fever is the result of the introduction into the system of certain microscopic organisms known as microbes, which, when received into the body in sufficient numbers, invariably give rise to this disease, unless the individual is protected from the action of the organisms by a previous attack of the same nature. The microbes develop chiefly in the small intestines, and invade especially the glandular structures of these organs, where they multiply in countless numbers, producing a poison known as typhotoxin. It is to the absorption of this poison into the system that the chief symptoms of typhoid fever are due. It is this poisoning which occasions the rise of temperature, headache, delirium, depression of heart action, and various other morbid symptoms which are present in this disease. To the direct action of the microbes upon the mucous membrane, may be attributed the catarrh, ulceration, and hemorrhage from the bowels, which are often prominent features in this malady, as well as the distention with gas, and the extreme tenderness often found present. The microbes of typhoid fever, as well as those of many other diseases, are like certain plants, which after growing for a certain time in a given soil, die out, ceasing to develop further, so that they may disappear entirely from the locality in which they have grown. It is to this fact that the limited course of the disease is due; for, as is generally known, typhoid fever usually runs its course in two or three weeks. If a relapse occurs, it is because a second crop of microbes has developed; but that the second crop is much less vigorous than the first, is evidenced by the fact that a relapse is usually of a shorter duration than the first attack.

The principal dangers to be apprehended in cases of this disease, are,—

1. So great a development of microbes, and of the poison which they produce, that the system will be overwhelmed thereby, the same as though a fatal dose of strychnine, arsenic, or any other poison had been taken.

2. A long-continued high temperature, by means of which the tissues are wasted to such a degree that recovery becomes impossible, or the heart's action weakened so as to endanger life from feebleness of circulation.

3. Exhaustion from long continuance of the disease.

4. Ulceration of the intestines, and death from hemorrhage or perforation of the intestinal wall.

What are the remedial measures by which these various dangers may be anticipated and antagonized?

1. The development of microbes may be discouraged by the following means:—

(a) At the beginning of the disease, and once or twice daily throughout its course, thoroughly empty the bowels by means of a large enema. One or two, and even three, quarts of water may be employed with safety at the beginning of the disease, although in its last stages, when perforation may be apprehended, so large a quantity of water as to greatly distend the bowels cannot be safely administered. To thoroughly

empty the bowels at the outset, there is nothing better than Seidlitz powders, or some laxative mineral water. This is a matter of great importance. Not only the microbes, but poisonous matter produced by them, are to be found in the intestinal canal, and if the bowels are frequently emptied of their contents, a large share of both these dangerous elements may be removed. We have often seen the temperature of a typhoid fever patient fall several degrees, as the result of simply emptying the bowels by a tepid enema, or by a saline laxative.

(b) The diet should be of a character not calculated to encourage the development of microbes. The typhoid fever microbe develops with particular rapidity in solutions of meat, such as beef tea, chicken broth, etc., and in milk. On this account, these are not the best foods for a typhoid fever patient. All forms of flesh meat, eggs, beef tea, broths, etc., should be avoided. Milk has been very extensively used in the treatment of the disease, but from observation, we are satisfied that it is not the best food for patients suffering from this malady. The diet should consist of water gruels made from whole-grain preparations, and fruit juices, or cooked fruits simply prepared, with very little sugar. Baked sweet apples, stewed prunes, etc., are appropriate. Zweibach, granola, gluten, and similar preparations are all of great value in the treatment of this malady.

(c) Another measure of the greatest consequence is the copious drinking of hot water. A typhoid fever patient, indeed patients of all classes, should be allowed water in unstinted quantities. It is a rule with us to give a patient a glass of water every hour. The water should always be boiled before using. If he is not able to drink so much, the quantity of water taken by the mouth is supplemented by an enema. A pint of tepid water may be taken in this way every three or four hours. The poison from the microbes of the typhoid fever is chiefly eliminated through the kidneys. Copious water-drinking, or water taken in the form of an enema, serves to rinse the poison out through the kidneys, and thus relieve the system of its pernicious influence. There is no one measure of treatment more important than this.

2. The means already mentioned above are exceedingly useful in lowering and keeping at a low point the temperature of a typhoid fever patient, but there are others of still greater efficiency for this purpose, which may be added. Of particular value is the cold water enema. The temperature of the water should be about 80° F. It may be gradually lowered, during administration, to 70° or even 60°. In case cold water taken in this way produces a slight chilling effect, the temperature of the water at the beginning should be 85° or 90°. If the patient is inclined to be chilly, a rubber bag filled with hot water may be placed at the back, or at the pit of the stomach, as may seem most effective in relieving the chilliness. As a rule, this mode of applying cold water produces very much less chilliness than cold water applied to the surface, and is just as useful in those cases where cold water applied to the surface produces disagreeable effects. It may be administered very conveniently by allowing the water to pass in and out through the tube, without removing the tube. A cold enema may be administered in this manner while the patient is asleep, and without disturbing him by frequent changes of position. We have seen the temperature brought down from 103° or 104° to 100° or 101°, in one or two hours, by the employment of this mode of treatment.

Sponging the surface with tepid or cool water, the wet-sheet pack, the shower pack, the cool bath, and the cool compress applied to the bowels, about the trunk, or over a large portion of the body, are other most effective measures for lowering the temperature in this disease. Anti-fibrine and anti-pyrine are remedies which have been much employed for a similar purpose, in recent times. The effect of these remedies is often to produce a condition closely bordering on prolapse, and it will be readily admitted by those who have had a large experience in the employment of these depressing drugs, that not infrequently the mischief done by the drugs is far greater than the good accomplished in lowering the temperature; whereas, when the temperature is lowered by the more natural means above suggested, the effect is much more permanent, and instead of a depressing effect upon the general condition of the patient, an opposite influence is almost uniformly observed.

It should be remarked, however, that in cases in which the patient's vitality is low, and the circulation defective, the skin inclined to be of a dusky or a purple tint, the pulse small, and the surface cold, the temperature may be lowered much more efficiently by warm than by cold applications. In cases of this sort, the application of the hot-blanket pack has, in the experience of the writer, been almost universally followed by the best of results. The application of fomentations or hot bags to the spine, is also very efficient in such cases, as well as the employment of the hot enema. Sponging the surface with hot water is another measure of value. In these cases there is a spasm of the bloodvessels of the skin, which will be best relieved by the application of warmth. An increased quantity of blood is thus brought to the

skin, the blood is cooled by evaporation, and thus the patient's temperature is lowered. Cold applications in cases of the sort mentioned, would certainly be followed by most disastrous results. By the application of the means suggested, a hot-blanket pack, fomentations to the spine, and a hot enema, we have frequently seen the temperature fall, within half an hour, from 104° to 101°. In a case of this kind, of which the writer has a very distinct remembrance, there was not only a fall of temperature as indicated, but a change in the patient's condition, from unconciousness, in which he could not be made to recognize anything going on about him, or answer questions, to a perfectly conscious and nearly normal state.

3. The patient's vitality is to be supported by giving him complete rest in bed, and by avoiding everything calculated to expend his vitality uselessly. Much talking must be strictly prohibited, and hence frequent calls from neighbors and friends should not be allowed. The patient should be kept as quiet as possible. A quiet, self-possessed, and efficient nurse should be employed. Food should not be taken in excessive quantities, but as much should be taken as can be digested. The old aphorism, "Stuff a cold and starve a fever," does not represent a correct principle in medical practice. Abstinence from food for a day or so at the beginning of the disease, will do no harm, or, if there is not complete abstinence, the diet may with advantage be confined to a little fruit juice or a little well-cooked fruit, or a very small amount of water gruel. After the first few days, however, when it becomes apparent that the patient is to have a "run of fever," food should be taken at regular intervals, and in as great quantity as the patient is able to digest. Even if there is no appetite, a reasonable amount of food should be swallowed by the patient at regular intervals. Usually, food should not be taken oftener than three times a day. Taking food at too frequent intervals is an error which should be carefully avoided, as the stomach is by this means often overworked, and brought into such a condition that the patient derives no benefit from any portion of the food eaten. The only time at which food can be taken at more frequent intervals, say once in three or four hours, is in a later stage of the disease, in extreme cases, when the stomach seems unable to retain but a small quantity of food at a time.

4. Ulceration, with its attendant dangers of hemorrhage and perforation, will usually be prevented when the measures of treatment above suggested are employed. In the treatment of a very large number of cases of typhoid fever by the means suggested, we have encountered but very few instances of either ulceration or hemorrhage, and these have been chiefly in cases in which the patient was not efficiently treated at the outset of the disease. The employment of enemata, cold compresses to the bowels, and fomentations for the relief of tympanites, or distention by gas, are excellent means of preventing the mischievous results of ulceration, etc. An error frequently committed is to allow the bowels to remain in a perfectly inactive state for some days after the occurrence of symptoms of hemorrhage, such as the passage of black clots, etc. This is certainly a mischievous practice, since the retained blood not only decomposes, but furnishes most favorable conditions for the development of the microbes, and so leads to an aggravation of the symptoms. A few hours after hemorrhage has occurred, the bowels may be washed out with an enema, which should, of course, be given carefully, pains being taken not to distend the bowels unduly. In cases of collapse following hemorrhage, or coming on at any time during the course of the disease, alternate hot and cold sponging of the spine is a measure of greatest value. It may be kept up for half an hour or so at a time, and repeated at intervals of two or three hours, until the grave symptoms permanently disappear.

Typhoid fever treated substantially after the methods outlined, is by no means so fatal a disease as it generally proves under ordinary measures of management. We believe the mortality of this disease may be reduced to 4 or 5 per cent, by judicious management and skilled nursing. Indeed, the percentage of deaths which have occurred in our own practice in the treatment of this disease, is even less than this.

Poisoning by Sardines.—It is difficult to understand how the taste for such articles of food as sardines, shrimps, etc., could have been acquired by the first persons addicted to eating such things. It is, however, still more difficult to understand how intelligent people can continue in the use of such objectionable articles of food, when attention is constantly being called to the fact that serious and even fatal consequences not infrequently result from so doing. A physician recently reported, in the *Medical Brief*, the poisoning of three children from the use of canned sardines. The symptoms were violent vomiting and purging, similar to those of incipient cholera.

PASTEUR'S WONDERFUL DISCOVERY.

JUST now the world is agog with the discovery of Prof. Koch of Berlin, relating to the cure of consumption. It ought to be known, however, that all Prof. Koch has done, is to discover one of the properties of a single germ-poison. Who discovered germs? and who first defined their mode and conditions of growth? A little more than thirty years ago, the old theory of "spontaneous generation" was still stoutly defended by scientific men. It was Pasteur of Paris who demolished forever this erroneous doctrine, and worked out the fundamental problems of the "germ theory," to the elaboration of which so many scientific men have since contributed. We quote the following respecting his work, from a translation from "The Life of Pasteur": —

"'All dry bodies,' said Aristotle, 'which become damp, and all damp bodies which dry up, generate animals.'

"Bees, according to Virgil, were produced from the putrified entrails of a young bull.

"At the time of Louis XIV., science was hardly more advanced.

"A celebrated physician, Von Helmont, wrote, 'The odors that arise from swamps, produce frogs, snails, leeches, herbs, and also many other things.'

"But the most extraordinary thing was the recipe which Von Helmont gave to make a family of mice. It simply required to pack some soiled linen into a vessel containing grains of wheat. The ferment arising from the soiled linen, modified by the odor of the grain, caused the wheat to change to mice after about twenty-one days. Von Helmont affirmed that he had seen the feat, and added with assurance, 'the mice are grown when produced; they are male and female. To reproduce the species, they must be paired.'

"Again he said, 'Dig a hole in a brick, put therein some pounded aromatic herb; place a second brick on the first so that the hole is entirely covered. Expose the two bricks to the sun, and in a few days the odor of the herb acting as a ferment will change the herb to scorpions.'

"An Italian naturalist, Redi, was the first who gave this question of spontaneous generation a little more attention. Observing the worms in putrefying flesh, he saw that they were not produced spontaneously, but that they were the larvæ of the eggs of flies. To prevent the eggs from being produced, Redi covered the flesh with a fine gauze before exposing it to the air. No flies being able to settle on this protected flesh, no eggs were deposited, and consequently no larvæ, and no worms. But at the time when the question of spontaneous generation was decreasing, the discovery of the microscope brought to this doctrine new and powerful resources. In the presence of this world of animalculæ, the partisans of spontaneous generation triumphed.

"'We have, perhaps,' said they, 'made a mistake about the origin of mice and worms, but is it possible to believe that the origin of microscopic beings is not the result of spontaneous generation? How otherwise can we explain their presence and multiplication in all dead animal and vegetable matter in decomposition?'

"Buffon supported the doctrine of spontaneous generation by the influence of his name. He even established a system to sustain this hypothesis.

"The problem reappeared more pressing than ever in 1858. M. Pouchet, manager of the Museum of Natural History at Rouen, correspondent of the Academy of Sciences, declared to that Academy that he had succeeded in demonstrating certainly, *absolutely*, the existence of microscopic beings produced without germs, and consequently without parents like themselves.

"How did M. Pasteur happen to take part in this discussion? How was he led to take up a question so difficult, and at the same time so far removed from his work?

"The results of his researches on fermentation made it a sort of duty. He was led to it by a series of logical deductions. Recall, for instance, that experiment in which M. Pasteur exposes, at summer heat, sweetened water, mixed with phosphates of potash and magnesia, a little sulphate of ammonia, and carbonate of chalk. Under these conditions lactic fermentations are seen to develop; that is to say, that the sugar becomes lactic acid, which unites with the lime in the carbonate to form lactate of lime. This salt crystallizes in long needles, and sometimes fills the entire vessel, where a small organized being, the lactic ferment, is produced and multiplied. If the experiment is carried further, another fermentation usually follows the first. The movable *vibrio* appear, and are multiplied; the lactate of lime disappears, the mass again becomes liquid, and this lactate is replaced by the butyrate of chalk.

"What a series of strange phenomena! How has life appeared in this sweetened liquid, so simple in composition at first, and above all, so different in

appearance from all production of life! Whence comes, this lactic ferment, these butyric *vibrio?* Are they formed from themselves, or do they spring from germs? But whence come these germs?

"M. Pasteur made experiments exactly like M. Pouchet's, but entirely removing the cause of the errors which had escaped the latter. He took a glass balloon having a long tube, which he bent and joined to a platinum tube adjusted to a kiln, so that it could be heated to a high temperature, even to a red heat. In the balloon he placed very putrescible liquids—urine, for example. When the kiln which surrounded the platinum tube was heated, M. Pasteur boiled the urine for several minutes; then he allowed the liquid to cool, but without putting out the fire which heated the platinum tube. During the cooling of the balloon containing the urine, the outside air entered, but after having passed through the reddened platinum tube. Under these conditions the urine was placed in contact with the heated air, but all the germs it could hold in suspension had been burned.

"Germs spread about more in the city than in the country, and become rarer as one leaves inhabited places. Mountains have less than plains, and at a certain hight they are very rare. The experiments which M. Pasteur made to explain these facts were very simple. He employed a series of balloons of about a fourth of a liter capacity, having long tapering tubes. Filling one with a putrescible liquid, he boiled it for several minutes, and during the boiling, as the vapor came violently through the slender part of the tube, he closed this slender part, with the help of the enameler's lamp. Thus prepared the balloons could be easily carried.

"As such ballōons are without air, since that which they contained at first has been driven out by the water vapor, the outside air, at the time when their slender part was broken, violently precipitates itself with all the germs which this air can hold in suspension. If they are again closed soon after, and set away, it can easily be seen which are changed. Now, M. Pasteur ascertained that wherever this was done, a certain number of balloons experienced no deterioration. It is not necessary that they be opened in any room in which the dust has been raised, as, for example, after having dusted the furniture or swept the room. In this case, all the balloons are influenced on account of the great quantity of germs raised and placed in suspension in the air.

"M. Pasteur went to Arbois with the series of balloons. He opened them at the foot of the eminence which forms the first plateau of the Jura; a series of twenty others was opened on Mount Poupet, 850 meters above the level of the sea; and twenty others were taken to Montanvert, near *La Mer de la Glace*, 2,000 meters high. He then took his whole collection back to Paris; and in November, 1860, he put them on the desk of the Academy of Sciences. Of the first twenty balloons, opened in the country, eight contained organized productions. Of the twenty opened on the first eminence of the Jura, five only were affected, and lastly, of the last twenty, opened on the Montanvert, by reason of a strong wind, which blew from the deep gorges of the glacier, one only was affected.

"If a like series of experiments was being made in an air balloon, it would easily be seen that the air of the higher atmosphere is absolutely without germs. It must be understood that it would be necessary to avoid the introduction of dust, which the rigging and the æronauts could carry with them."

Popular Medical Superstitions.—The number of popular superstitions concerning medical subjects, which are current among the laity, is legion. Some of these are so extremely gross in character that they must be relics of the almost universal faith in fetiches, which prevails among uncivilized people. Here are a few examples which were collected by the *Chautauquan*:—

"One will not be required to go abroad to find superstitious preventives of disease and remedies for it. The writer has simply called to his aid the women who happen to be in his home, as he writes this paper, for instances of such antidotes, with which they are familiar. One avers that if an onion be stolen from a grocery store, rubbed on a wart, and then buried where no one can find it, the wart will go away. Another, an elderly lady of intelligence, declares that she was once induced to kill a striped snake and then bite through its skin in the hope that thus her teeth would be preserved from decay. The same lady says she knew a man who lived on Cape Cod, who was persuaded by a colored physician to bind a live toad on his eyes, and so long as the toad lived, wear it to cure blindness. The girl in the kitchen solemnly affirms that she knew a girl near her home, away down East, who caught tree-toads, and allowed them to hop from a tumbler down her throat to cure consumption; when the cold weather came on and the girl could not find the toads, she died."

HEALTH, GRACE, AND BEAUTY. — FOURTH PAPER.

Exercises to Strengthen the Muscles of the Neck and Shoulders.

WEAKNESS in the muscles at the back of the neck and of the upper part of the back connected with the shoulder blades, give rise to flattening of the chest, and hence a lessening of its capacity, and also produce a very unpleasant bodily expression. It is the same expression of weakness which one recognizes in the tired horse that hangs its head low, with its nose projecting, as shown in Fig. 1. In Fig. 2, which is an outline from life, and is not an exaggeration, is shown a very common fault in the standing position. When contrasted with the correct standing poise, shown in Fig. 3, the weak and ungraceful character of this poise may be fully appreciated. The following exercises are exceedingly valuable as a means of strengthening the muscles which hold the head and shoulders in correct position : —

EXERCISES FOR THE NECK.

Exercise 18. — With the arms in the forward bend position (Exercise 5, Fig. 3, page 46, February No.), bend the head alternately forward and backward, letting the head drop forward until the chin touches the chest, and carry it backward as far as possible by very strong contraction of the muscles at the back of the neck. The movements should be taken slowly and steadily, with no jerking action. It is well to combine deep breathing with the head movement, breathing out as the head falls backward, and breathing in as it falls forward.

Exercise 19. — Keeping the arms in the same position, twist the head first to the left, then to the right. Hold the trunk steady, not moving the shoulders, and turning the head as far each way as possible. When this exercise and the preceding are taken properly, the muscles at the back of the neck will become tired.

Exercise 20. — Bend the head in alternation to right and left, forcing it down as far as possible on each side. The trunk should be held rigid during the exercise, the hands resting lightly upon the hips.

EXERCISES FOR THE SHOULDERS.

Exercise 21. — Standing in good poise, stretch the arms downward as far as possible, then raise them backward as shown in Fig. 4.

Exercise 22. — Place the tips of the fingers upon the

FIGURE 1. — A TIRED HORSE.

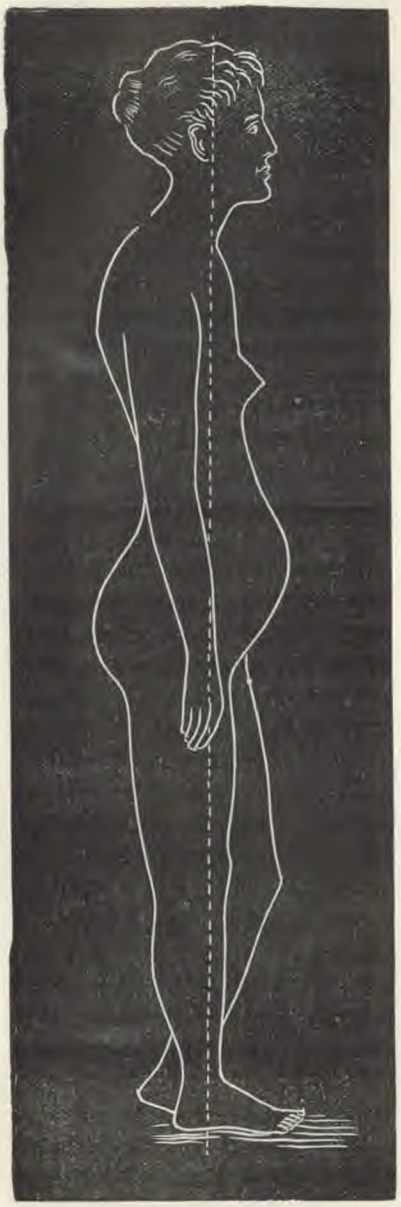


FIGURE 2.—WEAK STANDING POISE.

shoulders, with the elbows pointing directly outward; now while maintaining a good standing poise, throw the arms forcibly outward, turning them downward as they extend.

Exercise 23.— Extend the left arm horizontally sideways; carry the right arm straight up. Reverse the positions by bringing the left arm to perpendicular, and the right arm to horizontal.

Exercise 24.—Extend both arms horizontally sideways, palms upward. Flex the arms to right-angle, keeping the elbows at the hight of the shoulders. Now, turning the arms so that the forearms will be horizontal, return to the vertical position, and repeat a number of times. This is a very excellent exercise for the muscles which hold back the shoulders.

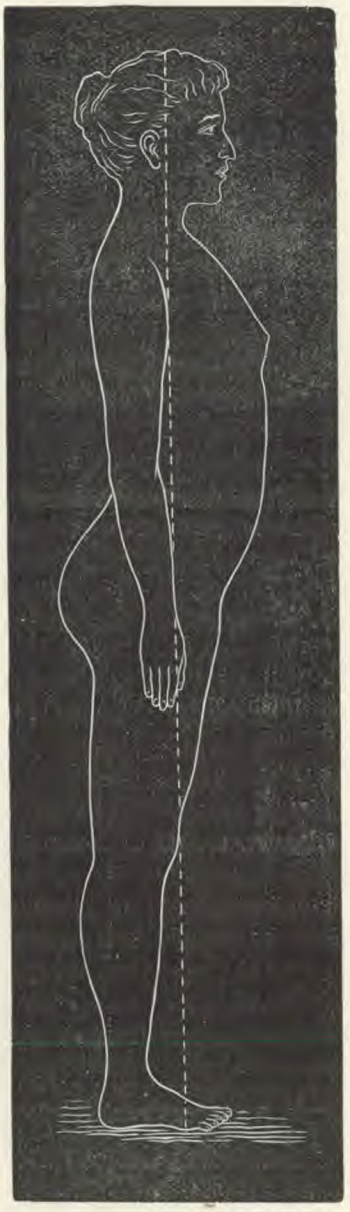


FIGURE 3.—CORRECT STANDING POSITION.
(WEIGHT ON BALLS OF FEET.)

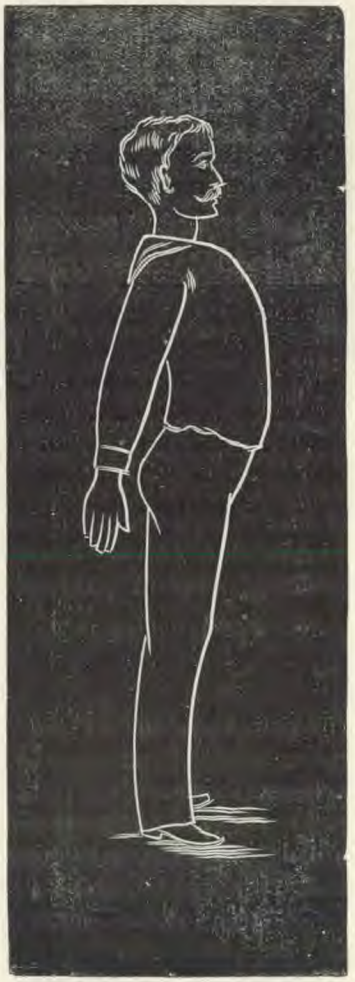


FIGURE 4.—ARMS RAISED BACKWARD.

PROGRAM FOR EXERCISE DURING APRIL.

1. Take a good standing position, as explained in the January number.
2. Swaying with arms in forward bend position — Fig. 3.
3. Exercises 18, 19, and 20, repeating each movement eight times.
4. Exercises 5, 6, 7, and 8, repeating each movement eight times.
5. Exercises 11, 12, 13, 14, and 15, repeating each movement three times.
6. Exercises 3 and 4.
7. Exercises 9, 21, 22, and 23.

To take all of these exercises will require from half an hour to three quarters of an hour of energetic work. This is none too much time to spend, however, if one wishes to develop rapidly those muscles which are essential to a good figure and a good carriage.

THE EFFECTS OF EXERCISE UPON MUSCLES.

We quote the following paragraphs from a paper by Dr. Hartwell, director of the gymnasium of the Johns Hopkins University, Baltimore, Maryland, at the Physical Training Conference, held at Boston, in 1889:—

"Immediately a muscle begins working, under whatever stimulus, the blood stream passing through it becomes changed. The arterial twigs dilate; more blood is poured into the capillary vessels which surround its fibers; and more blood flows away from it, through its veins, toward the heart. If the supply of arterial blood to a muscle is cut off or diminished, its irritability is lowered; *i.e.*, a stronger stimulus is required to make it contract. The same result follows also, if it is fed with blood deprived of oxygen, or otherwise poisoned; or if the muscle vein is tied, and the waste products, normally drained off through the veins, are retained in the muscle. The irritability of a muscle is also lowered by prolonged or excessive stimulation, even when its in-going and out-going blood streams are unobstructed.

"These, then, are the main conditions for the health of a working muscle: a full supply of proper food and of oxygen, unimpeded and sufficient drainage, and rest at due intervals. Given these three conditions in the body, exercise of a working muscle causes it to increase in size and weight, through an increase of the size and number of its fibers. Furthermore, a working muscle differs from a resting muscle in that it is appreciably hotter; by the presence of a low murmur, called the muscle sound; and on account of certain electrical peculiarities which it presents. Now a healthy muscle habituated to exercise, a trained muscle, that is, can do more work, and do it better, than an unexercised muscle, and for two reasons. Exercise makes the muscle larger, harder, and stronger, improving it simply as a tool in all its structure; and secondly, the muscle responds more quickly and fully to the stimuli by which it is stirred up to work. In other words, the muscle becomes more responsive and obedient to its stimulators, the nerve centers, through its better acquaintance with them. Growths, or increase in the size and number of its structural elements, and development, or increased facility in its functional activity, are the main effects of exercise in the case of a single muscle. The same is true of the muscular system as a whole. Exercise enlarges and strengthens it on the one hand, and renders it more readily discriminative and responsive as regards stimuli, on the other.

"Muscular activity, too, is one of the chief agents in promoting wholesome tissue changes in all of the bodily organs, and determining the normal growth and development of the organism as a whole. The normal growth and balanced working of the organs concerned in the digestion and assimilation of the food, the circulation and oxygenation of the blood, and the secretion and excretion of waste or noxious products of tissue changes, are all largely promoted by well-regulated muscular exercise. The influence of exercise in these respects, and in securing the full and symmetrical growth of the bones and muscles, is somewhat generally, though vaguely, appreciated, and constitutes the burden of eulogy and exhortation of most of the articles and addresses of those who advocate physical training."

HOW TO BREATHE.

Babies know how to breathe and breathe properly. A large share of the men and women, however, lose the art when they grow up. Mr. Wm. Blakie tells boys some very good things about deep breathing, and as it will do girls no harm to breathe deep also, we quote what he says as follows:—

"Nobody teaches American boys how to breathe. City boys, and many from the country too, have finer chests before they go to school than they ever do afterward. Sitting in a school-room, or shop, or factory, or any other room, five or six hours a day, and then sitting most of the rest of the day besides, does much to weaken the chest; for when you sit still, you do not breathe your lungs half full. Take one large, full breath now, and see how your chest rises and expands, and how differently from a minute ago, when breathing only as you generally do. Many boys actually do not breathe their lungs full once in a whole week. Is it any wonder they have weak chests, and that they easily catch cold? How are you to

have strong lungs if you do not use them? Which has the strc g arms—the invalid leaving a sick-bed or the blacksmith? he who uses his arms, or he who does not?

"When walking at the rate of four miles an hour, you breathe nearly five times as much air as when you are sitting still. Now, the fuller breaths you take, and the more of them you take in a day, the stronger and fuller chest you are going to have. If every boy in the United States would take a thousand slow, very deep breaths every day from now on throughout his life, it would almost double our vigor and effectiveness as a nation; for deep breathing not only enlarges the chest it elf, and makes it shapely and strong, but it gives power and vigor to the lungs and heart,—makes them do their work far better. And it does the same for the stomach and bowels, the liver and kidneys; indeed, to all the vital organs. It makes the blood richer. It adds directly to the vigor of the brain as well, and so enables it to do more work. In short, it is about the best known way of getting and keeping health. And who would care to hire a sick man to work for him? Or who can do much hard work when he is sick? Not that we can always avoid sickness, but it is less likely to come, and has harder work to enter, when we are robust and in good training than when we are weak and run down."

Comparative Development of Boys and Girls. —Measurements have been made in Saxony, of twenty-one thousand children, which show that boys are a fraction of an inch smaller than girls up to the eleventh year of age, but that the girls then become taller until the sixteenth year, when the boys again pass the girls in hight.

Benefits of Gymnastics for Ladies.—A writer in the *Ladies' Home Journal* asserts that gymnastics "make a woman dextrous and nimble with her feet, her hands, and her head. They help a heavy, flesh-burdened woman to rid herself of superfluous avoirdupois, permitting her, in time, to move easier and more speedily. Courage, also, is added, for it requires some forgetfulness of that innate timidity and dread of criticism inherent in women to attempt exercises with clubs, to jump across a vaulting-bar, or to climb rope-ladders hand over hand. It does a woman good to be taken out of herself, to forget how she looks. It prepares her for great or trifling emergencies, gives an exhilaration of spirit, and a pleasure which makes the exercise a delight, and enables her to do more work with less weariness than before."

Diet and Strength.—According to *The Gymnasium*, Mrs. Lucinda B. Chandler, President of the Moral Educational Society, claims that meat eating is largely a matter of habit and not of necessity, preventing the higher development of which man is capable, stifling the humane instincts, and "linking the life principle to that of the spirit of the beast, which goeth downward." To show that meat is not requisite to muscular development, she cites the following instance: "In an experiment of training for a rowing contest some years ago, it was found that the man who had taken only grapes during the period of dieting surpassed all the others who had eaten, one only meat, one beans, one rice, and one wheat in some two or three forms of preparation. This last man was second in the list. Fruit and grain evidently were most favorable to the intelligence and will power that controlled muscle."

Roman Women.—The ancient Romans, in some respects, were in advance of the present age in their practical physiological knowledge. This was especially the case in the habits of the women. They seemed to be fully aware of the fact that a hardy race must be born of healthful mothers, and consequently any usage or practice likely to affect injuriously the the health of women, was viewed by the State with suspicion. The muscles were systematically educated. Frequent bathing was required by law. Large bath-houses were established, which were places of common resort.

For several centuries of the best ages of Rome, it was a criminal offense for a Roman mother to drink intoxicating liquors. At the time of our Saviour on earth, and for a long period after, it was considered infamous for a Roman woman to taste wine.

The consequence of this physical training and abstinence from all intoxicating liquor was, that the Romans were noted for their strength and endurance.—*Woman's News.*

THE ALPINE DIVIDED SKIRTS.

THE divided skirt is by no means a modern invention. Probably, if we took into consideration the entire human family, it would be found that the number who wear trousers or the divided skirt far outnumber the wearers of petticoats. A writer in the *Jenness Miller Magazine* describes the dress worn by the Champerines, an interesting class of Alpine dwellers, whose country would seem to be the paradise of rational dress. According to this writer, the interesting people referred to "had never seen petticoats until I showed them mine. My corset created such a sensation, and brought me so many visitors, that my time was entirely taken up in displaying that article of dress, and explaining its use, until I had a happy thought,—I hung a pair on the railing of my balcony, and left them there. Every woman in the village, and I think every man, too, examined those stays. 'O dear!' said one girl as she walked away, 'what agony it must be to wear such a thing! And why call them a "pair," when there is only one of it?' Their own dress is, perhaps, more peculiar than that of any other women in the world. They say it is exactly the same as that worn by the Alpine women of Cæsar's time, but that they alone wear this identical pattern, which has been handed down from mother to daughter since 55 B. C., the date of the Roman invasion of Britain.

"The women wear three articles of clothing in summer, four in winter. The fourth, an extra garment for cold weather, is made of very coarse muslin or linen, and is only long enough to cover the abdomen. The other three pieces of clothing are a bodice, a skirt, and a pair of trousers. This dress is made of a rough, black, woolen material spun by their own hands. The trousers are wide enough to be comfortable, and extend up to just below the bust, where they are buttoned to the bodice, which is cut rather low at the throat. The only objects attempted in their attire are comfort and adaptability to the requirements of their mode of life. Enormous mutton-leg sleeves stand out from the shoulders of the bodice. We are now wearing the same style of sleeves, except that ours are flat and fan-shaped, while theirs resemble an enormous peg-top, narrowing down to the wrists. The last garment, the jupe, may be called an *article de luxe*, as it is seldom in active service. It is a narrow skirt set into a band, and long enough to reach to the ankles. Some wear it rolled up around the waist, but generally it is folded and fastened to the back, like a soldier's knapsack. It is worn only on state occasions, such as funerals, weddings, christenings, and at all religious ceremonies.

"They like their trousers because such garments are adapted to their use, and these Alpine women look with pity, if not with contempt, upon women who are condemned to wear petticoats. 'And worse even than petticoats,' remarked one of them to me, 'are those iron things you wear—ah! yes, corsets. You say women in your country are not compelled, but wear them because they like them? Dear me! to us it would seem like slow suicide.' These simple-minded descendants of Cæsar wear their divided skirts with as much ease as we do our gowns, and with no more shamefacedness when they require enlargement, than characterizes the most highly civilized women at the same period of existence."

FATAL RESULTS OF TIGHT LACING AMONG SAVAGE WOMEN.—From an English contemporary we quote the following: "We have been told that the vices introduced by white men are depopulating the South Sea Islands, but now it would appear that white women are also responsible for the rapid depopulation of New Zealand. When female missionaries went among the Maoris, they insisted that the Maori women should wear clothing. The latter could not be induced to overcome their prejudice against skirts, but, discovering that the missionary women wore corsets, they decided that the latter was a garment not wholly de-

void of merit. The result is that every Maori woman now goes about her daily work neatly clad in a corset laced as tightly as the united efforts of half a dozen stalwart warriors can lace it. Being unaccustomed to tight lacing, the women are dying off with great rapidity, and the repentant female missionaries now regret that they ever asked their dusky sisters to consider the question of clothing."

AN ENGLISH WOMAN ON DRESS.—Lady Florence Dixie, a well-known English woman whose social standing is not contested, although she may not always be considered the wisest of English women, has some very radical notions on the subject of dress-reform, which are doubtless too radical for adoption, but nevertheless embody some good ideas. Lady Dixie says, in the *Rational Dress Society's Journal*:—

"I am one of those who think that the boy and girl should be brought up together, receive exactly the same education, be dressed alike, and allowed to adopt similar professions. In fact, I hold that woman should be regarded as man's equal in all things, and not be forced into marriage simply to make herself a home. Until perfect equality is acknowledged between the sexes, no great social improvements will ever take place; and the first step to acquire perfect equality is a reformation in dress. There are only two rational forms for a woman's dress; one is a short petticoat or kilted skirt, reaching to the knee; the other, trousers or knickerbockers. Personally, in Scotland, I never wear anything else in my own house or at shooting parties but the former style of dress, which I regard as both elegant and comfortable. In a kilt (knickerbockers underneath) I can walk any distance and over the roughest ground; in a woman's ordinary dress I could not go a yard. I think the only way to get a certain style of dress adopted, is to hold meetings, form clubs, and agree to wear the dress decided on.

"If I could get 500 women to form themselves into a club and adopt the kilt, I would march at their head through London and hold a demonstration in Hyde Park. It is useless for individuals to adopt it; they would only be mobbed. In 1879 I traveled over hundreds of miles of unexplored ground in Patagonia. Well, I simply dressed like a man, and rode like a man on that occasion—the only rational thing to do. I was comfortable and happy, and I don't think I looked any more unsightly than did my men companions. I know they laughed very much when I returned to my hideous woman's attire. To secure all their rights, women must take that of dressing comfortably, for men will continue to regard themselves as the dominant race until woman's dress is reformed."

MISS WILLARD ON DRESS-REFORM.

IN her opening address before the Woman's National Council, Miss Frances Willard, the President, in speaking of the advancement and present status of women, offered the following terse thoughts upon the subject of dress-reform:—

"But be it remembered that until woman comes to her kingdom physically she will never really come at all. Created to be well and strong and beautiful, she long ago 'sacrificed her constitution, and has ever since been living on her by-laws.' She has made of herself an hour glass, whose sands of life pass quickly by. She has walked when she should have run, sat when she should have walked, reclined when she should have sat. She has allowed herself to become a mere lay figure upon which could be fastened any hump or hoop or farthingale that fashion-mongers chose; and ofttimes her head is a mere rotary ball, upon which milliners may let perch whatever they please—be it bird of paradise, or beast, or creeping thing. She has bedraggled her senseless long skirts in whatever combination of filth the street presented, submitting to a motion the most awkward and degrading known to the entire animal kingdom, for nature has endowed all others that carry trains and trails with the power of lifting them without turning in their tracks, but a fashionable woman pays lowliest obeisance to what follows in her own wake; and, as she does so, cuts the most grotesque figure outside a jumping jack. She is a creature born to the beauty and freedom of Diana, but she is swathed by her skirts, splintered by her stays, bandaged by her tight waist, and pinioned by her sleeves until—alas, that I should live to say it!—a trussed turkey or a spitted goose are her most appropriate emblems."

To the Committee on the new business dress, at the Woman's Council, Miss Willard furnished the following unique suggestion: "Arrange for and build the dress around *one dozen pockets*."

THE SAME STANDARD FOR BOTH.

(Abstract of a lecture by Kate C. Bushnell, M. D., before the Mothers' Meeting of the Battle Creek W. C. T. U.,

THERE is a fallacious idea far too prevalent, that boys and men are less responsible than women for departures from the path of rectitude, because such digressions are more in the line of their nature. But, there is no crime committed that is not along the line of nature. Is it not natural to get angry? Have you not had symptoms of anger rising? Yet you know that if you should get angry enough to put a bullet through a man, you would hang for it. Is it not natural for you to steal? O no, you say, but let us see about it. You are walking upon the streets. You see a purse lying there, and your mind goes through a sort of mental gymnastics about as follows: "Somebody has lost a purse. I hope there is lots of money in it, and if I do not find the owner, I shall not feel so much the misfortune of the man as my own good fortune." Yet, though you feel thus, you have been schooled in honesty; you go to a newspaper and advertise it, thus shutting yourself off from any further temptation to hold it. That is nature under control; recognizing a propensity, but yet not subject to its bonds. Here is a man on the street. He has within his heart a lustful impulse. He meets a young girl, and brings about her ruin. He has not been educated to the control of this impulse, and does not esteem what he has done an illegality. All the plea he has to make is that it is natural. But why not make the same plea for the defense of the thief? All crimes are only excesses along the line of nature. There are nature-worshipers in the world who worship nature just as the Hindoo does who gets down and says prayers to the beetle. They forget that God said, "Have dominion over nature." They make nature the lord, and they obey their impulse of worship.

Here is an engineer who has found out that it is the nature of steam to expand. He understands that that is what drives the wheels of his engine with such force—the force of nature pent up in the boiler of his engine. He understands that pent within it, is a force many thousand times in excess of the muscular system in his body. He admires and respects its power. Pretty soon he decides to bow down and worship it. He bows down in front of the moving engine, and is torn to pieces on the track. That is all he gets by worshiping power or worshiping nature. Another engineer who sees this says, "That is a force which destroys men. That force should be annihilated from the face of the earth." He puts wood into the stoker, and heats the boiler with reference to its ultimate destruction. It cannot be done. Nothing in nature can be annihilated, and when he gets the boiler hot beyond further endurance, it bursts, and he is blown into atoms. To worship nature, and to destroy nature, are equally disastrous. Here is a third man who has an engine. He understands thoroughly its mechanism, and knows how to keep it under perfect control. It goes when he tells it to go, and stops when he tells it to stop. This is nature made amenable to law, subservient to the will of the man.

There is no need of teaching children that nature must dominate over them. They should be taught to control nature, and never in any instance to be its slave. No intelligent being wants to destroy nature, but her impulses should be regulated and wisely controlled. Let us all learn the wisdom of teaching boys and girls alike, that it is their privilege to be lord over nature. But you say, Is it not true that a man has stronger impulses toward impurity than a woman? and is not his constitution a little different? Suppose a mother who was raising a family of boys should say, "I believe there is a good deal of difference between boys and girls in the matter of temper. I do not think it possible for a boy to control his temper as well as a girl can, therefore the boy ought not to be punished so much. The girls know that they are absolutely sure of punishment, and they are even taught that boys cannot be expected to be as good tempered as girls. The girls, from exercising self-control, grow strong, the boys, tyrannical. The girls marry, strongly fortified in their belief that there is a great difference in disposition between men and women, and another generation of boys and girls are trained in the same false principle. Think what the third generation would be after such schooling as this. Yet just that sort of allowance for the impure tendencies in a man has been made generation after generation, ever since

the world stood. Jesus Christ sounded a protest against it. It has only very vaguely found echo. The eyes of the people have been completely closed to this point, and human kind has hardly come to recognize that he said, "Whosoever looketh upon a woman to lust after her hath committed adultery with her." Instead, it is preached constantly that a man is different from a woman, that it is natural for him to be coarser in conduct and talk, that he uses tobacco and whisky, which inflame his passions; and other weak excuses are made for him. The result is, that your boy turns his feet toward perdition, and supposes he is going toward heaven because he hears on every side that it is natural for a man to have these base tendencies, and to seek their gratification. He little dreams that he must one day meet his God and render account. His mother, sister, and wife allow him to go on, and never utter a voice of warning. And that is the great mistake which mothers are making. Their gray hairs are going down in sorrow to the grave, not because of their girls, but because of their boys. I tell you many and many a mother never gave to her boy the gospel of purity. Do you wonder that the Christian religion among other religions is called the feminine religion? There are men who talk about manliness when they mean only lustfulness. A pure man is laughed at, and we are almost ashamed of our cleanest men,—almost ashamed that they are not like the men of the world.

RUINED YOUNG MEN.

ALL our great cities are full of them. They are among the saddest sights upon which the eye falls. Young, but already ruined! At the beginning of life, but with character gone, honor gone, principle gone, and only the thinnest veil of reputation in some cases left, sufficient to save them from immediate expulsion from all decent social circles and business employment! The devil has them fast in his snare. He knows how gradually to draw them on even from boyhood, by a graduated series of evil deeds and influences, running downward, as an inclined plane,—thus: bad companions, disobedience to parents, late hours, smoking, theaters, drinking, gambling, lewdness, *perdition!* Between the last two in many he interposes *crime*, but not always; for it is not necessary.

To what is this evil owing? On whom rests the responsibility? Alas! the causes are many, the guilty parties numerous; in truth, we are all in some respects involved, by reason of duty neglected. Parents have the first responsibility. They have the right by God's law and human law, to restrain their minor sons. They ought to know who are the companions of their boys, and where they go, and how they spend their leisure time. Especially should they control their sons as to their evenings, restricting them as to the number that shall be spent away from home, and as to the hour of return, and positively deciding upon the places to be visited.

A chief mischief is the free allowance of spending money. This is the ruin of rich men's sons. They learn to gratify all their desires, and they thus secure the weakness of character which comes from indulgence, instead of the strength which is imparted by self-denial. They are surrounded on this account by evil companions who wish to guide and share their pleasures, and to enjoy vice at their expense. Here is where Christian men mistake, to their subsequent grief, who lavishly fill the pockets of mere boys with money, and thus oil the wheels of dissipation. It is far better that men of wealth should make their sons earn their spending money, by some form of work at home, or at the place of business, and should insist on their keeping an account of expenses. Vice is costly, and lean purses are great safeguards to virtue. Yet reliance must not be on mere negative means of repression. Home must be made pleasant and attractive, by music, books, wholesome games, and a cheerful social circle, in which the parents are active participants; and variety must be given occasionally, by taking the older children to concerts and other pure entertainments.

Employers have a grave responsibility with respect to the young men who are with them. Self-interest, if no higher motive, should make them watchful over their moral welfare; for vicious habits once formed will break down the integrity of clerks, and lead to dishonesty. Many a business man pays hundreds of dollars annually for his heartless indifference to the morals of those whom he employs. It is not enough to pay the stipulated salary. There should be a knowledge of the habits and haunts of clerks out of business hours. There should be a manifestation of genuine interest in their improvement and success, and a readiness to aid them in pursuing honorable and virtuous courses, by opening to them doors of social intercourse, as they may prove worthy, and by encouraging them to seek mental improvement in courses of study, and in debating societies and library associations.— *T. DeWitt Talmage.*

CANCER PASTES AND PLASTERS.

THE "cancer doctor" flourishes by the propagation of the notion that he possesses some secret remedy which is not only capable of destroying the cancer, but will follow it to its roots; and he demonstrates the value of his remedy by exhibiting a number of tumors which he calls cancers, and claims to have extracted by his particular method. Many of these so-called cancer cures are claimed to have originated in a miraculous manner. There is, however, no mystery about them, as they are uniformly made up of some caustic drug combined with other substances, many of which are immaterial. Here are a few of the most common combinations: Chloride of zinc, pulverized blood root, common flour, equal parts of each well mixed and moistened with sulphuric acid. This is a very painful remedy, but is certain to destroy the morbid tissues in a most efficient manner. The chloride of zinc, blood root, and flour are sometimes used without the sulphuric acid, being moistened with water.

Arsenical Cancer Paste.—Arsenic, sulphur, sulphate of zinc, and Rochelle salts, equal parts. Make into a paste with the yolk of an egg, bake with a slow heat until dry, and pulverize. Mix with an egg and apply on a cloth.

Chromic Acid Paste.—Poke root, mandrake, blood root, chromic acid, and carbon bi-chloride.

Another Cancer Cure.—White arsenic, one dram; gum kino and cinnabar, each one ounce; and hydrastis canadensis, two drams. Mix into a paste, with simple ointment.

Many other combinations might be given, but these are among the most commonly used, and are as efficacious as any known. The fact that the masses which come away with the application of these pastes have roots attached, is no evidence of the efficiency of the remedy. These so-called roots are simply due to the anatomical structure of the parts. They are not the cancer roots, but are simply portions of structure which were connected with the main structure by thickened lymphatic channels through which the poison is absorbed, and so are killed with the general mass.

DR. HALL'S LATEST SWINDL

WE fear our readers will be tired of hearing so frequently respecting this famous Dr. Hall, but we have had such good success in our attempt to break up his fraudulent business that we feel encouraged to continue our efforts in this direction, hoping that still further good may be accomplished.

So long as Dr. Hall was supposed to have a rightful claim to his so-called discovery, the public were satisfied to allow him to continue his business unmolested, notwithstanding the evident greediness exhibited in charging four dollars each for a penny pamphlet, all the practical information of which could be expressed in a dozen words.

Since our exposure of the fraud practiced by this man, and our citation of the sources from which he obtained his pretended discovery, his general agents in various parts of the country have abandoned their allegiance to him, and, ignoring their pledge to secrecy, have begun the publication, in various forms, of the so-called secret which Dr. Hall has made the foundation of his swindling enterprise. Recognizing that his organized business was now at an end, Dr. Hall has undertaken to rake in a few more dollars by circularizing the clergymen of the United States, many of whom have been acting as his agents. Here is an extract from a special letter to clergymen, which he has recently sent out:—

"Having learned that numerous unscrupulous par-

ties have pirated the substance of my "Health Pamphlet" and the discovery I made, now forty-two years ago, and which I was the first to make known to the world, and having learned that these dishonest parties are offering their bogus pamphlets, imperfectly unfolding my system of treatment, at a reduced price, I am determined that neither the public nor my own reputation shall suffer by such unprincipled conduct, and to this end I now purpose to get more than even, as herein set forth."

His scheme, as stated in the aforesaid letter, is to "send the original, genuine health treatise" at the rate of fifty cents per copy, if ten copies are taken at a time,—a discount of *eighty-seven and one half* per cent! He generously says that "any clergyman has the privilege of making a present of the pamphlet to a friend in poor circumstances, or if so disposed, can present him with any part of the price in selling him the pamphlet;" but he "earnestly advises clergymen never to sell a pamphlet for less than four dollars where the purchaser is able to pay for it." That means, to swindle anybody who has any money, and to obtain a reputation for generosity by selling at cost to those who are too poor to be swindled. And further, "I suggest the selling of my pamphlet on a month's trial, to be returned and the money refunded in every case where the new treatment does not prove satisfactory." In the March "Microcosm Extra" which accompanies this special letter, A. Wilford Hall, LL. D., Ph. D., and P. Q. D. (which means Prince of Quack Doctors), explains his plan for selling on trial. Those who hesitate to pay four dollars for his miserable penny pamphlet, will be allowed to purchase the book on trial, with the understanding that the money will be refunded at the end of a month, provided the purchaser is dissatisfied with it, and further provided *he will sign a pledge never to use the remedy himself, nor to allow it to be used in his family, nor to explain its use to others.* When it is known that this wonderful remedy is nothing more nor less than the use of a warm water enema administered by a common bulb syringe, the extraordinary meanness of this pretended philanthropist becomes at once apparent. To offer to refund a man's money providing he will solemnly pledge himself never to administer an enema to himself, nor allow it to be administered to any member of his family, nor to inform any other person concerning the use of this common remedy, is, of course, a perfectly safe proposition. It is not likely that any intelligent person would wish to ask the return of his money on such conditions; but it is a swindle of the most barefaced character, and a crime against decency, to profess to make a fair and honorable bargain while well knowing that the conditions are such as to entirely nullify the apparent fairness of the proposition.

DR. HALL'S CLAIMS.

In order that our readers may be certain that we have given a correct idea of the "priceless boon" that Dr. Hall has conferred upon humanity in his pretended discovery, we quote his own words describing the same, on pages 19, 20, 21, 22, 26, 34, and 35 of his pamphlet, from which we have quoted in previous numbers.

"And now, dear reader, after all these stages of approach to the treatment, and broad hints at what is necessary to aid nature, I come at least to the process itself, which I will endeavor to narrate as the priceless secret of my discovery.

"I began by purchasing a common bulb-syringe at a drugstore, and on the first attempt I forced a pint of water into the rectum, though with considerable difficulty. So encouraged was I at the result of this initial experiment, that the next evening I doubled the quantity, forcing a full quart of warm water into the colon, obtaining a still more encouraging discharge. Two evenings thereafter I resumed my task, measuring out two quarts of water, warm enough to be comfortable to the hand, and to increase its lubricating quality I added a little soap.

"Two evenings after this I came to my fourth attempt, but with some misgiving and uncertainty as to the result. I measured out three quarts of tepid water of a temperature comfortably warm to my naked hand, and with resolute but careful persistence I injected the entire quantity. Three evenings later I prepared for the final test by measuring out four quarts of warm water. This I slowly injected. And I can now aver since that time, forty years ago, I have not failed of a single second or third night to treat myself with this drugless and revolutionary remedy.

"After charging the colon with at least three quarts of warm water and expelling the same, with the contents of that viscus, I would add another enema of about a quart, and then go to bed. . . . .

" . . . . . After the injection of two or three quarts, according to capacity for holding it, the patient must use his own judgment from his feelings how long to retain it before allowing it to be expelled."

GOOD HEALTH
J. H. KELLOGG, M. D., EDITOR.
BATTLE CREEK, MICHIGAN.

HOW NOT TO MIND THE WEATHER.

WHAT makes one feel blue, gloomy, and depressed when the sky is lowery and the atmosphere damp? Some one says, "The weather does not affect me." That is a great mistake. Our feelings naturally go up and down with the barometer. Now and then a person has such a superabundance of good spirits that the weather makes little difference with his feelings; but when one is sick and the vital capital is reduced, then all these changes in the atmosphere are noted. The chronic dyspeptic, the rheumatic and the neurasthenic invalid are barometers in themselves, which record all the changes of the weather. The telephone and some other electrical apparatus are extremely sensitive to changes in the amount of electricity in the atmosphere, and indicate clearly an approaching storm, even though it be miles away. The great mass of brain matter, made up of delicate nerve protoplasm, is infinitely more fully alive and sensitive to atmospheric changes than the tin, iron, and copper wire which make up the telephone. The human body is more sensitive than any physical instrument ever invented.

Now in order to combat these influences, we must make up our minds, when the sky is lowering, that there is sunshine on the other side, and that morbid thoughts shall be resolutely put away. If you say to yourself, "The sky is cloudy, it is going to rain, I am certain that my rheumatic pains will be worse to-day, that my liver will be troublesome and my head and back will ache," and thus lay out a full program of dismal expectations, it is quite likely to be well carried out. But if you want to make the best of it, you must start out in an altogether different way. Say firmly that you are not going to be trodden under foot by this gloomy weather, that you will be master of the situation, and manufacture sunshine for yourself and other people. Determine to radiate mental and moral sunshine all the day long, and you will find that the reflex influence upon yourself is one of happiness and cheer. Gloom begets gloom, and smiles beget smiles. Note the different effect upon a roomful of people at the entrance of one who is depressed, whose countenance is cast down, and the corners of his eyes drawn down, with one whose face is radiant with smiles and happiness. The one is a veritable thunder cloud, while the other illuminates the whole assembly like a burst of sunshine. Thousands of people make themselves sick by bad diet and other violations of the laws of health, and then charge all the blame on the weather. The trouble is with the patient's internal atmosphere; a storm in the liver, a cyclone in the stomach, "malaria" in the bowels,—not with the weather clerk. "Never mind the weather" is a good maxim, but not easy for invalids to follow in all cases. Still, we must do the best we can to antagonize this potent cause of no small amount of disease and death.

THE MORAL INFLUENCE OF FLESH-EATING. — A man whose bill of fare consists chiefly of flesh food, must expect to find himself more nearly related to the animal in his instincts than the man who satisfies his palate with milk, fruits, and farinaceous seeds,—the primitive diet of the human family. Byron refused to eat flesh because, as he said, "It makes me ferocious." Writing in his journal in 1814, he said, "Meat I never touch. . . . The worst is, the Devil always comes with it till I starve him out; I will not be the slave of any appetite." No man knew better than Byron, a man of strong appetites and passions, the influence of diet upon both mind and body. Many have recognized the same truth which he expressed, but comparatively few have shown the same resolution in making a practical application of it. Byron finally succumbed to his appetites, and died a drunkard and a glutton.

ATMOSPHERIC DUST.

MR. JOHN AITKEN has been making some very interesting researches concerning the character of atmospheric dust, and the number of dust particles found in equal volumes of the air in different localities, employing for the purpose a special apparatus devised by himself. According to the report of his observations, Mr. Aitken found that at "Cannes the number varied from 1,500 particles when the wind was blowing from the mountains, to 140,000 particles when the wind was blowing from the town; at Hyeres the sea air contained 1,800 particles, and at Mentone 5,000. Observations on the Rigi were striking, the number of particles falling in places as low as 240, and varying from that up to 2,300, and doubtless on this fact depended the peculiar brilliancy and transparency of the atmosphere in this locality.

"Observations made in Scotland and elsewhere indicated in what extraordinary degree the pollution in the air was due to human agency. In regions clear of human habitations the particles fell as low as 200, while in and around villages the particles amounted to thousands, and in towns to hundreds of thousands. His lowest observation was 200 particles per cubic centimeter. It was still a problem whether that was the lowest limit attainable, and how much of that was of cosmic origin and how much was due to natural pollution. The presence of clouds at great elevations proved that dust existed in the upper atmosphere, but there must always be a considerable quantity of cosmic dust present, from the millions of meteors which fell daily. He had reason to believe that dust condensed moisture before the air was saturated, and this led to a loss of transparency, because the dust-particles, by condensing the moisture in the air, increased in size. There was no doubt that haze was often largely due to dust. The condition of the air during fog had been tested, and in all cases a large quantity of dust was found.

"The explanation of fogs probably was that calms increased the quantity of dust in the air; the dust increased the radiating power of the air, which soon got chilled to the condensing-point, when fog was formed.

"Fogs were more frequent in towns, on account of the greater amount of dust in the air."

DANGER IN PICKLES.

PICKLES are bad enough in themselves. They are difficult of digestion, irritating, and utterly unwholesome as articles of diet. Dr. Jackson, of Pittsburg, has recently been investigating pickles, and he finds they are very generally adulterated with poisonous substances which render their use not only unwholesome, but absolutely dangerous. We quote as follows from Dr. Jackson's report of his investigations: —

"Salicylic acid is almost universally used by tomato-catsup manufacturers for the purpose of cheaply preserving the catsup from fermentation. The manufacturer also uses it to preserve the large quantities of tomatoes which he buys when cheapest, in a sort of mash or pulp. Salicylic acid is injurious when taken in more than very small doses not frequently repeated, as it causes emaciation or wasting of the tissues.

"The coloring matter — aniline red — as a matter of fact, often contains arsenic. How any one can imagine that tomatoes could give such a color to catsup as is possessed by this article, it is difficult to conceive. It must be remembered that arsenic is not to be trifled with, and that, like all metals, it accumulates in the system.

"Ten samples of domestic and foreign pickles were examined, with the result of finding impurities and adulteration in thirty-two per cent. Copper was present in two samples, sulphuric acid (oil of vitriol) in seven, lead in one, iron in two, zinc in one.

"The copper found was present in considerable amount, and had been added for the sole purpose of dyeing the pickles a bluish green color. Pickles of a vivid green color invariably contain copper. It is still a common practice with many housewives to 'green' their pickles by allowing them, with their vinegar, to stand in brass or copper kettles for twenty-four hours or more; and it is also advised in some cook-books to place a few pennies in the pot while cooking the pickles. How it is that any one should be so ignorant as to do these things, it is difficult to conceive; yet it is done. Many cases, some fatal, of poisoning from eating pickles colored with 'copper' have been reported.

"The oil of vitriol found in seven samples is evidently a very common sophistication. Its cost is so little and its strength is so great that the temptation to use it as an adulterant of vinegar is powerful.

"The sulphuric acid found was probably added

to give an extra tartness to the pickles. Sulphuric acid too often contains arsenic. You may detect sulphuric acid in vinegar and pickles in this way: Place a few drops of the vinegar on a small piece of granulated white cane sugar in a saucer; then set the saucer over the top of a teakettle or other vessel in which water is kept boiling for some time. This will evaporate the water and the acetic acid of the vinegar, and then if sulphuric acid is present, it will be concentrated and char the sugar. This charring of the sugar is a certain and simple test for the presence of any important quantities of sulphuric acid."

THE CLIMAX OF QUACKERY.

A CASE of charlatanry recently developed in Milwaukee through the prosecution of the Gun Wa Medical Company, is rightly denominated by the *Medical News* as the climax of quackery:—

"The supporters of this fraud have branches in several cities, in which they advertise that they have an eminent Chinese physician, Gun Wa, who is versed in the medical lore of the Oriental schools, and who has a remedy for every disease to which flesh is heir. This 'physician' is generally some ignorant laundryman, who knows too little English to be able to communicate with those who would consult him. He therefore has an interpreter—in Milwaukee this was 'Dr. Jansen'—and this 'interpreter' does not know a word of Chinese. During the active operations of this swindle in Milwaukee, this alleged famous Chinese physician, Gun Wa, was personated by three different laundrymen. It is not easy to conceive of a more barefaced and impudent imposture than this which has been practiced with considerable success in several Western cities."

There are many firms of traveling doctors possessed of no greater medical ability than that of the Gun Wa Company, and yet thousands of people patronize these traveling charlatans, imagining that they obtain from them more valuable professional advice than from their local physicians; while at the same time these trusting individuals would not grant the great medical genius, who, lacking reputation at home, is obliged to travel from place to place in territory where he is unknown, the loan of a five dollar bill, if requested to do so, without asking some satisfactory security. It appears as though the people of this country enjoy being imposed upon.

LEFT-LEGGED-NESS.

SOME time ago Dr. Sibley read before the British Association an article on "Left-legged-ness," in which he shows that while the majority of people are right-handed, they are at the same time left-legged:—

"The rule in walking is to keep to the right, and this appears to be almost universal. It is more natural to bear to the right. Of a large number of people from the better-educated classes who were asked about the existence of the rule, only 67 per cent males, and 53 per cent females, were aware of the rule. The large majority obey it unconsciously in walking. Crowds tend to bear to the right. The left leg being the stronger, is more readily brought into action. Hence troops start off with the left foot. It is the foot which is placed in the stirrup of the saddle or step of the bicycle in mounting. So the left is the foot which a man takes off from in jumping.

"In the experiments of Mr. G. H. Darwin, in blindfolding boys and telling them to walk straight, the right-handed one diverged to the right, and *vice versa*. From measurements of Dr. Garston of the skeletons of the two legs, in 54.3 per cent the left was the longer, and 35.8 the right. For measurements of the feet, the author collected the drawings and measurements of 200 pairs, with the result that in 44 per cent the left was longer, in 21.5 per cent the right, and in 34.5 per cent they were the same size. Measurement at the first joint gave 56 per cent left larger, and at the instep 42.5 per cent. From these figures it is observed that the left foot is more frequently larger in the male than in the female sex, and that the percentage of feet of the same size is greater in the female. The percentage of those having the right larger than the left is very constant, whereas the number with the left larger, and those in which both feet were the same size, are much more variable.

"Man, being naturally or artificially right-handed and left-legged, tends unconsciously to bear to the right; lower animals, on the other hand, nearly always are inclined to circle to the left."

BY improved sanitary regulations rigorously enforced, the death rate of London has been reduced within the past four years from 20 per thousand to 17.5 per thousand.

POISONED BY TONKA BEANS.—A case was recently reported in which a number of persons were poisoned by eating ice cream flavored with Tonka beans.

GERMS IN THE SOIL.—Dr. Dowd, of New York, has been making a careful study of the number of germs found in the soil, which is known to be everywhere swarming with these minute organisms. The number of germs present in a cubic inch of soil was found to vary from sixty thousand to two and one quarter million.

ACCORDING to the *Christian Weekly*, "the death rate among the Indians who aim to live like white people is said to be three times that of those who continue to live a semi-wild life. The Pawnee tribe has lost more men by lung troubles in the last ten years than they lost in battle during the previous thirty. It is asserted that the diseased cattle sold for Government rations to be furnished the Indians, is a fruitful source of disease among them." It is probable that the artificial conditions of life introduced among the Indians in the effort to civilize them, has something to do with their greater vulnerability to disease. It is a curious fact that contact with civilized races almost universally results in the physical deterioration of uncivilized tribes.

VINEGAR EELS.—Most of our readers are familar with the fact that "good cider vinegar" often contains little wriggling creatures called "eels." No doubt everybody who eats pickles, or uses vinegar in any form, has swallowed many millions of "eels" in the course of his life. Probably they are soon digested in the stomach, as they do not multiply in the body as do trichinæ, but they are not the most delicate sort of a diet, to say the least, except for those who prefer a "diet of worms" to the pure, simple dietary which Nature provides for man's sustenance.

Dr. Lindner, a German authority, has been making a study of these eels, and thus describes them:—

"The males and the females respectively measure 1–1½ mm. and 1½–2½ mm. in length. The worms move actively in a fluid medium, creep slowly in thick concoctions, or coil together in complicated knots. They thrive well on a diet of egg, withstand even tolerably strong vinegar, are killed at once by pure acetic acid, are very slightly perturbed by artificial digestive cultures, live well on fruits, bulbs, etc. The females reproduce viviparously or oviparously, according to the nutritive medium and the temperature, but soon die after reproduction, nor are the males long-lived. They flourish best between 60° and 80° F.; are killed by a temperature over 107° F., or under the freezing point. On light and air they are very slightly dependent, but to drought very sensitive. After desiccation for three or four hours, no revivification even of the eggs was observed. The worms have great powers of adaptation to the most diverse conditions. Their natural home seems to be in moist mud and in putridity; but they are rare in drinking or running water."

COINAGE AND INFECTION.—"It is no new doctrine," says the *Lancet*, "that in the presence of infectious or contagious disease every object may become endowed with a mischievous faculty of transmission. Nothing is exempt, though some substances are naturally better fitted to act as media than others. Such substances as clothing and carpets may be placed in the first rank, and paper, especially in the book form, hardly second. The scrupulous rigor with which measures of purification are adopted in regard to all these, is proof of the wholesome suspicion with which they are commonly invested. It was not to be expected that paper money could escape the stigma, nor should it. Even solid coin has latterly been credited with the same maleficent property. It cannot be denied, indeed, that any penny or shilling may thus be made to bear a novel and mischievous increment of its own."

COCOANUT BUTTER.—Butter eaters who have become disgusted with the common product of milk, which is always swarming with germs, and is not infrequently a cause of most serious and obstinate dyspeptic symptoms, will be delighted to know that a company of German chemists have discovered a method of manufacturing a very excellent substitute for butter, from cocoanuts. This firm, established at Manheim, is now manufacturing six thousand pounds of cocoanut butter daily. The butter sells at from thirteen to fifteen cents per pound. The nuts from which the butter is made, are brought from the South Sea Islands. The butter has a white color, an agreeable taste and odor. It is now already extensively used in State institutions in Germany, and is rapidly finding its way to the tables of the working classes. It is much easier to digest than ordinary butter, being free from acids and germs, and must be in every respect much more wholesome. However, even cocoanut butter is open to the objection that it is a free fat. Fat is much more easily digested when taken in the manner in which nature supplies it, which is in the state of emulsion, as it is found in cream, and in various products of the vegetable kingdom.

WHAT ABOUT PEPSIN?

PROBABLY some thousands of pounds of pepsin, made from the stomachs of hogs, and ingluvies which consist of the lining membrane of chickens' gizzards, are annually swallowed by persons who imagine that their stomachs have become incapable of producing a proper amount of pepsin; but if we may place confidence in the experiments recently made by Herzen and Mosso, two eminent European physiologists, at least the greater share of the pepsin used, possibly the whole of it, serves no more useful purpose than an equal quantity of chalk. M. Herzen and Mosso passed a tube into the stomach of a dog, and then by allowing liquid to pass in and out, washed the stomach with two thousand quarts, or about seventeen barrels, of acidulated water. With the liquid thus obtained, they succeeded in digesting more than one hundred and fifty pounds of albumen. The significance of this experiment is, that the lining membrane of the stomach is capable of producing an almost unlimited amount of pepsin, provided a sufficient amount of acid is formed. The acid constituent of the gastric juice is essential to its activity. No amount of pepsin will accomplish anything in digestion without a sufficient proportion of acid. It appears, then, that when the digestive powers are feeble, it is acid and not pepsin that is lacking. What sad news this will be to the pharmacists who have for so long thrived upon the enormous profits accruing from the same extract of hogs' stomachs at thirty dollars a pound! For many years we have almost wholly discarded pepsin, having become convinced by practical observation of its doubtful utility, and are pleased to find our views so fully confirmed.

GERMS IN MINERAL WATER.

A LADY said to us the other day, "Do you not consider mineral waters much more wholesome than the water which one will be likely to find in railway cars or upon hotel tables, while traveling, since they are known to be free from germs?" Our reply was that mineral waters are by no means always free from germs. A large share of the mineral waters used in this country are manufactured in the large cities, and not infrequently the water is taken from some river, or other convenient source, often swarming with germs. Recent examinations which have been undertaken by eminent German and American chemists, show that some of the most popular mineral waters contain great numbers of germs. In one case, more than twenty thousand germs were found in a single cubic inch of water. In one sample of Vichy water, the number of germs was so great as to be reported innumerable.

A CURE FOR CORNS AND CALLOSITIES.—The following remedy is recommended by a Russian physician: Add one part each of salicylic and lactic acids to eight parts of collodion. Apply this to the corn or callosity by means of a brush. After six or seven applications, the excrescence will separate from the healthy skin. To prevent irritating the surrounding skin, sprinkle the surface with a little iodoform before making the application. The foot should be soaked in hot water for five or ten minutes before the application is made, so as to soften the hard skin, and allow the remedy to penetrate it more easily. The addition of a tablespoonful of soda to the water is advantageous.

FOR IVY-POISONING.—Apply to the affected parts a liniment consisting of one part of boro-glyceride to three of oil of sassafras. Bathe the part with this preparation every five hours.

A WISE SUGGESTION.—In these times, when germs are so much talked about, everything which pertains to the subject of infection by these potent agents of disease is of interest to the student of sanitary science. The *Sanitary News* suggests that "the feather duster is evidently an excellent means of keeping germs stirred up and floating about in the air so as to facil itate their incubation. Evidently the use of this article in the sick-room is wholly out of place. Housewives and chambermaids should invariably protect the mouth and nose by tying a handkerchief over them, or by employing some other form of strainer for the breath, whenever the use of the duster is required; and after the duster has been used, the doors and windows should be opened to allow a free circulation of air until the floating dust has been removed. A room occupied by consumptives should never be dusted in this way, as there is great danger of inhaling the air containing germs of the disease, and thus communicating the affection to well persons. Undoubtedly, consumption has frequently been caught in this way."

FOR SWEATING FEET.—Unnatural sweating of the feet is a very common and annoying affection. Although not positively "dangerous to life," it is certainly a malady which is not infrequently attended by serious results. Profuse sweating not only gives rise to chafing, irritation, and a mal-odorous condition of the feet, but constantly exposes an individual to the danger of taking cold, from the readiness with which the feet become chilled when moist, whether from natural perspiration or from wetting the feet with water. It is not surprising, then, that a question aften asked the physician is, "Doctor, what can I do for sweating feet?" Here is a remedy which it is claimed has been used in many thousands of cases in the German army, and with almost unvarying success, more than forty per cent being cured, fifty per cent greatly relieved, and less than ten per cent not at all benefited: Wash the feet thoroughly with warm water and a little soap. Rinse with pure water, wipe dry, and then apply with a camel's-hair brush over the whole perspiring surface, a five-per-cent solution of chromic acid. This solution can be obtained at any drugstore.

DANGER IN THE NASAL DOUCHE.—A great variety of instruments have been devised for taking the nasal douche, and the great prevalence of catarrh leads thousands of people to employ some of these various instruments for cleansing the nasal cavities. It should be generally known that the simple operation of douching the nose is not by any means free from danger. Not infrequently water is thrown into the ear, inflammation is set up, and permanent deafness results. It is possible to employ the douche in such a manner as to prevent this result, but specific direction by a competent physician is necessary. Severe cases of nasal catarrh are best treated by a specialist; but if home treatment is employed, it is better to give sprays for cleansing the nasal cavities, than the old-fashioned nasal douche.

GERMS UNDER THE FINGER NAILS.—An eminent German bateriologist has recently been studying the impurities found under the finger nails, and has discovered abundant evidence to support the popular idea that there is something particularly poisonous about the scratch of the nail. In seventy-eight examinations made by the authority referred to, more than fifty different kinds of germs, besides various sorts of mold spores, were found present. These experiments emphasize the necessity of frequently and carefully cleaning the finger nails. For surgeons this is coming to be one of the most important of considerations. Doubtless the time will come when the surgeon who will undertake the performance of an important surgical operation without first thoroughly cleaning and disinfecting the finger nails, will be open to suit for malpractice.

TO RELIEVE PALPITATION OF THE HEART.—Palpitation is one of the most distressing maladies, although seldom attended by immediate danger to life. The victim knows that his heart is affected, and the popular dread of "heart disease" leads him to fear that he is in danger of dying at any minute. In cases in which the palpitation is due to excessive irritability of the heart, or to an overgrowth of the heart, which frequently accompanies certain forms of valvular disease of this organ, relief may be promptly obtained in most cases by cold applications. This may be done by means of ice bags or compresses wrung out of iced water and applied over the heart. It is well to cover the compresses with several folds of dry flannel, to protect the clothing, and to keep the compresses cool as long as possible. When the palpitation is due to "nervousness," this remedy is nearly always success-

ful. If it is due to indigestion, relief can only be obtained when the cause, which is usually fermenting food in the stomach, has been removed.

Collodion in Pleurisy.— A recent medical writer suggests the following as an excellent dressing in cases of pleurisy and pneumonia: Apply over the affected side a layer of collodion, covering at once with sheet lint or a fine layer of cotton. Apply another coating of collodion, another layer of lint, and so on until several thicknesses have been applied. Take particular pains to make the edges smooth.

Massage of the Nose.— The *Epitome of Medicine*, for January, 1891, contains a description of the treatment of the nose by massage. Two methods are suggested, one in which a spiral wire covered with a soft cloth is inserted into the nose, moved to and fro in the nostril; another in which a sort of vibratory motion is communicated to the mucous membrane of the nose and pharnyx. The pharynx is also treated by means of the holder, to which is attached some cotton or wool covered with a soft cloth. It is asserted that cures have been effected in very obstinate cases, by the use of these simple means.

Bathing in Typhoid Fever.— Dr. Josias, an eminent French physician, has, within the last two years, treated thirty-six cases of typhoid fever by means of cool baths, and has lost but one patient. His patients on the average took sixty-one baths, one taking only one bath and one as many as one hundred and sixty-eight. Nine of the thirty-six cases were exceedingly grave ones, having such serious complications as intestinal hemorrhage, pneumonia, inflammation of the lining of the heart, and other equally serious troubles. The one case which was fatal was brought to the hospital on the sixteenth day of relapse, when the patient was in a dying condition.

Acid Stomach.—What is commonly known as sour stomach is not that form of acid stomach to which we refer, but to a condition in which there is an excess of acid in the gastric juice. The normal amount of acid in the gastric juice is about two parts in one thousand. This is sometimes increased, in conditions of disease, to three and one half or four parts in one thousand. In cases of this sort, digestion is usually painful. Pain begins soon after food is introduced into the stomach, in consequence of the increasing acidity of the gastric juice. In these cases, there is **no pain except after eating.** Abstinence from food relieves the distress, and on this account patients are often induced to abstain from eating almost to the extent of starvation. An excellent remedy is bicarbonate of soda, of which three to five grains may be taken in water an hour before eating. A glass of hot water, taken half an hour or an hour after each meal, is often beneficial.

Salt Rheum a Germ Disease.—Eczema, or what is commonly known as salt rheum, is undoubtedly the most common of all skin diseases. It is sometimes an exceedingly obstinate affection, requiring many months for its complete eradication. The disease has hitherto been regarded by non-medical people almost altogether, and to some extent by physicians, as a blood disease, dependent upon conditions of the stomach, liver, and other vital organs, though often the immediate result of the application of external irritants. Prof. Unna, an eminent European skin specialist, has recently been making a careful study of this subject, as the result of which he announces his belief that eczema is a germ disease. He asserts that the "true and essential cause is the inoculation of the germ." His experiments also show that the recognized causes of eczema are really predisposing causes of the disease, that is, they prepare a favorable ground for the development of the vegetable parasites which are the real cause of this malady.

Massage for Constipation in Infants.—A French journal publishes the following as the best method of applying massage to the bowels for the relief of constipation in infants:—

"Conformably to the peculiar anatomy of the abdominal organs of infants, it is necessary to modify to some extent the rules governing the practice of massage of the abdomen in adults. Since the most frequent cause of constipation in young children is a torpidity of the lower part of the large intestine, the author advises that the manipulation be confined principally to *the left flank and lateral region of the abdomen.* The hand should be anointed with vaseline, to enable the operator to keep a firm hold of the skin. Dry massage irritates the delicate skin of a baby, and may frequently produce eczema. During the operation the child should be allowed to nurse, in order to prevent its crying and starting contraction of the abdominal muscles. The duration of the séance should be four to five minutes. The author has obtained very favorable results in both chronic and recent cases, which have yielded readily to massage, without the use of any purgatives."

ANSWERS TO CORRESPONDENTS.

THE APPLICATION OF ELECTRICITY TO ASTHMA.— A subscriber writes: "Will you please tell me whether the application of electricity would be beneficial to asthma, and if not, what would you advise?"

Ans.— We have often found electricity of great service in the treatment of asthma. Both the galvanic and faradic currents are serviceable.

TREATMENT FOR THE BITE OF A HORSE.— J. L. wishes to know what treatment should be given to a wound caused by the bite of a horse.

Ans.— The wound should be thoroughly cleansed at once, and if there is any suspicion that the horse may have been rabid, should be thoroughly cauterized with pure carbolic acid or caustic potash. Washing such a wound with strong permanganate of potash is the proper method of treatment. It is always well to employ disinfectants. 1–1000 solution of bichloride of mercury is a good remedy, which can be applied quickly.

EXCESS OF GAS IN LOWER BOWELS.— A correspondent asks how he can prevent an excess of gas forming in the lower bowels. His diet at each meal is 1½ cup hot milk (sipped), stale graham bread, and raw, juicy apples in their skin, well masticated. The operation of his bowels is healthful and regular.

Ans.— We would recommend the application of fomentations, or a hot bag to the bowels, for one hour twice a day, and a moist compress well covered with dry flannel so as to keep it warm, to be worn over night. A cool bath in the morning, followed by vigorous rubbing, three or four times a week.

BLIND HEADACHE, WITH NAUSEA AND VOMITING.— J. B. L. is afflicted with a species of headache which is preceded by partial blindness in both eyes, continuing for about half an hour, followed by severe, dull pain in the top of the head and base of the brain; afterward there is vomiting of sour, green matter, coupled with extreme nausea. He wishes to know what kind of headache it is, as well as the cure, if there is one.

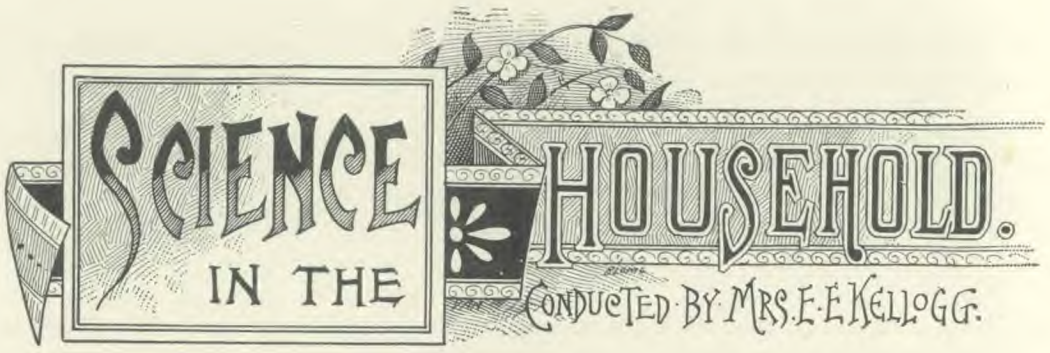
Ans.— The form of headache referred to is evidently due to poison, probably from the fermentation of undigested food. A diet of fruits, grains, and milk will no doubt prevent attacks of this kind. During the attack the best method of treatment will be copious hot-water drinking, and copious hot enemata.

DISEASE OF THE HIP BONE IN A CHILD.— A Michigan subscriber says that her little grand-son, six years old, has a disease of the hip bone, which has been coming on for two years. She wishes to know the probable cause of it, and also asks advice concerning diet and treatment. His diet has been principally fine-flour bread, a good deal of meat (pork and beef), with fruit and vegetables. She asks: "Can such cases be cured?"

Ans.— Yes. Cases of this sort are curable, although not always to the same degree. In some cases a good cure consists in stopping the disease and securing recovery with a stiff joint. In a few instances recovery may be secured with movability of the joint. The diet should be fruits, grains, and milk. Fine-flour bread should be exchanged for good graham bread. Pork and beef may be discarded with benefit.

MEAT-EATING.— G. W. B. asks the following questions: "1. Do you think that a person discarding meat entirely is as healthy as when he eats it occasionally? 2. Is meat not necessary to the maintenance of bodily heat? 3. Is it not an absolute necessity for the Eskimo? If so, is it not a necessity in a less degree for those who live in a milder climate? 4. Is not the fact of man's having canine or tearing teeth positive proof that he was intended to eat flesh? 5. Is there any ground for supposing that consumption will follow the discarding of meat? 6. What vegetables or grains, do you consider, take the place of meat most fully? 7. Do you attribute any of the injurious effects of meat-eating to the eating of eggs, boiled soft?"

Ans.—1. Yes. 2. No. 3. No. The Eskimos will do better to move to a more congenial climate. 4. No. Man has no canine teeth; he has cuspid teeth. These teeth have very little resemblance indeed to the tearing teeth of carnivorous animals. They are no longer than other teeth, and are in close apposition with the other teeth. They cannot serve any useful purpose in tearing the flesh. If they have any real significance as regards the use of flesh, certainly man ought to eat flesh raw as do carnivorous animals, as cooked flesh does not require the use of tearing teeth to prepare it for swallowing. 5. No. 6. Wheat, rye, oatmeal, peas, beans, and lentils are foods which contain all the elements of nutrition contained in meat, and in much better proportion. 7. No, unless they are consumed in inordinate quantities.



RELATION OF COOKERY TO HEALTH.

[Abridged from a lecture given by Mrs. E. E. Kellogg before the Health and Temperance Training-School.]

FOOD is one of the mightiest forces of the universe. The manner of men and women we are, depends, in a great measure, upon the food we eat. Yet very few people ever stop to inquire what particular diet is best adapted to the maintenance of perfect health, but, whatever gratifies the palate or is most conveniently obtained, is eaten without regard to its dietetic value. "Give us something good to eat," is the great cry of humanity. Good our food should certainly be, but its goodness should be determined, not alone by the amount of pleasure it gives the palate, but by its fitness to be used in making our bodies so pure and strong and full of health that we may fulfill the purpose of existence in the best and truest manner. The fitness of a food for good building material depends upon its nutritive value, its digestibility, and its palatableness. The first requisite must be attained by the selection of proper material, the second requisite is mainly dependent upon its preparation, for even the best of material may be converted, by improper preparation, into something totally unfit to nourish the system. The evils of bad cookery are manifold; so many, indeed, that it has been calculated that they far exceed the evils resulting from strong drink.

If we have good food, properly cooked, then our lives run smoothly, because healthfully; but if we have poor food, the reverse is apt to be true, and so strong is the bond of union between mind and body, that, whatever creates a morbid action of the bodily functions, dwarfs and cripples the mental and moral faculties; thus, any practice which lowers the standard of healthy action in the vital machinery, has a tendency to degrade the powers of man's highest nature.

It is evident, then, that the proper preparation of food is of the greatest importance, but it is one of the curious things of our ethics, that this most important subject is one which receives but little thought and study. Cookery is too often looked upon as a menial service, and its performance relegated to those who have not the first conception of what constitutes healthful food, although they can go through the mechanical process of mixing ingredients.

But the mere putting together of certain materials, is by no means all. The proper preparation of food involves both chemical and physical processes which necessitate careful study, and a thorough understanding of scientific principles, to insure success. Life holds no more responsible position than the one upon which depends, in so great a measure, the health and happiness of the family circle. What higher mission can one conceive than to prepare the wherewithal to make shoulders strong to bear life's burdens, and brains clear to solve its intricate problems? what worthier work than the building up of bodies into strong, pure temples, "fit for grand guests of thought and purpose"? And surely no one should undertake such responsible work in ignorance of the laws that govern health and nutrition.

But we often hear it said that people have lived and do live thus, and give little or no thought to such things; apparently assuming that, because the present system of living is customary, therefore it is right and proper. It is indeed true that many are utterly careless of dietetic principles, but we ask, Do these make the best of their lives, and accomplish the utmost possible with the talent God has intrusted to them? There is a trite saying, about plain living making high thinking, and I believe the reverse is equally true,— that with high living one will do very plain thinking. It is just as easy to furnish our tables with well-cooked, easily digested food, un-

combined with any deleterious substance, if we only have the knowledge and the will to do so; and indeed, if we have the will, we will get the knowledge.

It would be impossible, in the small space allotted to this subject, to enter into details regarding the healthful preparation of food, but I may perhaps mention a few general ideas.

It is a common notion that foods made rich with fats are especially nourishing, but this is an error. The nourishing quality of any food depends upon its digestibility as well as upon its food elements; and although fat is a true food element, and when partaken of in proper quantities, serves a good purpose in the vital economy, its excessive use is injurious, since it is an article most difficult of digestion. The same may be said of the abundant use of sugar. Really rich and nutritious foods are those which contain a large proportion of the essential food elements, in a condition in which they can be easily assimilated. Whole-wheat bread, oatmeal, cracked wheat, and other whole-grain preparations, are the really "rich foods." They also constitute the most perfect of all foods, since they not only contain all the elements of nutrition in proper proportion, but in a form easy of digestion, free from deleterious elements. A comparison of the nutritive value of the food grains, with beefsteak and other flesh foods, shows that a pound of the former is equivalent to two or three pounds of the latter. Being in themselves so nearly perfect foods, and when well prepared, exceedingly palatable, they are at once the cheapest and most wholesome articles of diet.

Grains are sometimes objected to because of an idea that it requires great care to cook them, but this is not true; they are prepared with almost no effort on the part of the cook, and form one of the most excellent dishes for both old and young, while for growing children their value can hardly be overestimated. Hasty cooking will not suffice, however; nearly every variety of grain preparations requires several hours' cooking to render them wholesome, and slow cooking is always preferable. Soft water is preferable to hard in their preparation; and if salt is to be used at all, it should be added to the water before stirring in the grain or meal. The most convenient utensil for cooking either grain or meal is a double boiler, consisting of one vessel set inside another, the inner one containing the grain, the outer one filled with boiling water. Put the grain into boiling water in the inner vessel, allowing it to boil hard, and stirring constantly until the grain has set or thickened, after which the inner dish may be placed in the outer vessel, and no further care will be needed than to keep the water in the outer vessel boiling until the grain is done. No stirring is needed, and, indeed, should not be given, as stirring after the grain has begun to soften, breaks up the starchy particles, and renders the entire mass unpalatable.

Another point should be noted in regard to the successful cooking of grains; the amount of grain cooked should have added to it only certain definite proportions of water, and both water and grain should be measured by the same utensil, since accuracy of measurement is one of the cardinal principles of good cookery. In adding the grain to the boiling water, the problem of latent heat must not be forgotten, and the grain be added so slowly as not to stop the boiling process.

If desired for breakfast, and the time allotted will not permit of prolonged cooking, the grain may be cooked the day previous, and turned into a large earthen or china dish to remain over night. In the morning, all that is necessary to do is, to set the dish into a steamer over a kettle of boiling water, and heat through, to make it ready for the table. Or if cooked in a porcelain lined or pure granite ware double boiler, it can be reheated in the same dish by filling the outer cup with boiling water, and placing the inner cup containing the grain in it until well warmed through, which will be in about a half hour's time.

SEASONABLE RECIPES.

APPLES WITH RAISINS.—Pare, core, and quarter a dozen or more sour apples. Clean thoroughly one fourth as many raisins as apples, and turn over them a quart of boiling water. Let them steep until well swollen; them add the apples, and cook until tender. Add sugar to taste. Dried apples soaked over night may be made much more palatable by stewing with raisins or English currants, in the same way.

POTATOES WITH WHITE SAUCE.—Steam or bake potatoes in their jackets, until tender. Then remove the skins, cut in slices, and turn over them a hot white sauce prepared by thickening a pint of thin sweet cream with a tablespoonful of flour. Serve at once. If potatoes are steamed over a kettle in which beets are boiling, and served in this way, they will be found especially sweet and nice.

LITERARY NOTICES.

THE *Kindergarten*, representing, as it does, the most advanced ideas in child education, is full of help and suggestion for mothers, as well as all having the care of children. This system begins with the youngest child, and takes a vital hold on every problem of its development. The present number of this magazine is particularly helpful, having over thirty articles, both practical and theoretical, on child training. Address, The *Kindergarten*, Chicago, Ill.

"AMONG THE NORTHERN ICEBERGS," by Emma H. Adams, 158 pp., illustrated. Young People's Library, Pacific Press Publishing Co., Oakland, Cal. This readable little book gives a necessarily brief, but exceedingly well written and faithful, history of English and American exploration in Arctic regions during the present century, and in simple but graphic language recounts the struggles and sufferings, in that frozen land, of many brave, adventurous spirits, in the interest of science and civilization.

THE *Domestic Monthly* for April appears with an entirely new cover, which is very neat and appropriate. This number contains about one hundred and thirty illustrations of every department of fashion and home art. There are several short stories, illustrated articles, etc., with the usual varied miscellany. The publishers continue their trial offer of the magazine three months for twenty-five cents, and twenty-five cents' worth of *Domestic* paper patterns. Address, *Domestic Monthly*, 853 Broadway, New York.

THE *Chautauquan* for April contains the Intellectual Development of the English People, by Edward A. Freeman; Practical Talks on Writing English, by Prof. William Minto, M. A.; Life in Modern England, by J. Ranken Towse; British America, by Prof. A. P. Coleman, Ph. D.; What the World Owes to the Arts of Persia, by S. G. W. Benjamin; The French in the United States, by P. F. d'Gournay; The Life of a Naval Apprentice, by John R. Spears; The Written Examination and Good Literature, by Mary E. Burt; A Symposium—Woman's Suffrage, Pro and Con, Pro: Lucy Stone, Frances E. Willard; Con: Rose Terry Cooke, Josephine Henderson; Saleswomen and Domestic Service, by Mary Gay Humphreys; How Marriage Affects a Woman's Wages or Business, by Lelia Robinson Sawtelle, LL. B. The *Chautauquan*, Meadville, Pa.

"HINTS TO POWER USERS," by Robert Grimshaw. Price, $1.00. Cassell Publishing Co., New York. In this work a well-known engineering expert has prepared for those having no practical knowledge whatever of steam engineering, good, sound advice in good, plain English as to what to do and what not to do in choosing, buying, placing, and operating any part of a power plant. These talks are straightforward and to the point, and possess a money value which every power user will no doubt be ready to appreciate, thus making it a popular and fast-selling book.

THE *Ladies' Home Journal* for April appears in its chaste Easter dress adorned with Easter lilies, —a fine number of this fine magazine. Looking through this monthly, and noting its many and varied departments, and the perfection of each, it is not hard to understand the need of increased facilities for its publication, of which the publishers tell us. We feel like congratulating the *Journal* upon its late accession of over one hundred thousand new subscriptions, since we realize that its success is wholly owing to its warm human sympathy with the people, its constant endeavor to cultivate their taste, and so to uplift them. The lessons taught the young through its columns, are of purity and truth. The one short paragraph alone,—"A Little Scolding"—will scatter the "good seed" of its sweetness and wholesomeness far and wide, influencing many young lives. Curtis Publishing Co., Philad. Pa.

SCRIBNER for April abounds in fine illustrations. The frontispiece is, "The End of the Voyage," being one of the many life-like pictures belonging with the paper, "Ocean Passenger Travel," by John H. Gould, the first in the "Ocean Steamships" series. "A Kangaroo Hunt" is also lighted up by a number of oddly characteristic drawings. "The Meaning of the Dakota Outbreak" is at once an explanation and an apology for the late Indian uprising. "Where the Ice Never Melts," by Robert Gordon Butler, illustrated, is a thrilling account of the memorable cruise of the *Thetis*, one of the vessels sent out by the U. S. Government to build a house of refuge at Point Barrow, in the autumn of 1889. "The Relief of Captain Nelson," a finely illustrated paper by A. J. Mounteney Jephson, is from first to last one long, eloquent plea for just treatment, fair dealing, and protection for the natives of Africa. Charles Scribner's Sons, New York.

PUBLISHERS' DEPARTMENT.

THE first editions of the Canvass and the Prospectus Book have already been exhausted, and a new edition is in press, which will be ready for delivery in a day or two.

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THE Managers of the Sanitarium report a family of about 500 persons, including nurses, attendants, etc., and are prepared to care for several hundred more patients during the coming summer months.

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THE publishers are congratulating themselves on the success which has attended their efforts to improve the journal, by the introduction of new departments, at the beginning of the present year. Many congratulatory letters have been received from old patrons, and it is believed that the journal for 1891 will afford more satisfaction to its readers than any volume which has been published. Now is the time to get your friends and neighbors to subscribe, so they can have the complete volume.

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We are pleased to be able to state that a movement has been set on foot for the establishment of a home for orphans, which, in honor of a former editor of this journal, Eld. James White, will be known as the "James White Memorial Home." Fifty thousand dollars will be required for the erection and equipment of the building. The work of raising this sum has already begun. A fund has also been started for the maintenance of the Institution after it shall be opened. Further announcements concerning this enterprise will be made in the next number.

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THE Canvassers' School conducted in connection with the Medical Missionary class, is proving a success. Between twenty and thirty persons are in daily attendance, receiving instruction in the science and art of canvassing. For practical work the class is divided into three sections, which are under the care, respectively, of W. H. Wakeham, H. W. Smith, and N. B. Smith. The methods employed for assisting the memory, enable the class to commit a long canvass with ease, and there is an excellent prospect that at its close a large number of well-drilled and efficient canvassers, most of whom will be capable of taking charge of canvassing companies, will be prepared for work.

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PERIPATETICS. — This term, applied to an ancient Greek school of philosophy, because its followers had no settled abiding-place, describes very aptly the American people of the present day. As a people, we are "rolling stones" of the most pronounced type, and that not altogether without reason. The fertile plains and valleys and the rich mineral districts of the great West and Northwest have always attracted the home-seeker, the miner, and the speculator, and as fast as one region has been filled up, another has been opened, and so the tide of emigration has continually surged toward the setting sun. Notwithstanding the great numbers which have been pouring into the States of Oregon and Washington for the last four years, the present season will see many more, and information concerning the Pacific Northwest is eagerly sought for. The comprehensive pamphlets issued by the Passenger Department of the Union Pacific are the most thorough and exhaustive publications on Oregon and Washington now before the public, as in like manner the "Original Overland Route" is the best road to take, in going to this magnificent region.

ONE of the new attractions at the Sanitarium is the instruction in Delsarte and Swedish gymnastics. Once or twice a week, Dr. Kellogg meets the patients in the gymnasium at the usual morning hour for exercise, and puts them through a vigorous course of instruction in physical development, and explains a carefully prepared "Day's Order," which is followed daily for a week. The daily exercises are led by Miss Jeanne Whitney, who also gives instruction in Delsarte.

* *
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AGENTS WANTED. — One thousand live agents are wanted to introduce GOOD HEALTH in all parts of the United States. A good commission is given. The magnificent new prospectus of the journal, and the new premium book, with the new methods of introducing the magazine, as presented in the canvass, give agents an excellent opportunity to do splendid work with the monthly, as well as to make a good salary. A live agent ought to make from three to ten dollars a day, without difficulty.

* *
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THE last of the improvements made at the Sanitarium is the removal of the old business office, the space formerly occupied by it now being thrown into the front hall, making a light and capacious entrance. A fine carved oak pillar stands near the center of the hall, from the top of which branch three paneled arches. The walls of the hall have been decorated with "Lincrusta Walton," in beautiful designs. The concrete drives and walks about the Institution are kept as clean as a house floor, so that the main halls have been covered with velvet carpet, which harmonizes well with the other elegant appointments of the place.

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GOOD HEALTH CANVASSING OUTFIT. — The GOOD HEALTH canvassing outfit consists of a neatly bound volume of the same size as GOOD HEALTH, stamped in black and gold, with the same design as that shown on the first page of GOOD HEALTH cover. The volume consists of sample pages from recent numbers of the journal, showing all the different departments. A number of sample frontispieces selected from the last volume are also shown. The outfit includes the new premium book, which is fully described elsewhere. Anybody who will learn the canvass, can, by the aid of the prospectus and premium book, successfully introduce the journal in any intelligent community.

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THE arrival of spring in Michigan was hardly noticed this year, as the entire winter was so complete a combination of fall and spring weather that it could hardly be called winter. The ground has been covered with snow but a few times, and only a few days at a time, during the winter. There has been scarcely half a dozen days with snow enough for sleighing. There has been a remarkable amount of sunshine, clear, cool, bracing air, which has kept thousands of people at home, who have formerly been in the habit of visiting some distant part of the United States, to spend the winter months. Really, Michigan is getting to be a fine winter resort, as well as a great summer resort. The trees are already budding, the lawns are green, and the woods will soon be carpeted with spring flowers. There are very few States in the Union, or countries anywhere, which afford on the whole so good a climate as Michigan. Its cool summers annually bring thousands of tourists from all parts of the United States.

To Old Subscribers.—We call the attention of old subscribers who are sending in the renewal of their subscriptions, to our offer of the premium book on very liberal terms. Those who have sent in their subscriptions before the announcement of the premium book, can obtain it by sending in another year's subscription at once. The offer to old subscribers will probably remain open only for a limited time. Now is the time to get twice your money's worth by renewing your subscription, sending in addition to the subscription price, the small sum of 62 cents, which will purchase a copy of the Household Monitor of Health in addition to the journal, a single volume of which in itself is equal to a thousand pages of a volume of ordinary size, —a veritable encyclopedia on health subjects in relation to the home.

* * *

Chicago, Milwaukee, and St. Paul R'y.—Electric-lighted and steam-heated vestibuled trains, with Westinghouse air signals, between Chicago, St. Paul, and Minneapolis, daily. Electric-lighted and steam-heated vestibuled trains between Chicago, Council Bluffs, and Omaha, daily. Through vestibuled sleeping-cars, daily, between Chicago, Butte, Tacoma, Seattle, and Portland, Ore. Solid trains between Chicago and principal points in Northern Wisconsin and the Peninsula of Michigan. Daily trains between St. Paul, Minneapolis, and Kansas City, *via* the Hedrick route. Through sleeping-cars, daily, between St. Louis, St. Paul, and Minneapolis.

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* * *

Our New Premium Book.—We do not believe much in premiums, but as the publication of Good Health is a missionary enterprise, in the interests of the dissemination of the principles of healthful living, the publishers consider it not improper to offer as a premium with the journal, a book prepared expressly with reference to the sanitary needs of the home. Such a work is the new book which Dr. Kellogg has recently completed, the title of which—"The Household Monitor of Health"—is a correct indication of its contents. The book is brimful of practical information, presented in a concise and interesting manner. The following selections from the Table of Contents will give something of an idea of the character and variety of the topics treated in this volume: Simple Methods of Ventilating Common Dwellings; Tests for Bad Air; Germs: What They Are; Use of Germs; A Cellar Investigated; A Peep into a Kitchen; An Infected Parlor; Sanitary Survey of a Backyard; Disposal of Germ-Breeding Matter; A Backyard Prescription; House-Cleaning; Tight-Laced Fissure of the Liver; Preventing Consumption; An Agreeable Disinfectant; Harmful Restrictions of Dress; Effect of Diet on the Liver; Milk from Stabled Cows; Contaminated Milk and Typhoid Fever; Sterilized Milk; Poisonous Baking Powders; Diet and Mental Labor. Tests for Adulteration: Adulterations of Baking Powders. Forty Scientific Arguments Against the Alcohol Habit; Ten Scientific Arguments Against Tobacco-Using; Intoxication from the Use of Tea. Simple Remedies for Common Diseases: Colds; Chilblains; *La Grippe;* Constipation; Palpitation of the Heart; Sick and Nervous Headaches; Bad Breath; Baldness; Styes; Wrinkles. Accidents and Emergencies: For Scalds; What to do for Rattlesnake Bites; Foreign Bodies in the Ear; Chimney on Fire; Dangers in Gasoline. Medical Frauds: Sure Cure for Epilepsy; Opium Cures; Worm Medicines; Ague Cures; Blood Remedies; Pain Killers; Catarrh Cures; Hair Dyes, Restoratives, etc.; Dentifrices; Corn Cures; Orificial Surgery; Brinkerhoff System.

* * *

Our New Plan.—In order to meet the prejudice against agents canvassing for periodicals, which has been produced by the dishonest conduct of some engaged in this line of canvassing, the publishers of Good Health have arranged a plan by means of which the subscriber will have satisfactory evidence of the reliability of the agent to whom he gives his subscription. Hereafter, all new subscribers to the journal will receive in the first copy, the following notice:

Battle Creek, Michigan.

We take pleasure in acknowledging the receipt of your name as a subscriber to "Good Health" through our agent in your section, and have placed your name upon our list. Our authorized agent will call upon you for the subscription price, if not paid when the subscription was taken.

Good Health Publishing Co.

* * *

The Encyclopedia Britannica.—Judge Wallace, in the United States Circuit Court, has rendered a decision refusing to grant an injunction against the firm of Ehrich Bros., to restrain them from selling the "Encyclopedia Britannica," published by R. S. Peale & Co., of Chicago. The complainants are the firm of Black & Co., publishers of the original work at Edinburgh, Scotland. In his decision, Judge Wallace holds that rival publishers in this country have a legal right to use the contents of the original edition, except such portions of them as are covered by copyrights, secured by American authors. The defendant's work, he finds, has substituted new articles for these copyrighted ones.

This decision is a square setback to the book trust, and directly in the interest of education and general intelligence. As an educational factor in every household, no work in all literature is so important and desirable as this king of encyclopedias, of which it has been said that "If all other books should be destroyed, the Bible excepted, the world would have lost very little of its information." Until recently its high cost has been a bar to its popular use, the price being $5.00 per volume, $125.00 for the set, in the cheapest binding. But last year, the publishing firm of R. S. Peale & Co., of Chicago, issued a new reprint of this great work at the marvelous price of $1.50 *per volume.* That the public were quick to appreciate so great a bargain is shown by the fact that over half a million volumes of this reprint were sold in less than six months. It is the attempt of the proprietors of the high-priced edition to stop the sale of this desirable low-priced edition, which Judge Wallace has effectually squelched by his decision. We learn that R. S. Peale & Co. have perfected their edition, correcting such minor defects as are inevitable in the first issue of so large a work, and not only do they continue to furnish it at the marvelously low price quoted above, but they offer to deliver the complete set at once, on small easy payments to suit the convenience of customers. It is a thoroughly satisfactory edition, printed on good paper, strongly and handsomely bound, and has new maps, later and better than those of any other edition. We advise all who want this greatest and best of all encyclopedias, to get particulars from the pub'rs, R. S. Peale & Co., Chicago.

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Based at the outset upon medical knowledge and naval service, over an extensive field of observation in various climates in different quarters of the world, large experience in dealing with epidemic diseases, and practical sanitation for the maintenance of health under the most trying circumstances.

"Is THE BEST Sanitary publication in America" *(Mississippi Valley Medical Monthly)*; "Easily maintains its superiority over all similar publications" *(Medical World)*; and "Has accomplished more good than all the other Sanitary papers put together" *(Hydraulic and Sanitary Plumber)*. "The Editor, Dr. A. N. BELL, is well known to the mercantile community for his co-operation with the merchants in quarantine reform, and to his profession as a leader in Sanitary Science" (*New York Journal of Commerce.*)

As *The Sanitarian* has been hitherto, it will continue to be in the future: Devoted entirely to the promotion of the art and science of sanitation, mentally and physically in all their relations. It has just added to its attractions, beginning in November, 1890, THE TRANSACTIONS OF THE AMERICAN CLIMATOLOGICAL ASSOCIATION.

The Sanitarian will continue in its present form, 96 pages *text*, monthly; *two* volumes yearly. The volumes begin January and July; subscription at any time.

TERMS: $4.00 a year, in advance; 35 cents a number. Sample copies, 20 cents—ten two-cent postage stamps.

☞ ***All communications should be addressed to the editor,***

A. N. BELL, M. D.,

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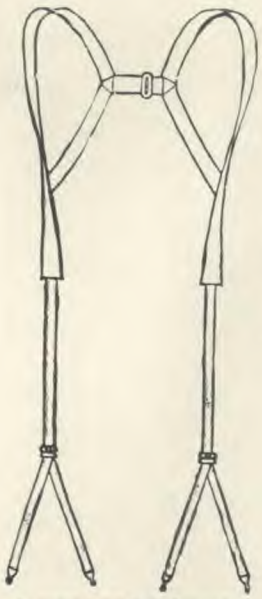
FOR

WOMEN AND GIRLS.



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Peerless Corset-Waist.

ADVERTISEMENTS.

MICHIGAN CENTRAL

"The Niagara Falls Route."

Corrected Nov. 30, 1890.

EAST.	†Mail.	†Day Express.	*N. Shore Limited	*N. Y. Express.	*Atl'ntic Express.	‡Eve'g Express.	†Kal. Accom'n
STATIONS.							
Chicago	am 7.05	am 9.00	pm 12.00	pm 3.10	pm 10.10	pm 9.25	pm 4.50
Michigan City	9.10	11.10	1.56	4.48	am 12.20	11.25	7.00
Niles	10.2.	pm 12.45	2.53	5.55	1 45	am 12.40	8.25
Kalamazoo	11.50	2.20	3.58	7.04	3.35	am 2.17	pm { 10.05 / am { 7.15
Battle Creek	pm 12.55	3.03	4.30	7.37	4.29	3 04	8.00
Jackson	3.10	4.30	5.33	8.52	6.2.	4.45	9.55
Ann Arbor	4.45	5.32	6.29	9.45	7.50	6.05	11.00
Detroit	6 15	6 45	7.30	10.45	9.20	7.30	pm 12.10
Buffalo	a m 3.25	am 3.25	am 3.25	am 6.25	pm 4.55	pm 2.15	8.30
Rochester			6.00	9.20	8.00		11.20
Syracuse			8.00	11.35	10.20		am 1.30
New York			pm 4.0.	pm 8.50	am 7.20		9.42
Boston			6.00	10.57	9.35		pm 2.50

WEST.	†Mail.	†Day Express.	*N. Shore Limited.	*Chicago Express	*Pacific Express.	†Km. Accom'n	‡Eve'g Express.
STATIONS.							
Boston		am 8.30	pm 2.15	pm 3 00	pm 7.00		
New York		11.50	4.50	6.00	10.00		
Syracuse		pm 8.30	11.55	am 2.10	am 8.00		
Rochester		10.40	am 1.42	4.20	10.45		
Buffalo	pm 11.30	11.30		5.30	11.50	am 8.45	
S pen. Bridge	am 12.38	am 12.28	3.05	6.25	pm 12.50		
Detroit	8.30	7.50	9.25	pm 1.20	9.05	4.4.	pm 7.45
Ann Arbor	9.43	8.55	10.19	2.17	10.30	5.58	8.58
Jackson	pm 11.23	10.05	11.18	3.20	11.50	7.15	pm 10.20
Battle Creek	.55	11.35	pm 12.22	4.30	am 1.23	8.47	11.57
Kalamazoo	.17	pm 12.12	12 59	5 02	2.17	pm { 9.3. / am { 6.00	am 12 50
Niles	4.10	1.23	2.0.	6 17	4.05	7.40	3.10
Michigan City	5.25	2.31	3.08	7 20	5 45	8.55	4.30
Chicago	7.35	4.35	4.50	9.00	8.05	11.20	6.40

*Daily. †Daily except Sunday. ‡Daily except Saturday.

Accommodation train for Jackson and all intermediate points leaves Battle Creek at 6.16 P. M., arriving at Jackson at 7.55 P. M., daily except Sunday.

Accommodation train for Niles and all intermediate points, leaves Battle Creek at 8.00 a. m., arriving at Niles at 10.05 a. m., daily except Sunday.

Trains on Battle Creek Divisions depart at 8.03 a. m. and 4.35 p. m., and arrive at 12.40 p. m. and 7.00 p. m., daily except Sunday.

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Time Table, in Effect Dec. 7, 1890.

GOING WEST.						STATIONS.	GOING EAST.				
	p m		p m					a m	p m	p m	p m
.....	3.00	.....	7.00	.....	.....	.....Boston.....	.....	8.30	7.30	9.25	7.30
	p m	p m	p m					p m	a m	p m	a m
.....	5.00	3.00	8.00	.....	.....	.....New York.....	.....	11.10	7.40	5.22	10.10
	a m	a m	p m					a m	p m	a m	p m
.....	6.20	7.22	1.00	.....	.....	.....Buffalo.....	.....	9.50	5.40	4.25	9.00
	a m	a m	p m					a m	p m	a m	p m
.....	7.45	8.40	2.45	.....	.....	....Niagara Falls....	.....	8.15	3.17	3.10	7.10
				p m					a m	p m	
.....	.....	.....	.....	1.00	.....	.....Boston.....	.....	8.30	9.50	.....	.....
	p m			p m				p m	a m		a m
.....	8.40	.....	.....	11.55	.....	.....Montreal.....	.....	8.10	7.45	.....	7.45
				p m				a m	p m		p m
.....	.....	.....	.....	1.00	.....	.....Toronto.....	.....	8 45	5.50	.....	8.20
							a m		a m		a m
.....	.....	.....	.....	.....	.....	.....Detroit.....	9.45	.....	7.45	.....	11.50
Chi. Pass.	B. C. Pass.	Lmtd Exp	Pacific Exp.	Pacific Exp.	Mail Exp.		Mail.	Lmtd Exp.	Attic Exp,	Day Exp.	Prt. H Pass.
am	p m	pm	pm	pm	am	Dep. Arr.	pm	am	am	pm	am
5.59	4 14	1.34	8 59	7 24	7.16	.....Port Huron.....	10.31	1.05	7.35	8.21	10.45
7.28	5.40	2.44	10.10	8.55	8.31	.....Lapeer.....	8.55	11.48	6.17	7.01	9.17
8.05	6.27	3.10	10.43	9.45	9.05	.....Flint.....	8.0.	11.17	5.40	6.27	8.35
8.48	7.2.	3.37	11.28	10.30	9.35	..... Durand.....	7.20	10.48	5.03	6.00	8.00
10.00	8.25	4.25	12.33	11.30	10.30	.....Lansing.....	5.37	9.57	4.00	5.00	6.35
10.37	8 58	4.58	1.06	12.05	11.00	..... Charlotte.....	4.58	9.27	3.25	4.33	6.02
1.00	10.00	6.00	2.00	1.00	12.05	....BATTLE CREEK....	4.05	8.45	2.35	3.55	5.15
1.48	pm	.....	2.50	1.48	12.50	.....Vicksburg	2 55	8.01	1.48	.....	am
1.58	.....	.....	.....	1.58	1.00	.....Schoolcraft.....	2.42	.....	1.38	.....	.....
2.52	.....	7.17	3.48	2.45	1.50	.....Cassopolis.....	1.50	7.17	12.45	2.35	.....
3.40	.....	7.55	4.25	3.35	2.35	..... South Bend.....	1.00	6.35	12.00	1.57	.....
4.55	.....	.....	.....	4.52	.....	..... Haskell's.....	11.41	.....	.....	.....	.....
5.15	.....	9.15	5.55	5.10	4.00	..... Valparaiso.....	11.25	5.15	10.30	12.40	.....
p m	.....	11.15	8.05	7.30	6.20	.....Chicago.....	8.40	3.15	8.15	10.30	.....
.....	.....	pm	am	am	pm	Arr. Dep.	am	pm	pm	am	

Where no time is given, train does not stop.

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Plain Oatmeal Crackers	10	*Gluten Wafers*	30	*Granola (Bulk 10)*	12
No. 1 Graham Crackers	10	*Rye Wafers*	12	*Gluten Food No. 1*	50
No. 2 Graham Crackers	10	*Fruit Crackers*	20	*Gluten Food No. 2*	20
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