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ZOOLOGICAL HEALTH-STUDIES.

BY F. L. OSWALD, M. D.,

Author of "Physical Education," "Days and Nights in the Tropic," etc.

Winter Life.

(Continued.)

WHEN Dr. Graham preached his gospel of vegetarianism, the worshipers of flesh-pots called attention to the number of different wild animals whose bill of fare changes with the change of the seasons, and argued that in a frigid climate meat and fat are as indispensable as fruit and cooling drinks in the tropics. The zoological premises of that argument cannot be questioned. In midwinter the bear and his little cousin, the tree-climbing raccoon, become almost wholly carnivorous. For the sake of a chance for a bit of pork, Bruin will undermine a massive pig-pen,— frost-cemented corner posts and all,— and lacerate his gums in gnawing a plank that resists the pressure of his paws. Master Coon will follow a rabbit trail with the soft-footed persistence of a Pinkerton detective, or risk destruction by a moonlight visit to a dog-guarded poultry farm. Even possums take such risks, though they will make wide detours to avoid the haunts of man as long as there is a chance to get their fill of persimmons. While fruit is plenty, our black American bear often disdains a free lunch of the best meat. A big specimen chained in a farm-yard on the Fountain Ferry road near Louisville, Ky., will not touch beefsteaks while his trough of cider apples is still full of husks; and a party of berry-picking children in the Georgia Blue Ridge were interviewed by a bear who contented himself with an invoice of their tin pails, but otherwise did not molest them in any way. He came upon them so suddenly that they had no chance to run, and the youngsters flung themselves down screaming (the surest way to provoke the attack of a man-eater), while their companions stood pale and trembling; but seeing the hairy marauder bury his nose in a pile of spilled strawberries, they anticipated his wishes by successively spilling their pails at his approach.

The reluctance to interrupt their career of usefulness may have had something to do with his forbearance; at all events he recognized the propriety of limiting a strawberry festival to products of the vegetable kingdom, and after swallowing a couple of biscuits and all the berries in sight, he departed in peace, as from a problem solved.

Winter frosts, according to the theory of the anti-Grahamites, would have admonished him to reverse that program, and begin his feast by consuming the proprietors of those lunch-pails, and the question remains if that change of heart might not have been prompted by the absence of strawberries. For many winter guests of Nature's boarding-house, flesh food becomes the only choice. Take the case of a North Carolina mountain raccoon, waked by hunger from its winter sleep, while the highlands are still buried in snow. Berries, crab-apples, and wild grapes have wholly vanished, months ago; acorns and beech-nuts are hidden under three feet of snow — perhaps with a top crust of hard ice. The husks of the mountain chestnut gap empty,— the chipmunks have gleaned the harvest of the fox-squirrel; but there a rabbits in the sheltered

glens, and partridges that hug the cover of the bramble-brakes, which can be captured by a wary stalker. And the frost, no matter how severe, has failed to bridge the mountain brooks; the rapids are still open, and fishermen not troubled with the dread of wet feet can turn over the flat stones of the creek bed with a fair chance of finding perch and lethargized crawfish.

So the mixed-diet guests of Nature's household turn flesh-eaters; there is no other way, at least in the latitude of heavy snowfalls, however much their preference might still lean toward a vegetable bill of fare. In the uplands of Mount Lebanon, where bare rocks alternate with the poorest herbage, there is a species of light-brown bear whom hunger has made homicidal, and who would devour the forty young mockers of Elisha in July as quickly as in January; while pigs, whose digestive powers are equal to anything, keep fat on corn and winter pumpkins. Deer and rabbits manufacture the frost-resisting constituents of their organism from a wholly vegetable diet, and experience proves that barbecues do not tend to promote the climatic hardiness of the human species. The history of the last hundred years has offered opportunity for two remarkable tests of this fact. Abstainers from all forms of fermented and distilled liquors approached nearer to the pole than any other human beings before the bold ice-field march of Dr. Nansen, and five different historians of the Russian campaign agree on the physiological curiosum that the hardiest soldiers of Napoleon's world-army were not the beef-eating Netherlanders nor the pork-fed Polacks, but the frugal Italians of Joaquin Murat's contingent. Those children of the South could not resist the attacks of the brawny Muscovites in a hand-to-hand contest, and excited the derision of their comrades by slipping on mud roads which the Belgians walked with the ease of long practise; but when the winter set in in earnest, these same Southlanders surprised their companions in arms by marching in close ranks when blizzards had already demoralized the discipline of the best Northern household troops, and by answering their morning roll-calls with a promptitude as if they had just emerged from a bivouac on the Mayfield of Marengo. To increase the enigma, their uniform was generally of poorer quality than that of the Teuton contingents, but, as Count Segur explained it, "the ardor of their souls kept them warm."

Yet they were fighting only as allies of the Corsican Cæsar, in a cause of no immediate interest to their country; while their French comrades were risking their lives for the empire of a continent, and the Poles for the hope of national regeneration. A better explanation can perhaps be found in the circumstance that the habitual use of stimulants lessens the frost-resisting capacity of the human organism, and that to the digestive apparatus of a natural fruit-eater, flesh, in large quantities, may become almost as irritating as alcohol.

Professor Tyndall, in his Swiss mountain ventures, had an analogous experience, and Joseph Macinat, from the Italian side of the Alps, succeeded where Joseph Bennen, the champion guide of the Berner Oberland, had failed. The skin of that human chamois seemed to have become frost-proof, and on a breakneck ridge of the Matterhorn he faced about grinning, with the remark: "This would be an ugly place for a fit of vertigo, would n't it, Professor?"

Where vegetarians and flesh-eaters inhabit the same country, as in Great Britain, the advantage of physical superiority is not always on the side of the latter. The Scotch Highlanders, like the Irish country people, subsist largely on bread (or porridge) and dairy products, while the South England laborer insists on two daily chances for gratifying his carnivorous appetite. The Russian boors, too, are amazingly frugal, and the North Canadian habitants get along with less meat than our Arkansas backwoods settlers.

One benefit of a cold climate is the vicarious effect of cold air: in promoting digestion and the elimination of effete matter, frost can, to a large degree, take the place of exercise. Instinct-guided animals, in fact, economize their muscular efforts in cold weather. Instead of hustling about to get warm, they hunt up the lee-side of a wind-shelter, and keep still to promote their chances of survival.

"In 1849," says an American naturalist, "a party of Mormons attempted to cross the Wahsatch Mountains soon after New Years, and being caught in a snow-storm, were saved, according to Elder Willard's report, by coming across a sheltered cove in the piny woods, where a troop of mountain-sheep had trodden down the snow and cropped the branches as high as they could reach, thus forming a series of snug pine arbors,— a ready-made tabernacle for the necessitous saints. In this instinct of finding shelter-places from the cold, animals are far superior to birds, probably because they cannot emigrate so easily."

Professor Tochudi, of Berne, mentions a specially cold winter in the Eigern range, where his neighbor tracked a flock of chamois to a forest dell and ascertained that the hardy refugees had held that fort for

just five weeks before they were released by a warm south wind and a mighty thaw. During all that time they had to subsist on the grass and mosses of a ten-by-sixty-feet cove; and an Alm Bub (herder boy), who peeped in on their retreat one day, saw most of them lying down, complacently chewing what cuds they had left, while a few of the most long-necked still browsed the overhanging branches of a gnarled old beech-tree. In other words, their average allowance of daily exercise in those five weeks did not amount to ten steps a day after they had once trodden down the snow and scraped up all the roots and mosses.

The musk-ox of British North America takes winter equally easy, and when browsing in the deep ravines, ceases to repay the expenditure of trouble, five or six of these curious sheep-like creatures squat down close together to establish a mutual benefit society for the preservation of animal warmth, and do not budge till the north gale has expended its fury. The lethargizing influence of a hard frost manifests itself in the changed habits of the liveliest wild animals, such as wood-rats and conies, and even of many of the birds that brave the winters of our frigid latitude.

In 1883, when lung troubles came near pulling me under, I gave myself the benefit of a twelve-months' dose of highland air, and remember a day when the mercury on the porch of my Tennessee mountain cabin fell to twelve degrees below zero, while a snow-storm, direct from the uplands of Labrador, tried to break down the old spruce-pines on the northside slopes. After housing all my pets, I thought of a little wren that had raised a brood in a stump-hole, down in a glen near the source of my rill of drinking-water. I knew it slept in that cradle and passed the daylight hours in restless explorations of the neighboring thickets; but this weather — had the feathered *perpetuum mobile* for once departed from its custom, and gone to bed in the early afternoon? I needed water, anyhow, and resolved to find out. The snow nearly blinded me before I reached the bottom of the glen, but I found the overhanging stump on the roadside; and, sure enough, down in a warm dry root-hole I felt the head of my little fellow mountaineer, and was glad that he did not fly out, but contented himself with pecking my finger. Some of his children, too, were down there for all I could tell, and knew a better way to keep warm than to brave the north gale for the benefit of the circulation.

Crows, like our Wild West Show, conduct their business in defiance of the weather bureau; and there are rookeries where hosts of winged foragers may be seen rallying at daybreak and returning at eve with astronomical regularity. It is hunger that drives them forth, even in the fiercest winter storms; they cannot afford to miss a day's work at the scant wages going, and have to dispense with Sabbath privileges, like the convicts of the Siberian silver-mines. But where food is plenty they do recognize the advantage of an occasional holiday. In the valley of Lookout Creek, a couple of miles west of Chattanooga, there is a ravine where the slaughter-houses dump their offal, without detriment to the sanitary interests of the community, thanks to the diligence of myriads of crows and turkey buzzards that have their roosts in the trees of the adjacent foot-hills. It is only about a mile from their dormitories to the free-lunch establishment, but on blizzard days they do not stir out at all. The spare-ribs and beef bones, they know, will take care of themselves in such weather, and it can do no harm to give their digestive organs a rest-day. There is no doubt that purely carnivorous brutes, too, get most of their exercise in summer. The wolves of our Western prairies race, en masse, after deer and antelopes, and have no end of fun with the short-legged, but quick-witted citizens of the prairie-dog towns. From behind a coppice of sage-brush they watch the antics of the restless little rodents, and wait patiently till one of them strays off to a risky distance from his hole, then slowly rising, Lupus Niger measures the distance of a long-range spring, and suddenly lands himself midway between the little rambler and his next loophole of escape. The consequent zigzag rush closely resembles the maneuvers of a terrier in a rat-pit, and the breakfast of the successful hunter is apt to be spiced by a lively appetite. The ancestor of the shepherd dog also races rabbits and roams the hills in quest of grouse-nests, but in winter he declines to aggravate the sorrows of life by a gallopade in the deep snow. He sticks to his lair, and if he does decide on a foraging expedition, he manifests a preference for big game; such as, snow-bound elk, or a yearling heifer that has strayed from her corral in search of better shelter.

In the Elburz Range, on the south shore of the Caspian Sea, there are tigers which by turns invade the hunting-preserves of the brown bear in the summit rocks and the haunts of the speckled leopard in the coast jungles, and while summer lasts change their headquarters every few days; but in winter they prefer to let their victims get the benefit of pedestrian exercise, and lay in wait near a spring or salt-lick, ready to pounce on the first good-sized

comer. The coast dwellers dread such ambuscades, and in traveling send their dogs ahead, not wishing to rely on the chance of distinguishing the grizzly winter coat of the man-eater from the color of the leafless shrubs.

The Siberian tiger, like the Canadian lynx, is said to line his winter-lair with heaps of dry leaves, but for a thousand animals that build cold-weather shelters, only one or two have enterprise enough to take up their beds and walk — to provide themselves with artificial traveling coats, or to appreciate presents of dry-goods. In the streets of Toronto, Canada, I have seen a young hound howl pitifully when a gang of loafers stopped him to appropriate his pelisse, but it seemed to be mainly the injustice of the act that awakened his lament, and he would probably have howled as loud if they had robbed him of his collar. But Shetland ponies do get fond of their winter blankets, and have been known to stop and wait for help when the useful addition to their shaggy coat happened to fall down; and a pet baboon in the private Zoo of a Belgian naturalist never left her kennel without donning her Spanish mantilla, and on especially cold days often added an old sack that had been left behind by a former occupant of her lodge.

(To be continued.)

TUBERCULOSIS, OR THE "GREAT WHITE PLAGUE."

BY G. W. BURLEIGH, M. D.,

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TUBERCULOSIS is an infectious disease commonly called consumption, or phthisis, when the lungs are involved. It is not confined to the lungs alone, but may affect any part or any organ of the body. Among the different forms of the disease may be mentioned tuberculosis of the joints, tuberculosis of the spine, tuberculosis of the lymph glands, tuberculosis of the brain, giving rise to tubercular meningitis; tuberculosis, or consumption, of the bowels, and tuberculosis of the skin, so-called lupus, or chronic ulcer.

In order for contagion to occur from any infectious disease, the germ which gives rise to it must first enter the body, and the conditions must be favorable for its development. The germ of tuberculosis can never develop in healthy tissues; persons in perfect health are immune to the disease. Whenever the system is in a lowered condition, the person is in danger of being infected by tubercular bacilli; and once they are fastened upon some weakened portion of the lung or other part of the body, under favorable conditions for development, they rapidly multiply. In the process of development, they produce an irritation, and plastic material is thrown out, enveloping the infected area, and thus is formed a little tumor, or nodule, the beginning of a tubercle. This incipient tubercle, or tumor, is no doubt an effort on the part of nature to confine the disease, and for the time being it doubtless accomplishes this result; but unfortunately the continued irritation results in further new growth, until in time there is a full-formed tubercle.

This tubercle, so called on account of its shape, and which is made up of various cellular elements, fibrous tissue, and blood-vessels, is an unnatural growth, and has a low grade of vitality.

There comes a time when the growth of the fibrous tissue is suspended. This tissue may well be likened to that found in the scar tissue of a burn. At first it is well supplied with blood-vessels, but after a time the tissue begins to contract, and to cut off its blood supply. As soon as this is accomplished, death occurs in the part, and soon the interior of the little tumor begins to soften and break down. The material that is then found on the inside of this tumor is spoken of as caseous, or cheesey matter, as it has much the appearance of cheese. Microscopically this caseous material is composed of broken-down cells and a mass of tubercle bacilli, which, when set loose in the sputum, are ready to enter new areas of the lungs which are in a weakened condition, due to previous irritation from a cold, dust, or the inhalation of gases, etc.

Tuberculosis, like leprosy, syphilis, and glanders, is an infectious disease, and usually runs a chronic course. Owing to this fact, little attention is paid to its eradication. Tuberculosis kills more persons annually than any other disease. It is the curse of our civilization. It attacks the young and the old, the strong and the weak, and is especially the disease of the temperate climate. No race is immune from its ravages. The aborigines of America are very susceptible to the disease, owing, no doubt, to their utter lack of sanitary knowledge and the mis-

erable conditions in which they live. Mathews, who has had a large experience with our native Americans, says that the disease is on the increase among them. He quotes the ratio of mortality from this insidious malady from the United States census of 1880, as whites, 166; negroes, 186; Indians, 286.

DISTRIBUTION IN THE ANIMAL KINGDOM.

Tuberculosis is, of all diseases, the one most widely spread. Cold-blooded animals are most exempt from it, owing to their low temperature. Man, monkeys, cattle, sheep, hogs, chickens, pigeons, and cats are subject to tuberculosis. White mice, rats, and dogs are somewhat less susceptible. Horses are rarely attacked. Apes and monkeys in their natural home are exempt from the disease, but contract it when confined. Tuberculosis among the cattle of the Eastern States is becoming alarming; as high as ninety-five per cent. of some herds are found to be tubercular.

THE GERM OF TUBERCULOSIS.

It was left for Koch, a German physician, to give to the world the good news of the discovery of the specific germ which is not merely one cause of tuberculosis, but its sole cause; for without this germ there can be no tuberculosis. The history of this germ presents many points of interest. None but laboratory workers can fully appreciate the enormous labor and painstaking research which was necessary to reach the great discovery of Koch. He worked by careful methods, and his methodical and conscientious investigations were crowned with success. Fraenkel, who has written a complete history of the germ of tuberculosis, thus speaks of it and its discovery: —

"When we consider that almost one seventh of all deaths are due to tuberculosis, and that this disease occurs very frequently among animals, it may readily be understood that for many years efforts have been made to discover its cause and the mode of its diffusion. This seemed to be a hopeless task as long as science was not united on the preliminary question as to what should be considered tuberculosis, what its limits were, and what were the surest methods for its recognition.

"While some endeavored to form a picture in their judgment from the symptoms of disease by purely clinical criteria, others looked for a picture of the disease in the tissue changes solely. But even in this narrower sphere there was no agreement. Laennec, the great French investigator, saw in caseation the real character of the disease. Virchow, on the contrary, recognized as tuberculosis only those changes in which there were present the tubercle nodules, — those small, millet-seed growths of gray transparency which were first described by Von Bayle in 1810 as being peculiar to consumption.

"Villemin, in his observations published in 1865, was the first to open the way out of this controversy. He succeeded by inoculation with tuberculous matter in producing tuberculosis in previously healthy animals, and thereby demonstrated that tuberculosis was an infectious disease. It was Cohnheim, above all, to whose keen and experienced eye the significance of these facts was apparent, and who, after his own inoculations into the anterior chamber of the eye, repeatedly and emphatically declared that it was a specific infectious disease.

"On the 24th of March, 1882, Robert Koch, before the physiological society in Berlin, made the announcement that he had found the cause of tuberculosis, which was due to a peculiar bacillus of a special shape.

"'I have seldom in all my life felt greater pleasure than at the reception of this news,' were the words with which Cohnheim greeted the new discovery; and one could see that he spoke with the deepest conviction.

"The impression which the discovery of Koch made, was in fact extremely deep and lasting. The incomparable certainty and positiveness of his investigations were admired by everybody.

"Through the microscopical recognition of tubercle bacilli in all properly examined cases of tuberculosis, and only in them, and through successful cultivations of the germs outside the body and their successful transmission and reproduction of the disease, he proved his assertions, and in this way established a wonderful advance in medical knowledge.

"Now there was no doubt as to what was to be considered tuberculosis and what was not. 'In those processes where you find tubercle bacilli, there is true tuberculosis;' no matter what the macroscopical or microscopical pathological picture is, or what the clinical evidence may show in single cases, all tuberculosis is the result of the tubercle bacillus."

This bacillus, which is stained by special analine dyes and special manipulations, is of somewhat less size than the diameter of a red blood corpuscle. It is variously arranged; the rods sometimes being single, sometimes in pairs, or in short threads, and often in clusters. Sometimes white blood cells will be found that are literally filled with them. This no doubt is evidence that the white blood cell has gathered these germs up for a special reason, and that is to neutralize the germs

and make them inactive. One unaccustomed to making examinations may overlook the germs, as they are sometimes found in little bead-like collections.

The germ does not possess voluntary motion. It is grown outside of the animal body with difficulty, and only on special media, and at the temperature of the body. A slight deviation of temperature will stop its growth.

The method devised by Koch for staining this bacterium was a great step in advance. At present only one other germ is know that takes this stain in the same manner as this one; namely, the germ of leprosy, which it closely resembles. The technique for staining is simple and quick. A quantity of the sputum from a consumptive is received into a wide-

Tubercle Bacilli.

mouthed, two-ounce morphine bottle. This specimen should be taken from the first sputum that is raised in the morning. The bottle is corked, wrapped in a piece of paper, and sent to the laboratory at once. The examiner carefully removes the cork, and places it in a disinfecting jar. The contents of the bottle are then poured upon a square piece of glass painted black on one side. Observations are now made as to several particulars, as follows: —

1. The amount.
2. The color, streaks of blood, gray specks, etc.
3. The amount of mucus.

These different observations are spoken of as the "macroscopical appearances."

The odor is also noted. After a careful record is made of the above points, the micro-chemical examination is begun. The sputum is first carefully searched for little gray specks. A small quantity is placed upon a glass slide, a drop of twenty per cent. caustic potash added, and a small cover-slip placed over it and pressed down. It is now ready for an examination under the microscope. If the case from which the sputum was received is a tubercular patient with active disease, the microscopist will usually find portions of lung tissue present. The presence of the elastic tissue is evidence of the breaking-down of lung tissue. It will at once be evident that this examination is of importance, both to the patient and to the physician.

The examiner now selects a portion of sputum for examination for the specific germ of tuberculosis. A small portion of the mass is selected, and by means of a sterilized platinum wire, spread over a very thin cover-glass and allowed to dry. After a few moments' drying, the cover-slip is taken off by a pair of forceps and passed through a gas or alcohol flame three or four times, in order to fix the sputum upon the cover-slip.

A drop of the red stain known as the "carbolic fuchsin solution" is placed upon the sputum side, and held over the flame for three minutes. After washing off the excess of stain with clean water, the specimen is passed through a solution of dilute nitric acid, washed again, and then passed through a solution of ninety-five per cent. alcohol just long enough to decolorize the germs and organic matter present, but not long enough to decolorize the tubercle bacilli, which retain the stain. A drop of methylin blue is then allowed to remain upon the specimen for a few seconds, in order to stain all organic matter and other germs present, a blue color. The germs of consumption are not stained by the blue, but remain a bright-red color, in marked contrast to the many other germs that are most generally present in tubercular sputum. Germs of putrefaction and germs that produce pus are usually present. After the specimen is washed and dried, it is in readiness for microscopical examination under a high power. A small drop of water is then placed upon the middle of the glass slide, and the germ side of the cover-slip placed upon the water.

Everything is now ready for a careful microscopical examination, and if the germs are plentiful, only a few seconds are needed for an experienced microscopist to announce what he finds. A careful record is made of the number of germs present, their arrangement, and general appearance. A failure to find tubercle bacilli in a given case is no evidence that it is not tubercular. Should the examination prove positive, we then say we have a case of tuberculosis. Physical examination must point out the extent of lung involved and the location.

Such an examination as described should be made in every case of suspected lung trouble.

There are no special difficulties attending such an examination, and in no case should it be neglected. It is too important a matter to be omitted. Many valuable lives have in the past been sacrificed on account of ignorance as to the true cause of this disease, and the mode of its communication. Now that we have a sure means of knowing the truth in all cases in which there is expectoration, no time should be lost until an examination by a competent microscopist has been secured.

In all cases in which a sudden hemorrhage has occurred, all the blood should be saved, and also all expectoration following the hemorrhage. Most hemorrhages of the lungs, when not in connection with pneumonia, are due to tuberculosis, and the sputum should receive special attention. If the first examination be negative, then repeated tests should be made. After examination, the sputum and the glass upon which it has been examined should be thoroughly sterilized in boiling water for several minutes. The bottle in which the sputum has been collected must not again be used for similar purposes. Every means of avoiding a mistake must be considered; it would indeed be a serious matter to report that tubercle bacilli were present in a given specimen when such was not the case, but the germ had really come from some other specimen. Each patient should be supplied with a new sterilized bottle, and in carrying bottles from rooms to the laboratory they should be carefully wrapped in paper. Too great care cannot be exercised in handling sputum.

(To be continued.)

HE HAD ALL THE DISEASES.

It is a most extraordinary thing, but I never read a patent-medicine advertisement without being impelled to the conclusion that I am suffering from the particular disease therein dealt with, in its most virulent form. The diagnosis seems in every case to correspond exactly with all the sensations I have ever felt.

I remember going to the British Museum one day to read up the treatment for some slight ailment of which I had a touch — hay-fever, I fancy it was. I got down the book, and read all I came to read; and then, in an unthinking moment, I idly turned the leaves, and began to indolently study diseases generally. I now forget which was the first distemper I plunged into — some fearful, devastating scourge, I know — and before I had glanced half down the list of "premonitory symptoms," it was borne in upon me that I had fairly got it.

I sat for a while, frozen with horror; and then, in the listlessness of despair, I again turned over the pages. I came to typhoid fever, read the symptoms, and discovered that I had typhoid fever, — must have had it for months without knowing it, — and wondered what else I had; turned up St. Vitus's dance, and found, as I expected, that I had that too. I began to get interested in my case, and determined to sift it to the bottom, and so started alphabetically; read up ague, and learned that I was sickening for it, and that the acute stage would commence in about another fortnight. Bright's disease, I was relieved to find, I had only in a modified form, and, so far as that was concerned, I might live for years. Cholera I had, with severe complications; and diphtheria I seemed to have been born with. I plodded conscientiously through the twenty-six letters, and the only malady I could conclude I had not got was house-maid's knee.

I felt rather hurt about this at first; it seemed somehow to be a sort of slight. Why had n't I got house-maid's knee? Why this invidious reservation? After awhile, however, less grasping feelings prevailed. I reflected that I had every other known malady in the pharmacopeia, and I grew less selfish, and determined to do without house-maid's knee. Gout, in its most malignant stage, it would appear, had seized me without my being aware of it; and zymosis I had evidently been suffering with from boyhood. There were no more diseases after zymosis, so I concluded there was nothing else the matter with me.

I sat and pondered. I thought what an interesting case I must be from a medical point of view, what an acquisition I should be to a class! Students would have no need to "walk the hospitals" if they had me. I was a hospital in myself. All they need do would be to walk round me, and, after that, take their diploma.

Then I wondered how long I had to live. I tried to examine myself. I felt my pulse. I could not at first feel any pulse at all. Then, all of a sudden, it seemed to start off. I pulled out my watch and timed it. I made it a hundred and forty-seven to

the minute. I tried to feel my heart. I could not feel my heart. It had stopped beating. I have since been induced to come to the opinion that it must have been there all the time, and must have been beating, but I cannot account for it. I patted myself all over my front, from what I call my waist up to my head, and I went a bit round each side and a little way up the back. But I could not feel or hear anything. I tried to look at my tongue. I stuck it out as far as ever it would go, and I shut one eye and tried to examine it with the other. I could only see the tip, and the only thing I could gain from that was to feel more certain than before that I had scarlet fever.

I had walked into that reading-room a happy, healthy man. I crawled out a decrepit wreck.

I went to my medical man. He is an old chum of mine, and feels my pulse, and looks at my tongue, and talks about the weather all for nothing, when I fancy I 'm ill; so I thought I would do him a good turn by going to him now. "What a doctor wants," I said, "is practise. He shall have me. He will get more practise out of me than out of seventeen hundred of your ordinary, commonplace patients with only one or two diseases each." So I went straight up and saw him, and he said: —

"Well, what 's the matter with you?"

I said: "I will not take up your time, dear boy, with telling you what is the matter with me. Life is brief, and you might pass away before I had finished. But I will tell you what is *not* the matter with me. I have not got house-maid's knee. Why I have not got house-maid's knee I cannot tell you; but the fact remains that I have not got it. Everything else, however, I *have* got."

And I told him how I came to discover it all.

Then he opened me and looked down me, and clutched hold of my wrist, and then he hit me over the chest when I was n't expecting it — a cowardly thing to do, I call it — and immediately afterward butted me with the side of his head. After that he sat down and wrote out a prescription and folded it up and gave it to me, and I put it in my pocket and went out.

I did not open it. I took it to the nearest chemist's, and handed it in. The man read it and then handed it back.

He said he did n't keep it.

I said: "You are a chemist?"

He said: "I am a chemist. If I were a co-operative store and family hotel combined, I might be able to oblige you. Being only a chemist hampers me."

I read the prescription. It ran: —

"1 lb. beefsteak, with
1 pt. bitter beer
every six hours.
1 ten-mile walk every morning.
1 bed at 11 sharp every night.

"And don't stuff up your head with things you don't understand."— *Jerome K. Jerome, in "Three Men in a Boat."*

THE SIN OF FRETTING.— There is one sin which it seems to me is everywhere, and by everybody is underestimated and quite too much overlooked in valuations of character. It is the sin of fretting. It is as common as air, as speech; so common that unless it rises above its usual monotone, we do not even observe it. Watch an ordinary coming together of people, and see how many minutes it will be before somebody frets; that is, makes a more or less complaining statement about something, which most probably every one in the room, or the car, or on the street corner knew before, and which most probably nobody can help. Why say anything about it? It is cold, it is hot, it is wet, it is dry; somebody has broken an appointment, ill-cooked a meal; stupidity or bad faith somewhere has resulted in discomfort. There are plenty of things to fret about. It is simply astonishing how much annoyance and discomfort may be found in the course of every day's living, even at the simplest, if one only keeps a sharp eye out on that side of things. Even Holy Writ says, "We are born to trouble, as sparks fly upward." But even to the sparks flying upward, in the blackest of smoke, there is a blue sky above, and the less time they waste on the road the sooner they will reach it. Fretting is all time wasted on the road.— *Helen Hunt Jackson.*

THAT eminent physician and hygienist, Sir B. W. Richardson, recently expressed his decided opinion that if men and women in general properly understood and steadily obeyed the laws of their being — physical, intellectual, and moral, — seventy per cent. of them would live to be one hundred and ten years old.— *Current Literature.*

MRS. P. H. WOODWARD recently died at Charleston, at the remarkable age of one hundred and two years. Cases of such extreme longevity are each year becoming more rare.

SELF-CONTROL VS. NERVES. — Nerves are convenient pack-horses on which we lay the blame of morbid tempers, irritability, and other unfortunate conditions, without remembering that nerves are to be kept in order by good sense and a firm will. Healthy nerves contribute only to the pleasure and happiness of life, and never assert themselves except agreeably. The diseased nerve sends its quivering lance-thrust of pain to the remotest corners of our being, and pain is therefore always a danger-signal, and must not be passed by without attention. If there be aching eyes or ears or teeth, or if a weary sense of weight in the back makes the day a labor and the night a torture; if there is even a sense of discomfort anywhere, let the nerves have the credit of reporting the trouble, and then let them be soothed and strengthened. But to accuse these faithful servants whenever our own lack of self-control is the cause of our querulous complaint or our foolish fear, is to show ourselves weak and stupid. We owe it to our own conscience to be candid; and if we shiver at a mouse, or scream at a spider, or tremble and grow pallid and hysterical at the approach of a thunder-storm, it is not on our nerves that the fault must be laid.

Any woman who chooses to take the trouble can be serene and quiet-mannered, can bear suffering with fortitude, and meet disaster with heroism. The higher one goes in the scale, the more one finds of calm and gentle bearing, whatever befalls the actor in life's drama. Social training stands one in stead when it is an affair of setting the teeth and keeping still, or of filling the air with outcries and clamor.

One chronic complainer with nerves forever on edge can effectually destroy the tranquillity of the domestic circle. Peace and comfort fly before the face of the woman who is always at the mercy of "nerves." That face, too, early loses its freshness and its bloom. Wrinkles cover it with a network of crossing and intercrossing lines; small puckers weave themselves about the mouth; crow's-feet multiply around the eyes. No greater foe menaces beauty than a belief that one must be the victim, not the commander, of her nerves. — *Harper's Bazaar.*

LARGE EATERS. — Large eaters are generally deficient in activity and endurance. I used to know one who tried hard to be a Christian, but failed because of too much dinner. That man was a curiosity. He worked in a small wood-turning shop, and ate five times a day. When he consulted me about his "poor stomach," I told him flatly that he was a pig. He replied, "You are mistaken, I am faint half the time, and have to eat extra meals to keep up my strength." I went at him with fact and physiology. At length he was convinced, and promised me that he would follow my prescription, which was this: Take but two meals a day. . . . In fifteen days his faintness had disappeared, and he rapidly recovered. To-day he is a healthy, active man, and a warm advocate of two meals a day, and moderate ones.

Temperate people, with good digestion, never feel their stomachs, — forget they have stomachs, — while these big eaters are always hungry, faint, or bloated, troubled with eructations, acidity, diarrhea, or some other unhappy condition of the digestive apparatus.

Persons having a good stomach to begin with, can, by practise, learn to digest an enormous quantity of food. If they give their whole force and vitality to this business of grinding grist, they can, in the course of even a short life, grind through immense quantities. But the wiser, the more human way, is to find out just how much food is needed to run the machine, exactly what fuel will keep the system at the best working point, and never pass these bounds.

For years the author had eaten three hearty meals a day. At length, upon a careful consideration of the physiology of digestion, he thought he was probably using too much of his force in that function. He reduced to two meals a day. He cannot express what freedom in mental and bodily activity he experienced. Men with large heads and well-made bodies sometimes consume so much of their nerve force in digestion that they have nothing left with which to achieve those triumphs that otherwise would be easy to them. — *From papers of Dio Lewis, M. D., in Journal of Hygiene.*

"DOES your papa get much practise?" asked the visitor of the doctor's seven-year-old son.

Frankie — "Oh, he don't have to practise any more. He knows how now."

MEN fed upon carnage, and drinking strong drinks, have all an impoisoned acrid blood, which drives them mad in a hundred different ways. — *Voltaire.*

I HAVE known more than one instance of irascible passions having been much subdued by a vegetable diet. — *Dr. Arbuthnot.*

THE natural food of man, judging from his structure, consists of fruit, roots, and vegetables. — *Cuvier.*

MECHANICAL EXERCISE.*

BY J. H. KELLOGG, M. D.

IT may be asked, "What is the benefit of exercise of any sort to the body?" A careful study of this subject in relation to exercise and its effects has shown that the very same result is produced by exercise as by the application of cold water to the surface of the body; viz., to increase the number of the blood-corpuscles. Indeed, by exercise of the muscles, these corpuscles are increased to such an extent that there are one third more in the blood than before such exercise. Now these corpuscles are simply drawn out of their hiding-places in the liver, the spleen, and the large avenues and cavities of the portal system in the abdomen and viscera of the body, by exercise; and then they are sent into the blood current, and take an active part in the vital processes of the body. This, however, means a wonderful change in an individual. When his blood is diminished in quantity, and he is anemic, as we say, so that he has but few blood-corpuscles, the effect is a general feeling of debility, a weakness and lack of vigor and energy; his heart is weak; he gets out of breath easily; he cannot engage in any muscular work, for the reason that his muscular forces are exhausted; he has an ever-present consciousness of weakness and want of energy. Now by exercise large numbers of corpuscles which are taking no part in the work of the body — which are idle — are drawn out of their secret places and sent into the blood current.

There is also an increased quantity of oxygen taken in at the same time of this increase of blood-corpuscles, because, when we have one third more corpuscles by means of exercise, we take in one third more oxygen. And this one third more oxygen has the same effect upon the body that taking in one third more oxygen into a stove would have upon the fire — the fire will burn one third faster, and be one third hotter than before. When this additional quantity of oxygen is taken into the body, the person lives one third faster; his intensity of life is one third greater. And that means a great deal to a man who has been weak and stupid, and has been so troubled with inertia that he could hardly move; it means a great increase of vitality and energy, — and that is one of the effects of exercise.

Massage will accomplish the same thing as exercise, because it has the effect to dilate the blood-vessels, and thus draw out the corpuscles into the general circulation. The effect of the exercise of the muscles is like that of a suction-pump. Every time a muscle contracts, it acts like a pump upon the blood. A little experiment may be made by placing one hand across the forearm and then closing the hand; if there are any muscles under the fingers of that hand, they will be felt to harden and swell when the other hand is opened and closed; shut up the fist as close as you can upon the forearm, and then close up the other hand and work the muscles vigorously. With each contraction of the muscles the blood is pumped in and out. Each muscle presses the next muscle, and that muscle presses the next, and so on, the muscles thus operating like a massage upon themselves. Every time a muscle is compressed, the blood is squeezed in; and as the muscle is compressed again and again, the blood is forced along. But it may be asked, "Why does not the blood flow back again?" Because there are valves in the veins, and these valves allow of the

* Extract from a lecture delivered before the patients in the Battle Creek Sanitarium parlors.

passage of the blood in only one direction. If you grasp the hands and arms so as to compress the superficial veins, crowding the blood back, you can feel the places where the valves are distended in the veins. Now the process of massage pours the blood into the vessels; it increases the number of corpuscles in the blood, and also the amount of oxygen distributed through the body, and so stimulates all the vital processes of the body.

Exercise also stimulates the nervous system, and aids the body by purifying it. It stimulates the system by bringing an increased quantity of blood into the veins, and with an increased activity of the heart the blood circulates with greater rapidity. Each time the heart beats, three ounces of blood are sent out of the left ventricle. There is in the body about ten and one-half pounds of blood; that would be one hundred and sixty-eight ounces. Three ounces of blood being sent through the left ventricle every heart-beat, it would require fifty-six heart-beats to circulate all the blood in the body. Now if the heart beats only fifty-six times in a minute, it takes a minute to distribute all the blood of the body. Of course the blood that leaves the heart cannot get back to it until it has passed through the arteries, capillaries, and veins; and then to the other side of the heart; from here it flows out again to the lungs, and then back to the heart, its circuit completed. All the blood in the body makes this circuit in every fifty-six heart-beats; but by exercise the heart's action may be so stimulated that it will beat one hundred and eighty times a minute. In that case the blood circulates three times as rapidly as under ordinary conditions. The activity of any part of the body depends upon the amount of blood there is in it,— provided it is active blood. If it is stagnant blood, it has lost its power; but if it is active blood, the more blood a person has in his head, the more active is his brain; and so it is with every other part of the body.

Another advantage to be gotten from exercise is that it stimulates the removal of poisons from the body. As one exercises more vigorously, he breathes more rapidly, and the air is drawn into the lungs; and when it is sent out again, it carries with it various toxic substances, thus purifying the body. And when the lungs are especially active, the skin, the kidneys, and the liver are also more active than usual. With every breath, the diaphragm gives the liver a squeeze, sending the stagnant blood on and the bile out. The bowel activities depend largely upon exercise. So by exercise we have all the purifying and strengthening powers brought into play.

Another important result which exercise accomplishes for the system is to induce the expulsion of poisons from the muscular tissues. Exercise breaks down the old stagnant tissues of the muscles, and releases the poisonous substances which are already there, but need to be loosened up so they can pass into the circulation and be carried off; and the process which is the result of exercise has the effect of doing this.

What advantage does mechanical exercise have over other forms of exercise? Mechanical exercise consists in vibratory movements accomplished by the hand. When a person has had sufficient practise, he can produce very vigorous and effective vibration in this way; but the arm soon becomes tired out, so that it is impossible to make vibrations with sufficient vigor and rapidity to produce any decided physiological effect. The advantages of a vibratory apparatus thus become apparent. These mechanical exercises produce exertion without the rapid breaking down of muscle, and without taxing the brain and the nervous system, as the muscles are acted upon directly by the appliances, and do not require stimulation through the brain and spinal cord. This is one of the most important effects to be obtained from vibratory exercises.

Still another very important effect derived from this method of exercise is that which is produced upon the viscera. When applied over the liver, these mechanical exercises stimulate the blood in the liver as well as in the muscles. The reason the muscles contract is that the muscle-cells feel the effect of the vibratory movement; they are stimulated the same as by electricity, only the effect is more certain.

That mechanical vibration exercises a decided influence upon the circulation is a frequent observation. My patients constantly report that vibratory movements make them warm, and restore the balance of circulation when disturbed by morbid reflex action, so that, while the feet are warmed, the head is cooled. Carefully conducted experiments show that the temperature of a part subjected to mechanical vibration is actually increased, the amount of the increase depending upon the length of the application, and the degree of depression below the normal temperature at the beginning.

Vibration is also one of the most efficient means with which the writer is acquainted for relieving the great variety of parasthesias from which neurasthenic patients suffer, such as numbness, formication, tingling, etc. These exercises are capable of exerting very powerful effects upon the nerve centers.

THE BICYCLE'S HOLD ON THE PUBLIC.

ONE often hears an objection to the athletic enthusiasms of our colleges on the ground that fierce competition and semi-professionalism in games tend to bring forward only the phenomenally muscular and robust men, leaving the rank and file of students who have most need of physical training, to shift for themselves, and indeed, having a tendency actually to discourage them from outdoor games by setting athletic standards so impossible for them to attain. The absolute physical inability to shine in the fiercer athletic sports has certainly resigned many an anemic youth to a steady and unremitting grind at his books — where a biceps under the normal need prove no bar to the capture of honors. In spite of the active efforts of the better-equipped colleges to counteract this tendency — notably by entirely separating the "athletic" events from the department of physical culture proper — it remains true that the men who need the most out-of-door exercise and muscular effort get the least of these antidotes to the effect of mental application. If this be true in the colleges, it is a still more decided evil in business life, where the inertia that must be overcome in order to take part in any systematic outdoor exercise is so appalling, and where the approval and pleasures to be won by physical prowess are even less easy of attainment than in the colleges.

Now the bicycle has offered to the great majority of citizens a means of athletic exercise and open-air enjoyment for which they need not be specially equipped by nature. Man and woman, weak and strong, dwarf and three-hundred-pounder — all sorts and conditions of men — can and do learn to wheel, and, with comparatively small perseverance, become as proficient for all practical purposes as the most handsomely endowed athlete of them all. This is the true secret of the bicycle's firm hold on the public, and here is its greatest value.

The more intangible benefits which the bicycle has brought to the dwellers in our cities are without a doubt incalculable. This is truer now than in the first flush of the wheeling fever; for the repeated warnings of family physicians have succeeded in reducing the indulgence of bicyclists in their favorite exercise to something like proper limits; and happily the notion has been exploded that wheeling is a panacea for all ailing folks and all ailments. In the early enthusiasm of finding their bicycle legs, the devotees of the wheel often overdid the thing entirely; even now the physicians say that the exuberant delight which attends success after the frantic struggle of "learning to ride" is almost certain to lead to over-indulgence at first.

But altogether apart from the actual physiological betterment from deep breathing, swiftly coursing blood, and the purer air of the parks, there is a psychic and moral void in city life which the bicycle goes farther toward filling than any other single institution. That too much-used word "recreation" is before us each day in a thousand advertisements, and its principle is advocated constantly from as many pulpits; but where and when is it given to the toilers of the great town? What real joy, what entertainment, what surcease have they? Is there a ghastlier ugliness in our civilization than this lack of playtime and playthings? The summer vacation is good, but it is two weeks out of fifty-two, and more often than not, scantily affords a mere foothold to struggle with unimpaired tissues through the harassing hot season which in three months renders most of our cities, East and West, all but unbearable workshops. With his wheel at hand, however, there is no hard-driven clerk who may not look forward each day to a comforting flight from the dreadful grind. Fat Germans, with their fatter fraus, leave the sweltering heat of East-Side tenement rows and skim gaily through the park, along the Hudson, and away into pleasant country places with the same steeds, the same privileges, and the same enjoyment that is given to the gilded youth — and gilded age too — which crosses the Fifty-ninth street entrance at a slightly different angle. Nothing else can compare with the wheel as a leaven for the heavy lump of joylessness in our streets. — *Scribner's Magazine*

BREATHE deeply, and thereby you will increase the circulation, purify the blood, and send it charged with vital force to warm the feet, make ruby lips, and paint roses on the cheeks. It will fortify the digestion, give you a clean, sweet breath, promote sleep, quiet the nerves, strengthen the vocal organs, and increase the chest capacity. It will also tend to prevent asthma, catarrh, bronchitis, and lung troubles.

IN 1895, something like seventy million fewer cigars were made than the previous year. It is said that the wheel has done much to diminish the demand for cigars.

STAND ERECT.

NOTHING is more important in giving a look of style and grace to young people than the way in which they carry their bodies, and this is a matter that mothers need to look after in training their children. The habit of movement is largely formed in early years. Miles Barlow says: "Stand up straight, boys and girls, and whether walking or at rest, hold your head well up, with chin slightly drawn in and shoulders thrown back." This is not only necessary for appearance, but for health and vigor. Parents do not often realize the importance of this in their little ones. The way the twig is bent the tree grows. Notice, as you see young men walk, how many are stoop-shouldered, and how often girls lose half their attractions by their ungraceful movements. See how many strong, middle-aged men are beginning to walk like old men. In fact, so many walk along in an unmanly style that when an erect young fellow strides by, people turn around to look after him. Every one admires a man or woman of erect bearing, though but comparatively few are fully erect.

Barlow says he was once in a manufacturing building in the morning before the starting bell had rung. "At one of the windows were a number of young men and women, evidently watching for some one, and that some one proved to be a young man fully six feet tall, who just then made his appearance away up the street. They were in the habit of watching for him every morning. They liked to see his splendid figure, his upright carriage, his easy swinging walk, and his pleasant face. I recognized him as a friend I had often met in the military armory and gymnasium. You see he made use of his military training in every-day life, and he not only looked well by reason of it, but he felt well. One is bound to feel well as soon as he begins to practise throwing back his shoulders and breathing deeply."

According to the old saying, "It is hard to teach an old dog new tricks," and some people tell us that it is still harder to teach new things to members of the human family who have become once settled in their way. So young people should be taught in very early life to get the best and most symmetrical physical development. Teach them to drop their hands by their sides, lift their shoulders well up and back, and slowly inhale and exhale the breath ten or fifteen times. This should be followed by light exercise. It is not necessary to send children to dancing-schools to develop a graceful movement and the fullest purposes of the physical system. — *The Progressive Age.*

"THE SCORCHER."

He tumbled from his weary wheel,
And set it by the door;
Then stood as though he joyed to feel
His feet on earth once more;
And as he mopped his rumpled head,
His face was wreathed in smiles;
"A very pretty run," he said,
"I did a hundred miles!"

"A hundred miles!" I cried. "Ah, think!
What beauties you have seen!
The reedy streams where cattle drink,
The meadows rich and green.
Where did you wend your rapid way —
Through lofty woodland aisles?"
He shook his head. "I cannot say;
I did a hundred miles!"

"What hamlets saw your swift tires spin?
Ah, how I envy you!
To lose the city's dust and din,
Beneath the heaven's blue;
To get a breath of country air;
To lean o'er rustic stiles!"
He only said, "The roads were fair;
I did a hundred miles!"

— *Sel.*

RUNNING FOR HEALTH. — Running is a fine exercise, but should be indulged in moderately. Restrictions have fettered the feet of our girls, many of whom, if untrammeled by fashion and their mamas, would be as fleet of foot as their brothers. If you hear it said, "She's a little romp," depend upon it, "she" is a bright, energetic girl, who will follow the footsteps of Hygeia wherever she may lead — in the fields, through the brooks, over the fences, or on the highest limbs of the old apple-tree; and when she returns from the race, mark the joyous laugh and the bright glow of health. When nature molds her form into the delicate outlines of womanhood, cruel fashion says she may no longer vie with her brothers in fleetness, although running is unwomanly only so far as it is unhealthful. — *Pop. Sci. News.*

HOW TO MODIFY INHERITED TENDENCIES.

BY KATE LINDSAY, M. D.

AN inherited tendency is the disposition, organization, and habits of parents repeated in their children. Not only the habits which have been inherited by the parents from their ancestors, but those which they themselves have contracted by frequent repetition, are liable to be transmitted. This law of transmission through the habits of the mother during pregnancy was recognized when the angel Gabriel told Manoah's wife to shun all wine and strong drink, that her son might be a man to deliver Israel from the oppression of the Philistines.

In order to modify or entirely overcome some undesirable tendency in offspring, parents should first find out the strong and weak points in their own mental, moral, and physical natures. If there is a bodily weakness which predisposes the parent toward any disease, as consumption or the like, the greatest of care should be taken by both husband and wife, preparatory to parentage, to strengthen the respiratory system, and to avoid all occupations which have a tendency to hinder full lung expansion, or which compel the breathing of irritating infected dust-laden air, which injures the lungs by filling them with the gritty matter of pulverized stone, iron, or like substances, thereby furnishing soil in the congested sensitive structures for the growth of the germs of la grippe, pneumonia, or consumption.

A debilitated mother whose ancestors were entirely free from consumption, may give her child during the nine months of pre-natal life a weakened system with too little vital force to free itself from the germs of tuberculosis. This indicates the necessity of the expectant mother's guidance of her own life in such a way as to build up her own vigor, that she may endow her child with vitality.

If there is in the ancestry a tendency to untruthfulness, dishonesty, unchastity, the love of strong drink, or to violent outbursts of temper, the parents should most sedulously cultivate in themselves the opposite virtues. They should cultivate the habit of exactness of statement, and of strictly honest business dealing with all, especially with each other. Many a timid mother has made sneak-thieves of all her children because her husband's parsimony induced her to watch her chance to pick his pockets rather than meet his displeasure by asking for the money needed for herself and children. An overworked mother, with a worn out nervous system, which might have been recuperated by an hour or two each day spent in swinging in a hammock under the trees, but who instead of taking this needed rest, has quieted pain with opium or stimulated the nerves to extra exertion by strong tea, may give to her unborn child a craving for stimulants, or perhaps herself may fall an easy victim to the drink habit.

The unwilling mother who seeks to take the life of her unborn child may give to the world a Guiteau, or may create in her offspring a suicidal tendency. Read the history of the past, and heed the lessons of responsibility they teach. David bequeathed a legacy of sin and shame to his children, which led the brother to seduce the sister, and her ruin to be avenged by a brother's staining his hands with a brother's blood. The weakness of Solomon also attests the ruin David, the king of Israel, wrought in his family by entailing on them the evil results of his own bad habits of life. Solomon's degenerate son Rehoboam inherited the perverted appetites of both his father and his grandfather to such a degree that the wisdom and godliness of both were in him extinguished; whereas these better qualities ought to have come to him in increased measure, and have made him superior to both his ancestors as a wise man and a prudent ruler.

The importance of restraining inherited tendencies and of educating the child out of evil is supplemented by the example of those who come into daily contact with him. As soon as the child is born, it begins to be educated either for good or evil. Even before it can see, before it can hear, it is educated by the touch of its nurse. The gentle, quiet manner of a kind, even-tempered woman is its first lesson in self-control. Soon the mother's gentle lullaby will soothe it to rest; or the sound of angry, excited human voices arouse its passions, frighten it, and make it fretful.

All children imitate the actions and repeat the words of those about them, and thus natural tendencies may grow or be held in check by the example of parents and friends, and finally become the character of the individual. The reason many parents fail in efforts to educate their children out of a bad heredity is that they do not begin early enough. They may even encourage in the child some bad trait which they will vainly seek to eradicate in later years. The young father thoughtlessly teases his baby until in his anger the child endeavors to punish his tormentor; and then he in turn is punished for that of which the father is the most guilty. The tendency toward a quick temper, inherited perhaps from this same father, and which might have been held in check if directed by right example and instruction, and have developed into a generous nature, may wreck the life of the man, and lead him in a moment of insane rage to commit a crime which will condemn him to a felon's cell.

No better method of educating a child out of a bad heredity can be found than to keep him in the constant companionship of those who think, talk, and walk in the way in which the child should go. This is the training that will bring the complete fulfilment of the scripture, "Train up a child in the way he should go, and when he is old he will not depart from it."— *The New Crusade.*

IF WE HAD BUT A DAY.

We should fill the hours with the sweetest things,
If we had but a day;
We should drink alone at the purest springs,
On our upward way.

We should waste no moments in vain regret,
If the day were but one;
If what we remember and what we forget
Went out with the sun.

We should be from our sinful self set free,
To work and to pray,
And to be what our Father would have us to be,
If we had but a day.

—*Sel.*

HOW FAST FRITZ GREW.

"GRANDPA!" shouted a little boy, bounding onto a sunshiny porch where a white-haired old man sat reading his paper,—"grandpa, I'm seven years old to-day; and I've got on trousers, and I'm going to begin school."

"Why, why!" said the old gentleman, laying down his paper; "how many things are happening all together!"

Grandpa was about as far from the end of his life as Fritz was from its beginning; and there seemed a wide difference between the bent, white head and feeble gait of the one and the shining, bright curls that shook and nodded at the bounding steps of the other. Yet grandpa and Fritz were great chums, and loved and understood each other perfectly.

"And now, grandpa, measure me up against the wall," continued the new schoolboy, "so I can tell how much I have grown by the beginning of another term."

Grandpa took out his pencil, and while Fritz stood with his back to the wall, very stiff, and still, and straight, grandpa put his spectacle-case on the boy's head, to get his exact level, and marked him off on the clean white paint, writing his name and age and the day of the month and year.

"But stop, Fritz," said grandpa, as he was running off; "I've only measured one third of you."

Fritz looked puzzled.

"Is your body all of you?" asked grandpa.

"No, sir; I s'pect I've got a mind, too," answered Fritz, but he spoke doubtfully.

"Yes, a mind to do your sums with, and a heart to love God and his creatures with. Don't you see that I have only measured one third of you? Come, and I'll measure your mind. How much arithmetic do you know? As far as multiplication? Good. And you are in the second reader? Very well. Now write your name down here in my note-book, and put these facts down, that I may take the measure of your reading, writing, and arithmetic."

Fritz, highly amused, took the pencil, and wrote, in a very clumsy hand, "Frederick Jones, multiplication and second reader."

"But what about my heart?" the little boy asked presently.

Grandpa looked very grave, and was silent for a minute. Then he said, "Did you please your mother by getting down in time for prayers this morning?"

"No, sir."

"Did you look for little sister Lucy's doll that she lost yesterday?"

"No, sir."

"Did you carry Mrs. Parsons the honey she told you to ask your mother for, to help her cough?"

"Why, grandpa, I forgot all about it."

The old man did not say a word, but began to write in his note-book; and Fritz, looking over his shoulder, managed to spell out these words: "He that loveth not his brother whom he hath seen, how can he love God whom he hath not seen?"

A year passes away, and again Fritz is at his grandpa's knee. Grandpa's step is slower, and his voice weaker, his eyesight dimmer. Fritz is somewhat changed, too. His curls are shorter, and his trousers longer, his shoulders broader, and when he backs up to the wall, behold! he is way above last year's mark. He reads in a fourth reader now, and knows something of fractions; and when he writes his name, the letters do not tumble down and sprawl around as they did last year.

"And how about that other measure?" asked grandpa.

Fritz is silent; but the old man puts his arm around him, and says tenderly: "I heard mama say yesterday that Fritz was her greatest comfort; Lucy cried when she found Fritz's holiday was over, and old Mrs. Parsons said she would be lost without the boy's helping hand."

Again grandpa wrote in his little book; and, though the writing was very shaky, Fritz could read it plainly this time: "If ye fulfil the royal law, 'Thou shalt love thy neighbor as thyself,' ye do well."

"Now, Fritz, boy," he said, "that's the best growing you've done this year."—*Elizabeth P. Allen, in Recorder.*

KEEP UP WITH THE CHILDREN.

SHE was a woman of middle age, thin and plain, with no claim to beauty, except the eager, dark eyes shining starlike from a wistful, care-lined face. Twenty years ago she had slipped her trustful hand into that of another, and counting the world well lost for the sake of her love and faith, had entered upon a life of such toil, privation, and heroic endurance as only women in frontier settlements, amid primitive conditions know.

"I have tried my best," she said simply, "to keep up with the children. Father and I resolved, when our first boy was a baby, that, stint and scrape and contrive as we might, we'd educate all that Heaven sent us. And we have done what we could. I wasn't willing that my children should get ahead of me; I've tried to study their lessons with them, and to enter into their feelings. I don't want them to outstrip me in the race."

This mother had been one of those to whom early rising and late retiring had been always essential, in order that the routine of the housework should not suffer. In that part of the country where she lived, hired help for domestic purposes was almost unheard of; women did their own work, a neighbor's daughter sometimes lending a kind hand in an exigency, and the men of the family doing their share at need. In her determined effort to keep step with her children in their intellectual development, she had in another direction builded better than she knew; for the children, boys and girls, had early been pressed into her service, and had, as she explained, "taken hold" of whatever was to be done. The boys could make beds and set tables as well as draw water and split wood. The girls were neat housekeepers, with a practical knowledge of cooking and laundry work — in American society as essential in the outfit for life to the richest as to the poorest. Though the living in the household was plain, it was abundant, and the ideal set before the family was something nobler than a mere strife for wealth. Books were read and prized in common, and so much was going on to interest everybody that there was no temptation to devour poisonous tidbits in secret. So it came to pass that the keeping up with the children brought great good in its wake.

At last a day dawned when the mother felt as if the first stone had been set in a wall of separation. Two of her brood had found their wings. A daughter was going to college; a son was entering upon a business career. The wistful little woman yearned

to keep pace with them both,— yearned perhaps to ordain the pathway of both, as she always had done. But it was inevitable that there should be some parting of the roads. Brave as she was, she kept down a heartache under her cheery show of courage.

"Have comfort, dear," said an older friend who had been through a similar experience. "The children will never outgrow you; you had a twenty-years' start of them. And you have so disciplined your mind, and trained your heart, and elevated your own thoughts above the daily rut, the fret and the stir, that you dwell in a serene atmosphere, favorable to expansion of every faculty. They may acquire facts, but they will fly like honey-laden bees back to the hive. The mother who has kept pace with her children from babyhood to adolescence will never lose them."— *Harper's Bazaar.*

THE BLIND PITIED THE BLIND.

"Look out for the steps, father, put your foot a little farther, and you will feel the first."

"Yes, yes; go slow," replied the father, with irritation in his voice, as, in a hesitating, uncertain manner, he felt with his foot for the step. The son held his father's hand and guided him as the blind have to be guided.

For many days the father had been in the hospital having his eyes treated. The doctors at last had to tell him that there was no hope. For the remainder of his days sunshine and color would be but a memory to him.

"How many steps are there?" The fretful intonation was still there.

"Only one more, father. The carriage is at the curbstone and we will soon be home."

The afflicted man was slowly led through the little iron gate that separated the hospital grounds from the street, and across the sidewalk to the carriage. Just as he was being helped into the vehicle the doleful wail of an aged violin floated to his ear. The tones were discordant and the playing poor.

"Shall I help you in, sir," asked the kindly driver, as the stricken man paused and listened.

"Who is that playing, my son?" He had not heard the driver; for memory was busy with him.

"An old blind man, father; shall I help you?"

"A blind man that turns his face upward while he plays?"

"Yes; that is he, father,— the one you said you saw so often when you were going to business. Wont you get in?"

"The same blind man that I said should be locked up instead of being allowed to play on the streets?"

"Never mind that now, father. Mother is anxious to see you."

"Count that silver and tell me how much it makes."

"Three dollars and five cents."

"Take it and give it him."

"What, all of it?"

"All of it. And tell him that one who understands better now sends it to him. He won't understand, of course, but some day I may explain it to him." The fretful tone had entirely vanished; pity for others had put it to flight.

"He was so glad that he could hardly find words in which to thank me," said the young man, as he reached his father's side. On the way home he heard his father say softly to himself, "I have been blind all these years, and it is only now that I see."

He looked up into his father's face and saw it was wreathed with a beautiful smile.— *Montreal Witness.*

The Mouth as a "Catch-All."— There are a multitude of people who in addition to the natural and proper uses of the mouth seem to regard it as a sort of handy receptacle, into which any small objects may be thrust for safe-keeping till wanted.

This trait is not confined to either sex, or to any age. Many a fond mother will cry out in alarm at the sight of her child running about with a plaything in its mouth, yet the chances are, that if this same mother should an hour later have occasion to pay on a public conveyance, she would fish out, from some ridiculous receptacle called a purse, a small coin, which she would hold between her lips till ready to make some other disposition of it — and this regardless of the fact that on an average the coin had been traveling about the country from fifteen to twenty years, during which time it had been in all sorts of places and amid all kinds of surroundings. This observation is true of many other things than small coins, and of fathers as well as of moth-

ers. Some of the most painful instances possible have recently illustrated the danger of the habit. The horrible death of a well-beloved clergyman, the result of swallowing a small cork which he was holding between his lips, is fresh in mind; and at this writing a man in Albany has his lungs filled with tacks which he swallowed in a similar manner. He was holding them between his lips, while putting down a carpet, and inhaled them in laughing at the remarks of some present. He now lies at the point of death, and no earthly power can aid him. Surely these illustrations and the suggestions which they invariably call up, ought to be sufficient reason why no thinking person should ever make a temporary receptacle of the mouth for foreign substances.— *Good Housekeeping.*

EVERY day is a fresh beginning,
Every morn is the world made new —
You who are weary of sorrow and sinning,
Here is a beautiful hope for you,
A hope for me, and a hope for you.

— *Susan Coolidge.*

THE THANKSGIVING MENU.

A SPECIAL dinner for Thanksgiving has so long been a time-honored custom in most families that the majority of housekeepers consider it quite an indispensable adjunct to our national holiday. While we admire the beautiful custom of gathering one's friends and neighbors around the hospitable board, we are nowise in sympathy with the indiscriminate feasting so universally indulged in on such occasions. While an ample repast is essential, the bill of fare should not be so lavish as to be an incentive to gormandizing, nor the viands of a character incompatible with healthful living. Let us have "plain living" even on Thanksgiving, and then we may hope to have "high thinking,"— a condition far more in accord with the real design of the day. As an aid in this direction, we offer the following bills of fare: —

Tomato Soup with Pasta d'Italia.
Stuffed Potatoes. Canned Asparagus.
Sliced Nuttose. Beet Salad.
Browned Rice with Black Raspberry Sauce.
Fruit Rolls. Granose Biscuit. Brown Bread. Buns.
Canned Peaches.
Pumpkin Pie. Grape Apples.
Nuts and Fruits.

Vegetable Oyster Soup.
Mashed Sweet Potato. Vegetable Roast.
Stewed Green Peas with Nuttose. (See Sept. No.)
Celery. Pulp Succotash.
Granose Flakes with Cream.
Whole-wheat Puffs. Nuttose Sandwiches. (See Sept. No.)
Fruit Bread. Nut Crisps.
Canned Cherries.
Rice Snow with Cranberry Jelly.
Almond Puffs (See June No.) or White Sponge Cake.
Fresh Fruits.

RECIPES.

Vegetable Oyster Soup. — Scrape all the outer skin and small rootlets from vegetable oysters, and lay them in a pan of cold water to prevent discoloration. The scraping can be done much easier if the roots are allowed first to stand in cold water for an hour or so. Slice rather thin enough to make one quart, and put to cook in a quart of water. Let them boil slowly until very tender. Add a pint of milk, a cup of thin cream, salt, and when boiling, a tablespoonful or two of flour rubbed to a cream with a little milk. Let the soup boil a few minutes until thickened, and serve.

Stuffed Potatoes. — Prepare and bake large potatoes of equal size as directed in the preceding recipe. When done, cut them evenly three fourths of an inch from the end, and scrape out the inside, taking care not to break the skins. Season the potato with salt and a little thick sweet cream, being careful not to have it too moist, and beat thoroughly with a fork until light; refill the skins with the seasoned potato, fit the broken portions together, and reheat in the oven. When heated throughout, wrap the potatoes in squares of white tissue paper fringed at both ends. Twist the ends of the paper lightly together above the fringe, and stand the potatoes in a vegetable dish with the cut end uppermost. When served, the potatoes are held in the hand, one end of the paper untwisted, the top of the potato removed, and the contents eaten with a fork or spoon.

Beet Salad, or Chopped Beets. — Cold boiled or baked beets, chopped quite fine but not minced, make a nice salad when served with a dressing of lemon-juice and whipped cream in the proportion of three tablespoonfuls of lemon-juice to one-half cup of whipped cream, and salt if desired.

Pulp Succotash. — Put together an equal quantity of the pulp of canned corn (prepared by pressing corn through a colander) or kornlet, and bean pulp prepared by pressing stewed Lima beans through a colander. Season with salt and a little sweet cream. Heat and serve.

Tomato Soup with Pasta d'Italia. — Put two quarts of canned tomatoes through a colander to remove all seeds and fragments. Season with salt and two

tablespoonfuls of nut butter; add a cupful of the ornamental pastes, and cook for ten or fifteen minutes. If preferred, the nut butter may be omitted, and just before serving a cup of thin cream added.

Fruit Rolls.— Sift a pint and a half of flour into a bowl, and into it stir a cupful of very cold thin cream or unskimmed milk. Pour the liquid into the flour slowly, a few spoonfuls at a time, mixing each spoonful to a dough with the flour as fast as poured in. When all the liquid has been added, gather the fragments of dough together, knead thoroughly for ten minutes or longer, until perfectly smooth and elastic. The quantity of flour will vary somewhat with the quality, but in general, the quantity given will be quite sufficient for mixing the dough and dusting the board. When well kneaded, work into the dough one-half cup of Zante currants which have been well washed, dried, and floured, divide into two portions; roll each over and over with the hands, until a long roll about one inch in diameter is formed; cut this into two-inch lengths, prick with a fork and place on perforated tins, far enough apart so that one will not touch another when baking. Each roll should be as smooth and perfect as possible, and with no dry flour adhering. Bake at once, or let stand on ice for twenty minutes. The rolls should not be allowed to stand after forming, unless on ice. From thirty to forty minutes will be required for baking. When done, spread on the table to cool, but do not pile one on top of another.

Fruit Roll.— Take some bread dough prepared as for raised bread, which has been sufficiently kneaded and is ready to mold, and roll to about one inch in thickness. Spread over it some dates which have been washed, dried, and stoned, also some raisins, currants, or chopped figs. Roll it up tightly into a loaf. Let it rise until very light, and bake.

Nut Crisps.— Mix together thoroughly one and one-half cups of coarse graham flour and one-half cup of hickory-nut meal, prepared by pressing the chopped meats of nuts through a fine colander. Make into a rather stiff dough with ice-water, knead well, roll into a sheet as thin as brown paper, cut with a knife into squares, and bake on perforated tins until lightly browned on both sides.

Whole-Wheat Puffs.— Make a batter by beating together until perfectly smooth the yolk of one egg, one and one-half cups of new or unskimmed milk, and one pint of whole-wheat flour. Place the dish containing it directly upon ice, and leave it for an hour or longer. The bread may be prepared and left on the ice over night, if desired for breakfast. When ready to bake the puffs, whip the white of the egg to a stiff froth, and after vigorously beating the batter for ten minutes, stir in lightly the white of the egg; turn at once into heated irons, and bake. If preferred, one-third white flour and two-thirds sifted graham flour may be used in the place of the wheat-berry flour.

Grape Apples.— Sweeten a pint of fresh grape juice with half a pint of sugar, and simmer gently until reduced one third. Pare and core without dividing, six or eight nice, tart apples, and stew very slowly in the grape juice until tender, but not broken. Remove the apples and boil the juice (if any remains) until thickened to the consistency of syrup. Serve cold in individual dishes with a little of the grape syrup over each apple, or with a dressing of whipped cream. Canned grape pulp or juice may be utilized for this purpose. If preferred, the grape juice may be diluted with one-third water. Sweet apples may be used instead of tart ones, and the sugar omitted.

Brown Bread. — Take four cupfuls of strong caramel-cereal; add to this one-half cup of nut meal or two teaspoonfuls of nut butter, one-half cup of sugar, and a pinch of salt. Heat to boiling; add one-third cup rye flour, one-third cup of white flour, one-third cup of best corn-meal, and three cups of cooked crystal wheat, in the order named. Turn into an oiled mold or basin, and steam for three hours.

Browned Rice. — Spread a cupful of rice on a shallow baking-tin, and put into a moderately hot oven to brown. It will need to be stirred frequently to prevent burning and to secure a uniformity of color. Each rice kernel, when sufficiently browned, should be of a yellowish brown, about the color of ripened wheat. Steam the same as directed in the recipe for steamed rice No. 2, using only two cups of water for each cup of browned rice. When properly cooked, each kernel will be separate, dry, and mealy. Rice so prepared is undoubtedly more digestible than when cooked without browning.

White Sponge Cake. — Take the whites of six large or seven small eggs, one cupful of sifted granulated sugar, a tablespoonful of lemon-juice, and two thirds of a cup of flour. Sift the flour three or four times to make it very light. Add a pinch of salt to the whites of the eggs, and beat until stiff enough to remain in the dish if turned bottom upwards. Then add the lemon-juice, and beat again until the whites are very stiff. Add the flavoring and sugar. Fold the flour in lightly and quickly, and bake slowly thirty-five to fifty minutes.

E. E. K.

SYMPTOMS OF TUBERCULAR INFECTION.

TUBERCULOSIS is a very insidious disease, and the patient is often past help before the nature of his ailment is known. It is therefore very important for every one, especially those having the care of children, to be able to recognize the first symptoms of this dread malady. As the disease is liable to attack any organ or tissue of the body, the symptoms will vary somewhat according to the organs affected; but there are certain constitutional symptoms that are common to all forms of the disease. These are, loss of strength and of weight, and a daily chill followed by a rise of temperature. When these symptoms manifest themselves in a child or young person for any length of time, incipient tuberculosis of some part of the body may be suspected. The writer has more than once seen a child in a family scolded and persecuted by parents and stronger brothers and sisters for its "laziness," because it was inclined to sit around the fire, and seemed averse to any active exertion. Such children have even been whipped and sent to work or compelled to go to school by well-meaning but ignorant parents. When a sudden chill or a rise of temperature warned them that their child was really ill, they were sorry for their cruelty; but it was then too late to save the little one's life. It may thus be seen how very important it is for parents and those having the care of children to be able to note these signs of disease.

Teachers, too, should be quick to observe any evidence of failing health in their pupils. Should they suspect that a child has tubercular disease in any form, they should at once report it to the parents or guardians, and request them to have it examined by a competent physician. This should be done, not only in the interest of the ailing child, but also in order to protect its companions from contagion. This is a very important part of school hygiene, as children and youth are very susceptible to infection, and one tubercular child expectorating carelessly on the floor and playgrounds may endanger the life and health of many others predisposed to the disease by hereditary or other causes.

It is a very excellent thing to have a fever thermometer and a good pair of scales in every home, for determining the condition of the children and other members of the family. When there is a daily rise of temperature of even one degree, it is an evidence that some part of the organism is seriously out of order; and even if there are no other very marked symptoms, it goes to show that the person is not well. A healthy child is usually active and always busy; it is not a good sign to see it appear too sober and mature. When a child seems disinclined to either work or play, it is time to look after its health.

Besides these general symptoms, there are others which are manifested by the organs especially infected. When the lungs are the seat of the disease, there is usually shortness of breath and a cough of a more or less decided nature. Sometimes it is so very slight that neither the patient nor his friends are aware of its existence. In some cases there is free expectoration, and in others, even when the disease is far advanced, there is so little sputum that it is hard to get a specimen for examination. Sometimes a hemorrhage more or less severe is the first evidence to the patient or his friends that his lungs are affected. Loss of appetite and derangement of the digestion are present in most cases of tubercular disease, no matter what organs are affected. The amount and character of the sputum does not indicate whether the disease is tubercular or not, as in many cases of chronic bronchitis there is a severe cough and profuse expectoration. No one, not even the physician, can tell whether the sputum is tubercular or not, except by the aid of a powerful microscope; and it is only after repeated examinations that decision can be arrived at in many cases.

There are many physical signs recognized by the skilled physician in making an examination, which it is needless to mention here, as they would not help the guardians of the home health. The condition of the patient as to rise of temperature, failure of strength, and loss of weight must be the home nurse's guide; and in the majority of cases these symptoms will be found to be danger signals which it will not do to disregard.

The glands of the neck are very often the seat of tubercular infection, especially in children. Until quite recently the enlarged, inflamed, and sometimes suppurating glands of the neck so common in children who have had decayed teeth, running ears, nasal catarrh, or enlarged tonsils, were supposed to be due to scrofula or some other inherited impurity of the blood, for which numerous blood purifiers were invented and prescribed. The symptoms of this form of tubercular infection are easily recognized. The glands of the neck and those under the lower jaw are found more or less enlarged, and usually sensitive and inflamed; if the process of inflammation has gone still farther, many of them will be soft and fluctuating, showing that the gland structure has been destroyed, and the tissue changed into pus, the walls of the gland forming a sac for this poisonous fluid. In all such cases the poison has found entrance into these glands by means of a decayed tooth, a discharging ear, nasal catarrh, or enlarged and ulcerated tonsils. If this process of poisoning from without is stopped, and the wounds in the skin and mucous membrane healed up by proper treatment before the glands begin to suppurate, the infection may not invade other parts of the body; but, if left to go on, the lungs or some other important organs are likely to become affected, and the patient finally to die of consumption.

Many parents never think about feeling the glands of a child's neck, or if they do find them enlarged, do not know that they are endangering its life. They also fail to trace the connection between decayed milk-teeth or discharging ears and the lung disease which develops later. Skin diseases, such as eczema of the scalp, are another fruitful cause of infection of the glands of the neck; and these infected glands are liable, in turn, to cause infection of the auxiliary glands, and also of the bronchial glands, finally producing tuberculosis of the lungs. It is thus apparent how impossible it is to foresee the grave results which may occur from the neglect of so simple and common a disorder as an ulcerated tooth or running ears in children.

Tubercular disease of the digestive organs and the peritoneum, or what is generally known as consumption of the bowels, is most common in children, and is no doubt often contracted from the use of tubercular milk, either from consumptive mothers, or more commonly from the use of infected cow's milk. Another cause of infection of the bowels is the swallowing of the sputum in cases of tubercular lungs. Children are always prone to swallow the phlegm which they raise in coughing; it is therefore very important to teach every child to expectorate properly, so as to avoid taking back into the system the poisonous matter which it has attempted to expel, and also to prevent infecting others with it. The symptoms of tubercular disease of the bowels and peritoneum are a chronic diarrhea, tenderness and bloating of the abdomen, enlargement of the glands in the groin, and distention of the superficial blood-vessels of the abdomen. When the glands of the bowels and mesentery are much involved, emaciation is rapid and marked, and the patient soon dies of starvation. This form of tubercular disease is very common among the tenement-house, bottle-fed children of large cities. In adults it often develops as a complication in the latter stages of tuberculosis of the lungs.

Tubercular meningitis, or the infection of the membranes of the brain, is another quite usual form of this disease among illy fed and clad children, especially those who are born of mothers in the latter stage of consumption. The symptoms besides the rise of temperature and the loss of weight and strength, which always accompany every form of tubercular disease, are peevishness, listlessness, and uncertainty in all the movements. The patient will sometimes seem to lose himself for a moment when at work or play. There is often much disturbance of the stomach, and the patient will be subject to sudden attacks of vomiting. These first symptoms may continue for one week or for several; then other and graver signs of the disease will be manifested. The patient begins to dread the light, one or both pupils becoming dilated; then he becomes unconscious, and in a short time finds rest from suffering in death. This form of tuberculosis is most common in children between the ages of two and eight years, and always proves fatal. Dr. West, of England, says that in all his long years of practise he has met with but one case of apparent recovery from the disease in this form, and that ended in mental imbecility.

Children with tubercular tendencies are very subject to inflammations and abscesses of the bones and joints. Any slight accident from which an ordinarily

healthy child would suffer no injury may be the starting-point of some serious form of bone or joint inflammation, terminating in the destruction of the bone or its articulation. The long bones of the legs and arms, the hip- and knee-joints, and the articulations between the spinal vertebræ are the most frequent seat of this form of tuberculosis. Like the glandular form, it is not often fatal unless the case is neglected, and abscesses form and infect the lungs or some other vital part.

When the germs of tuberculosis invade the spinal vertebræ, the disease is called Pott's disease of the spine. The first symptoms of this very serious form of bone infection are very indefinite, and often cause so little disturbance of the activity of the patient that the disease is not suspected until the onset of the latter stages, when swelling and marked angular curvature of the spine lead to the consultation of a physician. It is then too late to arrest the disease sufficiently to prevent deformity, and it may be too late to prevent extensive suppuration and final death. Whenever a child holds its head in a constrained position, and has a habit of supporting the chin with the hands while the elbows rest on a chair or table, at the same time holding its body rigid, seeming disinclined to move except with the greatest caution, and complaining of pain whenever any rapid move or twisting motion of the spine is made or when going up and down stairs, it is time to look after its health. These pains are often most marked in the morning, after a night's rest in one position. Children so affected often sit with their head on a desk or table and their hands extended above the head, by this position seeking to rest and relieve the sensitive spine. The second stage is always marked by deformity, and it is soon discovered by the observant parent. When the child is undressed, a projection will be noticed on some portion of the spine, made by the wasting of the bodies of the spinal vertebræ. It is then too late to prevent serious deformities, and there is also likely to be the formation of abscesses, leading to the infection of some vital organ, and resulting in death from blood poisoning; or the abscesses may burrow inward and open into the cavity of the peritoneum or the pleura; or the spinal cord may be infected, and paralysis result.

There are many other complications liable to arise in these cases. The time to diagnose and treat the disease is during the six to ten months before the bones begin to soften. All entrusted with the care of children should be able to note and report the first symptoms of this disease, for it is during the first stages that treatment may be successful in arresting its progress and preventing deformity.

The hip- and knee-joints are those most frequently infected with tuberculosis, although any joint of the body is liable to be involved. A child with hip disease will first show a slight limp, and sometimes experience more or less pain when it jumps or lights on its feet heavily. The diseased leg will soon begin to appear shorter than the other. When the child is laid on a table on its back, it will keep the ailing member flexed; and if an attempt is made to straighten it, the lower part of the spine will be raised off the table. There will usually be more or less pain in the joint if moved or flexed in any way. As the disease progresses, there will be swelling and pain, heat and redness; finally the joint will become white and glistening, this condition being due to the exudates around the inflamed joint. When the bones become tubercular, the first symptoms are swelling, heat, and pain; then an abscess forms, and the swelling increases. When the abscess breaks or is lanced, it does not become empty and proceed to heal, but keeps on discharging for weeks, months, or years, forming what is called a fever-sore. These abscesses of the bones and inflammation of the joints usually begin at a point which has been injured in some way; so when it is known that a child has had a fall, or suffered an injury of any kind, a careful watch should be kept of the injured member; and if it remains stiff, sore, and swollen, a physician should be consulted at once, and means taken to prevent the extension of the inflammation.

Often after an attack of whooping-cough, measles, or other such contagious diseases, the child remains weak and does not recover his former health and strength; perhaps there is a slight cough with a little expectoration, and a slight chill and a rise of temperature in the afternoon or evening. These symptoms will increase gradually, until at last the parents become alarmed to find that their child is in what the neighbors call "a decline." These same symptoms often persist after an attack of influenza, pneumonia, or typhoid fever, in adults as well as in children, and are neglected until the lungs become involved and the patient past help.

It could not be expected that every mother would be able to note and interpret all the symptoms which an experienced physician would discover, but she can use a thermometer and a pair of scales, and note the failing strength of any member of the family just as well as the physician or trained nurse. She can

also observe a limp in the walk of her child or any external deformity; and although she may not always be able to name the disease that is causing the trouble, she will know, when day by day the temperature is a little higher than the normal, especially if there is a gradual increase, and if at the same time the scales show a decline in weight, that there is something serious the matter. If the patient is a child or youth, or an adult of feeble constitution, who has perhaps inherited tubercular tendencies, so much the more need of watchfulness.

It might save many lives if a part of the time spent by girls in acquiring the so-called accomplishments were spent in the study of the language of health and disease in both old and young. It may seem a dry and uninteresting subject to the average young lady to make herself acquainted with the rate of healthy growth and increase of stature as indicated by the scales and tape-line applied to the person of a normal child at different ages; but when for the want of this very knowledge she fails in after life to notice the inroads of disease on the life and health of a loved child, she will wish that some of the time spent in other ways had been devoted to gaining a knowledge of the laws of health and the signs of disease.

In the next article will be given an outline of some of the measures which have been found successful in preventing and arresting threatened attacks of tuberculosis.

FEVERS OF SPECIA PERIODS OF INFANCY AND EARLY YOUTH.

DURING teething, when the mouth is deeply irritated, and thrush and other germ diseases are of frequent occurrence, most children, especially those of delicate constitution, are likely to have more or less fever. The attacks are usually due to something besides the teething, this process only predisposing the other exciting causes to act. The feeling that fever is a natural accompaniment of teething often leads to serious results, as the true cause of the high temperature is not found out until it is too late to prevent serious consequences. The mouth should be carefully examined in those cases to see if there are any manifestations of thrush or any other germ disease. If so, the mouth should be cleansed and healed at once.

The bowels are often out of order, and the diet needs regulating. During second dentition the child is also often nervous and excitable, and prone to attacks of fever from slight exciting causes. It should be remembered that serious damage may be done to the nervous system by oft-repeated attacks of simple fever occurring in early life, especially in case of nervous children. How often do we hear it stated in cases of epilepsy and other serious disorders, that the child had frequent convulsions soon after birth, and again at the teething period. Convulsions, from whatever cause, are always a serious matter, causing severe congestion in the nerve centers, and a consequent disordered blood supply. If often repeated, they are liable to result in organic disease of the brain,— epilepsy, insanity, or imbecility. Had the cause of these early convulsions been recognized and removed, the after-history of many a child might have been quite different from what it proved to be.

A fever always means intoxication in some form, and indicates that poisons are either being absorbed into or manufactured in the tissues. The weakest parts suffer first, whether it be the lungs, the digestive organs, the nervous system, or the alimentary apparatus. Attacks of simple fever, being so common and so short, are seldom brought to the attention of a physician, and the hope of the infant in such cases is the careful, watchful nurse or mother, who can trace out and remove the cause, thus guarding against future attacks.

PARENTS are often proud of the precocious child, and urge it on to make extra exertion to stand at the head of its class, notwithstanding the fact that its nervous system is already taxed to the extreme limit, making its temper so capricious that it is indeed a sore trial for the other members of the family to live with it. Yet the foolish father and mother shut their eyes to this daily increasing evidence of a nervous and mental collapse; and when the child succumbs to some common disorder it might have easily withstood, had it been in a normal condition, they wonder at the dispensation of Providence which has laid low so promising a child. They seem to forget that God does not suspend natural laws to hinder people from reaping the reward of their own mistakes.

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

GOOD NEWS FOR WOMEN. — The surprising news comes from Paris that the fashionable women of that fashionable city, who set the styles for the whole world, have demanded an increase of waist-room to the extent of three or four inches, and that the next season's fashion plates will be especially characterized by largeness of waist. The modistes have at last discovered that the Venus de Milo rather than the French corset is the proper model as regards a woman's form. This wonderful change is said to have been brought about by the addiction of the "new woman" of France to the use of the bicycle. The tips of the handles of the breathing bellows are placed at the waist, and waist-constriction thus effectually interferes with respiration. The lady bicyclist who wishes to keep up with the procession must enjoy free movement for her respiratory machine, as well as for her pedal extremities; and consequently she has rebelled against waist constriction so far as to construct a special dress for bicycle-riding and other modes of outing; and after the enjoyment of the freedom thus obtained, she refuses to go back into her cage. If American women will show themselves as ready to adopt the new Parisian dress reform as they have heretofore been to imitate every folly emanating from the stage and the demi-monde of gay Paris, we shall witness within the next six months a mighty revolution in the conventional styles of dress in this country. Fashion makers can do more in a week in the reformation of women's dress than all the doctors, dress-reform clubs, lecturers, and other reform agencies can accomplish in half a century. Women may well rejoice in the prospect of a time when they will have a chance to "breathe like a man" without being criticized as being "mannish."

OYSTERS AND TYPHOID FEVER. — M. Chantemesse, of France, recently communicated to the French Academy of Medicine the results of an investigation which he believes establishes, beyond room for question, the fact that typhoid fever may be communicated by oysters. The case which gave rise to the investigation was as follows: —

In a small community where typhoid fever had not appeared for a period of one year, a family was suddenly attacked with various disturbances, after eating oysters from Cette. Some of the members of this family suffered only from pain in the stomach, others from more severe gastric disturbance; while others had a regular attack of typhoid fever.

A bacteriological examination of the oysters made by M. Chantemesse, revealed the presence of both the cholera bacillus and the typhoid bacillus.

After having been allowed to remain some days in a mixture of sea-water and fresh water, the oyster still contained a quantity of the same virulent bacilli, and Chantemesse concludes from this observation that the oysters furnished for consumption in the markets of Paris are dangerous. The author states that "the contamination of oysters occurs in oyster beds at the mouths of rivers; the more heavily the rivers are charged with organic matter, the fatter the oysters become, and the more dangerous."

American physicians have called attention to analogous facts, several instances of a like character having occurred in this country.

The work of M. Chantemesse has been placed in the hands of a special commission composed of MM. Gautier, Cornil, and Laboulbène, eminent scientific men, who will give the subject the serious attention which it deserves.

CONTAGION THROUGH THE MEDIUM OF BOOKS. — The December number of the *Annales de l' Institut Pasteur* contains an interesting paper by Cazal Catrin, the purpose of which was to determine the following questions: —

1. Are books carriers of microbes, and especially of pathogenic microbes?

2. Can a book soiled by infectious liquids from a patient suffering from a contagious malady, transmit the disease?

3. Is there a practical means by which books may be easily and completely disinfected?

The conclusions reached as the result of numerous experiments in relation to each of these questions were as follows: —

1. That books, even when absolutely new, are not aseptic, but that they do not present pathogenic microbes, the latter being found, however, in old books. A curious fact noted is that an old book which had been used a long time by the patients of a great hospital, when examined, showed only a single pathogenic microbe, the staphylococcus pyogenes aureus.

2. In experiments relating to the communication of infectious diseases through the medium of books, positive results were obtained for the streptococcus, the pneumococcus, and the diphtheria bacillus, but the results were negative for tuberculosis and typhoid fever.

3. It was found that unbound books could be completely disinfected by exposure to dry heat, but bound books could not be thus disinfected without injury. For this reason it was advised that only unbound books and papers should be used in hospitals.

The Fly as a Germ Carrier. — In 1866, Hoffman demonstrated the presence of tubercle bacilli in the bodies of flies captured in a room occupied by a consumptive. The droppings of the flies were full of bacilli, which were shown by experiment to be fully virulent.

Six years later Mr. A. Coppen Jones, of Switzerland, proved by means of chromogenic (pigment-forming) bacteria that infection can be, and actually is, carried, not only in the bodies of the flies, but also by their feet. In one experiment, cultures of the bacilli prodigiosus were mixed with tuberculous sputum. Flies which had been in contact with this mixture were permitted to walk across the surface of sterilized potatoes. In forty-eight hours numerous colonies of the bacillus prodigiosus were visible.

From these results we may reasonably conclude that flies are a constant source of infection.

Cheese out of Court. — We are glad to find the London *Hospital*, a leading English medical journal, declaring that cheese is put out of court altogether for ordinary folks by reason of its indigestibility. By this we are doubtless to understand that only those whose stomachs have extraordinary disinfecting powers can, with any sort of safety, undertake the digestion of cheese. A recent bacteriological examination of the stomach fluid of a young man who had eaten a couple of ounces of cheese, showed the presence of more than twenty-five million germs in each ounce of stomach fluid.

Church Colds. — The *British Medical Journal* calls attention to the fact that colds and resulting chronic catarrhs are frequently the result of exposure in a damp, chilly church after becoming heated by rapid walking. The bad methods usually employed in heating and ventilating churches increase the injury.

A Case of Oyster Poisoning. — Cases of poisoning from the use of oysters are becoming exceedingly common. The *British Medical Journal* for January 4 reports a case of wholesale poisoning, in which the persons who attended a public ball, nearly five hundred in number, were exposed to infection with typhoid fever through the use of oysters. In quite a number of the cases the illness was very clearly typhoid fever. Investigation showed that the oysters, which were furnished by a Glasgow merchant, were obtained from a bay in Holland, the water of which was polluted with sewage. The investigation of the case has not clearly established the connection of the oysters with the enteric fever, but the bacteriological examination made showed numerous kinds and great multitudes of microbes, and other investigations have traced similar outbreaks to the oyster, by the disclosure, either in the animal itself or its juice, of the specific microbes of typhoid fever.

Chauncy M. Depew on Liquor-Drinking. — Mr. Depew, who has perhaps the greatest reputation of any man in the United States as an after-dinner orator, but who has never posed as a temperance lecturer, recently related the following facts from his own personal observation: "Twenty-five years ago I knew every man, woman, and child in Peekskill. I was up there last fall, and began to count them over. Some of them have become clerks, some merchants, some manufacturers; others have become lawyers and doctors. It is a remarkable fact that every one of those who drank is dead; not one is living. Every one who proved a wreck, and ruined his family, did it because of rum. Every one who has been frugal, thrifty, industrious, and church-going, without exception, owns the house in which he lives."

WHAT LEADING PUBLIC MEN THINK ABOUT SCHOOL SANITATION.

A FEW weeks ago, GOOD HEALTH undertook to make a little investigation for the purpose of ascertaining the opinions of leading public men upon several questions of importance pertaining to the sanitary condition of schools and school children, and to this end sent out a circular letter which contained the following questions: —

1. Should every public school in the poorer districts of the city, have a bath department or lavatory, and should personal cleanliness be enforced by the teachers?

2. Should every public school have connected with it a health department, with a qualified physician at the head of the same? and should the building occupied as a public school and the pupils attending the public school be regularly examined with reference to health and sanitary conditions?

3. Should teachers be required to give special attention to such matters as proper attitude in sitting, correct method of breathing, and the development of a fine figure and dignified physical bearing?

4. Is it not evident that the children attending our public schools are exposed to deteriorating influences which might be eliminated by proper rules and regulations for conserving the health of students? And should not such rules and regulations be enforced in every school?

We publish herewith the reports thus far received, adding, however, that additional reports are coming in daily. In our next issue, we shall be able to give other replies. It is certainly encouraging that our governors, members of Congress, and other men in high official positions are giving so much attention to the subject of school sanitation; and it is especially a matter of congratulation that opinions are so unanimous upon questions of leading importance with reference to the necessity for greater attention to the sanitary conditions of human beings during the school period of their lives.

Hon. John T. Rich, governor of Michigan, replies to our questions as follows: —

1. "Emphatically, Yes.

2. "I should think it would hardly be necessary, at this time, when health matters are receiving so much attention from every one.

3. "I think they should.

4. "Yes."

Hon. John E. Rickards, governor of Montana, replies in the affirmative to all the four questions.

Hon. O. Vincent Coffin, governor of Connecticut, replies as follows: —

1. "(Should personal cleanliness be enforced by teachers?) Yes.

2. "(Should the building occupied as a public school and the pupils attending the public school be regularly examined with reference to health and sanitary conditions?) Systematic and adequate attention should be given to the points referred to in the clause I have placed in parenthesis.

3. "Yes.

4. "It must go without saying that it is very desirable to eliminate 'deteriorating influences,' and it necessarily follows that such reasonable and practical rules and regulations as will materially aid in that direction should be adopted and enforced."

Hon. A. W. M'Intire, governor of Colorado, says: —

1. "Yes, of course.

2. "Wherever practicable.

3. "Certainly.

4. "Obviously, yes."

Hon. William C. Oates, governor of Alabama, says: —

1. "Yes, certainly.

2. "Yes; but one physician could serve several schools, and that would be cheaper.

3. "Yes.

4. "Yes."

Hon. L. F. Magann says: —

1. "I am in favor of public baths in the poorer districts of large cities.

2. "I would not favor the maintenance of sanitary inspectors in connection with the school system.

3. "No."

Hon. Elijah A. Morse, of Massachusetts, says: —

1. "To this question, I say, Most certainly; personal cleanliness should be enforced, not only for the pupil's own sake, but for the comfort and health of the other pupils as well. Cleanliness is next to godliness.

2. "It is certainly very desirable to have a qualified physician examine the pupils with a view to discover predisposition to disease, especially with reference to pulmonary troubles, in order that the parents of poor children especially might be advised to take measures to defend the health of their children by warm wraps and dry feet and other precautions against this insidious disease.

3. "Yes. Many a boy or girl is made round-shouldered for life by an improper attitude while at study. The body is the temple for the indwelling of the Holy Ghost, and a good figure and dignified physical bearing is an important adjunct to success in life.

4. "Most undoubtedly. Too much attention cannot be paid to this important matter."

Fred T. Dubois, U. S. Senate, says: —

1. "There can be but one answer to the above; viz., in the affirmative. I would add to the above, a thorough athletic training, under proper supervision."

Hon. Henry M. Baker writes: —

1. "Yes, to the first clause, whenever a bath department or lavatory can be procured without diminishing the number of school days or the quality of the instruction. The idea is entirely right. To the second clause, I unhesitatingly answer, Yes.

2. "To the first question under item No. 2, I say, No. To the second, Yes.

3. "Emphatically, yes.

4. "In my opinion there should be no 'deteriorating influences' in our public schools, and that they are singularly free from them, but that evil must necessarily come from the home into the school, so long as it exists there. Therefore proper rules and regulations should be prepared and enforced, not only to conserve the health of the students, but to improve their manners, language, and entire conduct while in school or on the school grounds. That done, the home will be reached, and, in many instances, improved."

SLEEPING AFTER MEALS.— While rest from accustomed exercise after eating is important, it should be noted that sleep at this time is equally as bad as vigorous exercise of either mind or body. Good digestion cannot take place during sleep. While it is true that digestion is an involuntary act, it should be recollected that it is dependent upon the activity of the nervous system for its proper performance. The same nerve which secures activity of the respiratory organs, — the pneumogastric, — controls the muscular activity of the stomach and the intestines. During sleep, from the lessening of nervous activity, both the respiration and the circulation are greatly lessened in vigor. It is but reasonable to suppose that the activity of the digestive organs is decreased at the same time, being controlled by the same nerves. Actual experiment shows this to be true. Most people who lie down and sleep an hour or two soon after taking food, awake feeling anything but refreshed. The suspension of the process to a considerable degree during sleep causes imperfect digestion, with its numerous unpleasant symptoms. In the case of old people, it may sometimes be beneficial, or at least not harmful, to secure a few minutes' sleep after eating, before digestion is well begun; but it must not be long continued.

In order to secure the best conditions for digestion after eating, an individual should take gentle exercise of some kind, as walking, or carriage or horseback riding. While violent exertion seriously interrupts the digestive process, a moderate degree of physical exercise facilitates it by increasing the activity of the glands by which the gastric juice is formed. It is probable that gentle exercise also encourages digestion by stimulating the movements of the stomach.

ANSWERS TO CORRESPONDENTS.

CHILLINESS — CONSTIPATION — CATARRH, ETC. — Mrs. E. M., Minn., writes as follows: "1. I suffer greatly from chilliness, and frequently on cold nights during the winter I do not seem to get warm all night long. The bowels often feel cold and numb, accompanied with extreme weakness and inactivity. I am constantly in need of a laxative; am subject to catarrhal attacks during May and June of each year; I am, however, liable to have them in midwinter or at any time of the year. An attack begins with an aggravated itching of the nose, eyes, ears, throat, and corners of the mouth, which induces violent sneezing, and is followed by a copious discharge of a colorless, frothy slime. The intolerable itching often comes on between the attacks. The menses are also scanty and attended with great pain, am nervous and sleepless, and suffer greatly from fatigue upon exertion. What is my trouble? 2. What can I do to enrich my blood? 3. What effect upon the system will strychnia have, taken in mall doses, three times a day? 4. Ought persons with weak digestion to eat green vegetables, such as lettuce, radishes, string beans, peas, etc.?"

Ans.— 1. You are suffering from ndigestion and resulting lowered vital resistance, and general disturbance of the whole body,— a sort of total depravity of the system. You need improvement of digestion, enrichment of the blood, a gain in flesh and strength, and general improvement in all your vital conditions.

2. Improvement of digestion and eating an abundance of easily digested food. We especially recommend granose, nuttose, bromose, nut cream, and other nut preparations.

3. Strychnia is reputed to be an excellent tonic, but in our own practise we do not find use for it.

4. Peas, asparagus, and, in some cases, string beans, are well tolerated by persons having very little digestive vigor, but lettuce and radishes are usually not to be recommended in cases of this sort.

RHUBARB.— C. A. R. asks: "1. Is there any medicinal virtue in the leaves of the common rhubarb? 2. If the leaves were dried, then burned to a cinder and taken, what effect would they have?"

Ans.— 1. No.

2. The same as ashes from any other source.

CHRONIC SORE THROAT — CONSTIPATION, ETC. — "A regular reader," Ill., asks the following questions: "1. Is the humid atmosphere of a greenhouse injurious to the health of the persons employed there? 2. What is the best remedy for habitual constipation? 3. Is not cold water better than tea or coffee with meals? 4. Can catarrh of the head be permanently cured? 5. Is salt water taken through the nostrils beneficial? 6. What causes an accumulation of gas in the stomach after a meal? and how can it be prevented?"

Ans. 1. A healthy person ought not to suffer from such exposure.

2. There is no one remedy known to us which is successful in every case. Granose, nuttose, and bromose used freely in the dietary constitute as nearly a panacea as anything with which we are acquainted; but each case must be carefully studied by itself.

3. The use of fluid at meals should be avoided. If some drink must be used, take a few sips of hot water at the close of the meal.

4. Yes, unless the disease has advanced so far as to change the structures of the nose. Even in these cases great improvement may be secured by judicious treatment.

5. Yes. In cases in which there is a profuse secretion, cleansing with a solution of salt is sometimes beneficial, but the use of the vaporizer is to be more highly recommended.

6. Germs. For the remedies see "The Stomach: Its Disorders and How to Cure Them," published by Modern Medicine Pub. Co., Battle Creek, Mich.

BEST FOOD FOR A DYSPEPTIC.— T. L., Mo., asks: "1. Which is the better food for a dyspeptic, oatmeal or cracked wheat? 2. Ought grains to be eaten with cream and sugar?"

Ans.— 1. Different dyspeptics require different dietaries. For bills of fare for the different classes of dyspeptics, see "The Stomach: Its Disorders and How to Cure Them," published by Modern Medicine Pub. Co., Battle Creek, Mich.

2. No.

MALODOROUS FEET.— A. M., Iowa, asks for the cause of and cure for bad-smelling feet.

Ans.— Profuse or peculiar secretion of sweat. Bathe the feet daily and change the stockings; rub the feet night and morning with subcarbonate of bismuth.

MOLES. — A. C. M., Wis., asks: "Can moles be removed in any other way than by the knife? If so, please give directions for removing them."

Ans. — Yes; by electricity.

WEIGHT ACCORDING TO HEIGHT.— C. D. W., Mich., asks: "What is the proper weight for a person according to his height?"

Ans.— The following table gives the proper weights according to the height, for both men and women; the table is made up from physical charts:—

MEN.		WOMEN.	
Height.	Weight.	Height.	Weight.
72 inches	151	67 inches	121
71 "	150	66 "	123
70 "	141	65 "	121
69 "	140	64 "	118
68 "	134	63 "	116
67 "	133	62 "	115
66 "	126	61 "	109
65 "	126	60 "	103
64 "	115	59 "	96
		58 "	106

HAY FEVER, ETC. — Mrs. G. E. R., Mich., inquires: "1. What is the cause of hay fever? 2. What treatment will cure it? 3. What treatment is best for a cold in the head? 4. Are oil heaters injurious in sleeping-rooms?"

Ans. — 1. Doubtless germs.

2. For a cure of the nasal catarrh which renders a person susceptible to the action of the germs of the disease, a change of climate is, in most cases, beneficial. The best regions are a high, mountainous district, or an island.

3. The use of the vaporizer with volatile substances should be employed ten minutes every hour.

4. Yes; they contaminate the air.

YEAST BREAD — WHITE AND UNBOLTED FLOUR BREAD, ETC. — Mrs. M. A. M., Ind., asks the following questions: "1. Does letting yeast bread rise three or four times improve its nutritive quality? 2. What is the per cent. of difference between white and unbolted flour bread? 3. What is the difference in value by chemical analysis between bread made from white, unbolted flour, and corn-meal? 4. What between red and white wheat? 5. Why do millers charge more for graham flour than for white?"

Ans. — 1. No; the opposite effect is produced.

2. It is difficult to answer this question satisfactorily, for the reason that white flour differs very much, and so does graham flour. The difference is also not wholly one of nutritive value, but one of digestibility and wholesomeness.

3. We know of no analyses which would answer this question satisfactorily.

4. Red wheat contains four or five per cent. more gluten than white wheat.

5. Probably because they are put to some special inconvenience to make it in small quantities.

PREMATURELY GRAY HAIR — FALLING OF THE HAIR. — F. S., Minn., inquires: "Is there anything which will prevent premature grayness and falling of the hair?"

Ans. — Maintain a healthy condition of the scalp by avoiding warm covering, by keeping the scalp clean, and rubbing it well with cold water every day. Premature decay of the hair is sometimes due to indigestion.

NON-RETENTION OF URINE. — N. B. D., Canada, inquires: "What treatment would you recommend for a boy of eleven who is troubled with non-retention of urine while asleep?"

Ans. — Raise the foot of the bed a foot and a half, so that the child sleeps with the head down hill. This will relieve most cases.

TREATMENT OF HERNIA. — W. S. R., Ohio, asks for information concerning the ordinary treatment of hernia.

Ans. — Hernia is always curable by a surgical operation, which can now be safely and successfully performed in all ordinary cases. We do not hesitate to say that such an operation should be performed in nearly every case in which hernia exists, as it is a constant menace to life.

ICE-CREAM. — M. W., Penn., asks: "Is ice-cream injurious to health? Please state the precise effects it is supposed to have upon the system."

Ans. — It is. Cold foods and drinks temporarily paralyze the stomach, produce congestion, catarrh, and indigestion.

ABDOMINAL BREATHING — HERNIA. — N. M. asks the following questions: "1. What is meant by adominal breathing? 2. Why does it affect a person's voice in singing? 3. What ought to be done for a fifteen-months'-old girl baby who has a rupture?"

Ans. — 1. Abdominal breathing is a form of respiration in which the diaphragm only is used, the upper part of the sides and the chest remaining inactive.

2. It is impossible to sing, and at the same time restrict one's self to the abdominal respiration; and, in singing, unless the waist is constricted, one naturally employs the whole chest. If the upper part of the chest alone is employed, the voice is likely to be strained, and lacking in fulness of tone. Greater volume and force are acquired by contracting the diaphragm and expanding the sides and chest in such a manner as to distend the abdomen. The abdominal muscles are used, not in filling the lungs, but in expiration.

3. The proper truss should be applied. If a cure is not effected by this means, the difficulty may be completely remedied by a surgical operation when the child is a few years older.

DIET IN TYPHOID FEVER. — A reader inquires: "1. Is a diet of sterilized milk proper in typhoid fever? 2. Is bromose suited to such a case?

Ans. — 1. As a rule, we find other foods, particularly fruit juices and farinaceous preparations, such as gruels of various kinds, much preferable to milk as a diet in typhoid fever.

2. Yes.

TO ENCOURAGE GROWTH OF THE BEARD. — G. M. R., Pa., asks: "What sort of treatment will encourage the growth of the beard?"

Ans. — Improvement of the general health, bathing the part with cold water several times daily, and massage of the parts.

TREATMENT FOR WEAK THROAT. — E. L. R., Iowa, asks to have outlined a method of treatment adapted to the strengthening of a weak throat.

Ans. — In order to give specific directions for treatment in such cases, it is necessary to know more accurately the symptoms in the case. If the weakness is manifested simply by weakness of the voice, the difficulty may be in the chest, and not in the throat, in which case the chest should be developed by active physical exercises, such as bringing the arms into vigorous action. If the difficulty is due to disease of the throat, and is indicated by hoarseness, a vaporizer should be used several times daily.

CASTORIA. — J. C., Neb., inquires, "Is Castoria injurious to infants?"

Ans. — We have never met a case in which we have thought it would be of service, and cannot recommend it.

RELIEF DEPARTMENT.

[THIS department has been organized in the interest of two classes: —

1. Young orphan children, and
2. The worthy sick poor.

The purposes of this department, as regards these two classes, are as follows: —

1. To obtain intelligence respecting young and friendless orphan children, and to find suitable homes for them.

2. To obtain information respecting persons in indigent or very limited circumstances who are suffering from serious, though curable, maladies, but are unable to obtain the skilled medical attention which their cases may require, and to secure for them an opportunity to obtain relief by visiting the Sanitarium Hospital. The generous policy of the managers of the Medical and Surgical Sanitarium has provided in the Hospital connected with this institution a number of beds, in which suitable cases are treated without charge for the medical services rendered. Hundreds have already enjoyed the advantages of this beneficent work, and it is hoped that many thousands more may participate in these advantages. Cases belonging to either class may be reported in writing to the editor of this journal.

It should be plainly stated and clearly understood that neither orphan children nor sick persons should be sent to the Sanitarium or to Battle Creek with the expectation of being received by us, unless previous arrangement has been made by correspondence or otherwise, as it is not infrequently the case that our accommodations are filled to their utmost capacity, and hence additional cases cannot be received until special provision has been made.

Persons desiring further information concerning cases mentioned in this department, or wishing to present cases for notice in these columns, should address their communications to the editor, Dr. J. H. Kellogg, Battle Creek, Mich.

☞He wishes especially to state that those who apply for children will be expected to accompany their applications by satisfactory letters of introduction or recommendation.]

No. 342 is a young girl sixteen years of age, who is in need of a home. She has blue eyes and light hair, has had good care and training, and has always lived in the country. Her mother has tried to keep the family together, but on account of failing health is not longer able to do so. Good homes have been found for the other children in the family. Is there not a home near one of our schools that will open its doors to this girl, where she can have the opportunity to get an education, and thus prepare herself for future usefulness?

No. 351 is a boy ten years of age living in Pennsylvania. The father died, leaving the mother with five children to care for. Living in a large city, the mother finds it hard to train her boy without a father's guidance. Will not some Christian father and mother living in the country give him the surroundings of a good home? He has blue eyes and light hair, and is in good health.

No. 356 is a little boy seven years old living in Michigan. He has blue eyes and dark hair. He has not been allowed to run the streets, and had good care while his mother lived. His father cannot give him proper care and training, as he is away from home all day. Will not some good home open its doors and receive him, thus giving him the influence of Christian surroundings?

No 366 is a girl ten years of age, with blue eyes and dark hair. She is said to have an amiable disposition, and has had good training. Her father is dead, and the mother having to work away from home all day, the child is thus left alone. The mother is anxious to have her placed in a good Christian home, where she will have proper care and training. She is at present living in Pennsylvania.

Nos. 376 and 377 are two little girls aged twelve and nine years respectively, with black eyes and hair. The mother has tried to keep the family together, but as she is in very poor health she can no longer support them. These children are said to be easily controlled, and no doubt would brighten and cheer some home. They are now living in Nebraska.

Nos. 378 and 379 are two bright fatherless little boys, aged six and three years respectively, living in Wisconsin. Their mother is so situated that she cannot possibly care for them and support them, and is anxious to have them placed in good Christian homes. They have blue eyes and light hair.

No. 380 is an orphan girl ten years of age living in Massachusetts. She has blue eyes and brown hair, and is large and strong for her age. She has a very affectionate disposition, being very fond of children and pets. She has been living with an elderly lady who has cared for her since her mother's death, but she is not able to provide for her longer. No doubt with a kind but firm hand to guide her and the surroundings of a Christian home she will grow up to be a useful woman.

No. 381 is a little girl nearly six years old living in Wisconsin. Her mother is dead and her father has deserted her. Her aunt with whom she has been staying, is not situated so that she can keep her longer, and thus she is in need of an immediate home. She has blue eyes and light hair and is said to be bright and well behaved. Is there not some home that will open its doors and give this poor child a mother's love and care?

No. 382 is a bright little boy five years of age. He, like many others that have come to our notice, has lost his mother, and as his father has to be away

from home all day, he has no one to care for him. He has blue eyes and light brown hair, and is a healthy child. Will not some mother open her heart and home and give him the care he so much needs? He is now living in Indiana.

No. 383 is a little dark-eyed baby girl, about five weeks old. The mother is not situated so that she can properly care for the child, and is anxious to have it placed among good Christian surroundings. Here is an opportunity to do some real missionary work.

No. 384 is a boy baby four months old, living in Illinois. He is of Scandinavian parentage, and has blue eyes and light hair. His mother is anxious to find a home with the baby if possible. However, in case such a home could not be found, she is willing to give up the child in order that it may have Christian care and training. Is there not some home that will shelter this mother and her child? She is well and strong, and willing to work.

No. 385 is another baby boy a month old who is in need of a home. The father deserted the mother some time ago, and as she has to work out by the day in order to support herself, she cannot care for the child. He has blue eyes and dark hair, and is now living in Michigan.

We are constantly receiving applications for relief from aged brethren and sisters who have been left without a home and means of support, and on account of age and failing health are not able to care for themselves. Many of these in their earlier life gave freely of their means to advance the cause of God, and certainly provision should be made for them in their declining years. Many of these are able to make themselves quite useful in assisting in the work about a house, but being without home and friends appeal to us for assistance.

Certainly there must be those having comfortable homes who would be willing to share their blessings with those who are less fortunate. Another winter is before us, and some of these who have applied for relief have no other prospect for shelter than the poorhouse. Shall we not hear from many who are willing to cheer and brighten some lonely life in its declining years?

The State Public School of Coldwater, Mich., is now receiving children under two years of age, and has some fine baby boys for indenture and adoption. Any person wishing to add a baby boy or girl to their household should correspond with the State Public School, or call and see the babies. Address A. J. Murray, Superintendent, Coldwater, Mich.

Persons making application for children advertised in this department, are requested to send with their applications the names and addresses of two or more persons as reference. If possible, these should be known, either personally or by reputation, to some member of the Board of Trustees.

Visiting Days at the Haskell Home.— Persons intending to visit the Haskell Home will please note that the visiting days are Sundays and Wednesdays, from 4 to 6 p. m.

CLOTHING FOR THE POOR.

The call for clothing of all kinds and the numerous offers to supply assistance of this sort, have led us to organize a Clothing Department to receive and properly distribute new or partly worn garments which can be utilized for the relief of the very poor. In connection with this work it is very important that a few points should be kept in mind and carefully observed: —

1. Clothes that are so badly worn that repairs will cost more in money or labor than the garment is worth, will of course be of no service. Garments that are old, though faded, or which may be easily repaired by sewing up seams, or made presentable by a few stitches judiciously taken at some point in which the fabric is nearly worn through, may be utilized to most excellent advantage. But garments so badly worn that they need extensive patching, or clothes which have become much soiled and grimy by long use in some dirty occupation, should find their way to the rag bag instead of the missionary box.

2. Freight must always be prepaid. It costs as much to send 25 pounds or any amount less than 100 pounds as to send the full 100 pounds; consequently it would be well for those who think of sending clothes to be used in this department, to put their contributions together in one shipment, so as to get the benefit of the 100-pound rates. *We are obliged to ask that freight should be prepaid as a means of preventing loss to the work in the payment of freight upon useless packages.*

3. Clothes that have been worn by patients suffering from any contagious disease — such as typhoid fever, erysipelas, consumption, and skin disorders of all sorts, as well as scarlet fever, measles, mumps, diphtheria, and smallpox — should not be sent. Infected clothes may be rendered safe by disinfection, but we cannot trust to the proper disinfection of such garments by those sending them, who, in the majority of cases, are quite inexperienced in such work; neither should those who unpack the clothes be exposed to the risk of contamination while preparing them for disinfection at this end of the line. Such clothes should, as a rule, be destroyed. If they are not destroyed, almost infinite pains is required to render their use perfectly safe.

4. All articles received here are carefully assorted and classified, and are then placed as called for, where they will do the most good.

5. Clothing intended for the Chicago mission should be sent to Medical Missionary College Settlement, 744 47th St., Chicago, Ill.

LITERARY NOTICES.

THE *Sanitarian* is a magazine devoted to the promotion of the art and science of sanitation, both mentally and physically, by the investigation, presentation, and discussion of all subjects in this large domain. Personal and household hygiene, domicile, soil and climate, food and drink, mental and physical culture, habit and exercise, occupation, vital statistics, sanitary organizations and laws, — in short, everything relating to health, is presented in this magazine, with the purpose of rendering sanitation a popular theme of study, and universally practical.

Published by A. N. Bell, A. M., M. D., 337 Clinton St., Brooklyn, N. Y. Price, $4 a year, 35 cents a copy.

"SKETCHES OF BIBLE CHILD LIFE." — By Mary Alicia Steward. Illustrated. Review and Herald Publishing Co., Battle Creek, Mich.

This is a little work dealing with the child life of many Bible characters, and drawing many a lesson of charity and kindness from those long-gone lives for the benefit of its young readers. The author remarks in the preface: "It is with the thought of helping some little child to choose the good in life, and to know and resist the evil, that this book has been written;" and truly the spirit breathed through its pages is one which is most helpful and pure. Gracious reward indeed would it be to the author were many little ones turned into the path which leads to God and right through its sweet, uplifting influence. The book is typographically neat and pretty, and is in excellent taste throughout. As it goes forth on its mission, we bespeak for it many warm friends and a wide sale.

A SERIES of articles of unique interest has been undertaken by *The Ladies' Home Journal*. It is to be called "Great Personal Events," and will sketch the most wonderful scenes of popular enthusiasm and thrilling historic interest which have occurred in America during the past fifty years. Each one will be graphically detailed by an eye-witness, while leading artists have been employed to portray the events in pictures made from old illustrative material. The series has just been started in the current number of the magazine, Hon. A. Oakey Hall, ex-mayor of New York City, sketching the scene, "When Jenny Lind Sang in Castle Garden," which still stands as the greatest single concert in the annals of American music. Mrs. Henry Ward Beecher in the following issue will tell of a remarkable scene in which her husband was the central figure: "When Mr. Beecher Sold Slaves in Plymouth Pulpit." Then Stephen Fiske will portray the furore and excitement "When the Prince of Wales Was in America." Parke Goodwin will follow this in a succeeding number with an account of the unparalleled excitement in New York "When Louis Kossuth Rode up Broadway." Hon. John Russell Young will sketch "When Grant Went around the World," Mr. Young having been of General Grant's party. The great scene in the Senate Chamber "When Henry Clay Said Farewell to the Senate" will follow. Lincoln will figure twice in the series: first, in a description of "When Lincoln Was First Inaugurated," and, next, "When Lincoln Was Buried." The stirring story of the discovery of gold by John Mackay will be revived in "When Mackay Struck the Great Bonanza." The series will extend through all the numbers of this journal during 1897.

HARPER'S BOOK OF FACTS. — A classified history of the world, embracing science, literature, and art. Brought down to the close of the year 1894. Compiled by Joseph H. Willsey; edited by Charlton T. Lewis. Large 8vo, 954 pages, gilt top, bound in cloth, $8; three-quarter leather, $10. Sold by subscription only. Harper & Brothers, publishers, New York.

W. J. Rolfe, the distinguished Shakespearean editor and scholar, writes from Cambridge, Mass., October 16: "'Harper's Book of Facts' is an invaluable addition to the reference library. I know of no single work that can pretend to cover the same ground. Though professedly based upon Haydn's 'Dictionary of Dates,' it far surpasses that work in its own field, both in completeness — especially on all American subjects — and in accuracy; while it adds an immense variety of matter which Haydn does not give at all, and most of which it is difficult, if not impossible, to find in other books of reference. I have tested it by looking for a number of facts which I had been able to find elsewhere only after many hours of searching in the Boston and Cambridge libraries; and they were all in the 'Book of Facts.' One little fact in literary history which I had not been able to find in cyclopedias and other books, though I had kept it in mind for several months, and had neglected no opportunity of hunting for, I found at once in this admirable compilation.

"No one who examines the book would be willing to do without it. If I could not replace it, I would not part with my copy for fifty times its cost."

PUBLISHERS' DEPARTMENT.

SINCE our last issue, the handsome chapel erected during the past summer for the use of the Sanitarium family, has been dedicated. The chapel itself seats about four hundred persons; but on this occasion (October 17), the large sliding doors which form the partition between the chapel and the mammoth gymnasium were thrown open, producing an audience-room capable of holding fifteen hundred persons, which was filled with Sanitarium patients and nurses, with the employees of the institution and their friends. A most appropriate sermon was preached by Elder J. O. Corliss from the text, "What mean ye by these stones?" Excellent and appropriate music was furnished by a double quartet under the direction of Professor Edwin Barnes.

Weekly services are held in the chapel, which are much appreciated by the patients. The chapel is also frequently utilized for services of various sorts.

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THE Battle Creek Sanitarium Health Food Company are finding it necessary to add continually new facilities for increasing their output, as the demand for their unrivaled products grows daily wherever the foods have been introduced. Carload orders from New York and Boston are very frequent nowadays. A large corps of bakers, packers, clerks, and other employees is kept constantly at work, night and day shifts being required to keep up with orders.

The Sanitarium Health Food Company's products are unique. They differ materially from all others which have ever been produced, each one having been discovered or invented for the purpose of meeting a distinct dietetic want in the treatment or prevention of disease. Each one is the result of long-continued, patient investigation, and experimentation, and their value has been established by extensive use in the largest sanitarium in the world, and each product has proved its efficiency for the purpose for which it was designed in thousands of cases.

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THE Battle Creek Sanitarium Health Food Company's products are now used in many thousands of families in all parts of the United States. The demand, indeed, is not confined to the United States. Shipments are constantly being made to Canada, England, New Zealand, Australia, South Africa, India, and even the more remote portions of India, Burmah, and other distant lands. These foods are so pure, so perfectly sterilized, and so carefully prepared that they will keep well in any climate. A good illustration of this was recently afforded by a sample of Granose which was, by request, returned for inspection. After having spent sixteen months on the shelves of a country grocery store, it was found to be in as perfect condition as when sent out from the factory.

These pure food products work not only a revolution in

diet, but a revolution in health wherever introduced. The pale faces of the little ones become plump and rosy; the dyspeptic stomachs of the older members of the family are relieved of their peristaltic woes, and good cheer returns again where sadness and discomfort had reigned.

It has been a uniform custom with us to decline to publish testimonials of any sort in this journal, but we think it proper to depart, in this case, from our usual rule, since these foods are possessed of such unusual merit that their good qualities cannot possibly be overstated, and it is a blessing not only to every invalid, but to those who have not yet become invalids, but who are on the road to invalidism, through errors in diet, to become acquainted with these health- and life-saving commodities. We quote below a few extracts from letters received by the Sanitarium Health Food Co., testifying to the merits of their products.

HON. W. H. H. JOHNSTON, secretary of the Pensions' Committee of the United States Senate, recently wrote: —

"I have used, more or less, the foods prepared at your institution, for several years in my family, and consider them indispensable to good living. I am now using the new preparation, Granose, and other foods, and find my digestion and health improving. The principle of living, as involving diet, treatment, and general habit or conduct of life, as advocated and taught by the Sanitarium managers, I deem to be the correct one, and if generally adopted and adhered to, would make a Christian happier, and a sinner more likely to become a Christian."

A few days since Mr. Barton Huff, the Washington representative of the Battle Creek Sanitarium Health Food Company, wrote to his house as follows: —

"Yesterday I called on my old-time teacher, Professor Powell, and through him I met several prominent gentlemen, one of whom introduced me to the steward of the White House. I sold him two packages of Granose to-day, so to-morrow morning the President and his wife, with their children will eat Granose for breakfast. The White House steward, in turn, introduced me to the steward in the family of Chief Justice Fuller, of the United States Supreme Court. He also bought two packages."

A letter of still later date says: —

"To-day the steward of the White House said: 'Mrs. Cleveland and the babies were DELIGHTED with the Granose.' He bought an additional supply of this, together with Granola and Caramel-Cereal, for her to take to Buffalo with her."

HON. WM. K. ACKERMAN, late auditor of the World's Fair, and comptroller of the city of Chicago, thus commends these foods: —

"Accept our thanks for the package of your new food preparation known as Granose. We have enjoyed it very much, and regard it as one of the most delicate and delicious articles of diet ever prepared — good not alone for sick people, but for well people, to prevent them from getting sick. To the aged and to children it will be especially welcome. The inventor of Granose and its twin sister, Granola, should be regarded as a public benefactor. May God bless all your efforts in this direction."

* * *

THE graduating exercises of the Sanitarium Medical Missionary Nurses' Training-School were held in the Tabernacle on Monday evening, November 2. The occasion was full of interest, as was evidenced by the crowded house. The class numbered fifty-four ladies and gentlemen. The ladies were all dressed in the neat uniform of the Sanitarium nurses, with white aprons and caps.

The following program was rendered: —

Music.....Anthem.
Invocation.....Elder J. O. Corliss.
Music.....Cast Thy Bread upon the Waters.
Addresses —
The Missionary Idea.....David Paulson, M. D
Medical Missionary Opportunities in India.....Elder G. C. Tenney.
A Survey of the Field.....Mrs. E. H. Whitney.
Responsive Exercises.....Conducted by D. H. Kress, M. D.
Presentation of Certificates.
Farewell to Missionary Nurses.
Benediction.

Two days later, November 4, the alumni of the institution gave a reception to the class of 1896-97 in the spacious gymnasium. There were one hundred and seventy-five present — all nurses graduated from this Training-School. The gymnasium was very artistically decorated for the occasion. Short speeches were made by Dr. Kate Lindsay, who had returned from Boulder, Colo., just in time for the graduating exercises; Elder O. A. Olsen; and Dr. J. H. Kellogg. Mrs. Mary S. Foy, in behalf of the alumni, gave the graduating class a hearty welcome.

* * *

HOME-SEEKERS' EXCURSIONS. — On Nov. 17 and Dec. 1 and 15, 1896, the Chicago, Milwaukee & St. Paul Railway will sell round-trip excursion tickets from Chicago to a great many points in the Western and Southwestern States both on its own line and elsewhere, at greatly reduced rates. Details as to rates, routes, etc., may be obtained on application to any coupon ticket agent, or by addressing Harry Mercer, Michigan Passenger Agent, Detroit, Mich.

* * *

LETTERS FROM FARMERS. — In South and North Dakota, relating their own personal experience in those States, have been published in pamphlet form by the Chicago, Milwaukee & St. Paul Railway; and as these letters are extremely interesting, and the pamphlet is finely illustrated, one copy will be sent to any address, on receipt of a two-cent postage stamp. Apply to Harry Mercer, Michigan Passenger Agent, 7 Fort Street W., Detroit, Mich.

DIRECTORY OF SANITARIUMS.

THE following institutions are conducted under the same general management as the Sanitarium at Battle Creek, Mich., which has long been known as the most thoroughly equipped sanitary establishment in the United States. The same rational and physiological principles relative to the treatment of disease are recognized at these institutions as at the Battle Creek Sanitarium, and they are conducted on the same general plan. Both medical and surgical cases are received at all of them. Each one possesses special advantages due to locality or other characteristic features.

ST. HELENA SANITARIUM, OR RURAL HEALTH RETREAT,

ST. HELENA, CAL.

W. H. MAXSON, M. D., Superintendent.
IRVING E. KECK, Business Manager.

THIS institution is beautifully located at the head of the Napa Valley. It is a fine large building, with excellent appointments, and all facilities required for the treatment of chronic invalids of all classes. It has also a record for a large amount of successful surgical work. There are several able physicians connected with the institution. The scenery is delightful, the climate salubrious; the water supply, which is furnished by mountain springs, is pure and abundant. Hundreds of cases of diseases generally considered incurable have been successfully treated at this excellent institution during the twenty years of its existence.

CHICAGO SANITARIUM,

28 COLLEGE PLACE, CHICAGO, ILL.

THIS institution is a branch of the Battle Creek (Mich.) Sanitarium. It is favorably located near Lake Michigan, in the southern portion of the city, close to Cottage Grove avenue, and facing the old Baptist University grounds. A few patients are accommodated. Facilities are afforded for hydrotherapy, and the application of massage, electricity, Swedish movements, and other rational measures of treatment.

NEBRASKA SANITARIUM,

COLLEGE VIEW (LINCOLN), NEB.

A. R. HENRY, President.
A. N. LOPER, M. D., Superintendent.

COLLEGE VIEW is a thriving village located in the suburbs of Lincoln, with which it is connected by an electric railway. College View is the seat of Union College, one of the leading educational institutions of the West. The Sanitarium has a beautiful location, facing the spacious college grounds, and gives its guests the advantages of a quiet, homelike place, combined with appropriate and thoroughly rational treatment. It has a full equipment of excellent nurses, and has already won for itself an enviable reputation in the West.

PORTLAND SANITARIUM,

PORTLAND, ORE.

L. J. BELKNAP, M. D., Superintendent.

THIS institution is beautifully located in the center of the city, in a fine building with spacious grounds; and although it has been in operation scarcely more than a year, it already has a good patronage, and has evidently entered upon a successful career. Facilities are provided for the dietetic and medical treatment of chronic ailments of all kinds. The advantages for treatment include, in addition to various forms of hydrotherapy, electric-light baths, and apparatus for the application of electricity in its various useful forms, manual Swedish movements and massage.

COLORADO SANITARIUM,

BOULDER, COLO.

W. H. RILEY, M. D., Superintendent.

THIS institution is located on a beautiful site of one hundred acres, including a fine mountain peak, and commanding extensive landscape views which, for variety and beauty, can hardly be equaled. The site adjoins the thriving city of Boulder, and is about one hour's ride by rail from Denver, the streets and principal buildings of which are easily discernible from the peaks around Boulder. The equipment consists of a large building especially erected for the purpose, two fine cottages, and every appliance for the application of hydrotherapy, and for the special treatment of pulmonary ailments, to be found in the best establishments of like character. Particular attention is given to the dietetic treatment of patients, and to systematic exercise, in addition to the special treatment for specific ailments. The altitude is between five and six thousand feet, just that which has been determined to be the best for pulmonary troubles. Though but a few months have elapsed since the work of this institution was fairly begun, a large number of persons suffering from pulmonary tuberculosis have already been cured, and are now rejoicing in sound health. The rational hygienic treatment, with the climatic advantages, has proved effective in the cure of cases which, without the combined advantages of these superior measures, must certainly have succumbed to the disease.

GUADALAJARA SANITARIUM,

STATE OF JALISCO, MEXICO.

D. T. JONES, Superintendent.

ADDIE C. JOHNSON, M. D.,
J. H. NEALL, M. D., } Physicians.

THIS institution, established in 1894, is the first and still the only one of the kind in Mexico. It affords, in addition to the unsurpassed climatic advantages of the region in which it is located, facilities for the employment of hydrotherapy, electricity, massage, manual Swedish movements, and dietetics, in the treatment of all forms of chronic disease. The altitude is the same as that of Denver,—from five to six thousand feet. Guadalajara has the advantage of a climate more nearly uniform than any other with which we are acquainted. Located in the tropics, it enjoys almost perpetual sunshine, while its altitude is such as to prevent excessive heat. There is probably no better place on earth for a pulmonary invalid. It is only necessary that the advantages of this institution should become known to secure for it extensive patronage.

INSTITUTE SANITARE,

BASEL, SWITZERLAND.

THIS institution affords the only place in Europe where patients can receive the advantages of a thoroughly hygienic diet, baths, electricity, Swedish movements, massage, and various other methods of treatment, applied after the manner and in accordance with the same principles which govern the Battle Creek Sanitarium and its several branches. The physicians are persons who have received a thorough training in the institution at Battle Creek. Terms are moderate. No better place for sick persons or semi-invalids abroad than the Institute Sanitare.

Address, 48 Weiherweg.

Battle Creek SANITARIUM Health Foods.

GRANOSE cures dyspepsia and constipation. Requires no cooking.

GRANOLA, a delicious, digestible, fattening food, ready to eat at once.

CARAMEL-CEREAL, a delicious, wholesome beverage.

BATTLE CREEK SANITARIUM BREAKFAST FOOD, a physiological mixture of choicest grains, especially prepared. Best of all uncooked cereal preparations.

GERMLESS OATS (Sanitarium brand).

GERMLESS WHEAT GRITS.
GERMLESS CORN GRITS.
CRYSTAL WHEAT, sterilized, ready cooked.
GLUTEN PREPARATIONS.
DIABETIC FOODS.

A large variety of crackers and biscuit and other wholesome preparations.

SUPERIOR CANNED GOODS, WARRANTED PURE.

SWEET WRINKLED PEAS, TOMATOES, AND FRUITS.

Send for catalogue and price list. Send 25 cents for package of samples.

BATTLE CREEK SANITARIUM HEALTH FOOD CO., - - Battle Creek, Mich.

NEW FOOD SPECIALTIES

NUTTOSE, a pure product of nuts. Used in every way like meat, and a perfect substitute for fish, flesh, and fowl, both in taste and nutrient properties.

BROMOSE. Makes fat and blood. Cures constipation and most forms of indigestion. A delicious nut product.

NUT CHEESE. Another pure product of nuts. Resembles cheese in appearance. Delicious, delicate in flavor, highly nourishing. Makes fat and blood. A toothsome delicacy.

LAC VEGETAL. A vegetable substitute for milk. Prepared from nuts. A perfect food in itself. Added to cow's milk, renders it more digestible.

Send 25 cents for package of samples.

Address, for circulars and price list, **SANITAS FOOD CO., Battle Creek, Mich.**

TEN LECTURES ON

NASAL CATARRH

Its Nature, Causes, Prevention, and Cure.

This admirable little treatise is written so plainly and simply that a child can understand it, yet contains all that is latest and freshest in the medical world in relation to this dread disease—the very cream of scientific investigation. Emphatically a book for the people.

Agents will find this an easy book to sell. In fact, it will sell itself.

Contains 120 pages, 11 Cuts, and 7 Colored Plates. **Stiff Covers, 75 Cents.**

GOOD HEALTH PUB. CO., Battle Creek, Mich.

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Those having at any time attended Prof. Magner's classes or having copies of his book, are requested to send their address to him as below. He has something of interest to send them.

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ORIGIN.

WITHIN the last ten years, the necessity for the treatment of certain classes of invalids in properly equipped sanitariums has been thoroughly recognized by the foremost and most conservative members of the medical profession ; and the need of an institution of this sort located somewhere in the Rocky Mountain region, to which physicians could send their patients, with confidence that they would receive kind and intelligent care and scientific treatment, instead of being subjected to the hardships and inconveniences of the ordinary hotel or boarding-house, has frequently been discussed at the annual meetings of the American Climatological Association and various other medical bodies.

For more than twenty years the managers of the Battle Creek Sanitarium have been sending certain classes of patients, particularly cases of consumption, to various points in the Rocky Mountains, to give them the benefit of the well-known climatic advantages of this portion of the United States. The excellent results observed in these cases, under conditions not in all respects the most favorable, have led to the belief that if to this climate could be added the advantages of such care, regimen, and training as are afforded by a first-class sanitarium, still greater and better results might be obtained, and for several years the philanthropic association which thirty years ago established the Battle Creek Sanitarium, has been investigating the merits of the various localities in the Rocky Mountain region, from Wyoming to Old Mexico.

LOCATION.

When it became generally known that the establishment of such an institution in the Rocky Mountain region was contemplated, the promotors were overwhelmed with letters from all parts of this great region, setting forth the special merits of various localities, some of which are already well known to the public, and others which have been less generally advertised.

The leading localities were personally visited by the president of the board, or by special committees appointed for the purpose, and careful comparison made of the respective merits of the various points brought forward for consideration.

In the selection of a locality, special attention was given to the following points : —

1. Altitude. Experience has shown that the altitude of an institution of this sort should be about one mile, or a little more than five thousand feet.

2. Equability of temperature. This required a location near the foot-hills, to avoid, on the one hand, the excessive summer heat of the plains, and on the other, the trying blizzards of winter.

3. Scenic advantages, as a sort of entertainment, and an inducement to exercise and recreation.

4. A location easily accessible, with not too precipitous mountainsides, so as to afford opportunity for exercise in climbing carefully graduated paths on foot or horseback.

5. Ready accessibility by rail.

6. Close proximity to a city, to secure the advantages of an organized community.

7. Protection from the high winds which prevail at certain seasons of the year in mountainous regions.

8. A sterile or non-infected soil, and a locality free from tubercular disease.

Numerous localities were found which supplied two or three of these desiderata, but it was not an easy task to find a single locality presenting in a high degree all these important features. After a long, patient, and expensive investigation, the committee appointed for the purpose of opening this new enterprise finally fixed upon the vicinity of Boulder, as, on the whole, the most desirable location in the entire Rocky Mountain region.

The committee was assisted in making its selection by the fact that it was found that a large proportion of the patients recommended by the Sanitarium management to visit the Rocky Mountain region, sooner or later, without special recommendation or concerted action, found themselves at Boulder ; so that, after a time, there was to be found in that city quite a large colony of these exiles. The colony continued to grow until a demand was made for a boarding-house, where proper diet and nursing could be secured. A considerable number of the citizens of Boulder joined with the invalids in this request, and three years ago, a so-called sanitarium boarding-house was opened in a building hired for the purpose. This little institution soon outgrew its small quarters, making it necessary to hire several additional cottages ; and in a year the number of invalids so increased that a physician was demanded and supplied. Within a month it became evident that much larger provisions must be made for the accommodation of the large number of invalids who were applying for care and treatment.

The committee having selected the site now occupied by the Colorado Sanitarium, it was purchased, and steps taken for the erection of suitable buildings. The Eastern friends of the enterprise contributed about sixty thousand dollars for this purpose.

First of all, two fine, large, three-story, brick, steam-heated cottages were erected. While the main building was in process of erection, these were quickly filled; and as rapidly as rooms could be finished off in the main building, they were also filled with patients, so that at the dedication, July 1, 1896, there were very few vacant rooms in either main building or cottages.

Thus it will be seen that the Colorado Sanitarium is the natural outgrowth of circumstances indicating a real and positive demand.

Colorado has a world-wide reputation as the Switzerland of America. Its Alpine peaks, its picturesque gorges and cañons, are scarcely surpassed even in Switzerland, while its climatic advantages are vastly superior to those of the Little Republic. The dryness and purity of the air, with the almost perpetual sunshine, have saved the lives of thousands who to-day testify by their active usefulness to the virtues of this wonderful climate.

Dining-Room.

The special purpose of the promoters of the Colorado Sanitarium has been to establish an institution at which chronic invalids, especially those suffering from pulmonary tuberculosis, or consumption, may secure the best possible advantages in the recovery of their health,— advantages by the aid of which complete recovery may be expected in nearly all cases in which the disease is still in its incipient stages, and even in a great majority of those in which the malady has made considerable advancement. During the few years which have elapsed since the small beginning of this institution, the number of patients treated has been

sufficiently large, and the success of the measures employed sufficiently great, to furnish foundation for the statement that by the combination of the climate with sanitary advantages, the proportion of cures can be greatly increased.

The institution is not, however, wholly devoted to the treatment of consumptives. It is, like the various other institutions of the same character which have been established under this management, not a money-making enterprise, but a self-supporting philanthropy. The entire profits from the work of the institution will be forever devoted to the improvement of facilities and the treatment of the worthy sick poor.

The city of Boulder is situated a little north of the center of the State of Colorado, twenty-nine miles by rail from the city of Denver, at the entrance of the famous Boulder cañon and two other fine cañons. It is near the far-famed Estes Park, and is surrounded by numerous beautiful mountain lakes, which abound in this region as in no other part of Colorado. It is supplied with an abundance of the purest water, from never-failing sources in the snow-capped peaks.

The Sanitarium buildings are located just in the edge of the city, upon a site of one hundred acres, consisting of two distinct portions,—a gently sloping hillside, and a splendid mountain with peaks and crags and strange, fantastic geological formations resembling those of the far-famed Garden of the Gods. The surroundings are the grandest to be found in Colorado. Lofty mountains tower up almost from its very doors, and the invalid may, in a day's travel up the sides of these mountains, find all the varied climates, from the temperate zone to the Arctic circle. Beautiful cañons and streams of mountain water are on every hand, and this, too, within an hour's ride of Denver, the metropolis of the Rocky Mountain region.

BUILDINGS.

The main building of the institution is one hundred feet in length, and sixty-six feet in width, with a large rear extension. It is constructed with special reference to its use as a sanitarium, thoroughly ventilated, heated by steam and open grates, lighted by electricity, supplied with elevators, electric call-bells, and all modern hotel conveniences. A unique feature is the location of a large, sunny parlor and a capacious dining-room at the top of the building. The kitchen is also located at the top, so that the building is absolutely free from kitchen smells. The drainage and sewerage are perfect, and careful attention has been given to the maintenance of thoroughly aseptic conditions. Altogether, it is believed to be the most perfect structure ever erected for the purpose for which it is designed.

One of the Parlors.

METHODS.

The methods of treatment employed in the institution are such as have been thoroughly tried, and have proved their efficiency in the successful treatment of thousands of

cases of chronic disorders in the other institutions conducted under the same general management as the Colorado Sanitarium. The physicians connected with the institution are men and women who have been regularly educated in the best medical schools of the country, with the additional advantage of post-graduate training, and who have had a broad experience in sanitarium work. The medical work of the institution is conducted in harmony with the ethics of the profession, and on strictly scientific principles.

TREATMENT APARTMENTS.

There are two sets of treatment apartments, one for ladies and one for gentlemen; medicated-air rooms, and other departments for special treatment in all the different lines of medicine. All forms of baths are given, including the electric-light bath, massage treatment, manual Swedish movements, and electricity in every form. In the medicated-air rooms those suffering with bronchial, asthmatic, and other lung troubles can live, if necessary, in an atmosphere particularly adapted to their condition,— an arrangement which affords one of the very best means of medication in all classes of diseases of the respiratory organs.

DIETARY.

In the treatment of all forms of chronic disorders, careful attention to the nutrition of the patient is of fundamental importance. This is emphatically true of those who are suffering from disease of the lungs in any form. Without doubt many cases of pulmonary consumption begin, and are aggravated after the disease is established, by disorders of the stomach and digestive system. The preparation of food and the regulation of diet in each case are matters which receive first attention at the Colorado Sanitarium.

PHYSICAL TRAINING.

The institution is provided with a commodious gymnasium, where, under a trained director, each patient is put through a course of training for the purpose of increasing his breathing capacity, strengthening his heart, and developing his muscular system generally. This forms an important part of the daily program of the average patient.

A Private Room.

Other cases which seem to need it are put upon the rest-cure, with appropriate treatment.

MEDICAL DEPARTMENTS.

Although the prime purpose in the organization of the institution was to provide an establishment in which persons suffering from pulmonary ailments might enjoy, together with the best climatic advantages, the benefits to be derived from all the resources of modern medical science, the management wish it to be distinctly understood that the work of the institution is not exclusively confined to this class, but that the most superior facilities are afforded for the treatment of all classes of chronic ailments. Special departments are maintained for the treatment of diseases —

Of the nose, throat, and lungs.

Of the digestive system.
Peculiar to women.
Of the nervous system.
Of the eye and ear.

Persons with incurable diseases and those which cannot be promptly associated with other patients are not received. The location of the institution has been especially selected with reference to the freedom of the soil and air from infection; and the strictest rules and precautions are observed with reference to the maintenance of this condition. Through the neglect of such precautions, localities once free from tubercular germs have become so thoroughly infected as to cause infection of the well, as well as the reinfection of those who have once recovered. Persons who decline to observe the rules and precautions considered essential are not allowed to remain in the institution.

SURGICAL DEPARTMENT.

In addition to the foregoing, the institution includes a well-appointed surgical ward, with modern appliances, and trained nurses, where thorough asepsis is carried out.

The departments of medical and surgical work are under the supervision of physicians who have had ample preparation for, and a broad experience in, their several lines of work.

LABORATORY OF HYGIENE.

Connected with the sanitarium is a laboratory of hygiene, where bacteriological, microscopical, and chemical work is carried on according to the most approved methods. In this laboratory, examinations are made of the blood and urine of every case which applies for treatment, as an important aid in diagnosis, and bacteriological examinations are made of the sputum of all cases that expectorate.

SOCIAL LIFE.

The social life at the sanitarium is wholesome and cheerful. All connected with the institution as employees are believed to be Christian men and women, and conscientious in their efforts to relieve the suffering. An atmosphere of good cheer and contentment pervades the institution.

Throat and Lung Department.

RATES.

The rates are moderate, varying from $1.75 to $4 per day for board, room, and general treatment, with bath attendant and medical attention. A moderate extra charge is made for special nursing and for office treatment.

General examination, $5.

For further information, address

W. H. RILEY, M. D., SUPT.,

Or, COLORADO SANITARIUM,

BOULDER, COLO.

Battle Creek, Michigan.

JEFFERSON ST., LOOKING SOUTH.

BATTLE CREEK, Calhoun County, Michigan, is a city of about 20,000 population, situated at the confluence of the Battle Creek with the Kalamazoo River. It is 165 miles east of Chicago, 120 miles west of Detroit, and 62 miles east of Lake Michigan, on the main lines of the Michigan Central, the Grand Trunk, and the Cincinnati, Jackson, & Mackinaw railways. It is surrounded by one of the richest agricultural and fruit-raising districts in Michigan. Cherries, apples, pears, plums, and peaches are produced in great abundance, and of the finest quality.

Battle Creek was first settled in 1831, and for over fifty years has steadily grown both in population and as a commercial and industrial center. The fine water-power here makes it a very desirable center for industries of various kinds. It has four flouring-mills, with a capacity for 550 barrels per day ; and two large threshing machine-manufactories.

The Advance Thresher Company was organized in 1886. It has always been an important factor in Battle Creek's growth and prosperity. In point of value of its annual product, it stands second in the United States. The plant covers thirty-five acres in the western part of the city, alongside the tracks of both the Grand Trunk and the Michigan Central railways. Mr. A. W. Wright, of Alma, Mich., president of the company, is widely known because of his great executive ability as well as for his large-hearted philanthropy. Mr. S. O. Bush is vice-president ; Mr. B. T. Skinner, treasurer ; and Mr. James Green, general manager. See their advertisement for further particulars.

The Nichols & Shepard Company, the other thresher manufactory, is located in the eastern part of the city. This is a great industrial concern and has always been prosperous. It is managed by the Hon. E. C. Nichols and David Shepard, both of whom are men of excellent business ability and large experience, Mr. Shepard being one of the original founders of this great industry.

MAIN ST., LOOKING WEST.

The Duplex Printing Company is another very important industry of the city. This company manufactures the Cox perfecting and stop cylinder press. This press prints on flat beds with ordinary type 3500 to 4000 papers per hour. (See their advertisement.) Mr. Jos. L. Cox, the inventor, though still a young man, has attained a national reputation.

The Battle Creek Steam Pump Company was incorporated in 1873, and has kept pace with the growth of the city. This company employs a large number of men, and has a fine business. Mr. Edward C. Hinman is its secretary and treasurer as well as general manager. He is a cultivated gentleman, and possesses rare executive ability.

BATTLE CREEK, MICH.

Among other well-known and rising Battle Creek institutions, is the Ellis Publishing Company. This house established its headquarters here some three years ago, and began the publication of business college text-books and appliances. Their "leader" is the well-known Actual Business System of Business Training, a new method of commercial teaching which has lately come into great prominence in educational circles. The rise of this business house is a fine illustration of American pluck and enterprise. Although it began doing business less than four years ago, it is now one of the best-known firms in its line in the United States.

There are several other manufacturing firms in the city, besides the extensive repair shops of the Grand Trunk Railway, in all employing about 2500 men.

The city has a Board of Trade, composed of representative men. This organization does much to enhance all the commercial and industrial interests of Battle Creek. There is also a Board of Public Works, an appointive body, which has charge of all public improvements, such as the water-works system and sewers. The mayor is an ex-officio member of this board.

There are four banks, an opera-house with 1200 seats, nine churches, and two daily papers, the *Journal* and the *Moon*. The city is well lighted with electricity and gas. It has a fine electric system of street-cars connecting the several parts of the city, and also extending to Lake Goguac, a beautiful body of water about two miles distant. This lake is the source of the city's water supply. Here a stand pipe 132 feet high and steam pumping-works are established, to force the water to all parts of the city. The Fire Department is one of the institutions in which Battle Creek citizens have cause to feel pride. Having the most improved appliances, it is well equipped to battle with fire.

But Battle Creek's chief attraction is its great Sanitarium, which has given the city a world-wide reputation as a health resort. A description of this wonderful institution will be found elsewhere in this issue of GOOD HEALTH.

The educational facilities of the city are as fine as any in the country. Here is situated the Battle Creek College with its extensive buildings and elegant equipment; and the city High School is reputed for its high standard. The system of graded schools is kept at the highest mark of progressive education.

ADVANCE THRESHER CO.,

BATTLE CREEK, MICH.

The above cut illustrates an
ADVANCE COMPOUND STRAW-BURNING ENGINE.
Write for Illustrated Catalogue, if interested.

MANUFACTURERS of a complete line of Threshing Machinery.

SIMPLE AND COMPOUND TRACTION ENGINES,
For burning Coal, Wood, or Straw.
SEPARATORS,
AUTOMATIC AND WIND STACKERS,
BAGGERS,
WEIGHERS,
BAND CUTTERS, and
SELF FEEDERS, Etc., Etc.

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Translators for German, French, Danish, Swedish, Holland, and Spanish.
Edition work a specialty.
Estimates furnished on application.

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THE TWO REPUBLICS.—By Alonzo T. Jones. Of great importance to every American citizen. A comparative history of the two greatest republics, Rome and the United States. The study of years and elaboration of many volumes are presented in a concise and pleasing manner. In reviewing the history of the Roman Republic, the rocks upon which she stranded have been clearly pointed out, and the dangers are indicated that our country may rapidly travel the same road of the ancient republic. It contrasts the principles underlying enforced religious observances, with the true principles of religious freedom for every man, which are guaranteed by the Constitution of the United States. The "Two Republics" comprises 896 octavo pages, is illustrated with 67 full-page engravings, and will be sent post-paid in the following bindings at prices opposite:—

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Thin paper edition, plain edges	1.85
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Issued also in the German language.

GLORIOUS APPEARING.—A brief treatise on the Second Coming of Christ. The work takes up Christ's great prophecy of his own coming, and the signs of the times are clearly pointed out in their relation to that event. The book is attractive, interesting, timely, and instructive. Issued in English, German, Danish, and Swedish. Price, post-paid, in any of the above languages—

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Battle Creek, Mich., and Atlanta, Ga.

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Headquarters for

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Our Specialty is Our Cloaks—

For Ladies, Misses, Children, also House wrappers. The largest and most complete line in the city is at

MARR & DUFF'S,
40 AND 42 W. MAIN ST.

FOR FALL AND WINTER

We have prepared a most attractive line of

Men's, Boy's, and Children's Clothing, Furnishing Goods, Hats, Caps, Gloves, and Mittens,

which in every particular sustains our well-merited reputation. We are, as we always have been, **A REPRESENTATIVE HOUSE,** studying the wants of the trade. All we ask is an opportunity of convincing you.

M. MAAS, - 3 W. Main St.

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CAPITAL, $300,000.

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Magee, and Steel Ranges, Mantels,

GRATES, AND TILE HARDWARE.

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DRY GOODS

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L. W. Robinson's, Trump Block.

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Gold Crown and Bridge Work, Regulating Irregular Teeth, Making Obturator Plates for Cleft Palates, and Gold Filling a Specialty.

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Palace Laundry

of Battle Creek, Mich., is the Finest and Best Equipped Laundry in the City.

Is the best place to leave your laundry while stopping in the city. We do laundry work for guests of the Sanitarium.

LAUNDRY,
33 EAST MAIN STREET.
TELEPHONE 22.

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S. I. ABBEY, Prop'r.

169 Champion Street, South Side. Telephone 11.

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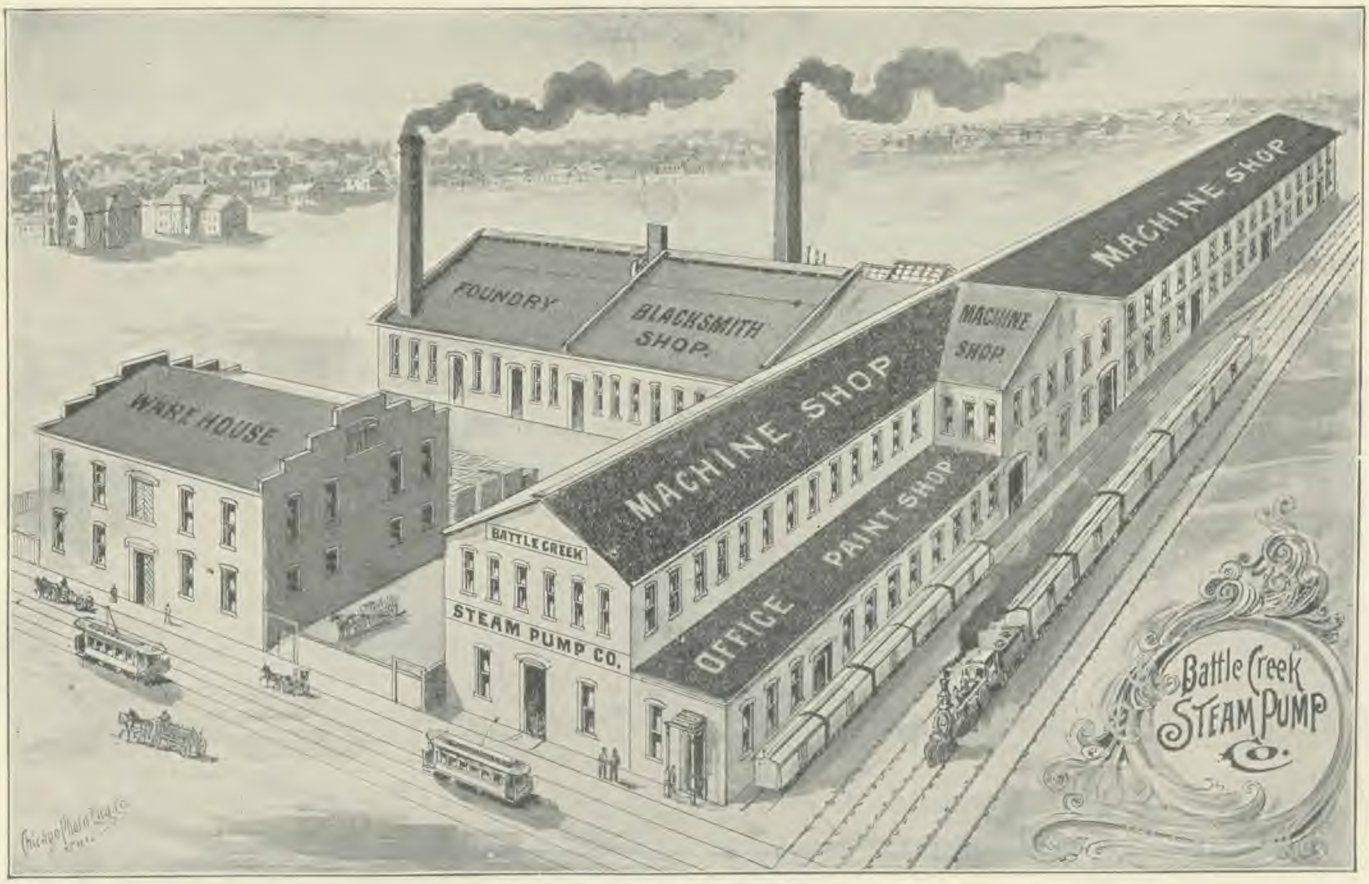

GRAND TRUNK RAILWAY SYSTEM

(CHICAGO AND GRAND TRUNK DIVISION.)

Time Table, in Effect March 20, 1896.

GOING EAST. *Read down.*					STATIONS.	GOING WEST. *Read up.*				
10 Mail Ex.	4 L'v'd Ex.	6 Atl. Ex.	42 Mixd Tr'n.	2 Pl. H Pass		11 Mail Ex.	1 Day Ex.	3 R'd L'v'd	23 B. C. Pass.	5 P'fic Ex.
a m	p m	p m				p m	p m	p m		a m
9.00	3.10	8.15	a m	.....	.....D. Chicago. A.....	6.45	1.50	9.10	.....	6.30
11.25	5.05	10.30	6.00	.....	.....Valparaiso.....	5.05	11.35	7.10	.....	4.30
p m										
1.05	6.30	12.00	10.05	.....	.....South Bend.....	3.10	10.15	5.44	.....	3.07
1.46	7.12	12.45	12.40	.....	.....Cassopolis.....	2.15	9.40	5.13	.....	2.25
2.33	.....	1.33	3.42	.....	.....Schoolcraft.....	1.20	.....	.....	.....	.....
2.44	7.25	1.48	4.30	a m	.....Vicksburg.....	1.10	8.52	.....	p m	1.30
3.30	8.36	2.40	6.20	7.00	.....Battle Creek.....	12.15	8.15	3.55	4.05	12.50
4.33	9.26	3.25	.....	7.47	.....Charlotte.....	11.11	7.23	3.07	3.14	11.55
5.10	9.55	4.00	.....	8.20	.....Lansing.....	10.40	6.55	2.40	8.00	11.15
6.30	10.45	5.03	.....	9.30	.....Durand.....	9.35	6.05	1.55	6.50	10.25
7.30	11.17	5.40	.....	10.05	.....Flint.....	8.35	5.35	1.28	5.47	9.30
8.15	11.50	6.15	.....	10.43	.....Lapeer.....	7.49	5.02	1.00	5.10	9.05
8.42	a m	6.35	.....	11.06	.....Imlay City.....	7.28	.....	.....	4.48	.....
9.50	1.00	7.30	....	12.05	.....Tunnel.....	6.50	3.5	11.55	3.50	7.55
	p m					a m	a m	a m	p m	p m
9.25	.....	.....	.....	.....	.....Detroit.....	.....	.....	10.40	4.05	8.00
	a m	p m					p m			p m
.....	8.15	5.25	.....	.....	.....Toronto.....	.....	9.20	.....	.....	1.00
	p m	a m					a m			
.....	8.15	7.25	.....	.....	.....Montreal.....	.....	9.15	.....	.....	.....
	a m	p m					a m			
.....	8.12	7.15	.....	.....	.....Boston.....	.....	8.30	.....	.....	.....
	a m	p m					p m	a m		p m
.....	7.50	4.25	.....	.....	.....Susp'n Bridge.....	.....	10.15	7.05	.....	2.05
	a m	p m								p m
.....	7.00	5.40	.....	.....	.....Buffalo.....	.....	.....	.....	.....	1.00
	p m	a m					a m	p m		p m
.....	8.53	8.03	.....	.....	.....New York.....	.....	8.15	6.10	.....	9.00
		a m								p m
.....	.....	10.20	.....	.....	.....Boston.....	.....	.....	.....	.....	7.00

Trains No. 1, 3, 4, 6, run daily; Nos. 10, 11, 2, 23, 42, daily except Sunday.

All meals will be served on through trains in Chicago and Grand Trunk dining cars.

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Way freights leave Nichols eastward 7:15 a. m.; from Battle Creek westward 7:05 a. m.

† Stop only on signal.

A. R. Mc INTYRE,
Asst. Supt., Battle Creek.

A. S. PARKER,
Pass. Agent, Battle Creek.

MICHIGAN CENTRAL

"The Niagara Falls Route."

Corrected Sept. 27, 1896.

EAST.	8 *Night Express.	12 †Detroit Accom.	2 †Mail & Express.	10 *N. Y. & Bos. Spl.	14 *Eastern Express.	22 Accom.	36 *Atl'ntic Express.
Chicago	pm 9.40		am 6.50	am 10.30	pm 3.00	pm 4.15	pm 11.30
Michigan City	11.25		8.48	pm 12.08	4.50	6.20	am 1.19
Niles	am 12.33		10.15	1.00	5.55	7.10	2.38
Kalamazoo	2.10	am 7.20	11.52	2.08	7.16	9.05	4.12
Battle Creek	2.55	8.10	pm 12.50	2.42	7.55		4.53
Marshall	3.2	8.3	1.20	3.09	8.19		5.24
Albion	3 4	9.00	1.45	3.27	8.40		5.48
Jackson	4 3	10.00	2.35	4.05	9.20		6.30
Ann Arbor	5.0	11.05	3.47	4.58	10.17		7.35
Detroit	7.1	pm 12.20	5.30	6.00	11.20		9.00
Falls View					am 5.23		pm 4.08
Susp. Bridge					5.28		4.23
Niagara Falls					5.53		4.37
Buffalo				am 12.10	6.45		5.30
Rochester				3.00	9.55		8.40
Syracuse				5.00	pm 12.15		10.45
Albany				8.50	4.50		am 2.50
New York				pm 1.45	8.45		7.00
Springfield				11.10	8.34		9.33
Boston				3.0.	11.35		10.45

WEST	7 *Night Exp. ess.	15 *N.Y. Bos. & bf. Sp.	3 † Mail & Express.	19 *N. Shore Limited	23 *Weste'n Express.	13 † Kalam. Accom.	37 *Pacific Express.
Boston		am 10.30		pm 2.00	pm 3.00		pm 7.15
New York		pm 1.00		4.30	6.00		9.15
Syracuse		8.30		11.20	am 2.15		am 7.20
Rochester		10.37		am 1.20	4.10		9.55
Buffalo		11.45		2.20	5.10		pm 3.25
Niagara Falls					6.18		4.06
Falls View					6.45		4.42
Detroit	pm 7.50	am 6.30	am 7.15	8.30	pm 12.55	pm 4.45	11.05
Ann Arbor	9.10	7.35	8.43	9.25	1.55	5.55	am 12.15
Jackson	10.45	8.35	10.48	10.30	2.57	7.35	1.25
Battle Creek	am 12.00	9.48	pm 12.15	11.40	4.14	9.11	2.55
Kalamazoo	12.50	10.27	1.07	pm 12.17	4.52	10.00	3.40
Niles	3.10	11.48	3.10	1.45	6.27		5.03
Michigan City	4.26	pm 12.50	4.32	2.45	7.25		6.01
Chicago	6.30	2.40	6.35	4.30	9.05		7.50

*Daily. †Daily except Sunday.

Trains on Battle Creek Division depart at 8.10 a. m. and 4.35 p. m., and arrive at 12.25 p. m. and 6.35 p. m. daily except Sunday.

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SOLID VESTIBULED TRAINS BETWEEN

Cincinnati, Toledo, Detroit, and Chicago.

Best Route to Battle Creek from Cincinnati, Louisville, Nashville, and all Points South, connecting in Union Depots at CHICAGO and DETROIT for BATTLE CREEK.

Fast Time, Excellent Equipment.

THE SCHEDULE.

9.00 a. m.	9.15 p. m.	Lv.. ..Cincinnati....Ar.	6.45 a. m.	6.00 p. m.
3.25 p. m.	3.55 a. m.	Ar.....Toledo.....Lv.	11.45 p. m.	11.35 a. m.
5.45 p. m.	6.15 a. m.	Ar.....Detroit.....Lv.	9.40 p. m.	9.15 a. m.

CHICAGO LINE.

8.10 a. m.	8.10 p. m.	Lv.....Louisville.....Ar.	7.40 a. m.	6.50 p. m.
8.30 p. m.	8.30 a. m.	Lv.....Cincinnati ....Ar.	7.30 a. m.	9.05 p. m.
7.30 a. m.	5.30 p. m.	Ar..... Chicago.....Lv.	8.30 p. m.	9.00 a. m.

Through Coaches and Wagner Parlor Cars on Day Trains.
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Win Love at First Sight

and hold it captive.
Bicycling should be pure happiness.
It's sure to be if you ride a

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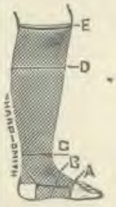
Of the most perfect Seamless Heel Elastic Stockings, Knee Caps, Shoulder Caps, Armlets, etc., for



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Swellings,
Varicose
Veins, etc.

Abdominal Supporters.

DEFORMITY APPARATUS

Artificial Limbs, Crutches,

Trusses, Invalid's Furniture.

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To Thousand Islands, Rapids of the St. Lawrence, Adirondack Mountains, Canadian Resorts, White Mountains, Portland, and the New England Coast.

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Fully descriptive of the Summer Resorts of the North and East and profusely illustrated, sent for ten cents postage.

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Battle Creek (Mich.) Sanitarium

HEALTH FOODS.

EAT GRANOLA AND GRANOSE
DRINK CARAMEL CEREAL
Established 1876

Food Cure for Constipation.

AN inactive state of the bowels is one of the most common causes of many serious maladies. Chronic headache, biliousness, hemorrhoids, backache, and perhaps more serious constitutional ailments, may be readily attributed to habitual constipation.

Mineral Waters, Laxatives, "After-Dinner" Pills, do not Cure.
Orificial Surgery does not Cure.

Constipation is due, in the majority of cases, to errors in diet, and hence can be best cured by diet. An excellent remedy for this common malady has been found in **GRANOSE**, a new food recently invented at the Battle Creek Sanitarium, where it is extensively employed as a food remedy in many forms of indigestion, especially in cases of constipation.

GRANOSE CURES CONSTIPATION, not by producing a laxative effect, but by removing the cause of the disease. Granose is prepared from wheat. It is not a medicine, but a food so delightfully crisp, delicate, and delicious, that everybody likes it. **TRY IT.**

A well-known Boston merchant writes of Granose: "The Granose is splendid; everybody is after it at our table."

For Circulars, etc., address BATTLE CREEK SANITARIUM HEALTH FOOD CO., Battle Creek, Mich.

J. FEHR'S
"COMPOUND TALCUM"
"BABY POWDER,"
The "Hygienic Dermal Powder" for Infants and Adults.

Originally investigated and its therapeutic properties discovered in the year 1868 by Dr. Fehr and introduced to the Medical and the Pharmaceutical Professions in the year 1873.

COMPOSITION.—Silicate of Magnesia with Carbolic and Salicylic Acid.

PROPERTIES.—Antiseptic, Antizymotic, and Disinfectant.

USEFUL AS A GENERAL SPRINKLING POWDER,

With positive Hygienic, Prophylactic, and Therapeutic properties

GOOD IN ALL AFFECTIONS OF THE SKIN.

Sold by the Drug Trade generally. Per Box, plain, 25c.; perfumed, 50c.; Per Dozen, plain, $1.75; perfumed, $3.50.

THE MANUFACTURER:

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Only advertised in Medical and Pharmaceutical prints.

Battle Creek Sanitarium,

The Oldest and Most Extensive Sanitarium Conducted on Rational and Scientific Principles in the United States

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Special Advantages:

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BATHS OF EVERY DESCRIPTION.
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PNEUMATIC AND VACUUM TREATMENT.
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A FINE GYMNASIUM,
With Trained Directors.

CLASSIFIED DIETARIES.
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PERFECT SEWERAGE.
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