OCTOBER, 1896.

GOOD HEALTH

CONDUCTED
BY

J. H. KELLOGG M.D.

Subscription price $1.00 PUBLISHED MONTHLY.

GOOD HEALTH, VOL. 31, NO. 10.

CONTENTS.

BATTLE CREEK, MICH., October, 1896.

GOOD HEALTH
A JOURNAL OF HYGIENE
MENS SANA IN CORPORE SANO.
VOL. XXXI. NUMBER 10.
BATTLE CREEK, MICHIGAN. OCTOBER, 1896.

ZOOLOGICAL HEALTH-STUDIES.

BY F. L. OSWALD, M. D.

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

10. Winter Life.

IN the household of Nature every problem has evolved its solution, and in high latitudes the process of natural selection has achieved the semi-miracle of supporting animal life in the temporary absence of atmospheric warmth.

There was probably a time when all life was limited to the neighborhood of the tropics. The slow advance of spring from the equatorial regions to the borders of the arctic circle is a symbol of the still slower pole-ward migration of plants, beasts, and birds; and millions of the latter still evade the inconveniences of the frosty season by a periodical return to the evergreen woodlands of their original home.

Millions, not of plants only, but of reptiles and insects, choose the alternative of clinging close to the heart of their mother earth. Not all beetles take their winter rest in the arms of death. As far north as Denmark and upper Michigan, the peasant's plow turns up drowsy refugees from the rigor of the outside world; ants and crickets hold the fort of existence for a number of years; worms retreat to the nethermost penetralia of their tunnels; chrysalises, in their filmy teguments, sleep as in a silken cradle. Deeper down, in a network of forest roots, serpents hide, coiled up, alone or in family associations; lizards, newts, and frogs nestle in clefts, and try to preserve the spark of life by a minimum expenditure of vital energy.

Quite a number of mammals combine this plan with that of their more active relatives. They hide in burrows, but keep on the safe side of the boundary that divides slumber from lethargy, and contract their folded limbs only to elude the grasp of a life-endangering frost. But a plurality of the higher animals hold with the medical philosopher Haller that life is motion. They seek shelter only from the fiercest storms, and brave ordinary frosts in reliance on the marvelous protective tissues that surround the citadel of life as with a rampart of tempered air. Co-operative strata of fat, skin, downy wool, and hair keep the children of the wilderness fairly comfortable when thousands of human city dwellers are sustained chiefly by hope.

Animals, it is true, meet inevitable evils with the silence of stoicism, but nobody who has watched a herd of deer frolicking in their winter camps, or witnessed the gambols of Canadian hunting-dogs in a bank of snow, can doubt that for many of our fellow creatures the pleasures of existence outweigh its sorrows, even in the coldest weather.

During a protracted spell of hard frosts our instinct-guided fellow creatures, however, avoid every wanton waste of animal warmth. They shun the touch of cold water; hunted deer will run the risk of a hostile ambush to reach a distant ford rather than cross an icy river by swimming. Coons stick to their dens in hollow trees; elks and moose-deer huddle together in sheltered glens; and with the rarest exceptions all our vertebrate fellow beings leave the mountains at the very time when the mountain-cure cranks would persuade us to brave winter frosts in a highland camp. It must be ad-

mitted that the prescription serves its main purpose. The keen mountain wind penetrates tent canvas at every breath, and expurgates the lungs of the campers for weeks to come, but the whole plan is, nevertheless, a compromise with superstition, its popularity being merely based on the circumstance that to the eye of prejudice a closed tent is less abhorrent than an open window.

It requires lengthy disquisitions on the miraculous virtues of ozone, the "frost-chastened exhalations of the pine-woods," and what not, to make consumptives submit to severe discomforts, at an expense of twenty dollars a week. A new lease of life, no doubt, is cheap at any price, but it is absolutely certain that the same sanitary results could have been obtained in the lowlands, free of cost,— as certain as that Charles Lamb's antediluvian swineherd could have enjoyed roast-pork dinners without going to the trouble of burning down a series of pigsties.

Birds sleep with their heads tucked under their wings, just as dogs curl up, *nez au queue*, or hibernating beetles with all their extremities folded back upon a common center; and the misinterpretation of those facts has given an air of plausibility to all sorts of strange and mischievous mistakes. Some twenty years ago Northern Europe was seized with a "respirator" craze. For epidemic ubiquity, if not for persistence, it beat the tractor mania and the blue-glass delusion. From Moscow to Paris the streets of frost-harrowed cities were crowded with salvation-seekers, wearing facial appendages resembling the muzzle of a vicious dog — woven-wire contrivances of various shapes and sizes, fastened in front of the mouth, or covering both mouth and nose like a burglar's black mask. Rival patents, with slight modifications, sprung up, floated by advertisements too absurd for protracted effectiveness; but I must confess that the pamphlet of the original inventor staggered my skepticism. "Nature herself," he said, "points out the best method for avoiding the deadly dangers of breathing cold air. We cannot carry stoves everywhere. But we can make the warmth of our own organism temper the air we inhale. Sleeping birds bury their beaks in the warm down of their feather mantles; dogs, bears, weasels, and foxes sleep with their snouts pressed against the skin-folds of their groins. Nature has also equipped the males of our species with a mouth-protecting beard, while the stay-at-home females were not favored with that supplement to the cutaneous safeguards. Animals habitually breathe through their noses, and the air they inhale, in its passage through the respiratory tubes of their long necks, is thoroughly warmed before it reaches the lungs. The respirator is an inexpensive and effective substitute for all these life-protecting contrivances of the animal organism."

There followed the usual assortment of testimonials,— "a few of the thousands of voluntary endorsements we receive every week,"— and on the whole the array of arguments was really hard to resist, though it did seem a little queer that running dogs, or birds flying at arrow-speed against the wind should be able to breathe the coldest air with impunity. But, on second thought, the mental field of vision becomes crowded with more serious objection, like Ossian's mountain meadow with warning ghosts. If beards were intended to lessen the "deadly danger of breathing ice-cold air," why were they bestowed in such abundance on the natives of sunny Persia and Arabia, on Spaniards, Greeks, and Turks, and denied to the dwellers of the polar circle? And moreover, does the hirsute badge of virility serve the alleged purpose at all? Can we doubt that nature could have found means to obviate the supposed peril far more effectively, by masses of down covering the whole front of the face, or by some intermediate organ of respiration warming the inhaled air for the lungs, as the paunch of ruminants and the crop of birds prepare food for the stomach proper? The "respiratory tubes of the neck" transmit cold air in a second, and we find that long-necked mammals — camels, giraffes, antelopes — are peculiarly a product of the tropics, while the musk-ox of the far North has next to no neck at all, and Northern rabbits cannot compete with the African jumping-hares and jerboas. And as for birds, do not the parrots and toucans of the summerland regions bury their beaks in the down of their feathers, as well as the sparrows and crows of the North? Is it not probable that the rationale of that habit can be found in the necessity to rest the muscles of the neck, and in the desire to exclude sleep-disturbing noises and gnats?

Sleeping dogs, too, merely follow the habit of their wolfish progenitors and of countless other wild animals, who at night try to economize vital energy and warmth by assuming, approximately, the position of the trance-slumbering young during their prenatal existence. Doubled up, with all their extremities folded inward, they present a minimum of surface to the searching frost-wind, and can preserve the vital spark more easily for the same reason that a heated ten-pound cannon-ball will keep warm longer than a heated ten-pound gridiron when the two are placed side by side in the draft of an open porch.

A she-wolf, ranging the snow-covered highlands in search of food, breathes in the course of a week a monster balloonful of iced-air without the least pulmonary detriment; and, by the way, are not women, too, the principal food foragers of primitive nations? Have they not to supply the camps even of semi-civilized nomads with wood and water? and shall we be asked to believe that nature would have denied them a much-needed safeguard against constant danger? And what about beardless boys and their passion for outdoor sports? Is it not highly probable that the male beard is, like the luxurious whiskers of the wanderoo ape, and the mane of the lion and the gelada baboon, partly an ornament and partly a protection against the attacks of throat-tearing beasts?

In short, is there a vestige of a conclusive argument in support of the idea that the breathing of cold air has to be avoided as a menace to lungs and life? Have lung diseases anything whatever to do with the influence of a low temperature? It is a fact known to every Canadian hunter that the respiratory organs of deer and mountain-sheep that have braved the terrible winter storms of British North America, are as sound in March as in midsummer.

"Oh — they are naturally catarrh-proof," comments the champion of the night air superstition.

Are they? It so happens that actual experiments have established the fact that deer and *Cimarons* ("bighorn sheep") are extremely susceptible to the contagion of epidemic catarrhs, and apt to die like epizoötic-stricken horses after being confined a few weeks in an ill-ventilated stable.

For similar reasons such woodbirds as jays and cross-bills generally perish in captivity, while owls survive. In Northern Italy almost every farmer keeps an *alocco*, or tame hooting owl, as a decoy for small migratory birds that gather about to have a little fun at the expense of their natural enemy without suspecting the artificial perils of the lime-twig.

These *aloccos* ("loch-vögel" the Germans call them) live for years in the ill-ventilated hovels of their proprietors, because the owl, like the fox, the dog, and that other Italian pet, the marmot, is naturally a cave-dweller, and through an infinite series of generations has learned to shift with a minimum of oxygen. Men and, with few exceptions, monkeys, succumb to the microbe-haunted atmosphere of the artificial caves called houses. One of these exceptions is the gelada baboon, or dog-faced mane-ape. In the Fairmount Park menagerie near Philadelphia, a male of that species, "Henry Ward Beecher," as the facetious Quakers had called him, lived more than twenty years. The managers of the Cincinnati Zoo had the same good luck with a pair of lemurs, or night-apes, kept for long years in the cage near the first left-hand corner as one enters the Quadrumana house by the front door. Should it be accident that both the gelada and the lemur are naturally cave-dwellers? The mane-baboon retreats far into the caverns of the Abyssinian highlands to avoid the bittter frosts of the winter nights, and night monkeys sleep away the glaring daylight hours in hollow trees, where a not-quite-reliable instinct admonishes them that the evening is near, since, as Professor Baker tells us, they sometimes crawl out during the darkness preceding a thunder-shower, and glare all around like peeping babes in the woods.

With those exceptions, all the numerous mammals that brave the winters of the wilderness, perish in well-warmed, ill-aired dwellings,— the quicker for every rise in the temperature of the stagnant atmosphere. Previous healthfulness of surroundings confers no immunity in this respect; the wild chimpanzee succumbs as swiftly as the child of the slum-dweller; the freeborn mustang, on being transferred to a stuffy livery-stable, has no chance to survive the wheezy huckster's jade. And vice versa, lung-sick animals to whom the drugs of the veterinary hospital bring no relief, recover in the keen air of a winter sanitarium as promptly as consumptives in the previously mentioned highland camps. Would it not be well to establish these facts by a series of systematic experiments, in order to solve the riddle of the man-devouring sphinx, and once for all, determine the actual cause of consumption?

(To be continued.)

WHY SHE LIVED SO LONG.— A French lady who recently died at Fontainebleau at the age of ninety years, left a clause in her will which very much disturbed her heirs. It read thus: "I leave to my physician, whose intelligent care and wise prescriptions have insured me such long life, the contents of the old oaken box which stands in my dressing-room, the key to which will be found under the hair mattress of my bed." When the box was opened, it was found to contain all the drugs, powders, and medicines of various sorts which the physician had prescribed for the lady during the last twenty years of her life, and which she had carefully preserved instead of taking.

HEALTH PRESERVERS OF THE NATIONS.

THE lemon, brought from India sometime in the fifteenth century, now grows throughout the countries bordering on the Mediterranean, and in the Azores, the Canaries, and most tropical lands of the New World. The lemon-tree is very sensitive to cold, and prefers warm, sheltered ground, provided that it is plentifully supplied with water. Constant irrigation, both winter and summer, is indispensable to the tree. Under very favorable conditions it lives to a great age, and attains dimensions truly surprising. At the bottom of a quarry sixty feet deep, near Syracuse, Sicily, there is growing a lemon-tree as large as a hundred-year oak. The valuable properties of the lemon are well known. The juice, the rind, the oil, all subserve useful purposes in connection with food, medicine, and perfumery. The name comes from the Arabic word *limun*. A fruit very similar to the lemon, but more intensely acid, is the lime. In this country, it is seldom seen except in the pickled form. It is, however, much more toothsome when preserved. The fruit is gathered while green, in order that the rind's exquisite aroma may not be lost, is boiled with sugar and spice, and put into small kegs for export. Sometimes the pulp is removed, and the fragrant rind is incrusted with sugar. Brazil furnishes most of this fruit-confection. It is the most delicious of all conserves. Most of the bottled lime-juice sold in our shops comes from the West Indies.

The finest lime-tree gardens in the world are on the little island of Montserrat, a British colony. No sight more beautiful can be imagined than these lime-orchards, numbering sometimes one hundred and fifty thousand trees, when laden with their bright fruit, the glow and verdure being unequalled even by the orange groves of Southern Europe. The lime-leaf is so aromatic that it is used in the West Indies to perfume the water in finger-glasses. The production of fruit is very large. When ripe, the best limes are selected, and cut into slices by machinery. The juice is then extracted by means of heavy presses, and strained. It is conveyed in casks to England, where it is bottled for export to other countries. The refuse from the presses with the inferior fruit are, by other treatment, made to yield citric acid, which is as useful in the arts as the juice is in medicine. Crops are gathered at intervals all the year round, but the heaviest harvest comes in the fall months. This inestimable fruit can be grown in this country. A rich reward awaits the owner of the first successful lime-plantation in the United States.

The pomegranate is no stranger in the marts of our large cities. It was a familiar and valued fruit in the earliest historic times, as is shown by the frequent references to it in the Old Testament. The flowers of the pomegranate are deep crimson in color, and are brilliant beyond description. In the time of the patriarchs, the young Hebrew ladies employed the opening buds as ear-drops. The fruit has a large number of seeds, each imbedded in a little transparent bag of rose-colored pulp. The cells containing the seeds are built together in a manner so remarkable that, botanically considered, the pomegranate stands alone. The juice of the sweet variety of this fruit assuages thirst in the most delightful manner; scarcely anything is more agreeable to the fever-stricken. Scented with rose-water, and cooled with snow from the mountains, this juice forms the delicious sherbet of the Levant. The fruit is a native of Persia, but became known in Europe at a very early date, and now flourishes in all the sub-tropical countries of both hemispheres.

That old, old land in which so many civilizations have arisen and decayed, the country known to us as Hindustan, or India, made a priceless present to the inhabitants of the tropics in sending the banana across the Arabian Sea. This fruit is the daily bread of many thousands of people all the year round. It supplies them also with a pleasant drink, with a medicine, and with materials for clothing. It is the product of a very beautiful plant. From its superb leaves, six to nine feet long, there is spun fine, strong thread, which may be woven into cloth suitable for wear in hot climates. In South America, in Africa, and in the Pacific Islands, banana leaves are employed for roofing the huts of various tribes. Rope is made from the plant's fibers. The top of the stalk is boiled and eaten. No other plant provides man spontaneously with so lavish an abundance of food.

A great naturalist, Humboldt, calculated that a given space of ground planted with bananas would produce one hundred and thirty-three times as much food-substance as the same area sowed with wheat. A banana cluster weighing over one hundred pounds is not an infrequent sight on our wharves, and the plant bears fruit every month in the year. Bananas to be exported are taken green from the tree; ripe ones would rot before reaching our markets. Nine tenths of the bunches are green when they arrive here. As soon as possible they are hung up in large chambers heated by gas, the temperature being kept

at 70° F. Heat from any other source will shrivel the fruit, or ripen it too quickly. This mode of ripening fruit is employed in the winter only. In late spring, the fruit is allowed to ripen naturally. In the hotter months, it is hung up in cellars. Bananas are divided by dealers into four grades, the finest quality being called "Golden Veils." In a cargo of fifteen thousand bunches, there will be only from two hundred to four hundred bunches of this grade. Next to the "Golden Veils" are "No. 1's," then come "Eight Hands," and the cheapest are styled "No. 2's." The last class are the ones sold by fruit peddlers. Millions of dollars are invested in the banana trade. — *E. A. Beal, M. D., in Current Literature.*

A HEALTHY VIEW OF LIFE.

ONE of the first conditions of health is a healthy view of things. If it be true that the sick body makes the sick mind, it is equally true that the sick mind makes the sick body. A sickly view of the world will go far to make the world sickly. If we could expel the idea that the planet is a dungeon, we should do something to make it a pleasant home. . . .

It has been the fashion to exaggerate the conscious and the unconscious wretchedness of mankind. This disposition to take a morbid and depressing view of mortal experience is exaggerated by the natural craving for human sympathy. It is pleasant to share the fellow-feeling of our kind, and the condition on which that fellow-feeling is obtained is almost always suffering. Suffering, more than anything, excites interest and compassion. Our word "sympathy," expresses fellowship in suffering. We have no similar word to express fellowship of joy. The happy are presumed to be sufficient in themselves. They neither invite sympathy nor welcome it. They can live alone. Suffering is the condition of interest and compassion. The consequence is that people will feign suffering for the sake of the compassion and the interest it excites. They make themselves out to be more miserable than they are,— affecting to be unhappy when they have no right to be, and are not; dwelling on sorrows they never know, and classing themselves among the wretched, with whom they have nothing in common. . . . The class of purely sentimental sufferers is enormously large. The make-believe anguish is the loudest anguish.

The effect of this prejudice is increased by the great vividness of impression that suffering makes on the mind. Happiness hardly makes an impression. We do not think of the sunshine, but of the cloud that for a moment veils it. Health causes no sensation, but the momentary derangement of health discolors the earth. Millions of easy breaths are drawn in delicious atmospheres unheeded. The involuntary suspension of the breath for a few seconds is a horror that seems interminable. For years our nerves respond to our will, and there is no sensible rub or grind in the working of the organization. This is the rule of experience, so regular as not to be taken into account, but the agony of a fractured bone or a disordered brain converts the earth into a hell. Years of domestic or personal felicity pass by unheeded, but the sickness or death of a member of the household causes a shock that dislocates the order of the universe, and unsettles the very throne of God.

The sting of an insect gives a keener sensation than all the delights of sensitive being; and the stopping of a valve leaves a deeper mark on the memory than the mercies that are new every morning and fresh every evening. A grain of suffering, while it lasts, will outweigh a ton of peace; and when it has ceased, it may offer a point for morbid recollection to hang on, and excited imagination to feed on, when myriads of purer but unheeded emotions have vanished and left no trace.

The fact is that in a large view of the world, on any adequate or rational scale of relation and proportion, suffering is to be reckoned a comparatively small element in the experience of mankind. It requires but a little common wisdom and honest allowance to reduce it to a very narrow compass, in the vast whole of things. A few truthful figures, if there were room for them, would be more than a match for the treacherous fancies that are ever at work covering the walls of the world with pictures of woe. The argument from statistics suggests the fact that life overwhelmingly exceeds death; that one death in twenty-five is an enormous ratio, which only the worst-reputed cities can produce; that consequently the causes that lead to death, the pangs that accompany it, the misery that is consequent on it, the horrors and desolation of which it is the parent, must be reckoned on the same scale, and must be counted small in comparison with the vitality by means of which communities are im-

pelled toward happier states. But this argument from statistics, strong as it is, does no justice whatever to the demonstration that nature presents in favor of the preponderance of joy.

For it must be remembered that there are no statistics of happiness. There are tables of disease, but no tables of health; tables of sadness, but no tables of gladness. Figures tell how many persons commit suicide or murder; how many become idiotic or insane; how many are driven by poverty, misfortune, or passion to crime; how many perish by violence, how many by cold and starvation, how many by war, pestilence, and famine; but figures do not present to us the manifold shapes of pleasure, the myriad forms of satisfaction, the abounding and exuberant joy of contentment which evinces the deep-seatedness of the merciful life-producing laws. The census sums up in brief and terrible enumerations the morbid symptoms of humanity. Could there be a census of humanity's vital dynamics; could there be a condensed statement of humanity's gratifications; could there be the briefest summary of the constant unthought-of healthfulness and sanity of mankind, the report would be too bulky for a nation to print. . . .

Suffering really occupies a small place in the experience of mankind. In every life it occupies a small place. The attacks of it are short and they are infrequent. How few of the years of a life-time are years of suffering! How many of the three hundred and sixty-five days in the year are suffering days! How few hours in the twenty-four that constitute a day are hours of suffering! The actual impressions of suffering are soon effaced. Physical pain is forgotten almost as soon as it is over. Hunger and thirst leave scarcely a trace on a healthy mind. The recuperative powers spring gaily to their task. The bare spots are covered over, the sore spots are healed. If one sense is taken away, the others become more acute; one member perishes, and the other members do double duty. The human organization teems with possible members which crop out like branches from a living trunk. The element of suffering must duly keep its appointed place. It shall not trespass an inch on the domain of health and joy. If it assumes for a time huge dimensions, the opposing elements assume huge dimensions also, and the heavenly kindness is vindicated. . . .

Suffering is not so deep and vital an element in existence as it has been imagined to be. Happiness is the rule of experience. The perpetual ministries are those of joy. The command is not to be gloomy but to be cheerful, to be hopeful, glad, believing, to have faith in air and sunlight, in duty, and beauty, and recreation. All creation conspires with health; and we meet the purposes of creation when we run away from darkness and discouragement, cultivate a cheerful mind, and make sure that we serve heaven by getting as much of it as we can into our bodies and lives.—*Journal of Hygiene.*

DISEASE GERMS IN THE AMERICAN OYSTER.

Dr. Dujardin-Beaumetz asserts that oysters collect and transmit dangerous microbes more readily than any other article of food in common use. Dr. Dujardin-Beaumetz is one of the most eminent of French physicians and scientists.

He has discovered that the ordinary oyster forms an ideal microbe trap, and is especially adapted for communicating typhoid fever and other disease germs. The healthy oyster is in the habit of lying for hours with its shell open to catch any food which may drift to it.

It is generally recognized that water is probably the most dangerous of all mediums for transmitting various kinds of microbes. A multitude of animal and vegetable growths showing active life are often found to be in water as clear as crystal. If water comes in contact with animal waste, organic or nitrogen-containing substances, it is very likely to absorb them to a dangerous extent. An oxidization of the decomposing matter immediately follows, forming carbonic ammonia and nitreous acids. These soon develop into salts of nitric acid, which of course render the water unhealthful. It can readily be understood how germs may drift into the oyster in this way, attach themselves, and thrive on some portion of the oyster within.

La Medecine Moderne, the well-known French medical journal, reports an interesting series of experiments recently made in France to test this theory. It was found that one cubic centimeter of oyster juice produced, after being treated by the agar culture, some 1,500,000 colonies of microbes. The majority of these were disease germs, most of which are exceedingly dangerous.

It was also found that oysters decompose more rapidly in the human stomach than any other form

of ordinary food. This means that no other food is so likely to communicate infection by setting up the fermentation and decomposition of other foods. The oyster is therefore doubly dangerous because of this quality and its habit of carrying large numbers of microbe forms.

The most eminent medical authorities in France declare that the oyster should never be eaten by persons with feeble digestive powers or those suffering from dilatation of the stomach or similar complaints.

The bacilli of typhoid which are found in such large quantities in ordinary oysters, are very innocent looking creatures. They grow in long strings which, under a powerful microscope, look not unlike long, slender straws. These grow rapidly, and on reaching a certain length, divide into thousands of shorter sections. These in turn grow rapidly and break up, and so the process is repeated indefinitely.

Typhoid germs are very likely to appear in decaying animal or vegetable matter, as in city sewage drained into rivers or bays. They are carried along by the million by the current or the tide, and so may readily find their way into the open mouths of oysters. When they have once succeeded in finding a resting-place of this kind, they multiply with astonishing rapidity.

Probably the most curious and picturesque of all the microbes that make their home in oysters are the species of pathogenic bacilli which comes from decayed fish. The position of the oyster in the water naturally tends to collect these germs. These forms emit a phosphorescent glow which is so bright that they may be photographed by their own light. —*N. Y. World.*

Canon Farrar as a Total Abstainer. — Dean Farrar, of Westminster, who is one of the most prominent, as he is also one of the best known clergymen in the Church of England, tells in the following words why he, some years since, became a a total abstainer from all species of intoxicating liquors: —

"Ten years or more ago I became a total abstainer because I was easily convinced that the use of alcohol was not a necessity; and a great deal turns upon that. I saw, for instance, that whole nations had not only lived without it, but had flourished without it. I saw the remarkable fact that there were some twenty thousand persons in England who, though many of them had made themselves mere funnels for drink, though most of them had been accustomed to drink from their childhood, yet the very day that they entered the gates of a prison all drink was entirely taken from them; and there was not a single instance on record in which any of them had suffered in consequence. On the contrary, men who have entered prisons sickly and hideous wrecks have been made compulsorily sober by act of Parliament, and after a few months left prison hale and strong and hearty; and women who have been put into prison in a perfectly abandoned condition, after a short period of confinement, have left prison with the bloom of health and almost of beauty.

"All these proofs and many others convinced me very speedily that it was not necessary for me to continue to touch any form of alcohol. It was the great philanthropist and politically wise Benjamin Franklin who used the words, 'Temperance puts wood on the fire, meal in the barrel, flour in the tub, money in the purse, contentment in the house, and clothes on the bairns.' Well, then, coming to these conclusions, believing that total abstinence would tend to simplicity of life, to health, to strength of body, to clearness of mind, to length of days, I saw that for me at any rate, it became a desirable thing to give up alcohol altogether; and I did so for these reasons, with perfect gladness, and without ever having suffered in consequence of the fact so much as even a single day." — *The Voice.*

Fatty Degeneration. — In consequence of the devitalized condition of the blood through the continued use of alcoholic drinks, the blood is found to contain too large a supply of fatty globules, and this surplus is deposited around the organs, unfitting them for good work. Sometimes this fat takes the place of the tissues of the organs and muscles. This condition is called fatty degeneration, and terminates disastrously. It results from the use of the lighter drinks, particularly beer and ale. This is why beer drinkers are always languid — their muscles are absolutely weakened by this fatty deposit, while their increased size does not indicate health. Beer is considered harmless, because it contains so small an amount of alcohol — four to eight per cent.; but the large quantity taken daily by those who are addicted to its use, puts into the system, in a given time, even more alcohol than is consumed by those who indulge in the stronger drinks. — *Scientific Temperance Bulletin.*

THE SCIENCE OF COOKERY AND THE FOOD SUPPLY FOR INSTITUTIONS.— One of the first cooking-schools to be established in this country was the "Mission School of Cookery" in Washington, in 1879. So successful has that proved, in the course of the past fifteen years, that its influence has reached the school authorities, and cooking is henceforth to be made a part of the course of the Washington public schools. The last report of the "Charitable and Reformatory Institutions of the District of Columbia" gives a history of this school and its present status. Cooking has been a part of the curriculum of the Boston public schools for many years, and other cities have also adopted this method of conserving the health of the community. There can be no question that the health, temperance, and consequently the happiness, of the people of this country are greatly influenced by the poor cooking which is altogether too prevalent. But it is not only in the homes that this evil is to be found. All sorts of institutions feel the need of improvement in methods of cooking and in the food supply.

Fun has always been made of those fussy invalids who weigh their food, and attempt to eat only such things as will supply certain necessary elements of nutrition. Instead of laughing at the idea, it would be a wholesome plan to incorporate it among methods of administration, if judiciously handled. The Massachusetts Institute of Technology has done a great deal of experimentation in this direction. These scientific investigations have been applied practically in the preparation, on a large scale, of nutritious cooked food, which is at the same time so palatable that it commands a ready market. Many varieties of soups and broths are made, leguminous foods which require long, slow cooking are baked and boiled, and bread and cooked grains of all kinds are offered for sale. During the World's Fair a branch of this work was carried on at Chicago in the "Rumford Kitchen." From there it was transplanted to the woman's department of the University of Chicago. The superintendent of the great hospital for the insane at Kankakee, Ill., having seen the success of this scientific supply and preparation of food, engaged an expert for six months, to rearrange the dietary for his two thousand or more inmates. The same expert has for the last year been overhauling the dietary of the Massachusetts general hospital, to the very great satisfaction of nurses, patients, and doctors. When the cooking-schools of the country educate a generation of women who shall know how to prepare food so that it is agreeable to the palate, adapted to the system, and at the same time economical for the purse (which combination is entirely possible), there will be fewer dyspeptics and less intemperance in the land, and hospitals and asylums will feel the therapeutic advantages coming from this source.— *The Charities Review.*

THE CHINESE VEGETARIAN.— The Chinese are often referred to by vegetarians as a living example of the superiority and excellence of vegetarianism, and as proving, at least, that man can live without meat. To this the non-vegetarian responds: Just look at the Chinese. If you were correct in your assertions that vegetarianism is making mankind better, how about the morals and customs of these excellent vegetarians? Can you conceive of lower and more hideous morals than those of the Chinese?

A closer study of the subject proves that vegetarians are wrong in pointing out the Chinese as a good example of this mode of living, and also that the non-vegetarian is wrong in drawing the conclusion that their vegetarian habits are responsible for their moral condition. The food of the Chinese does not consist exclusively of rice, maize, etc., without any meat; and there is not a single religious or ethical command which forbids the use of meat to any of the four castes. Only strictly orthodox Buddhists consider the use of meat as sensual, and the slaughter of animals as showing ingratitude for the good services rendered to agriculture by the buffalo and the ox. But these strict Buddhists are found very seldom in China, because the religious customs of the Chinese have become, during the last century, a mixture of Confucianism, Taoism, and Buddhism, and the general religion of the people teaches nothing concerning abstention from meat. We also find only a few orthodox Buddhists who do not chew the betel-nut or use opium. The poorer class of the people eat only twice a day; those better situated, eat three times; and in the time of the planting of rice, even four or five times. China, with its many lakes and seas, has an abundance of fish, and the inhabitants use them as food to a great extent. The wealthier class use all other kinds of meat, as pork, beef, mutton, and fowls, besides cheese and eggs. Their consumption of tea and brandy is enormous. It cannot be said that intemperance is a common vice in China, but the Chinese fully recompense themselves by using opium. — *Sel.*

ACCORDING to *Current Literature*, half the world's product of quinine is used in the United States.

IS ALCOHOL A STIMULANT OR A NARCOTIC? — This question has aroused considerable controversy among scientists in the past. While it has been settled satisfactorily to those who have thoroughly investigated the matter, difficulty and error still exist in the minds of many, arising from the varying definitions and applications of terms.

A tonic may be defined as that which is capable of adding to the strength. Some medicines are tonic in their effects because they contribute to the system elements that are needed to secure vitalized blood. Fresh air, wholesome food, and proper exercise are nature's tonics, because these give to the blood elements and conditions necessary to build up the various parts of the body, whether in early growth or to restore waste occasioned through action. The elements and conditions thus furnished increase the actual strength of the individual.

Any substance, whether food, drink, or medicine, which has the power to make one feel stronger temporarily, without adding to the permanent strength of the body, is a stimulant.

These terms — *tonic* and *stimulant* — in connection with alcohol, have, unfortunately, been used interchangeably, resulting not only in confusion of knowledge, but positive and deplorable error. The idea prevailed for years that alcohol was a stimulant (in the false sense of creating strength) in small quantities, and a narcotic in large doses. The term "stimulant" means *goad*. We may, with a whip, goad a tired or even exhausted horse into extra work, and he will, for a time, seem to have gained strength; but it is only calling into use the small amount that remains. As a result, the horse is more exhausted than before. A wasp in his coat sleeve may stimulate a sick man to vigorous action. In no sense, however, can it be said that the whip and the wasp create strength; they simply call out the *reserve force*. — *Scientific Temperance Bulletin*.

THE life of Mme. Chevillard, of Villegardin, France, who has just celebrated her one-hundredth birthday, is a great triumph for vegetarian principles. The aged lady has never eaten meat, but has lived wholly on bread, milk, fruit, and vegetables.

THERE is a lesson in the show window of a St. Louis druggist. The window is advertised as containing nothing but poisons. Among its contents are Paris green, arsenic, morphine, laudanum, face powder, playing-cards, cigarettes, and whisky.— *The Youth's Companion*.

STUDY HEALTH.— We often hear of persons who have studied medicine,— and this is a very important study,— but there are persons who have studied medicine, who have not studied sense; though they may know much about medicines, they know but little about the diseases they seek to heal. There are others who have not studied medicine, nor yet disease, to any great extent; but they have studied health. They do not know the symptoms and names of all diseases, nor do they know the nature and power of all remedies; but they do know in a general way the conditions of health; they know approximately what things make people sick, and to a degree they know how people who have been made sick can get well. Persons who do not study medicine, and do not study disease, but carefully study health, learn many things which mere students of medicine or disease may never know. They learn how to avoid many diseases which learned physicians fail to cure. They learn how to nourish and restore the forces of nature, and thus rebuild constitutions which have been damaged by indulgence, by excesses, by overexertion, and various transgressions of physical law.

The study of disease opens a vast field. There are multitudes of diseases which the ordinary medical man never sees. The study of medicine opens a field of exceeding breadth. There are different schools of medicine and thousands of different remedies of various classes, some useless, some useful, and some exceedingly harmful. It is a life-work to study medicine or to study disease, and few ever become experts in these departments; but the study of health is something which every person can undertake and prosecute as he has opportunity, and he will find it an easy, agreeable, and useful study, the very first lessons of which will be of use to him as soon as he has learned them. By studying health and caring for it, many would escape disease and avoid premature death.

By all means study health. If you do not know how to cure the sick, learn how to keep well. If you do not know where all the rocks in the channel are, see to it that you know where the deep water is, and keep in it. Most of our diseases we bring upon ourselves, and if we will take care of ourselves, we shall avoid them.— *Rev. H. L. Hastings*.

A COMMENDABLE decree has been issued in the German principality of Waldeck forbidding the issuance of a marriage license to an habitual drunkard, unless satisfactory proof of reformation be produced.

HYGIENIC TREATMENT OF NERVOUSNESS.— There are many causes of nervousness and many methods of benefiting the sufferer, but there is one cause and one cure too much neglected. The cause to which we refer is lack of discipline, lack of self-control of the nervous system. Even persons in otherwise good health become nervous and frustrated whenever obliged to encounter any new and trying experience. There is timidity, want of courage, lack of will-power, and so the person is unbalanced, and cannot act as he would like to act. There is probably some defect of structure in the nervous system, some region of cells not well flushed with blood at the bottom of the infirmity. In too many cases the person submits to this defect of character, and goes through life lame and halt. His life is less useful than it would be, were the nervous weakness removed.

The cure in all such cases is discipline, training, — such discipline and training as will alter the structure of the nervous system, so that it will do the work required of it. Let the person put himself or herself under such training as will compel doing what ought to be done, and persevere till the end sought is attained. Much of the nervousness which is the result of disease can be treated in the same way better than by medicines. Sleep, good food, good bathing, exercise in the open air are all required in addition, but the most important part of the treatment will be self-mastery.

This brings us to the subject of education, and many are beginning to think that it should consist in great part in such activities as will so alter the structure of the nervous system that it will be able under all circumstances to act as it ought to act. This, rather than the accumulation of a fund of information, much of which may be erroneous, is at least a most important part of education. If this is not given, its object has not been accomplished.— *Journal of Hygiene.*

CHRONIC COFFEE INTOXICATION.— Coffee intoxication is manifested principally by disturbance of the digestive organs and of the nervous system.

Dyspepsia from coffee poisoning resembles very much, in its symptoms, the phenomena that accompany alcoholic gastritis, with mucous discharge in the morning, pain in the epigastric region, coated tongue, and great loss of appetite, the loathing of solid food being such that finally little more is taken than bread soaked in coffee.

By the continuance of this habit the absorption of the poison is increased, and the intoxication is more and more marked. Nausea and vomiting, acid eructations, sometimes very painful, follow, and the habitué becomes much emaciated, and falls into the condition which Guelliot calls "coffeeic cachexia."

The organs of circulation are affected. The condition most frequently noticed is an unusually slow pulse. Palpitation is rare.

Nervous disturbances are frequent, and in regard to importance must be placed in the same class with the disturbance of the digestive organs.

Wakefulness supervenes; and when sleep occurs, it is interrupted by horrid dreams, or those of a character which give rise to the suspicion of alcoholism.

Sometimes there is a very noticeable trembling in both the upper and lower limbs, a quivering of the lips and of the tongue, which may become general, with violent twitching in the other muscles of the face. Very painful cramps occur in the large muscles of the legs.

There is often disturbance of sensation, but in some cases this is not very well marked.

Disturbances of the genito-urinary organs have been observed, though they are not frequent. In children a marked defect of development has been observed.

The different forms of intoxication from coffee are not persistent. The discontinuance of the use of the poison is rapidly followed by improvement, which is certainly much more rapid than when the intoxication arises from the use of alcohol.

As may be seen, these disturbances deserve the attention of the physician, and their recognition is of the highest importance, since when the cause is known, it is sufficient only to stop its use in order to find the effects disappearing rapidly.— *The Sanitarian.*

HEALTH AND MORALS. — Slowly the physician is being recognized as the man who sees the connection between health and morals: it is the physician who may point out the degree of personal responsibility. He is the one who must show to the patient that there is a difference between nervousness and bad temper; that recovery from either is a matter of educated self-control. That resistance to impulse is dependent upon health is now known to every intelligent man and woman; that the physical contour of the brain is the written record of the strength and weakness of a man's resistance we are only beginning to learn. That every impulse to sin, to weakness, even of manner, cuts its way so that the second impulse to a similar act meets with that much less

resistance, science has proved. The moral educators of to-day are not the preachers only, but those who, knowing the complex relations of the physical man, can help him to morality through physical perfection. — *Sel.*

THE SUN AND THE DOCTOR. — The *Hospital* says: "Where the sun does not go, there goes the doctor. All sorts of diseases, from consumption down, are mitigated or cured by sunlight and pure air. Watch for the sun, for life and health dwell in the sun's beams; and when it is shining, open every window in the house until it goes down again. There is every reason to believe that the germs of such diseases as scarlet fever, diphtheria, typhoid fever, and other such deadly enemies, are entirely destroyed by strong sunlight. Not only, however, has the sun the power of making germs die, but it is equally endowed with the potency of making men live. Let every man and woman make sure that not only themselves, but also their children and their servants, shall have the fullest opportunities of taking in unlimited quantities of the inexpensive but life-giving sunshine."

THE MODERATE DRINKER AS A BUSINESS MAN. — A writer discussing the question of drinking and total abstinence from a practical, business point of view, says: Life insurance companies find the moderate drinker a more dangerous risk and his mortality greater; hence refuse to insure him at ordinary rates, if at all. Mercantile agencies find that business conducted by moderate drinkers is more precarious, and followed by a greater number of failures; hence rate such firms low as to responsibility. Railroad companies find that accidents and losses increase under the care of moderate drinkers; that the income and stability of the road are diminished, compared with the same service by total abstainers. Capital everywhere discovers, by figures and statistics, which have no other meaning, that under the care and control of moderate or excessive drinkers the losses, perils, and risks of business are increased. — *Sel.*

THE MODERATE USE OF ALCOHOLIC DRINKS. — The most serious and well-known results are, of course, from the effects of excessive use. But in the moderate use of these drinks there is constant danger, as has been demonstrated a countless number of times, that the "moderate" may grow into the immoderate use. Even the continued moderate use of alcoholic drinks is almost certain to lead to some of the many forms of disease which are ready to invade some portion of the body that has had its processes of nutrition for a long time thus disturbed. If we now add to this the constant imminent danger of the growth of an already abnormal appetite for such drinks until it leads to excess in their use, which is so revolting in its every aspect, is there not enough to deter one from even a moderate cultivation of this dangerous appetite?

ALCOHOLIC DRINKS. — The most serious and widespread derangement of the natural tastes is that caused by alcoholic drinks. Alcohol has been demonstrated to be a poison. Its continued use, even in what are called moderate quantities, paves the way for many diseases, some of which are sure to overtake those who practise using drinks with alcohol in them.

A RECORD kept at Yale for eight years shows that non-smokers are twenty per cent. taller, twenty-five per cent. heavier, and have sixty per cent. more lung capacity, than smokers. An Amherst graduating class recently showed a still greater difference, the non-smokers having gained twenty-five per cent. in weight, and thirty-seven per cent. in height, over the smokers, and also exceeding them in lung capacity. — *New York Tribune.*

MY experience leads me to take a decided stand against the use of stimulants and narcotics of all kinds, from tea and coffee on the one hand, to tobacco and alcohol on the other. The idea that one gains by stimulating body and mind by artificial means betrays, in my opinion, not only ignorance of the simplest physiological laws, but also want of experience, or perhaps want of capacity to learn from experience and observation. — *Dr. Nansen.*

NARCOTICS. — There are a number of poisons whose use the body at first endures, though with considerable protest, but which finally have the effect of cultivating a demand for the poison that generally ends seriously or fatally. Among the most dangerous of these is morphine, which appears in many forms of medicine. The morphine habit is fully as dangerous as the alcohol habit. The tobacco habit, while it does not compare with the liquor and morphine habits in the seriousness of its results, is of no benefit, is a great and useless expense, and is often the direct cause of a derangement of the healthy actions of the body. Its use has been demonstrated to be especially dangerous to the young.

THE NATIONAL NEED OF VITALITY AND POWER.

THE first object in view in the training of our children should be to make sure that the childhood and youth are spent in such a way as to best train the individual to face modern life. The great need is stronger and more enduring nervous systems, more vitality; therefore, we should see that our public schools make the conservation of vitality the matter of first concern. Our greatest hope with reference to increased vitality lies in a reformation of the ideals of our whole public school system. That which the children of cities need more than any one thing is vitality and power. They need to grow up to be whole, complete individuals, strong physically, and with enduring nervous systems, that have been trained by long-continued and vigorous muscular work; by hearty and whole-souled play; by outside air and sunshine, as well as by the more subjective work of text-book and class-room. Accordingly, the first thought with reference to the education of children should be this one with reference to the vigor and vitality of the pupil.

The kind of reformation of which I speak can only be accomplished by a clear comprehension of the fundamental nature of these subjects by the teachers, and the co-operation of all, from the school board down. It means that every teacher shall be concerned that every pupil sits well in the class-room, and stands well during recitation; that every class-room shall be thoroughly ventilated and lighted; that there shall be brief intervals utilized for deep breathing and such other exercises as can be well taken in the class-room. It means that there shall be connected with every school a suitable playground, and that there shall be systematic effort made to induce all the children to use these grounds with vigor and enthusiasm. If necessary, there might be arranged a course of games which should increasingly demand muscular effort and co-ordination, and thus the education of the neuro-muscular mechanism would come to be regarded as definitely a part of the object of the schools. Such attention to this subject is not impracticable; it is already done in some schools, particularly in England.

This does not necessarily mean less real progress with reference to any subject; and even if it should, the value of vitality must not be compared with anything else excepting character. Our first need is more power. With power the individual can do anything; without power he can do little. The reformation of our whole public school system, the dawn of which we are already seeing, is the first tangible step which we see with reference to the accomplishment of that which shall maintain our vitality, and which shall build up for our children nervous systems which can endure the stress of these times.

The second and only other great factor which I shall mention as looking to the remedy of the present situation is found in our changing conception of the nature of religion. Our divines are coming to see that upon the maintenance of physical vitality and health must be built the structure of character, and that the service of God includes what has been called the religion of the body; that the laws of God obtain as much in regard to the material as to the psychical elements in our nature, and that it is as much a sin to be sick or weak as to do wicked things. We serve the cause of the world by being strong and living the full physical life as well as by being true and noble and living the full psychical and spiritual life. The service to our fellow men demands our whole selves. This changing consciousness in regard to the scope of religion we

regard as one of the most hopeful signs of the times. If the day shall come, as I hope and believe it will come, when from every pulpit in the land there shall be preached the gospel of wholesomeness when the divine obligations of living in accord with the laws of our physical as well as with those of our psychical natures shall be recognized, then we shall with increasing obedience come into increasing life, both bodily and spiritual.

This step is, however, an intangible one, and must perhaps largely be left to work itself out; but toward the reformation of our public schools and the insistence that they shall place the vitality and power of the pupil as the first object to be concerned by education, let us bend every endeavor. In the election of our superintendents of education and of our school boards, and in proper pressure through the press, let us insist that this thing shall be put first; for unless we do,— unless we succeed in securing stronger nervous systems than the world has to-day, the increased stress and strain of modern life will result increasingly in the various forms of nervousness, of decreased vitality, of failing power, of degeneration, and of consequent weakness and immorality, which are by many regarded as one of the characteristics of the age.—*Luther Gulick, M. D., in Physical Education.*

THE BICYCLE FOR RHEUMATISM.

RECURRENT attacks of acute inflammatory rheumatism, continued through many years, caused me to grow continually stiffer and clumsier. With the hope of retaining a reasonable use of my muscles, it was my habit to walk between my home and my place of occupation, a distance of nearly three miles. But the time arrived when I felt inclined to do but half the distance, and finally I did that with more or less inconvenience. I was fifty-five years of age, but knew that I was physically sound, and had not a doubt that I should be vigorous, but for rheumatism.

In July of the year past, my kind-hearted coworker made to me what seemed the most ridiculous of all possible suggestions: he advised that I try riding a bicycle. Consider my age and my stiffened muscles, my inability to walk far with any comfort, and judge what my chances were to ride so crazy a vehicle as a bicycle, a born wobbler and dodger, a typical jolter even of sound bones and healthy muscles.

But however ridiculous the suggestion at first appeared, it was rational at its foundation. If only I could drink enough water daily, and free it, chiefly through the skin, there was much more than a hope of opening my choked-up sewers and eliminating the almost insoluble residues which stiffened my anatomy.

At the end of ten evenings spent at the bicycle school, I had taken but the usual five lessons, but I then moved to the asphalt the scene of my falls and bruises; and in due time I was at evening among the riders over the smooth roads of the park. Not only had I grown somewhat less clumsy and stiff, but from added enjoyment of life I judged that my health was actually better. Pleasurable exercise in the free air, with profuse perspiration, was accomplishing effects already beneficial. Moreover, I knew precisely how to pass the evenings until summer had gone, and my family had returned to the city.

The park course is one and a half miles in length, — a level road around a lake. I rode there during evenings, rode and drank water and perspired profusely. As I grew stronger, greater distances were accomplished, until at the end of a month I easily and pleasurably would ride as many as ten miles within the usual two hours. After a bath, I slept the sleep of a tired child, and awoke refreshed and light-hearted. And best of all, I was getting the best of my enemy. Not once did I permit myself to ride until tired, or to attempt heavy hills, or to ride rapidly for short distances; neither did I attempt any of the tricks which sooner or later bring to grief riders both young and old.

At the end of ten weeks from my advent into the park, or about the middle of October, a friend and myself started from Newark, Delaware, to ride down the peninsula. We made thirty miles the first day, and fifty miles the second day, and by that time I knew that I had been on a bicycle. We made fifty miles on the third day, and I had another inspiration — I knew that I could ride fifty miles daily over a good road, with enjoyment of every hour of the time; and yet three months ago I was in effect a cripple who had no pleasure in walking even a single mile. Here was indeed a miracle!

It was our delayed summer holiday, and it proved as happy a one as either of us had ever enjoyed.

One of us was regarded as an invalid, the other as a cripple, but we contrived to enjoy almost every one of the two hundred miles to Cape Charles. The sandy stretches were grateful when one fell from his perch, and we did not object to them.

During the past winter, there were but few days in which I could not ride to and from my work, a total distance of six and a half miles; and now I can walk with the best of them, and can and do enjoy riding as many miles as the average rider cares to make in an afternoon. I am not at all conscious of any rheumatism.—*L. A. W. Bulletin.*

Athletic Excess.—A wise critic says: Athletes who have overdeveloped certain sets of muscles at the expense of others, men who have acquired a stoop from constantly bending, people who have weakened the heart by violent exercise, should be criticized severely for making gymnastics a menace instead of a means to health. The impression they produce is most painful. A gymnast must show in his own body that he has benefited by his training in order for us to admire his cleverness. One is often inclined to disapprove altogether the idea of such exhibitions as degrading to the art of gymnastics. . . . Nothing so satisfies the esthetic eye as a well-developed body, responding to the will in executing difficult movements and tests of strength. There is beauty in rounded limbs and youthful contours, but the beauty of a clean-cut muscular figure, evincing in every line strength and vigor, has a far more potent attraction than anything the disciples of Delsarte find admirable. Only when a gymnast can prove that he is an all-round athlete will the scientific physical trainer heartily approve of his giving exhibitions of his skill; for then he has attained harmonious physical culture, and shows himself as a model for others to imitate.

Nothing better could happen for the cause of legitimate physical education than to have the public taste cultivated to expect greater all-round perfection.—*Sel.*

A good example of the advantages of oxygen over respired air was strikingly illustrated a few years since by Dr. Winship, who, under favorable circumstances and conditions, could lift twenty-five hundred pounds. He had been talking to a large audience upon physical training, when he attempted to lift with one finger a barrel of flour that had been placed upon the stage, but found himself unable to accomplish the undertaking. Samson was shorn of his strength. He readily apprehended the reason. He had the windows thrown open, and after a few respirations "Richard was himself again," and the feat was accomplished.—*Sel.*

The Educating Power of Danger.—A writer on high mountaineering thus praises the good effects of danger in this pursuit: —

"There is an educative and purifying power in danger that is to be found in no other school, and it is worth much for a man to know that he is not 'clean gone to flesh-pots and effeminacy.' It may be admitted that the mountains occasionally push things a trifle too far. But grim and hopeless as the cliffs may sometimes look when ebbing twilight is chased by shrieking wind and snow, and the furies are in mad hunt along the ridges, there is ever the feeling that brave companions and a constant spirit will cut the gathering web of peril.

"Something may surely be urged in favor of a sport that teaches as no other does, endurance and mutual trust, and forces men occasionally to look death in its grimmest aspect frankly and squarely in the face. Among the mountains, as elsewhere, 'the unexpected always happens.' It is the momentary carelessness in easy places, the lapsed attention or the wandering look that is the usual parent of disaster."

These words are worth remembering. There seems to be something enchanting in danger, and especially is this so to boys. What man now in mature life does not remember the dangers to which, as a boy, he has voluntarily exposed himself; and, after all, parents may comfort themselves that there is less danger to life in these dangers than in being shut entirely away from them. Danger educates boys to be careful, and this is very important to them in later years.—*Sel.*

The Effect of Alcoholic Liquors and Tobacco on Physical Exercise.—The main object of physical exercise is to get our bodies into such a condition, and to keep them in that condition, whereby the average amount of working power can be utilized at any time without harm to the bodily health. To keep up this amount of physical power and endurance we must be obedient to certain great laws of health. One of these laws, which can never

be violated with impunity, is that which forbids the use of alcoholic liquors and tobacco. Strong drink and tobacco will put to naught the most elaborate system of physical training.

Those who train athletes, baseball and football players, oarsmen, and all others who take part in severe physical contests understand this, and rigidly forbid their men to touch a drop of alcoholic drink, or even to smoke or chew tobacco. Experience has proved beyond all doubt that strong drink is a positive injury, either when men are in training for or undergoing contests demanding long-continued physical endurance. The same law holds good in the ordinary physical exercises of every-day life. Alcohol and tobacco act as poisons to the nerve force which controls the muscles, and thus lessen the amount of muscular power and endurance.— *Scientific Temperance Bulletin.*

Exercises for Flatfoot. — Hoffa, professor of surgery at Würzburg, recommends the energetic massage of the leg and of the sole of the foot, with exercise taken in an erect position, the toes touching, and the heels as far apart as possible. The order of the movements in the exercise is as follows: Raise the heels, flex the knees; then extend the knees and sink the heels, repeating. In standing and walking, the inside of the foot should be elevated as much as possible. The feet should be kept as nearly parallel as possible in walking. Do not allow the foot to rest upon the whole plantar surface at any time. Wear a metallic in-sole so shaped as to raise the inside of the foot and give it its natural arch.

Sitting.— Students, and all who sit much of the time, should take great care to sit erect, and never in the lazy attitudes that rest upon the lower spine, and compress the bowels. I used to think that the right to sit on my backbone and put my feet higher than my head was one of the liberties that my Revolutionary forefathers fought and died for; but I have since learned that it is a liberty we may die for ourselves.

Let us briefly inquire what may be done for those who are deformed, and whose shape is fixed by cartilage hardened with age. . . . It is only required to spend fifteen or twenty minutes in the morning, when one has little clothing to clog the movements, and the same at night, in exercising the muscles that are not often used, and especially in bending the deformed spine back to its natural shape. And often during the day the chest must be raised high, the abdomen drawn firmly in, and the lungs slowly filled with air, and slowly emptied. By these means Mr. Edwin Checkley, who was a feeble child, and is still a small man, has attained wonderful health and endurance, and is able to lift three common men and run with them. Who is there that cannot raise the chest, contract the abdomen, and take long breaths? And this, often repeated, will in time cure deformity, enlarge the lungs, and ward off an army of diseases.— *Frederic M. Heath, in "Why Do Young People Die?"*

Horseback vs. Carriage Riding.— There is a system of massage which, under favorable circumstances and conditions, cannot be surpassed. It is horseback riding. Lord Palmerston, who acknowledged much indebtedness to this mode of invigoration, is credited with saying, "The outside of a horse is the best medicine for the inside of a man." But there are many invalids for whom this mode of motion is too heroic, who may be greatly benefited by the gentle vibrations of a carriage.

If the weather is cold, they should be well wrapped, and the carriage should be open. Many who are greatly in need of fresh air ride in closed carriages, and thereby subject themselves to the repeated respiration of the same air, loaded with poisonous emanations from their own bodies. They seem not to know that in confined air their own breath becomes their worst enemy, whether it be in the closed carriage or in the closed rooms of their homes.— *The Sanitarian.*

Effect of Muscular Exercise on Nervousness. — President Eliot of Harvard College, speaking of the effect of muscular exercise on nervousness, tells how he has been benefited. Those who are inclined to nervousness might adopt the same method with equal benefit. He says: —

"I have always had a fair amount of muscular strength; but the chief value of this strength to my intellectual life has been that muscular exercise calmed my nervous system and enabled me to endure nervous strains better than many of my contemporaries, who had but little muscular development. A moderate amount of muscular exercise in the open air, such as one gets in riding, rowing, or sailing, corrects nervous irritability and exhaustion. If one has not the muscles, he cannot get the corrective. In short, a moderate muscular development acts as a sort of balance-wheel to the nervous spring which drives the intellectual life."

DIET FOR CHILDREN.

BY MRS. E. E. KELLOGG.

A VERY large proportion of the mortality among young children results from dietetic errors which proper knowledge and care on the part of those who have them in charge might commonly avoid.

No solid food or table-feeding of any kind should be allowed to a child until it has the larger share of its first, or milk, teeth. Even then it must not be supposed that because a child has acquired its teeth, it may partake of all kinds of food with impunity. It is quite customary for mothers to permit their little ones to sit at the family table and be treated to bits of everything upon the bill of fare, apparently looking upon them as miniature grown people, with digestive ability equal to persons of mature growth, but simply lacking the stomach capacity to dispose of as much as older members of the family. The digestive apparatus of a child differs so greatly from that of an adult in its anatomical structure and in the character and amount of the digestive fluids, that it is by no means proper to allow a child to eat all kinds of wholesome foods which a healthy adult stomach can consume with impunity, to say nothing of the rich, highly seasoned viands, sweetmeats, and epicurean dishes which seldom fail to form some part of the bill of fare.

It is true that many children are endowed with so much constitutional vigor that they do live and seemingly thrive, notwithstanding dietetic errors; but the integrity of the digestive organs is liable to be so greatly impaired by continued ill-treatment that sooner or later in life, disease results. Till the age of three years, sterilized milk, whole-wheat bread in its various forms, such of the grains as contain a large share of gluten, prepared in a variety of palatable ways, milk and fruit toasts, and the easily digested fruits, both raw and cooked, form the best dietary. Strained vegetable soups may be occasionally added for variety. For from three to six years the same simple regimen, with easily digested and simply prepared vegetables, macaroni, and legumes prepared without skins, will be all-sufficient. If desserts are desirable, let them be simple in character and easily digested. Tea, coffee, hot bread and biscuit, fried foods of all kinds, salted meats, preserves, rich puddings, cake, and pastries should be wholly discarded from the children's bill of fare.

It is especially important that a dietary for children should contain an abundance of nitrogenous material. It is needed not only for repairs, but must be on deposit for the purpose of growth, since it is the bone- and muscle-forming element of food. Milk, whole-wheat bread, oatmeal, barley, and preparations of wheat contain this element in abundance, and should for this reason be given great prominence in children's dietary.

Flesh foods are in no way necessary for children, since the food elements of which they are composed can be supplied from other and better sources, and many prominent medical authorities unite in the opinion that such foods are decidedly deleterious, and should not be used at all by children under eight or ten years of age. Experiments made by Dr. Camman, of New York, upon the dietary of nearly two hundred young children in an orphans' home, offer conclusive evidence that the death-rate among children from gastro-intestinal troubles is greatly lessened by the exclusion of meat from their dietary. Dr. Clouston, of Edinburgh, an eminent medical authority, states that, in his experience, those children who show the greatest tendencies to instability of the brain, insanity, and immoral habits are, as a rule, those who use animal food in excess; and that he has seen a change of diet to milk and farinaceous foods produce a marked change in their nervous irritability.

Scores of other authorities corroborate Dr. Clouston's observation, and assert that children fed largely on flesh foods have capricious appetites, suffer more commonly from indigestion in its various forms, possess an unstable nervous system, and have less resisting power in general.

Candy and similar sweets generally given to children as a matter of course, may be excluded from their dietary with positive benefit in every way. It is true, as is often stated in favor of the use of these articles, that sugar is a food element needed by children; but the amount required for the purpose of growth and repair is comparatively small, and is supplied in great abundance in bread, grains, fruits, and other common articles of food. If an additional quantity is taken, it is not utilized by the system, and serves only to derange the digestion, impair the appetite, and indirectly undermine the health.

Children are not likely to crave candy and other sweets unless a taste for such articles has been developed by indulgence in them; and their use, since they are seldom taken at meal-time, helps greatly to foster that most pernicious habit of childhood—eating between meals. No food, except at their regular meal-times, should be the universal rule for children from babyhood up; and although during their earliest years they require food at somewhat shorter intervals than adults, their meal hours should be arranged for the same time each day, and no piecing permitted. Parents who follow the too common practise of giving their little ones a cracker or fruit between meals are simply placing them under training for dyspepsia, sooner or later. Uninterrupted digestion proceeds smoothly and harmoniously in a healthy stomach; but interruptions in the shape of food sent down at all times and when the stomach is already at work, are justly resented; and such disturbances, if long continued, are punished by suffering.

The appetite of a child is quite as susceptible of education, in both a right and a wrong direction, as are its mental or moral faculties; and parents, in whose hands this education mainly rests, should give the subject careful consideration, since upon it the future health and usefulness of their children not a little devolve. We should all be rulers of our appetites instead of subject to them; but whether this be so or not, depends greatly upon early dietetic training. Many a loving mother, by thoughtless indulgence of her child, in season and out of season, in dainties and tidbits that simply serve to gratify the palate, is fostering a "love of appetite" which may ruin her child in years to come. There are inherited appetites and tendencies, it is true; but even these may be largely overcome by careful early training in right ways of eating and drinking. It is possible to teach very young children to use such food as is best for them, and to refrain from the eating of things harmful; and it should be one of the first concerns of every mother to start her children on the road to manhood and womanhood, well trained in correct dietetic habits.

THE DUTY OF PARENTS TO THE CHILD IN SCHOOL.

PERHAPS first to be considered is the age at which the child should be placed in school. There is a great diversity of opinion among both parents and teachers on this subject. I am conscious that I am with the minority. I believe that children are placed in school much too young, as a rule. In town, where there are primary teachers, where the children have little to do but kindergarten work, and can go directly home after their few school hours are over, it may be well enough; but in our country schools, where one teacher must do all the work, we think it very objectionable, for several reasons, the first of which is because the teacher cannot give to the little ones the attention they require, partly for lack of time, and partly for the reason that very few persons are adapted by temperament to teach both little children and older ones.

In the graded school the principal of the primary department is usually a person who prefers infant work, and who gives her time to fit herself for it. In the country she cannot do this. Of course a country teacher is expected to know everything and do everything, but she does n't.

Again, unless the child is very quick to attain knowledge, he learns so little, or so slowly, that by the time he is old enough really to study, he is tired of the monotony of school life. My experience with children convinces me that the ordinary child will learn as much between the ages of nine and fourteen as between the ages of six and fourteen, and he has had three more years of home life, which should be better for him than any other.

You cannot expect that any one else will work for your child's well-being as you will, and it is uni-

versally conceded that the foundations of character are laid before the child is nine. If you send him to school while he is so young, he must be allowed to spend the greater part of his time on the playground, where the teacher cannot have him under her immediate supervision, as she must give her attention to those remaining within. If he lives far from the schoolhouse, he must remain until the older children can accompany him home.

Mothers, you do not know how many things besides marbles and ball your boys are learning during these idle hours. It is quite impossible for you to believe that your child knows so many things that he ought not; but rest assured, the first thing he learns is to keep you in ignorance of his knowledge. I have been in the schoolroom too many years to believe that the youngest child that the law allows there, is too young to have learned all the vileness of the mysteries of sex, although he probably knows nothing of the sacredness or the God-given nobility of it. No one would be likely to teach him that part but his mother, and she either thinks he is too young, or cannot talk with her children upon such subjects. Blessed indeed beyond all school districts is that district where there is not at least one family whose children are contaminated; and yours, however pure they may be, will hear and see much that is inexpressibly vile; and no teacher, however vigilant, can prevent it.

But I believe that by earnest training, the character may be so fixed by the time the child has reached the age of eight or nine, that he may come near these things, if he must, without absorbing into the purity of his own soul a poison which shall mar this life's happiness, to say nothing of the life to come. We well know that a habit is more easily formed than broken, and that the younger the person the more easily is a habit acquired; and I believe that by implanting in your child the strictest principles of obedience to your commands and belief in your statements, you have given him a strength to resist evil, if he meets it, even when quite young, though not sufficient to shield the babies that are now admitted to our public schools.

Again: there are so many little things that a child ought to learn, that he might better learn by spending a few minutes each day at his mother's knee, while he is out in the sunshine, with the birds and flowers, the rest of the day. No mother should begrudge these few moments to her child, however busy she may be. Better bake fewer pies, and put less work on Mary's dresses, or let something go unironed, if by so doing you can make a page of your child's soul history more fair for reading at the judgment day.

Another objection to placing children in country schools at such an early age, is the fact that schoolrooms often have more little ones than there are low seats to accommodate, and the child suffers from a crooked spine in consequence. Parents will sometimes send children to school with the request that Johnny be allowed to sit with his older sister Mary. If the teacher refuses to comply with the request, she is condemned by the irate mother; if she complies, one or the other of those children is using an improper, uncomfortable seat.

Another duty that I would impress upon mothers is to teach children to sit still in comfort before they enter the schoolroom. Every home should contain chairs suited in height to the different members of the family, and each day all children not in school should be expected to sit correctly and quietly in their chairs for a considerable length of time, while they listen to something interesting told them by their mother, or perform some task fitted to their years. Then when they enter school, they are ready to do good work.

Now we will suppose the question of age and previous training settled, and the child in school. Have the parents any duties to perform in order to render the teacher's work more effective during the few hours she has control of him? My observation leads me to believe that the parent, as a rule, has quite as much to do with the child's progress in school as has the teacher. The school holds much the same relation to the child that the nation does to the man, and there is no better time to teach him loyalty and give him a law-abiding character. Let him understand that while he is a member of the school, it is better to obey the teacher, whether her commands be good or bad, than to disobey. Teach him that when a man is not satisfied with a law of the State, he does not break that law, but he tries to send lawmakers who will repeal the law; and if it is a law bad for the majority of the people, it will soon be repealed, but if it be good for the majority, and only troublesome for the minority, then the minority must submit. Just so with him. If he doubts the wisdom of the teacher's rules, let him report them to you, knowing that if in your wise judgment they are really bad for a majority of the school, you will appeal to the trustees to have that teacher removed; or, failing in that, if the rules are objectionable to a majority of the district, the trustees will be removed at the next election. But until such decision is made, he must render implicit obe-

dience to the teacher. Teach him that when he becomes one of a large community, as in school, he must give up some of the freedom of action that he has known in the smaller community of his home.

Again, I would urge mothers not to condemn if the teacher manages your Johnny a little differently from the way she does Mrs. A's Jimmy. Do you not have to manage your own children differently one from another?

Now that you have sent your child to school at a proper age, and that you have previously and are now continually teaching him to be a moral, studious, and dutiful pupil, there remains one thing more for you to do, and that is to see that the teacher does her duty. The trouble here lies in determining what is the teacher's duty; for I assure you that teachers are what the public demand that they should be. When any new subject meets the approval of the public, and they demand that their children shall be instructed therein, you will soon find that branch entered upon the normal course, and lecturers will be provided at institutes to give instruction in this branch to teachers who have already left the training-schools. Since this is the case, it becomes you as parents to decide carefully what you want your children to learn, and then demand that they shall be so taught. — *Sel.*

A NEW LEAF.

He came to my desk with a quivering lip —
The lesson was done;
"Dear teacher, I want a new leaf," he said;
"I have spoiled this one."
In place of the leaf so stained and blotted,
I gave him a new one, all unspotted,
And into his sad eyes smiled —
"Do better, now, my child."

I went to the throne with a quivering soul —
The old year was done;
"Dear Father, hast thou a new leaf for me?
"I have spoiled this one."
He took the old leaf, stained and blotted,
And gave me a new one, all unspotted,
And into my sad heart smiled —
"Do better, now, my child."

— *Episcopal Recorder.*

To Get Rid of Red Ants. — Mrs. Lyman Abbott, in the *Ladies' Home Journal*, offers the following excellent suggestions for getting rid of the little red ants which prove such unwelcome intruders in many houses: —

"To find her sugar barrel in the possession of a vigorous colony of red ants is perhaps the most exasperatingd ifficulty a careful housekeeper ever meets. She has tried to be economical, and has 'laid in' her stores on the most judicious plan, only to find her pantry invaded by an army so small, so active, so numerous, that her heart fails her at the outset. What shall she do? To recover the sugar requires unlimited patience, and it must be removed from the storeroom at once. After every article of food which is infested has been taken out, the pantry must be thoroughly scrubbed and scalded, and all the woodwork treated to a good brushing with equal parts of oil of cedar and turpentine. For a time, at least, it would be well to keep all food on four-legged benches standing in water. This sounds more formidable than it is, for the benches may be made of unplaned wood, and each leg placed in a common tin cup. Of course it must be understood that no lamp or candle can be carried with safety into the room when the turpentine is freshly applied. As an added precaution, upon each shelf place a plate greased with lard, and if any ants appear upon them, scald them immediately. This treatment ought to achieve a permanent victory. In more than twenty-five years' housekeeping in one house I have been beseiged by these persistent litfle creatures but twice. We keep a bottle of oil of cedar and turpentine for use, if required, but an annual application as a preventive is all we expect to make.

A Bad Tendency. — One of the worst tendencies of the times is the disposition to rear children as though the whole purpose of life were to treat it like a stick of candy — suck the most sweetness out of it as soon possible. They are taught that dress is something to be admired instead of to protect them from the inclemencies of the weather; that food is something to enjoy rather than minister to the nourishment of muscle, bone, and brain; that exercise is for the purpose of enabling them to gratify the ambition to be champion athletes rather than to build up a temple fit for the indwelling of God; and that business pursuits and openings in public life are opportunities for climbing up over the backs and shoulders of other men and wresting success out of their fingers, rather than of building up character and serving the age. Thus there come forth from the homes of well-meaning but indulgent and worldly

minded parents, pampered, sordid, selfish young egotists, whose center of living is self, either for sensuous gratification or greedy grasping.

But out of the homes in which the altruistic instead of the egotistic view of life is upheld, come such men as Samuel, with their life purposes keyed up to the Christ-idea of serving humanity, of the greatest good to the greatest number, instead of a monopoly of good for number one. Shall we not have more of these latter? — *New York Observer.*

CLEANING LAMPS. — In the daily cleaning of a lamp, first trim the wick. This is a very simple thing, when systematically followed, and a no more elaborate implement than a pair of scissors is required for the process — they need not even be especially sharp. The proper mode of procedure is to lift the cap and turn the wick back into the tube a trifle, till only the charred and disintegrated portion projects. This portion is to be cut off even with the top of the tube. The blades of the scissors will pass through it with scarcely a show of resistance. If the resistance of the unconsumed fiber is felt, it is certain that the cutting is carried too deep, and that the wick is being wastefully pruned. It will be necessary to take off but a very narrow shaving each morning, and a little experience will show just where the cutting should be done.

All the brass work of the burner should be brushed over with a stiff brush, like an old toothbrush, each morning, and care should be taken that the small holes through which the air passes do not become filled or coated over. This is a frequent cause of the unsatisfactory working of the burner, and one which it may not be easy to detect. All this work should be done, and the chimneys wiped out, before the exterior of the lamp is cleaned. In that way it will be clean, neat, and wholesome throughout. Once in six months or a year the burners should be boiled in water in which a piece of soda has been dissolved. This will clear away the gum and foreign substances which will gradually accumulate, notwithstanding the best of care, and should make it good as new in the quality of light rendered. Once a month, at least, the oil should be burned quite low, and the balance, which will be found more or less impregnated with sediment, should be thrown away, and the lamp thoroughly washed out with soap suds. — *Good Housekeeping.*

TWO LITTLE GIRLS.

THIS little girl is very poor;
She has troubles, she finds, she can scarce endure;
And yet, my dear, she has playthings plenty —
Dolls as many as two and twenty,
Houses and arks and picture-books,
Something pretty wherever she looks.
But half the time she 's puzzled to know
What to do with the wonderful show,
Tired of dollies two and twenty,
And bored with her various toys aplenty.

That little girl is very rich,
With an old doll like a perfect witch,
A broken chair and a bit of delf,
And a wee cracked cup on the closet shelf,
She can play with only a row of pins;
Houses and gardens, arks and inns,
She makes with her chubby fingers small,
And she never asks for a toy at all.
Unseen around her the fairies stray,
Giving her bright thoughts every day.

Poor little girl and rich little girl,
How nice it would be if in time's swift whirl
You could — perhaps not change your places,
But catch a glimpse of each other's faces;
For each to the other could something give,
Which would make the child-life sweeter to live,
For both could give and both could share
Something the other had to spare.

— *Margaret E. Sangster, in Harper's Young People.*

GOOD MANNERS.

THE cultivation of gracious manners is even more essential to the man who devotes his life to doing good among his fellow men than it is to one whose aim is simply to get on in the world. We use the term "gracious manners" in preference to "politeness," because the latter does not go deep enough. There may be, and often is, a polished surface over a very selfish heart. The best manners are those which find their origin in grace of soul, the genuine thoughtfulness of others and the desire to contribute to their welfare. There are certain habits of speech and life which are the expression of a great nature. Not only are they the expression of nobility, but they beget nobility in the breasts of the boys and girls to whom they are rightly taught. Hold fast the form of good manners, young men and young

women, but seek to cultivate them from within. You will not make your life the success God meant it to be without the real graces of gentle breeding.

As you stake out the ground on which you are to build your future career, you will do well to set four corner posts as the outer boundary lines of duty; four cardinal virtues of social life,— thoughtfulness, cordiality, appreciation, deference.

It is remarkable how the world enjoys giving favors to the man who possesses these qualities. Doing a kindness is one of the pleasantest things in all the world when the kindness is appreciated and cordially acknowledged. Even the loafer on the street corner shows animation as he directs the pleasant-faced stranger on his journey. He receives the stranger's thanks, and turns away an inch taller, feeling almost as though he would like to go to work.

The art of winning and pleasing is one to be untiringly studied. It is capable of limitless development; it is surely one of the prime requisites for the man who wants to accomplish the truest life-work.— *Sel.*

Did you know —

That custard should never cook a moment after it is solid, as it then begins to turn watery?

That a little cream added to the yolks of eggs will prevent their curdling?

That dried bread crumbs rolled fine and kept on hand in a glass can, are invaluable when it is desired to make scallops or croquettes in a hurry?

That a mealy potato mashed with turnips is an improvement to them?

That if bread gets too brown in baking, it should be grated off?

That kitchen floors painted with boiled linseed oil are easily cleaned?

That salt moistened with lemon juice will take stains off the hands?

That powdered orris-root may have its strength renewed by spreading it out in the sun to dry?

That the handle of a Dover egg-beater should never be put in water? — *Good Housekeeping.*

To Clean Linoleum.— A writer in *Table Talk* offers the following method for cleaning linoleum: —

Take equal parts of olive-oil — which is often cottonseed- or peanut-oil — and sharp vinegar, and rub well with a flannel rag. If dirty, first wash the linoleum with soap and water, or, better still, cleanse with kerosene oil, or with water containing a little turpentine. Soda is bad for linoleum, because it readily attacks oil and paint, of which linoleum is partly composed.

SOME GOOD SOUPS WITHOUT MILK.

Tomato and Macaroni Soup.— Break half a dozen sticks of macaroni into small pieces, and drop into boiling water. Cook for an hour, or until perfectly tender. Rub two quarts of stewed or canned tomatoes through a colander, to remove all seeds and fragments. When the macaroni is done, drain thoroughly, cut each piece into tiny rings, and add it to the strained tomatoes. Season with salt, and boil for a few moments. If the tomato is quite thin, the soup should be slightly thickened with a little flour before adding the macaroni.

Vegetable Pea Soup.— Cook one pint of split peas until dissolved. When nearly done, put to cooking one and one-half pints of sliced potato and one medium-sized onion, sliced thin. When tender, rub all through a colander, add water to make of the consistency of thin cream, and salt to taste. Reheat and serve.

Bean and Tomato Soup.— Take one pint of boiled or a little less of mashed beans, one pint of stewed tomatoes, and rub together through a colander. Add salt, two tablespoonfuls of nut meal, one-half cup of nicely steamed rice, and sufficient boiling water to make a soup of the proper consistency. Reheat and serve.

Swiss Lentil Soup.— Cook a pint of brown lentils in a small quantity of boiling water. Add to the lentils when about half done, one medium-sized onion cut in quarters. When the lentils are tender, remove the onion and rub the lentils through a colander. Add sufficient boiling water to make three pints in all. Season with salt, reheat to boiling, and thicken the whole with four tablespoonfuls of browned flour, rubbed to a cream in a little cold water.

E. E. K.

CAUSES LEADING TO TUBERCULAR INFECTION.

Of all the maladies to which human flesh is heir, none is so widespread in its ravages as tuberculosis of the lungs, or consumption. It is the "great white plague" of modern civilization. About one fourth of the deaths from septic diseases in the United States result from it. Wherever civilized communities are found, and human beings remain settled in one place for any length of time, there the infectious microbe which causes this disease, finds its way. It settles in towns and scattered villages; and even the old farmhouse, with its pleasant associations, may be the shelter of this terrible plague, one generation after another of its successive inhabitants falling victims to the deadly legacy bequeathed to them by former inhabitants. Mankind dread the smallpox, the cholera, and the leprosy, but none of these diseases are more surely contagious than tuberculosis. It has become almost a household disease in many communities, and thousands of families throughout the country have their tubercular member, who is endangering the health of the others in the household. It is very important that people in general should know how to care properly for the patient thus afflicted, and also how to save his friends and relatives from infection.

The disease germs are taken into the body by breathing infected air and eating infected food. The air most frequently becomes infected from dust in which is mixed the dried sputum of consumptives. In every community there are many such patients who go on from year to year coughing and expectorating wherever they happen to be. This sputum dries, and is broken up into fine particles, which rise whenever the dust is disturbed, and are breathed into the lungs of all who may come within its reach. Thus does the tubercular patient infect not only his friends, but reinfects himself.

It is in this way that so much of so-called hereditary consumption occurs. The father or mother, perhaps many years ill with consumption, leaves behind a family of consumptives to die one after another prematurely; and the friends say, "O yes, it is sad that the family should all die so young, but you know it was hereditary, and it could not be helped."

It is a very rare occurrence for a child to be born tubercular, even when the parents are so, although many come into the world with a strong tendency in that direction; that is, they do not resist the disease well, and when exposed to the infection, easily become diseased.

Such children are apt to become very rapidly infected during the first year of life, and especially during the second, third, and fourth years. After they begin to play on the floor, they are almost continually in the dust-laden air. The little child naturally puts everything into its mouth; and when it drops its toys or anything it has in its hand on the floor, it picks it up and puts it, all dust-laden, back into its mouth. If this dust happens to be full of dried and pulverized tubercular sputum, as it is apt to be in the home of the careless consumptive, the little one swallows the poison, and being already predisposed to the disease, it readily becomes infected with it. Thus the parent not only bequeaths to the child a tendency to the disease, but carelessly surrounds it with an atmosphere of disease germs, when a little care and painstaking might easily have spared the little one this danger to life. The tubercular germ, when dried, will retain its vitality for many months, and be ready for development whenever it finds a suitable soil.

Animals coming in contact with mankind take this infection from them. Cattle are very susceptible to this kind of contagion. Many herds, especially in the Eastern States, have cows among them which are infected with the disease, and give milk containing tubercular bacilli. It has been estimated that fully one third of the cows which furnish our larger cities with milk are tubercular. All the milk

from a dairy being mixed together in the large cans used for transporting it to market, the whole becomes infected; and it is from this supply that the poor babies of the great cities are compelled to take their food. No wonder that so many die young of tuberculosis. Children are also often infected early in life by nursing a tubercular mother or wet nurse.

Tuberculosis in adults is most frequent in the lungs, but infants and children are often infected in the glands of the neck, the membranes of the brain and of the bowels, and even in the structure of the bones. In fact, at no age is there any membrane, gland, or other organ of the body, but is liable to become infected with the tubercular virus. The fact that in adult life the infection of the lungs is so much more frequent than that of the other organs, would seem to indicate that the disease was most usually due to inhaling the germs.

Besides the frequent infection of the dwelling-houses of the land with tubercular microbes, all the dust of our cities, towns, and villages is more or less germ-laden. It is made up of dried expectorations, with the desiccated excreta of animals, and other filth. So full of poison is the air in New York City that living bacilli have been found in many healthy persons who had been killed by an accident, also in others who had died from other diseases, and had apparently sound lungs. In these cases the microscope revealed living germs in the bronchial glands, taken in with the impure inhalations of the infected air which they were compelled to breathe. In every street-car, omnibus, railroad, or other public conveyance, the careless expectorater leaves the seeds of disease.

The tubercular germ, fortunately, does not increase outside the bodies of men or animals; and when exposed to sunlight and moisture, its infecting properties are soon destroyed. When it is kept dry, and in darkness, however, neither heat nor cold seem to affect its vitality.

While this germ is always the source of the disease, there are certain causes which predispose to it, or fit the body for the germ to grow in it. Whatever tends to impair nutrition so weakens the structures of the body that the glands of the lungs and other organs soon become invaded. The great majority of cases of consumption and other tubercular disorders are preceded by disease of the digestive organs. The patient's general health failing because the digestive organs do imperfect work, all the cells and tissues of the body become enfeebled, and unable to destroy the disease germs which may find an entrance into the body. As we have seen, tubercular germs find their way either through the air or the food into the body. If the structures are healthy, these germs are soon destroyed, but if weakened by disease, the germs grow and multiply, until in time the body is destroyed.

Bottle-fed babies are often infected because they are poorly nourished. The mucous membranes lining the intestines become congested, and denuded of the epithelium, forming a diseased surface on which the bacilli, which are taken in in the milk or in other ways, lodge, and from this source infect all the mesenteric glands. Then the child has what is called consumption of the bowels; or the poison may infect the blood or the bones, the membranes of the brain, or the glands of the neck. These germs also sometimes lodge in the enlarged open ducts of the glands which fill the tonsils and other parts of the throat. Neglected running ears are another very frequent source of infection of these glands. Such children are said to be scrofulous, and to have inherited bad blood. The nose is liable to prove another source of infection to the glands. The inside lining membrane, becoming denuded from oft-repeated colds, furnishes a most excellent place of lodgment for the germs.

In small children a cold on the lungs, or more correctly speaking, an attack of bronchitis, may result in catarrhal pneumonia. Many of the lung cells become filled with discharges, and collapse. Scars are left in the lung substance, in which the tissues are greatly weakened. If tubercular germs are taken into the lungs, they find these weak spots, and at once begin to grow, forming what is called tubercles, or the little round, hardened masses found in the lung tissue of tubercular patients. Measles, whooping-cough, and scarlet fever are often followed by consumption in children and young people. These diseases leave the lungs weak, and the lining of the air passages congested and irritated, and the germs of consumption breathed in with the air soon increase in numbers, and begin their work of destruction in the lung tissues already enfeebled from disease. Indeed, croupous pneumonia, typhoid fever, malarial fever, rheumatism, and all the other acute diseases which enfeeble the bodily tissues of either children or adults, predispose and prepare the lungs for tubercular attacks.

All chronic diseases, as valvular heart disease, Bright's disease of the kidneys, disease of the liver, and ailments of the digestive organs, are predisposing causes of tuberculosis. Intemperance both in eating and in the use of stimulants is also a very active agent in bringing about conditions conducive

to this disease. Among the lower classes of the large cities, where intemperance, licentiousness, and kindred vices prevail, consumption of the lungs is a very common disorder; and poverty and want furnish most favorable conditions for the spread of the infection.

Overwork and want of sleep, sedentary occupations, and living and working in badly ventilated shops, factories, and stores, where successive generations of consumptives have worked and expectorated on the floors, and the buildings have become thoroughly infected with the tubercular bacilli, are all conducive to the disease. In many of the cotton factories of New England's large manufacturing cities, the operatives almost all sooner or later die of consumption. Entire families sometimes become extinct from its ravages. In the grinding and polishing of the steel instruments and utensils made in cutlery and other steel factories, the danger of infection is still further increased, the lungs being constantly irritated and congested by the gritty particles inhaled, and the operatives always cough more or less to get rid of them. This irritated condition of the mucous surface forms a favorable soil for receiving the tubercular germs, one in which there is no danger of a failure in the crop. The life of these operatives is usually terminated in the early thirties by what is called grinder's consumption. Strange as it may seem, the workers at these death-dealing employments at first refused to have anything done to make their work less dangerous, fearing that it might lead to the reduction of their wages from increased competition. Stone-cutting and working in flouring mills are also occupations more or less favorable for the development of consumption, as is also all sedentary work like that of book-keepers, type-writers, seamstresses, and other workers who sit or stand in one position for many hours of the day in close rooms, shut out from the sunlight and fresh air.

Close confinement in prisons and nunneries tends to breed tubercular disease. It is often very prevalent in badly built prisons, and is the disease from which the greatest number of the sisters in convents die. Churches, theater buildings, lecture-halls, and club-rooms that have been used for many years, and are shut away from the sunlight, being seldom properly ventilated, furnish excellent hiding-places for tubercular and other disease germs. Usually as soon as the congregation leaves, the janitor shuts up the building with the greatest care, as if to keep in all the impure air, and preserve all the germs that have come in with the congregation. The dust of the dance-hall, where the gay revelers meet to dance away the precious hours of life, is often filled with these deadly germs. The beauty of the ball goes home with an irritated sore throat; and in a few months we hear that her physician has ordered a change of climate, for it is feared that she is going into a decline. The late hours, indigestible suppers, unhealthful dress, and fashionable dissipation have all paved the way for the germs to find a lodgment in her respiratory organs, and it may baffle the skill of the wisest of the medical profession, with the help of all the appliances known to this progressive nineteenth century, to prevent their work of destruction.

Physicians and nurses often receive the infection from the patients they are called upon to care for professionally. Especially is the nurse in a consumptive's family exposed to the danger of contagion. The patient may have been long ill when she takes charge of the case, and may be but one of several members of the same family who have successively died of tubercular disease. The whole house may be infected when the nurse comes into it; and though she may do her best to destroy the infecting material, and to keep her patient from still further infecting the surroundings, the indifference and carelessness of the family as to the danger of contagion may overthrow the results of all her efforts. The patient may also fail to be careful in relation to the sputum, thinking it unnecessary to carry out the admonitions of the nurse to expectorate only into some prepared receptacle, which will render possible the complete destruction of the sputum. It is often very discouraging to get along with such patients, and to find that they defy all instructions in the matter, and take such a course as not only to lessen their own chances of recovery, but to endanger the lives of others. It requires much grace for a nurse to risk her life in caring for such persons.

During the past half-decade many cases of tubercular disease have begun after the debilitation due to the influenza, or la grippe. The pneumonia which so often complicates this disease leaves portions of the lungs consolidated, and at these points the tubercular germs readily find a starting-point, and soon there is a breaking-down of the tissue, and an abscess is formed. This is the history of many cases met with in general practise. Mothers debilitated by too frequent child-bearing, or overworked when nursing their children, are very frequent victims of consumption. The overtaxation and persistent application to business practised by so many men in

the pursuit of wealth often undermines the health, and invites an attack of the disease.

But while all these conditions predispose to tuberculosis, the disease cannot really exist without the germ which produces it. The ability to resist the disease is in proportion to the integrity and soundness of every tissue and organ of the body; therefore, whatever operates to destroy and lessen the number of germs in air, food, and drink, and whatever leads to the promotion of general good health, will tend to finally stamp out this great white plague, consumption.

DISINFECTANTS, WHEN AND HOW TO USE THEM.

THE first and most important thing to do after the physician has made his diagnosis of an infectious or contagious disease is to isolate the entire family, with the exception of the mother, who should assist the nurse. Send the young children away from the house at once. This will leave the house in charge of physician, nurse, and mother.

Every effort should be made to prevent infection of the room that is occupied by the patient. This can be readily prevented by removing all furniture that is not absolutely needed. Curtains, upholstered furniture, carpets, etc., should be removed from the room at once, and nothing should be used in the room that cannot be readily cleansed with the usual germicidal agents, which I shall mention later. It is folly to attempt disinfection of a room while it is occupied by a patient. This is often undertaken by using chlorid of lime, carbolic acid, etc., in vessels under the bed and in other parts of the room. It never should be forgotten that what is death to the bacteria may also prove fatal to the patient. The room should contain certain disinfectants in a large vessel in which to wash all the articles used by the patient. The vessel that receives the excreta should contain a powerful germicide, such as soluble chlorid of zinc, carbolic acid, lime, etc., so as to cause the death of the bacteria on entering the vessel. This is the only proper way of meeting the enemy, and not, as is so often done, by pouring a solution upon the excreta after it has been in the vessel for a certain length of time. The excreta should be burned by dry heat, and never thrown into a waste sink. A large sheet moistened with bichlorid solution twice daily should be hung across the doorway leading from the room, so as to kill all the germs likely to leave the room when the door is opened. The floor, walls, and all surfaces should be sprayed or washed daily with a germicide. The patient's wishes should be consulted as to the disinfectant most agreeable to him. This rule should never be disregarded.

The clothing worn by the patient should be burned, together with the mattress, and if the bed is of wood, it also should be burned. The walls, if papered, should be scraped and washed, and repapered. In large cities the boards of health are prepared to fumigate the furniture, etc., at a very trifling cost, and whenever possible, this should be recommended by the physician. The room should be thoroughly fumigated with sulphur, and I know of no better method than the one adopted by Miss Green, late of St. Timothy's Hospital, Philadelphia, and now of the Good Samaritan Hospital, Lebanon, Pa. Her mode of procedure is to cover all metallic surfaces which are likely to become tarnished, with a mixture of tallow, oil, and whiting. Blankets and spreads should be hung on a line in the center of the room. Closets and drawers must be open, so that the gas can penetrate to every corner and crevice. Have fireplace and ventilators closed as tight as possible. Paste strips of paper around the windows, doors, and all cracks, so that the gaseous vapor cannot escape, and all draft may be prevented. Use roll sulphur, and put it in cans or earthen jars, and place them in water or on bricks, so as not to burn the floor. Pour a small quantity of alcohol over the sulphur, and ignite the can at the farthest point from the door first, so as to inhale as little as possible of the poisonous fumes. Close the door, and paste strips of paper around it on the other side. Let the door be closed twenty-four hours, then open all windows for twenty-four hours, and ventilate thoroughly. The amount of sulphur required for a room twelve by thirty feet is five pounds.

Everything in the room should be washed with a two-per-cent. solution of carbolic acid, or a two or three-per-cent. solution of chlorid of lime. The floor should be scrubbed with a solution of mercuric chlorid 1–2000. This process should be carried out at least twice, especially after scarlet fever, diphtheria, and smallpox.—*E. H. Gingrich, M. D., in Monthly Retrospect.*

GOOD HEALTH
J·H·KELLOGG·M·D·EDITOR·
BATTLE CREEK·MICHIGAN·

PREVENTIVE TREATMENT OF GALL-STONES.

A QUESTION constantly asked the physician who has assisted a patient through an attack of biliary colic, is, "Doctor, what can I do to prevent another attack?" Here are a few suggestions which the writer has found beneficial in these cases.

Of course if the patient has a number of gall-stones left in his gall-bladder, he is not likely to find any peace until the cargo is unloaded; but if the stone which has been expelled leaves no concretions behind it, the suggestions made, if carefully followed, will probably prove effectual in preventing a recurrence of the attack. It might also be remarked incidentally that many cases mistaken for gall-stone are really cases of infectious jaundice without gall-stones. The suggestions made are especially beneficial in cases of this sort.

1. Wear loose clothing. Gall-stones occur most frequently in women, and tight lacing has been shown to be one of the causes, by obstructing the outflow of bile from the liver and gall-bladder.

2. Avoid the use of coarse foods and the excessive use of fats and sugar, especially cheese, game, and meats possessing a haut-gout. The investigations of Dujardin-Beaumetz and others have shown that dilatation of the stomach exists in a considerable proportion of the cases of infectious jaundice and of gall-stones, and both of these conditions are secondary to chronic gastro-intestinal catarrh, which is always aggravated by the use of such articles of food as are here interdicted. The patient should also observe care in the regularity of meals. He should take two meals a day, and should thoroughly masticate his food. He should not take much drink at meal-times, and should especially avoid the use of ice-water, iced tea, ice-cream, etc. Alcoholics must be forbidden, and also the use of pepper, mustard, spices, and all condiments, except the moderate use of salt. Pickles, fried foods, pastry, and meats, particularly pork, must be entirely avoided.

3. Water as a drink should be taken freely at other times than at meals. From two to four pints of water should be taken each day. In case inconvenience results in taking so much water by the stomach, a pint or two of water may be taken by the bowels and retained. If slowly introduced at the temperature of the body, no inconvenience is experienced in taking water in this way.

4. Great pains should be taken to keep the bowels regulated by abundant exercise, the free use of fruits, cold water drinking before breakfast, massage of the abdomen, horseback riding, and such other methods as are found to be beneficial. A large enema, or coloclyster, should be used in cases in which chronic constipation exists, and does not yield to simple hygienic measures. Saline cathartics, and, in fact, all sorts of laxatives, must be avoided, as these substances irritate the gastro-intestinal tract, and so encourage the disease.

5. Abundance of out-of-door exercise is of great value in these cases, by promoting the elimination of bile, and through encouraging the respiratory movements, assisting in digestion, and overcoming the tendency to stagnation of blood in the portal circulation. Deep breathing is one of the best means of aiding digestion and unloading the liver and portal system. It should be practised many times daily, ten or fifteen minutes each time. Pains should be taken to expand the whole chest, and especially to contract the diaphragm in such a way as to swell out the abdomen, thus giving the liver a hard squeeze between the diaphragm and the abdominal muscles.

6. Another measure of very great value, but so simple that it is likely to be neglected, is the employment of fomentations over the liver, followed

by the moist abdominal bandage, or *umschlag*, as it is termed by the Germans. The fomentation should be applied at night for ten or fifteen minutes. It should cover the region of the liver and stomach, and should be followed by a moist abdominal bandage, consisting of a towel wrung out of cold water dry enough so it will not drip, then applied about the body and at once covered with thick, warm wrappings sufficient to retain the moisture and heat. This "heating compress" should be worn overnight. In the morning when it is taken off, the parts should be rubbed with cold water, and a dry woolen bandage applied, to be worn during the day.

THE DIETETIC INFLUENCE OF SALT.

THE excessive use of salt is a most common dietetic error, and yet one which, curiously, is seldom referred to by writers upon dietetics. The reason for this may be the fear of criticism in view of the experiments of Boussingault, which have been so frequently quoted in physiological treatises that they have assumed almost equal authority with the classical experiments of Harvey upon the circulation of the blood.

The observation of many travelers, as well as many facts of common experience, contradict the conclusions of Boussingault regarding the necessity for the addition of salt to the food of human beings. For example, Mungo Park found the native tribes among whom he traveled living entirely without salt. The natives of Siberia make no use of salt; and in all Central Africa, salt was unknown until introduced by travelers and missionaries. The native tribes of North America, when discovered by white men, and so long as they remained in a primitive state, made no use of salt. Travelers have observed that the antelopes of South Africa do not visit the salt licks, as in some other parts of the world, and it is well known that the herdsmen on our Western plains never give salt to the thousands of cattle that are there raised for the Eastern market. In certain parts of England it is the habit of farmers to give their herds no salt, yet the cattle produced in these countries have the reputation of being the finest in the world.

The conclusion drawn from these observations is that the use of salt by human beings is rather a matter of habit than of necessity, nature having probably exhibited the same wisdom in regard to the amount of salt placed in our food as with reference to the other salts required by the system.

It is evident from these facts that the use of salt as a condiment is injurious to digestion in two ways: —

1. It diminishes the amount of hydrochloric acid present in the gastric juice by provoking the secretion of a large quantity of neutralizing alkaline mucus.

2. It diminishes the disinfecting power of the hydrochloric acid which is unneutralized.

In view of these observations, it must be clearly evident that the amount of salt used should be reduced to a minimum. The presence of so much of it as exists in the urine and the perspiration is evidence that it is not utilized in the body in the same way as organic food substances,—in other words, it is neither changed nor retained in the body, but is rather discharged from it; and it may be easily conceived that additional injury may arise from the excessive eliminative work required of the kidneys in consequence of its excessive use. For many years the writer has found it wise to urge upon patients suffering from indigestion, the importance of lessening the quantity of salt taken with their daily food.

Several eminent French and German authorities have been investigating the influence of salt upon digestion, and find that it does not in any way encourage either the secretion of gastric juice or its activity; that it deteriorates the quality of gastric juice, and hence interferes with digestion. This is true even when the quantity of salt used is small. It has been found that so small a proportion of salt as four fifths of one per cent. not only diminishes the activity of the gastric juice, but increases fermentation in the stomach by neutralizing the antiseptic properties of the hydrochloric acid in the gastric juice.

TO EXTERMINATE CIGARETTES.—The South Carolina House of Representatives has undertaken a war against the cigarette, which is likely to limit the use of the nauseous weed in this form, if it does not eradicate it. A bill has been passed levying a tax of twenty-five cents on each package of ten cigarettes.

SCHOOL HYGIENE.

FIVE-MINUTE EXERCISES BETWEEN RECITATIONS. — Would you think it a good plan to vary the monotony of recitations by introducing five-minute gymnastics between recitations?

Ans. — I think such a course should be pursued in every school. In schools for young men and women as well as those for boys and girls, there should be an exercise after every recitation, so as to correct the unnatural attitude of the pupil while engaged in study. Then while busy at his work, he forgets to breathe deeply, and by and by he catches himself drawing a deep sigh. That is nature's method of catching up with lost time in breathing. The child should have a chance, at least once in forty-five minutes — the usual length of a study hour — to take a few deep breaths. He should have exercise sufficient to bring the lungs into active play.

If you say to a boy, "Stand up and take a deep breath," when there is no immediate necessity for it, he will make an effort, but will not succeed. It is like asking a boy to drink a glass of water when he is not thirsty. But let that boy run out and exercise in the warm sunshine for half an hour, and he will come in and drink two or three glasses of water without any trouble. It is exactly so with breathing. In order for a child to breathe well, he should work, so that there will be an inward thirst for air; there is no need of telling him to breathe then, — he breathes of himself. It is easy to breathe when one needs air; "it breathes itself," as the little boy said.

I would not wait for a child to become restless before giving him exercise. When a child is wriggling about, he is not making any intellectual progress, but is receiving damage every moment, because his mind and character are being injured by his nervous, restless state; hence the necessity for his having exercise frequently enough so that he will not get into that condition.

GAMES. — Would you think it advisable to introduce games in the physical culture work?

Ans. — It would be an excellent thing to have the children play games by way of exercise, which would thus be made agreeable. I think there is nothing so disagreeable as to walk out merely to "take a constitutional." I never could be induced to do it; if I walk, I want something to walk for, — something to do, — and I think most intelligent people are of the same mind. Of course some people have something to think about while they are walking, and thus occupy themselves; but I find when I try that, that I cannot walk fast enough to keep up with my thoughts, and so want to start off on a run. But give the boy a game, — something to do in which he has an aim, something in which his mind is occupied so that he forgets that he is working, — and he will do much more than he could be induced to do simply in taking exercise as such. There is danger that a boy may become so much interested in his games that he will carry the work to an extreme; hence the games need to be carefully regulated.

SCHOOL ASSOCIATION OF THE SEXES. — May it not be that a large measure of the evils resulting from the association of the sexes in school is the result, not of the association itself, but of the extraordinary prohibitions sometimes placed upon such associations?

Ans. — That depends. There are many schools which do not have many prohibitions. I am inclined to think that many prohibitions do not produce the evils complained of, but simply call attention to them. The evils exist, and the prohibitions simply tend to bring them to light.

SCHOOL-DESK. — Is there a properly constructed school-desk in existence?

Ans. — I do not know of any, but there may be.

How to Ventilate a Schoolroom.— Is there any way properly to ventilate a schoolroom which has not been built properly?

Ans.— Yes; for a moderate sum any ordinary schoolroom may be so arranged as to have an ample supply of fresh air. If it is a country schoolhouse that is to be ventilated, place a tin box under or around the stove, with a duct so arranged that the air will come in under the stove and be heated as it enters the room. A duct through the floor under each window should collect the cold air, all these ducts, emptying into a large shaft under the floor, which extends up by the side of the chimney, and conveys the foul air out of the building. Make the outlets twice as large as the inlet. Make the inlet large enough so as to have at least twelve square inches for each pupil in the school. If you will do this, you will get fairly good ventilation.

Some years ago the writer prepared, by request of the Michigan State Board of Health, a paper giving directions for the ventilation and heating of schoolrooms. He will be pleased to send a copy of this paper to any one who may desire to give this matter further and more definite consideration.

Objectionable Games.— What games would you advise?

Ans.— There are various games that might be recommended. I do not advise football, because in that game boys treat each other so rudely. Neither do I like the competition of football; it seems to me to be too fierce. I think the practises common in playing football are wrong, and that students should never be allowed to lay hands upon each other. It is a principle in our house that no child shall lay hands upon another. We bring up our children to regard the person of another as sacred, and no child is allowed to apply his hands to another except in a kindly way. Games in which boys do fierce and rude things, and appear savage and wild, ought not, it seems to me, to be tolerated. I know I am not "orthodox" in this view, but such is my mind.

There are other games which are not so rude and violent, and in which there is no danger of one student's damaging another or himself. Needed exercise can be just as vigorous and active, and yet not be open to these objections. I am well aware that other men differ with me in respect to this subject, but I am speaking from my own standpoint.

How to Cultivate a Correct Sitting Position.— By what means can pupils be induced to maintain a correct sitting posture while studying? How can they be prevented from crouching down in the listless way so often seen?

Ans.— I think one way is to set the children a good example by always sitting and standing properly before them. Let the teacher be a constant model to the pupil; the children are always ambitious to be like the teacher. This matter of example in sitting and standing correctly is very important. I never sit down at home without thinking of it.

You will notice that a healthy little boy always sits and stands upright. The figure of a child four or five years old is a model, if it has not been deformed by some bad habit or bad management. If there is a boy in school who sits and stands well, call the attention of the other children to him. They will watch that boy to see if he sits straight, and they will imitate him. We must study human nature. We can never make a boy sit straight by simply telling him to do so. You must get him interested in what you wish him to do, not by censuring or blaming him, but by praising some child who sits properly, or by commending him when he succeeds in getting into a proper position.

The Coeducation of the Sexes.— Do you believe in coeducation?

Ans.— I certainly do. I believe boys should have just as good a chance as girls, and that girls should have as good a chance as boys. I would not be partial. I think they should be educated together because they are going to live together. If they are kept apart, they will not learn to understand each other and the relative conditions in which they are to live. And I am decidedly opposed to the idea that women are not capable of studying what men can study,— to the idea that women have not sufficient brains to comprehend what men can comprehend. In proportion, women have the larger brain of the two. The brain of the average man weighs fifty-two ounces; that of the average woman weighs a few ounces less. To claim that for this reason men are more intellectual than women is like comparing the brain of an elephant with that of a mouse, or the brain of a whale with that of a pigeon, and claiming that the whale is the more intelligent of the two because he has the larger brain, when, in fact, the pigeon knows a great deal more than the whale. The brain of the whale is larger than that of the pigeon, but not nearly so large in proportion to his body. A great part of the brain power is taken up with managing the gigantic muscles and taking care of the immense stomach, lungs, and

other organs, so that only a small proportion is left for intellectual operations. Hence the larger the brain in proportion to the size, the more brain capacity there is left for the intellectual processes. It has been shown by anatomical studies that a woman's brain is larger in proportion than a man's, so the old argument based upon the size of the brain is shown to be absurd.

ANSWERS TO CORRESPONDENTS.

SCIATICA. — L. E. S., Ind., asks to have the treatment for sciatic rheumatism outlined.

Ans. — See "Home Hand-Book of Rational Medicine."

URIC ACID. — A subscriber, Ohio, inquires: "What is the remedy for excessive uric acid in the system?"

Ans. — Correct diet, with combined eliminative and tonic treatment. A visit to the Sanitarium is especially to be recommended.

NUMBNESS AND PRICKLING SENSATIONS. — Mrs. S. H. L., Minn., writes: "Kindly advise me with regard to numbness and a prickling sensation in the right arm and hand."

Ans. — This is probably due to disturbance of the abdominal sympathetic nerve.

PAIN IN NECK AND HEAD — NUMBNESS. — Mrs. C. B. G., Kan., writes as follows: "1. On turning the head to one side suddenly, often a severe pain catches me in the neck, which slowly passes away, leaving a soreness. Soon after, I have a bad feeling in the back of the neck, which travels upward, giving me a headache in the back of the head. What causes this? 2. For years I have suffered from numbness in my hands, which is worse in summer when I have most work to do, and especially at night, the aching and burning of my hands sometimes keeping me awake, and the numbness at such times extending nearly or quite to the shoulders. What do these symptoms indicate? 3. Please outline diet. 4. Is any ordinary drinking-water made more healthful by being boiled and filtered? 5. Would daily physical exercise be beneficial for persons of any age?"

Ans. — 1. We advise hot applications at night followed by a wet compress worn during the night over the affected parts; also fomentation over the stomach, and moist abdominal bandage at night.

2. An investigation would probably show a prolapsed stomach and bowels, which should be held up by a supporter. We recommend the Natural Abdominal Supporter, Modern Medicine Co., Battle Creek, Mich.

3. Antiseptic diet. We would recommend especially granose, bromose, and other Sanitarium health foods.

4. Certainly, boiling kills all the dangerous germs.

5. Exercise is necessary for persons of all ages; a young person may engage in exercise of all sorts, while an aged person must take moderate exercise, avoiding overexertion or exercise causing fatigue.

ABSENT-MINDEDNESS — WATER-BRASH — GAS IN STOMACH, ETC. — W. H. B., Washington, D. C., asks: "1. What is the cause of the following symptoms: Short, momentary spells of absent-mindedness, accompanied by rising of water and mucus in the throat, usually preceded by an accumulation of gas in the stomach? My brother has had these attacks for the last fifteen years, always during the daytime. But during the last few months he has had a number of aggravated night attacks, lasting from half an hour to one and a half hours, during which time he experiences a choking sensation, gets out of bed and walks about as in a dream. During these spells he always bites his lips or tongue. He suffers from severe headache the following day. 2. Should he abstain altogether from meat? 3. Which of the Battle Creek Health Foods should he use? 4. Would lavage be beneficial?"

Ans. — 1. The symptoms indicate a mild form of epilepsy.

2. Yes, most certainly.

3. Granose and nuttose are particularly indicated.

4. Probably. We would recommend the careful study of our little work, "The Stomach: Its Disorders and How to Cure Them," published by the Modern Medicine Pub. Co., Battle Creek, Mich.

DANDRUFF — HAIR TURNING GRAY, ETC. — W. W. S., Ind., asks: "1. What will cure dandruff and stop hair from turning gray? 2. How could I gain in flesh and strength?"

Ans. — 1. The scalp should be thoroughly cleansed by shampooing with castile soap or white of egg two or three times a week, then a solution consisting of equal parts of alcohol and castor-oil rubbed into the scalp thoroughly.

2. The cause of the weakness must be removed. A tepid bath taken every morning, followed by rubbing with oil, a diet consisting of well-stewed fruit, granose, nuttose, and bromose would especially encourage an increase in flesh and strength.

THE BEST ANESTHETIC, ETC. — Mrs. J. B. R., Nova Scotia, inquires: "1. What is the best anesthetic to be used when teeth are to be extracted? 2. Is it safe for a girl of fifteen having a weakness of the heart and kidneys to take ether or any other anesthetic? 3. Is it a healthful practise to eat berries or fruit for supper?"

Ans. — 1. Laughing gas.

2. Ether and chloroform should be avoided.

3. It is better to omit supper entirely, but if it is taken, there is nothing better than fruit.

HIGH ALTITUDES — NERVOUS DEBILITY, ETC. — C. G. E., Colo., asks: "1. Is a high altitude, say seven thousand feet, injurious to cases of nervous debility or exhausted vitality? 2. What is the best climate for such complaints? 3. Could a person of forty years of age suffering from such

conditions be restored to health, provided the general health and constitution seemed unimpaired?"

Ans.—1. Nervous affections are more common in high altitudes than in low.

2. As a rule a rather low altitude, with a mild climate.

3. Yes.

To Remove Scars.—H. S., Wis., asks: "What will remove scars left from burns or cuts?"

Ans.—Scars can only be removed by a surgical procedure. Hard, unyielding scars can often be softened by the application of moist heat and massage with oil.

Chronic Bronchitis.—J. E. K., Colo., writes: "Please outline treatment for chronic bronchitis."

Ans.—A warm and dry climate is required. Indigestion and any other cause of ill health must be removed. The general health must be treated by proper exercise in the open air, careful diet, and the observance of all the laws of hygiene.

Proper Time for Drinking, etc.—B. C. M., Mass., inquires: "1. If the body requires three pints of fluid every day, at what time ought it to be taken? 2. Is it healthful to sleep in the underclothing worn during the day?"

Ans.—At any time except within an hour before meals, at meals, and within two hours after meals.

2. No.

Cancer of the Liver—Falling of the Hair.—M. P. S., Iowa, asks: "1. What are the symptoms of cancer of the liver? 2. What will prevent the hair and beard from falling out?"

Ans.—Pain and enlargement of the liver.

2. Falling of the hair indicates disease of the scalp. The nature of the difficulty should be determined by a physician, and the proper remedy applied.

Indigestion—Constipation.—A. E. P., N. Y., writes: "I get up in the morning feeling well, and continue so until about noon, when I grow faint and weak. After eating dinner my head grows dizzy, and I am weaker than before. I am thin in flesh, and troubled with constipation. Please advise as to diet and exercise."

Ans.—You have nervous dyspepsia. You should obtain a copy of "The Stomach: Its Disorders and How to Cure Them," and follow the instructions therein given for this disease. Write for circular of book to the Modern Medicine Pub. Co., Battle Creek, Mich.

Indigestion, Constipation—Pain in the Side, etc.—Mrs. R. R., Kan., writes: "I am fifty-five years old. I have indigestion, constipation, pain in the side, nausea, and dizziness, numbness of the fingers and sometimes of the whole hand. Please advise me what to do."

Ans.—You are probably suffering from dilatation of the stomach and prolapsed abdominal viscera, which disturb the abdominal sympathetic nerve. You will quite likely require an abdominal supporter. (Send to Modern Medicine Co. for circular of the Natural Abdominal Supporter, the only one we can recommend for this purpose.) You should use an aseptic dietary, avoiding meats, condiments, coarse vegetables, cheese, and possibly milk. A dry diet consisting of stewed fruit, granose, and nuttose or bromose, will be best for you.

Granulated Sugar.—W. H. C., Wash., writes: "I send sample of granulated sugar which, when heated or closely confined, smells like bad eggs. Please analyze. 1. What is the trouble with it? 2. Is such sugar harmful? 3. Is all sugar liable to be thus affected?"

Ans.—1. Our chemist reports that the samples of sugar sent contain ultramarine. This substance, when heated or brought in contact with the saliva, is often decomposed, giving rise to sulphuretted hydrogen, a gas which gives to decayed eggs their characteristic odor.

2. It is probably not poisonous, though not altogether wholesome.

3. Ultramarine is often added to sugar to increase its whiteness.

Canker in the Mouth—Rawness of the Stomach.—C. H. S., Fla., writes thus: "I am a man thirty-one years of age, married, and of regular habits. My stomach has troubled me for about twelve years. I never have nausea, nor any accumulation of gas, but at times the stomach feels raw, and the mouth is full of canker. Eating seems to give relief for the time being, but after a time there comes a dreadful all-gone feeling which lasts for hours. Though generally regular, the bowels at such times are rather loose. These spells continue for days and sometimes weeks. I am very thin and pale, and have a good deal of headache."

Ans.—You are probably suffering from hyperpepsia. You will have to adopt a more careful mode of life, a special dietary, and special treatment for indigestion as well as for building up the general health. You ought to visit the Sanitarium at Battle Creek, Mich., but if you cannot do this, you should obtain a copy of "The Stomach: Its Disorders and How to Cure Them," and carefully follow the directions given for hyperpepsia.

Hysteria.—W. G. W., New York City, writes as follows: "1. A young mother has hysteria. Occasionally she has attacks during which she is nearly unconscious, the whole body becoming stiff and rigid. What treatment would you suggest? 2. What are the prospects of a permanent recovery? Is the disease likely to be inherited by her children? 4. What is the best treatise on hysteria?"

Ans.—1. The patient is probably suffering from indigestion; possibly has also some ailment peculiar to her sex. She should, if possible, be placed in a sanitarium, where such cases are treated with success in a majority of instances.

2. Excellent, under proper treatment and training.

3. A tendency to disease is often inherited,—not the disease itself.

4. We know of no work treating of this disease extensively. "The Home Hand-Book of Domestic Hygiene and Rational Medicine" describes the disease, its symptoms, and the proper method of treatment.

LITERARY NOTICES.

THE September *Arena* contains a paper by James Malcolm on "A Remarkable Statistical Report," which discloses revelations as startling as did Mr. Stead's "If Christ Came to Chicago." It deals with the statistical report recently issued by the Illinois Bureau of Labor Statistics, and points out the frightful injustice done to the great industrial population of the country by our present unfair system of taxation, which multiplies the burdens of the poor man by adding to his already too heavy load that which should be borne by the rich man. This paper should be read throughout the length and breadth of the land, and the question it discusses should be agitated until a just and equitable system of taxation is established.

E. L. GODKIN, editor of the New York *Evening Post*, in an article on "The Expenditure of Rich Men," in the October *Scribner's*, says that rich Americans, by building great houses for a display of their wealth, excite envy, hatred, and malice, and he advises them to avoid this by expending it in erecting great public monuments, such as picture galleries, museums, arches, statuary, etc., which will perpetuate their names, and rid them completely of the imputation of selfishness. Charles Scribner's Sons, New York City.

THE October number of the *New Crusade* maintains its usual standard of excellence. The leading article, "The Unity of the Family," by Horace Bushnell, is suggestive of the fact that the atmosphere of the home creates a family likeness in character, occupations, and thoughts. "Physical Nurture of Children" is adequately discussed by Mary Wood-Allen, M. D., and Mary Taylor Bissell, M. D. Other interesting articles follow. 50 cents a year. Wood-Allen Publishing Co., Ann Arbor, Mich.

THE October issue of *Table Talk* contains an article on "The Foods of Some of the North American People," by Dora H. Morrell, in which the characteristic dishes of the Esquimaux, the Hudson Bay Colony, and the Mexicans are described among others. There is also an interesting article on "Hallowe'en and Its Entertainments;" one on "Child-life in Japan," by Mrs. M. C. Myer; another paper of the "Friends in Council" series by Mrs. Burton Kingsland; some "Dainty English Desserts," by M. A. W. Rodgers, the usual Creole recipes which are given by a member of one of the oldest Southern families, as well as the standing departments of "Housekeeper's Inquiries" and "Menus and Seasonable Recipes," by Miss C. C. Bedford; "The New Bill of Fare," by Mrs. M. C. Myer; and a fashion article by Miss T. M. Forney. Altogether, is a most interesting and delightful number of the magazine. A sample copy will be forwarded our readers by the Table Talk Publishing Co., of Philadelphia, Pa., if you send your name and address to them.

"REMINISCENSES OF AN OCTOGENARIAN OF THE CITY OF NEW YORK (1816 to 1860).—By Charles H. Haswell, Member Am., Boston, and Philadelphia Societies of C. E., and Institutions of N. E. of U. S., and Institutions of C. E. and N. A. of Great Britain, etc. Illustrated. Crown 8vo, cloth, ornamental, $2.50. Harper & Brothers, Publishers, Franklin Square, New York City.

In the following pages it is not designed to furnish a history of the city during the period designated. . . . It is purposed only to give my recollection of some matters and occurrences that came under my observation or knowledge, and of some individuals who were prominently before the public, referring to matters previous and subsequent to the period embraced only when necessary to illuminate the subject treated of. Of the existence and advent of daily newspapers, only such are given as I knew of; and in a similar manner, the changes in churches and in the names of streets recited are those of which I was cognizant.—*Extract from Preface.*

"LITERARY LANDMARKS OF VENICE."—By Laurence Hutton. Illustrated. Post 8vo, cloth, ornamental, $1. Harper & Brothers, Publishers, Franklin Square, New York City.

"This volume," says the author, "is written for the foreigners, for the men of letters, for the lovers of art. . . . It is the result of many weeks of patient but pleasant study of Venice itself. Everything here set down has been verified by personal observation, and is based upon the reading of scores of works of travel and biography. It is the Venice I know in the real life of the present and in the literature of the past; and to me it is Venice from its best and most interesting side." There are illustrations from drawings by F. V. Du Mond and Guy Rose.

PUBLISHERS' DEPARTMENT.

THE fine addition to the Sanitarium gymnasium is now completed and in use. The addition gives the gymnasium a length of nearly one hundred and thirty feet, the width being forty-five feet, thus making a very commodious room. Patients may be found in the gymnasium at all hours of the day, hard at work developing their muscles, and laboring to correct such deformities as hollow chests, round shoulders, curved spines, and other natural and acquired defects.

There is probably no place in the world where exercise is so scientifically and systematically employed as a curative means as at the Battle Creek Sanitarium. The experience of the physicians of the institution with this important remedial agent during the past twenty years has resulted in the development of a special system, the value of which is coming to be generally recognized by the best authorities on physical training.

On arriving at the Sanitarium, each patient has the strength of each group of muscles tested. From these tests a chart is prepared, which shows the patient at a glance his relation to the average man as regards the strength of each group of muscles and each member of the body, the total strength, and other important facts. This chart enables a man to see at once whether he is stronger or weaker than the average man of his height, and how much; whether his weight is greater or less than what it should be in proportion to his height; whether his breathing power is sufficient or insufficient for a person of his weight and height, and exactly the percentage of variation from the normal. Such an investigation as this puts the physician immediately in possession of facts of the utmost importance in relation to the condition of the patient's constitution, his general stamina, etc. Each patient's prescription is based upon this careful study of his condition, so that there is no danger of giving a feeble patient too heavy gymnastic work, and the strong patient is certain to get enough work to give his muscles the amount of exercise necessary for maintaining their healthy development.

***

THE Sanitarium chapel, which has been for several months in process of construction, is now practically completed by the addition of a beautiful iron ceiling. The style of the structure is neat and in good taste, but inexpensive, and in keeping with the other numerous buildings connected with the institution. The building is so constructed that a portion of the gymnasium can be used as an addition to the chapel by raising the large doors which form the partition between the chapel and the gymnasium, giving a room of about one hundred and seven feet in length by forty-five in width. The fine large audience-room is not too large to accommodate the great number of people who, during several months of the year, swell the Sanitarium family to more than a thousand members.

***

DR. W. H. KYNETT, who has been doing medical missionary work at Vicksburg, Miss., is now assisting in the Industrial Department of the Medical Mission and Working Men's Home in Chicago. The doctor has contributed two of his ingenious hand-looms, with which it is hoped that a thriving business can be done in the manufacture of rugs and rag carpets, particularly the former. Any of the friends of this work who have worn-out ingrain carpets which they would like to contribute, may assist the work by sending the same, freight prepaid, to the mission. Address the Chicago Medical Mission, 42 Custom House Place, Chicago, Ill. Do not neglect to prepay the freight. Any amount of carpet-rags, well sewed, can also be used to advantage in connection with the work. The idea is to give men who are out of employment something to do by which they can earn their board and lodging until they can find employment elsewhere. Dr. Kynett contributes his time as well as his looms to the work. Nobody makes anything out of it. It is an enterprise in the interest of God and humanity.

***

MR. D. T. JONES reports that work is progressing rapidly on the sanitarium at Guadalajara, Old Mexico. When completed, this institution will be an unrivaled place for invalids who require the advantages of a high altitude with a perpetual summer atmosphere. The temperature at Guadalajara is cooler in the summer than in most parts of the United States, and so much warmer in winter that flowers grow perpetually out of doors, the lowest temperature being barely sufficient to produce light frosts two or three times during the winter months.

***

WE are glad to note that the Sanitarium at Basle, Switzerland, is rapidly getting onto its feet. The superintending physician, Dr. De Forest, writes us that patients are coming in freely, and that all connected with the institution are working hard to accomplish the speedy cure of those who come, which results in their advertising the good work done for them, thus bringing in others likewise needing relief.

***

THE Sanitarium farm of five hundred acres has presented a busy picture this season. In addition to a large dairy, which employs a number of hands, an immense vegetable-gardening business has been carried on during the present summer. No end of pease, tomatoes, green corn, string beans, etc., have been raised by the young men connected with the Industrial School. Sometimes more than one hundred and fifty persons have been employed on the farms, which have produced enormous quantities of the finest vegetables grown anywhere. The guests of the Sanitarium have enjoyed greatly the bountiful supplies of fresh garden vegetables of the choicest varieties. The amount raised has, however, been much greater than needed for immediate consumption at the institution, and the surplus has been turned over to the Sanitarium canning-factory.

***

SOME of the new foods which have been recently devised at the Sanitarium, particularly nuttose, bromose, nut butter, nut cream, and nut cheese, are creating a good deal of interest among the patients. One patient who had conceived a great liking for nuttose, ate a whole canful an hour before dinner-time, the other day, and then took a small dinner

as a dessert. He felt so well over his achievement that he mentioned it to a number of others, and it was not long before he became the center of wide-spread curiosity on the part of doctors, nurses, and fellow patients, all of whom were anxious to see what would happen to him. Nothing happened, however, except that the next morning he declared that he felt better and stronger than usual.

A very lean patient who had been rapidly losing in flesh for some time, and who, with every other adjustment of diet which could be arranged, could not be made to gain in flesh, gained three quarters of a pound daily by the use of nuttose, as the result of which he immediately felt an increase in strength, and at the end of a week found he had gained exactly three and one-half pounds, or at the rate of one-half pound a day.

The demand for nut products manufactured by the Sanitas Food Company has been increasing at a very rapid rate, so that it has become necessary to purchase nuts by the car-load. This business is making an unprecedented demand for almonds, pecans, and other nuts. More than half a ton of nut products are now turned out weekly.

***

CLEVELAND approved the bill of fare, of which Granola, Granose, and Caramel-Cereal were important features. Agreeable to the wishes of both President and Mrs. Cleveland, the White House steward now regularly supplies the family table of the nation's chief executive with the foods above named and other health products manufactured by the Sanitarium Health Food Company, of Battle Creek, Mich. Not only are these foods rapidly gaining in popularity with all classes in this country, but are also very highly esteemed in foreign lands, as is shown from the fact that large shipments are constantly being made to India, Burma, South Africa, the Gold Coast, as well as to England, Germany, and other parts of Europe, and to Australia, New Zealand, and the South Sea Islands. All up-to-date grocers handle these goods.

***

MRS. CLEVELAND'S SECRET OUT.— Washington despatch to the Chicago Herald, March 15, says: —

"Mrs. Cleveland has been seen frequently in the last ten days walking about the city, and inquiry to-day from one of the cabinet ladies revealed the fact that the first lady of the land had adopted a systematic course of walking for exercise. She walks well, too, and almost any bright morning she may be seen going for a call to some friend's house or taking a constitutional, pure and simple. Her costume on such occasions is a short walking skirt, clearing the ground by two inches, a close-fitting jacket, and a chinchilla collar. Mrs. Cleveland's constant good spirits and health are a source of continued wonder to her friends."

Another good reason why the nation's first lady is the happy possessor of "good health and spirits" is that she makes use of Granose and other "good health" foods, manufactured by the Sanitarium Health Food Company, Battle Creek, Mich.

***

GOOD NEWS FROM SOUTH DAKOTA.— The glorious results of this season's harvest of golden grain will pour a stream of sound money into the pockets of every Dakota farmer.

South Dakota has thousands of acres of choice farming and ranch land lying east of the Missouri River, and within one day's ride from Chicago or Milwaukee, which can now be bought reasonably cheap, but which before the end of another year may be advanced in price.

The stock-raising industry in South Dakota is profitable, and Eastern capital is now being invested in cattle- and sheep-growing in that State.

Diversified farming, the growing of live stock, and the products of the dairy, are placing South Dakota foremost in the ranks of the successful Western States.

Those desiring full information on the subject, and particularly those who wish to seek a new home or purchase land, are requested to correspond with Harry Mercer, Michigan Passenger Agent, 7 Fort street W., Detroit, Mich.

***

HARVEST EXCURSIONS.— In order to give every one an opportunity to see the grand crops in the Western States, and to enable the intending settler to secure a home, the Chicago, Milwaukee & St. Paul R'y has arranged to run a series of harvest excursions to South and North Dakota, and to other States in the West, Northwest, and Southwest on the following dates: July 21, August 4 and 18, September 1, 15, 29, and Oct. 6 and 20, at the low rate of two dollars more than ONE FARE for the round trip. Tickets will be good for return on any Tuesday or Friday within twenty-one days from date of sale. For rates, time of trains, and further details apply to any coupon ticket agent in the East or South, or address Harry Mercer, Michigan Passenger Agent, Detroit, Mich.

GLYCOZONE

Both Medal and Diploma
Awarded to Charles Marchand's Glycozone by World's Fair of Chicago, 1893, for its Powerful Healing Properties.
This harmless remedy prevents fermentation of food in the stomach and it cures:
DYSPEPSIA, GASTRITIS, ULCER OF THE STOMACH, HEART-BURN, AND ALL INFECTIOUS DISEASES OF THE ALIMENTARY TRACT.

HYDROZONE

IS THE STRONGEST ANTISEPTIC KNOWN.

One ounce of this new Remedy is, for its Bactericide Power, equivalent to two ounces of Charles Marchand's Peroxide of Hydrogen (medicinal), which obtained the Highest Award at the World's Fair of Chicago, 1893, for Stability, Strength, Purity and Excellency.

CURES ALL DISEASES CAUSED BY GERMS.

GLYCOZONE is put up only in 4-oz., 8-oz. and 16-oz. bottles, bearing a yellow label, white and black letters, red and blue border, with signature.

HYDROZONE is put up only in small, medium and large size bottles, bearing a red label, white letters, gold and blue border.

PREPARED ONLY BY

Charles Marchand

☞ Mention this publication.

Chemist and Graduate of the "Ecole Centrale des Arts et Manufactures de Paris" (France).

SOLD BY LEADING DRUGGISTS.

Charles Marchand — 28 Prince St., New York.

The Stomach: Its Disorders and How to Cure Them.

By J. H. KELLOGG, M. D.

Superintendent of the Battle Creek (Mich.) Sanitarium, Member of the British and American Associations for the Advancement of Science, the American Microscopical Society, the Society of Hygiene of France, Author of the Home Hand-Book of Domestic Hygiene and Rational Medicine, etc.

A BRIEF, practical treatise on the most common of human ailments, in which the causes and cure of the functional disorders of digestion are dealt with in a clear and practical manner.

THE FOLLOWING ARE LEADING CHAPTER HEADINGS:

The Organs of Digestion,
Foods,
The Digestive Fluids,
General View of the Digestive Process,
The Maladies of the Modern Stomach,
Important and New Discoveries Relating to Digestion,
The Symptoms of Dyspepsia,
The Systematic Treatment of Indigestion,
Treatment of Dyspepsia,
Remedies for the Home Treatment of Dyspepsia,
Quacks and Nostrums.

The work is illustrated with more than one hundred and thirty cuts, including eleven full-page plates, three colored plates, etc. *This work ought to be in the hands of every dyspeptic.*

PRICE, Cloth, $1.50. .. .. .. Half Buffing, $2.00.

MODERN MEDICINE PUBLISHING COMPANY.

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.

A VISIT TO THE BATTLE CREEK SANITARIUM.

A SOJOURN in Battle Creek without a visit to the Sanitarium is like the tragedy of Hamlet with Hamlet left out, or a visit to the national capital without seeing the noble and historic structure where our nation's laws are made.

The Sanitarium is easily accessible from the various depots and hotels of the city, either by street-car or carriage. As the visitor nears the institution, he is impressed with the beauty of both the surroundings and the architecture of the place. Perfectly kept lawns, artistically designed flower-gardens, beautiful potted plants, bordering and festooning the spacious verandas of the buildings, a generous growth of tropical foliage, huge banana trees, and century plants, splendid palms, cacti, etc., tastefully arranged among our own native trees, the rustic summer-house standing near the driveway, and the large fountain playing just in front of the main entrance,— all these combine to produce a scene of ideal beauty and an environment at once helpful, restful, and inspiriting.

Having entered the business office and expressed to the clerk a desire to "look over" the institution, our visitor is informed that the regular visiting hours are 10 A. M. and 4 P. M. He is then ushered into the reception-room, where he awaits the coming of an escort.

View of the Front Drive, Looking North from Main Entrance.

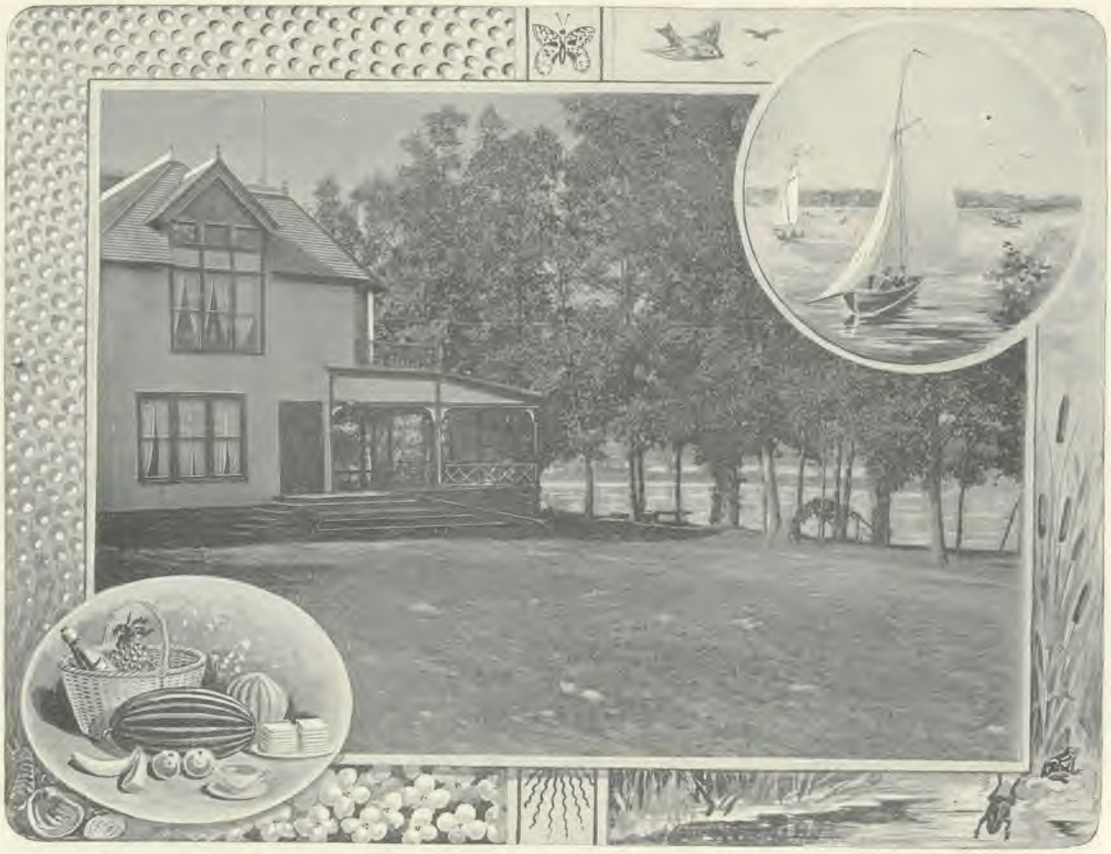
A Bird's-eye View of the City.— The visitor is first invited to pass down the main hall to the elevator, which he takes, and soon finds himself on the roof of the main building, from which he obtains a bird's-eye view, not only of the veritable little village that makes up this mammoth institution, but also of the entire city of Battle Creek, and

a far-reaching landscape, which is rarely excelled for beauty.

Immediately across the way he sees the buildings of Battle Creek College, a flourishing educational institution surrounded by a large campus and beautiful grounds. Over the right wing of the main college building, half a mile in the distance, he sees another beautiful structure, which is pointed out to him as the Haskell Home for orphan children, one of the many philanthropic enterprises which have grown out of the Sanitarium, itself one of the most beneficent and wide-spread philanthropies in the country. A visitor to the orphans' home finds that from eighty to one hundred orphan children are there given a home.

Across the valley toward the left will be noticed the water-tower at Lake Goguac, from which the city of Battle Creek obtains its water-supply. This lake is one of the most beautiful sheets of water in Southern Michigan. A street-car line runs to the lake directly from the Sanitarium. At the lake the Sanitarium maintains extensive grounds and a beautiful villa for the entertainment and pleasure of its guests, and also a large dairy and vegetable farm. Every few weeks during the summer season the management of the institution take all their guests out to the villa for a day's picnic. These occasions are regarded by those who have participated in them as the very acme of perfection in the way of an outing for invalids.

Coming nearer, and fixing our vision upon the more immediate "Sanitarium village," the most prominent object to attract attention is the huge smoke-stack rearing its imposing head from the heating-plant and power-house, from which heat, light, and machine power are supplied to the entire institution by the huge boilers, great dynamos, and engines required for this work. Just to the left is another large five-story building, the Nurses' Dormitory, just to the west of which are located the steam laundry building, and the bread bakery building. Still farther west is the old main building, a modest frame structure which was the original Sanitarium building, having been opened for the purpose of a health institution just thirty years ago this present month, at which time it was situated at the south



The Sanitarium Lakeside Resort.

end of the present main building, facing on Washington street. Immediately adjoining this building to the south is the pumping station, in which the machinery seems ever busy bringing forth from the depths of an artesian well reaching two hundred feet below the surface, the purest and best of water from the solid sandstone rock. Repeated examinations have shown this water to be absolutely free from germs. Yet even this splendid product of Dame Nature is not regarded by the managing physicians as sufficiently wholesome for the use of their patients. According to their decree, even this water must needs be subjected to the process of distillation before it can be used for drinking purposes.

Just beyond the driveway, and connected with the main building, is the large natatorium, which is free to guests, and is in operation summer and winter. Across the street north, and opposite the main building, is the Hospital, an imposing structure five stories high and 100 x 60 feet in extent. A few rods from this, to the north, is the main factory of the Sanitarium Health Food Co. In addition to the buildings named, there are about twenty cottages which, scattered over the twelve acres constituting the site upon which this great establishment is planted, form the Sanitarium village.

Passing from the roof, the escort explains that the main building is six stories high, 312 feet in length, with a rear extension of 100 feet, and has a capacity for three hundred guests; while the accessory buildings afford accommodations for more than seven hundred additional persons, making a total family during the busy part of the season of more than one thousand individuals.

Having thus obtained something of a bird's-eye view of the Sanitarium and its environments, the visitor is given an opportunity to make an inspection of its inner workings, and learn something as to the career of a patient in the institution while making his progress from sickness to health. Accordingly, the next point of interest visited will be the laboratories.

The Laboratories.— The first one we enter is the dietetic, or stomach, laboratory. Here it is explained that the Sanitarium has a regular system or series of scientific tests, by means of which the exact physical condition of each patient is ascertained before any remedial measures are employed in his behalf. These tests are in addition to the physical examination made by the physician in charge of the case. Probably the most important of all the tests made is the stomach test.

The next morning after the patient has arrived and become comfortably settled, if he is a sufferer from indigestion, he is given the privilege of enjoying a test breakfast, which consists of a measured amount of granose, water, and salt. This is retained in the stomach for an hour, and then by means of a stomach-tube is easily removed, and brought into the laboratory, where it is placed in a sort of filter. The clear fluid passes through this into receivers below. The fluid thus obtained is then subjected to fifty-two different chemical combinations and analyses. It will readily be seen that after such a thorough investigation, a report of which is made to the physician in charge of the case, he has very definite data upon which to base his prescription for such medication as may be necessary, or for treatment in the bath, electrical, massage, and other departments of the institution, and especially for diet.

A portion of the stomach fluid is then taken into the bacteriological laboratory, immediately adjoining, and here an extensive and thorough line of experimentation is carried on to ascertain whether or not the stomach under examination is infected with germs. To demonstrate its actual condition in this regard, a portion of the stomach fluid is placed in some media in which any germs that it may contain will be reproduced. These "cultures," as they are called, are allowed to stand from twenty-four to forty-eight hours, when, if germs be present in the stomach fluid, there will result an enormous reproduction of germ life, one germ sometimes producing millions. Some patients, as the result of this experiment, learn for the first time that they are "millionaires." Germs are of many varieties, colors, and dispositions. Some indicate their presence by the formation of gases; while others cause a discoloration of the media in which they subsist, and still others produce the liquefaction of such substances. By means of these experiments the physician is enabled to know what remedies are necessary to eradicate these multifarious pests, and to alleviate the numerous stomach disorders that result from their presence.

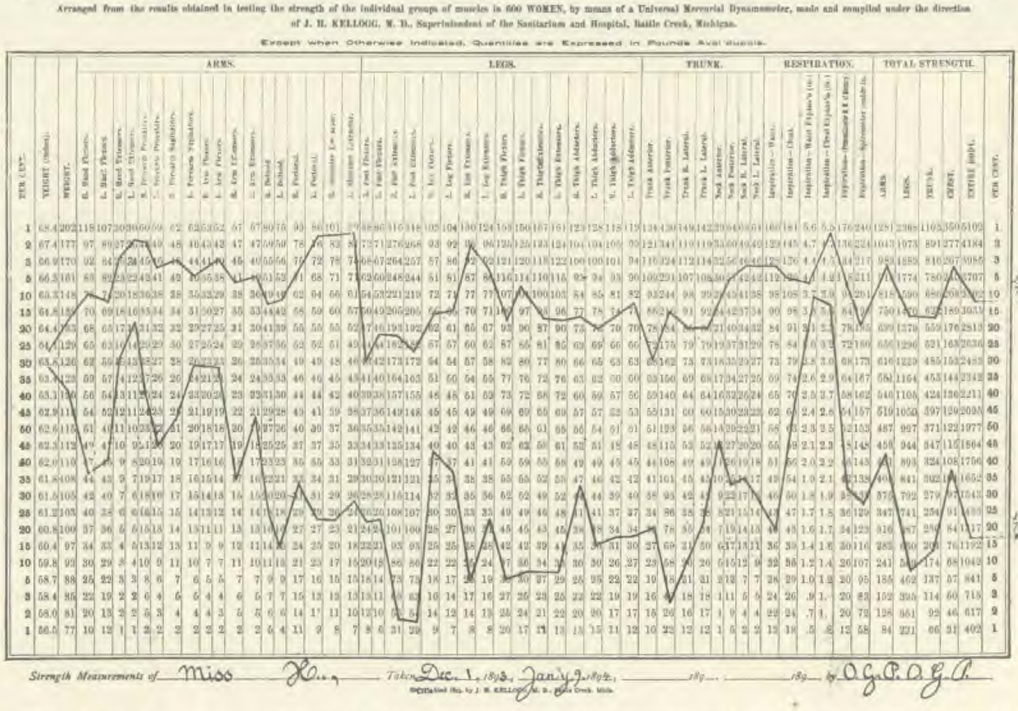
Another test is that of the blood. The physician gently punctures the finger of the patient, and removes a drop of his blood, which is taken to the laboratory, where it is thoroughly examined under the microscope, and otherwise, for the purpose of ascertaining whether it is in a healthy condition, and performing its proper functions in the system.

From the bacteriological laboratory we pass into the general working chemical laboratory, and from that into the urinary laboratory, where numerous

tests are made to ascertain whether the organs of the urinary system are performing their functions properly.

The next point of interest to be visited is the Manual Swedish Movement room, in which are found apparatus and appliances for strength, lung, and other tests. Here we find a strength-testing apparatus which has met with so much favor from experts in the line of physical culture that it is now in use at the United States Military Academy, at West Point, is for learning the lung strength, for which purpose a pneumatometer is used. In addition to these tests, numerous measurements are taken to ascertain the height, the reach, the chest and abdominal expansion, etc. It will therefore be seen that the first important thing done for the benefit of the patient is to ascertain just what is the matter with him.

Manual Swedish Movement Department.—Not the least important of the remedial agents utilized by the institution are those connected with the



The above is a representation of the improvement in strength and muscular symmetry made by a young woman as the result of six weeks' training and treatment.

at Yale University, and many other prominent educational institutions. By means of straps, levers, and the adjustment of the machine in various ways, twenty-four different groups of muscles can be tested. Every newly arrived patient who has strength enough to be about, is given the strength test, and complete and accurate records are made of the results shown. Based upon this test, a regular prescription for work and exercise in the gymnasium is made out, with a view to building up and perfecting a symmetrical development of the entire muscular system.

The next test given is for the purpose of ascertaining the capacity of the lungs in cubic inches, which is made by the use of the spirometer. Another test

physical culture department. Nearly all patients who resort to the institution are more or less enfeebled in their muscular mechanism, and not infrequently there are entire groups of muscles which they have completely lost the power to move or exercise. Especially is this true of those suffering from paralysis, rheumatism, chronic constipation, etc. The purpose of the manual Swedish movements is to restore these dormant and inactive muscles to the performance of their proper functions by means of manual manipulation of the muscles, ligaments, and bones of the body. Patients who have lost their ability to walk and the use of various members of their body, are not infrequently entirely

restored to a normal condition within a few weeks or months by the methods used in this room.

Mechanical Swedish Movement Department. — The institution also provides a mechanical Swedish movement room, which is the next to be visited, where some of the same results are obtained by the use of machinery. Upon entering this department, the visitor is quite surprised at the general hubbub, noise, and roar that meets his ears. He has not been in the room long, however, before he is fully convinced of the efficiency of the appliances therein contained for the re-establishing of the active circulation of the blood and the ultimate revivifying of the muscular forces.

Immediately adjoining the mechanical Swedish movement room is one containing machinery and appliances especially for the treatment of women, and for remedying the prolapse of various organs. These machines are also utilized by men when afflicted with prolapse of the stomach. The machines are so adjusted and so operated that the patient is placed in a position whereby the prolapsed organ is restored to its proper location in the body. Other machines in this room are for the purpose of overcoming curvature of the spine, and various other bone and muscular deformities.

The Gymnasium.— The next point of interest is the gymnasium. Here, as explained to the visitor, are numerous and complete appliances by the aid of which patients can carry out the prescriptions given them for training and exercise, all of which is done under the direction of competent instructors. Each morning at 7 : 30, shortly before breakfast, is conducted a Delsarte breathing exercise, which helps materially to sharpen the appetite.

The Gymnasium.

At 9 o'clock each morning, just after breakfast, begins a half-hour dumb-bell and marching drill, in which all the patients who are not confined to their rooms take part with great zest and enthusiasm.

Again at 4 o'clock in the afternoon, immediately after the dinner hour, the patients convene in the gymnasium for another breathing exercise, which helps materially in settling the appetizing dinner which has just been partaken of. At 6 : 30 in the evening occurs an Indian-club drill and marching exercise.

The gymnasium has recently been materially enlarged by an extension of forty-five feet, just beyond which is the newly constructed chapel, soon to be dedicated. Beneath the chapel, which adjoins the gymnasium on the east, is a large room which is being fitted up for a library and reading-room for the nurses and medical students.

The Dining-Room.— Entering the main corridor from the gymnasium, and passing just to the left, the dining-room is entered. During all seasons of the year this room is generously provided with potted flowers and tropical plants, and presents an inviting appearance which commands the admiration of all who enter it.

Electrical Departments.— Passing from the dining-room toward the office, the first object of interest is the static electric machine, the largest machine of its kind in the world, which was built especially for the Sanitarium. Here electricity is generated by means of huge revolving glass wheels. The patients sit adjacent to it upon an insulated platform, and the electricity is conducted to them by means of an electrical wind, controlled by a wand manipulated by a competent physician who has charge of the machine.

Adjacent to this room is the consulting office of the superintendent, and on the opposite side of the hall is the men's electrical department, where various kinds of electricity are applied to the different parts of the body through the medium of sponge electrodes, manipulated by skilled attendants.

Offices.— On either side of the hall leading to the business office, are the pharmacy and offices of different specialists. Continuing the journey, beyond the clerk's desk, we come, on the left, to the business offices, where a large force of clerks and bookkeepers are constantly on duty. Just beyond is the chaplain's office, opposite which is the post-office and sanitary supply department, where patients not infrequently gather in large numbers, anxiously waiting for "a letter from home." Here also are kept in stock a full line of sanitary supplies for both ladies and gentlemen, stationery, health books, health under-garments, dress patterns, daily newspapers, etc.

Parlors.— Continuing his course, the visitor notices on the left the bright, cheerful, airy reception-room, opposite which is the writing-room. Both these apartments are connected with and open into the beautifully appointed and amply lighted main parlor. This is the gathering-place for the large family of patients constantly enjoying the hospitality of the Sanitarium.

Morning prayers are held in this room each day at 7 : 45, just before the breakfast hour. The parlor is also frequently the scene of delightful social, literary, and musical entertainments. Twice each week, on Tuesday and Thursday evenings, Dr. Kellogg here delivers lectures on various health topics to the patients. Other lectures are also frequently given by different members of the medical staff.

Bath Departments. — The visitor finds it convenient to visit next the men's bath-rooms, which are on the first floor, in the rear, just opposite the main entrance. The ladies' bath departments occupy the same position in the second story. On entering the bath-rooms, he sees straight before him a series of three archways, through which the various main departments of the extensive bath compartments are entered. That into which he is first ushered is devoted to the dressing- and cooling-rooms. The men's bath departments have accommodations for about seventy-five persons at one time ; the ladies' departments are nearly twice as large, as there is always a preponderance of lady guests in the institution.

At the north end of the dressing-room the visitor enters the electrical department, where all forms of electrical baths are administered. Here may be seen numerous patients, either enjoying the luxury of an electric bath, their bodies drinking in, as it were, the life-giving electric current, or on comfortable cots receiving the application of electricity through sponge electrodes. Here, as elsewhere through the various departments of the bath-room, and in fact the entire institution, the visitor is impressed with the uniform courtesy, kindness, and careful attention given to each patient by the various nurses and attendants.

Passing from this room, he enters the electric-light bath and Russian bath department. The electric-light bath is one of the most novel and unique therapeutic means found in the institution. It consists of a cabinet, sometimes made upright, and sometimes horizontal. The cabinet is lined with mirrors from which jut out numerous incandescent electric lights, which are reflected by the mirrors from side to side in such a manner that the effect is greatly multiplied. In the upright cabinet the patient sits surrounded by these luminous sources of radiant heat. In the horizontal bath he lies upon a movable table, the top of which is made of plate glass and below which is placed a series of lamps, so he is completely surrounded with luminous rays.

Adjacent to the electric-light bath department is the Russian bath department, fitted up with marble

walls, shampoo slabs, hot and cold sprays, etc. It is one of the most elegant and complete Russian baths to be found anywhere. The Turkish bath is also adjacent to the electric-light bath department; but since the latter has been introduced, the Turkish bath is but little patronized, the electric-light bath being pronounced superior, since vigorous perspiration may be produced without the necessity of breathing warm air, the air surrounding the patient being of the same temperature as that of the room, notwithstanding he may be perspiring vigorously under the cogent influence of radiant heat radiating from incandescent filaments.

In another part of the bath department the visitor notices numerous attendants going into and out of small apartments in which various kinds of massage and other treatments are given. He then wends his way past private rooms for various kinds of water treatments, to the spray and douche room. Here he finds probably the finest and most elaborate apparatus yet devised, by means of which not only the heat but the pressure of the water may be accurately regulated, and by a simple movement of a lever, alternating currents of hot and cold be applied by the attendant. After the patient has enjoyed the deliciously exhilarating sensation resulting from the well-tempered spray succeeding his treatment, he passes into an adjoining room, where he is thoroughly rubbed down and made ready to don his street costume.

The Swimming-Bath.— Just to the rear of the bath-rooms, in a building especially equipped for this purpose, is the natatorium, where patients can enjoy at any time of the year all the delights of a splendid plunge and swim. Skilled instructors are also present to teach all who desire to learn, the important but much-neglected art of swimming.

The Nurses' Dormitory.— Going into the outer air from the natatorium, passing the Annex, or old main building, the pumping station and laundry buildings, a walk is taken to the nurses' dormitory. In the basement of this building are extensive dining-rooms, with accommodations for from five to six hundred persons. As the institution constantly has on its pay-roll the names of from six to seven hundred people, one can readily see that the dining-room at the dormitory is always well patronized. Of course some of the employees live in their own homes.

Going to the second floor, and passing out through the hall, one notices on the right the reception-room and on the left the assembly-hall, where morning prayers are held for the family each day at 6 : 40, immediately after breakfast. In this room the workers also assemble for various religious, literary, and social entertainments during the week. The assembly-room, as well as some other rooms in this building, are used as recitation and lecture-rooms in connection with the medical missionary training-school for nurses, which is conducted in connection with the Sanitarium, and is the largest training-school for nurses in the world. The enrollment in this school each year varies from three to four hundred. All the nurses employed in the institution take a regular course of study in everything pertaining to the art of scientific nursing. As the name of the institution implies, every nurse joining this school does so with the purpose in view of devoting his life to medical missionary work, under the supervision of some regularly established medical missionary board, either in the large cities of our own country or in foreign lands. Many of those who have graduated from this institution are already engaged in this noble work in various parts of the world.

There is also conducted under the same general management as the Sanitarium, a well-equipped medical college, which is known as the American Medical Missionary College. This institution was incorporated under the laws of the State of Illinois July —, 1895. At its opening forty students matriculated. These have recently concluded their first year's work, and have made very gratifying advancement in their studies. The college numbers among its staff of lecturers not only several of the able physicians connected with the Sanitarium, but also some of America's most noted specialists in various lines. Another large class will enter the institution at the opening of the next college year in October. The course prescribed requires four years for its completion. The most scientific studies are conducted in the Sanitarium laboratories and a portion of the Battle Creek College, which has been set apart for this purpose, although the college proper is located in the city of Chicago, where clinical and other medical instruction is given. It is rare indeed that young men and women studying medicine are favored with such exceptional opportunities for the practical study of all forms of disease and the application of rational methods for their cure as are enjoyed by the students of the American Medical Missionary College.

Creamery.— Just to the rear of the dormitory is the Sanitarium creamery, where are received each day from fifteen hundred to three thousand quarts of milk, the quantity varying with the season of the

year. Here sterilized butter is manufactured for the special use of the Sanitarium tables. When the milk is first brought in, it is run through a regular "separator," after which the cream is sterilized by being placed in huge cans in which the temperature is raised by means of steam to 180° F., thus destroying any dangerous germ life that may be contained therein. After being thus separated from the milk, and sterilized, the cream is placed in long cans which are immersed in tanks filled with ice. After a few hours comes the churning. It would be a delight to any dairy expert to notice the care and scrupulous cleanliness preserved in this creamery. It is safe to say that the butter here produced is the purest and sweetest that can possibly be made.

Power-House.— Just across the drive-way from the creamery is the power-house, previously pointed out when our visitor was taking his bird's-eye view from the top of the main building. An interesting feature of the power-house is the eight huge furnaces wherein crude oil is made use of as fuel. An idea of the cost of maintaining the institution may be obtained when it is stated that, even in the summer-time, it is necessary to use twelve hundred gallons of oil per day in order to furnish heat, light, and power to the institution. During the winter months between four and five thousand gallons of oil are required daily.

Greenhouses.— Between the power-house and the Sanitarium main building are located the extensive floral conservatories of the institution. They are drawn upon at all seasons of the year, especially during the winter months, for flowers to enliven the rooms of guests, as well as the parlors, dining-room, and other public rooms.

The Cooking-School.— The Hospital building is the next point of interest to the visitor. Entering the basement, he is first shown into the cooking-school department, where he is charmed with the perfection of equipment, and the neatness, order, and cleanliness which he notices on every hand. Here he finds thirty-five little experimental kitchens, in each of which is cosily arranged a complete outfit of kitchen furniture, such as gas stove, oven, kettles, oatmeal boilers, spoons, knives, forks, etc. The cooking-school was established especially for the instruction of the members of the Nurses' Training-School, who are given the benefit of a thorough course, both of theoretical instruction in the school and of practical work in the Hospital kitchens connected therewith. In this department may also be seen several cabinets containing cooking utensils and various kinds of foods, not only such as are in common use, but also many used in foreign lands and in olden times. Neither in this school nor in the Hospital kitchens are used animal fats, such as lard or suet, saleratus, soda, or baking-powder. The instruction given is purely in the line of scientific hygienic cookery.

Connected with the cooking-school is a dining-room, pleasantly lighted and well-equipped, where the regular Hospital patients take their meals after they have become sufficiently convalescent to leave their rooms.

The Hospital.— There are in the Hospital twenty endowed beds, the endowment of each being two hundred dollars a year, which pays the board of the patient at four dollars a week, the institution furnishing the surgery, medical treatment, and care entirely free of charge. Fully one half of the hundreds of important operations annually performed in this Hospital are of this class. The endowments are provided by various church and State societies, and by private individuals charitably disposed. Were the usual fees charged in all these cases, the income of the institution would amount to more than one hundred thousand dollars a year. Thousands of dollars are spent annually by the institution in the support of this charity work.

Taking the elevator, the escort shows the way to the surgical ward, which is located on the fifth floor. The first room of interest is the disinfecting-room, where all who have occasion to enter the operating-room on operating-days disinfect their hands by washing them in bichlorid of mercury. Here also they dampen their hair before entering the room. Then comes the wardrobe. Here also all who have occasion to enter the operating-room upon such days place over their other garments a long white robe, which is tightly fastened, and over their shoes cloth sandals. The hair is wrapped about with sterilized cheese-cloth. The purpose of these precautions is to prevent the spread in the operating-room of any germs that may be lurking about them.

The visitor is then shown into the anesthetic-rooms, where he notices tables on rollers. On these the patient about to submit to an operation is placed to receive the anesthetic. Everything being arranged in the operating-room, the surgeon and his assistants at hand, together with a trained corps of the most skilled nurses which the institution affords, the patient is wheeled into the operating-room and gently lifted from the anesthetic table onto the operating-table. The framework of the operating-table is iron, and the body of it plate glass. The operation being performed, the patient is lifted on

to the bandaging-table, upon which he is removed to his room in the ward.

Another table in the operating-room bears the sponges; still another, the instruments; and still another, bandages and supplies of various sorts. All the tables are constructed of glass and iron, so as to be germ proof. On the further side of the room may be seen the instrument cases, which contain between five and six thousand dollars' worth of instruments. Immediately adjoining one of these is a tall iron rack on which are suspended jars full of various antiseptic and other solutions ready for immediate use, if needed during an operation.

A few feet beyond are the disinfecting-urns, in which the surgeon frequently bathes his hands during the operation, to prevent the spread of any germs with which his hands may come in contact in performing the operation. There will also be noticed near the heating coils a steam fixture, which injects steam into the room just before operations begin, for the purpose of causing any germs that may be in motion in the air to absorb moisture and thus settle to the floor.

On one side of the operating-room is the gallery, to which admission is given only to the immediate friends or relatives of the patient having an operation, and to visiting physicians and surgeons. There is stationed on each operating-day in the gallery a stenographic reporter, who takes down everything the surgeon says during the operation and an account of every circumstance which occurs, so that a complete record of each case is kept.

The operating corps consists of the surgeon and two or three assistants, together with about twelve expert nurses and three or four physicians skilled in the administration of anesthetics. In the performance of their work, the nurses are drilled to a military precision by means of rehearsals, in which all the details of the operation are gone over by the aid of a dummy patient and a sham operation, so that as each operation advances, they know how to provide the operating surgeon with just such instruments and appliances as he may need, without his giving them special instruction.

The most scrupulous care is taken to render the operating-room thoroughly aseptic and antiseptic. The great value of the extreme care taken in this regard is abundantly demonstrated by the remarkably low death-rate which the Hospital records show, the Hospital enjoying in this respect a better standing than any other in the world.

Leaving the operating-room, the sterilizing-room is then entered. Here is seen a huge retort that reminds one not a little of a Krupp gun. This is used for the purpose of sterilizing the linen used by all patients in the Hospital, also pillow-cases, etc., used upon their beds. The sterilizing is accomplished by placing the goods in the retort, closing the door, making the chamber thoroughly air-tight, and forcing steam into and through the goods under high pressure. This thoroughly and completely puts to rout any germs that may be hiding in the various fabrics.

Adjoining the sterilizing-room is another in which is a receiver from the distilling-apparatus, which is located in the attic above. Thus all the water that is used for any purpose whatever in the Hospital building is first made thoroughly free from germs.

On the floor below the surgical ward there is, in addition to the rooms for patients, a very pleasant reception-room, always provided generously with the most beautiful flowers, where patients are frequently to be found in their wheel-chairs, enjoying the flowers and the sunshine. It is needless to say that this room is but little used in summer, as patients can then be wheeled out upon the spacious verandas and lawns surrounding the buildings.

Taking the elevator, the visitor soon reaches the main floor of the Hospital building. On the left of the main hall is the Hospital parlor. In this room on each day at 12 : 30 is held a brief prayer service for the benefit of such patients in the Hospital as are able to leave their rooms. Not infrequently this room may be seen almost completely filled with wheel-chairs bearing convalescent patients. This is also used as a lecture-room in connection with the Nurses' Training-School, and contains a large library, under the care of a librarian, which is especially provided for the use of nurses and medical students.

On the opposite side of the hall are the business offices of the Good Health Publishing Co., where are to be found busily employed a large corps of clerks, stenographers, and bookkeepers.

The Health Food and Canning Factories.— Bidding farewell to the Hospital building, the journey is continued, and soon the main building of the Sanitarium Food Co. is reached. Here taking the elevator, a descent is made to the basement floor, where are the engines and machinery for the manufacture of Granose, Granola, and other special cereal foods produced by this company. All the wheat and other grains used in the manufacture of these foods are thoroughly purified by elaborate machinery before entering upon the various processes through which they pass.

On the second floor of the bakery are located the pearling machines, also the cracker-making machinery, and two large "Ferris-wheel" revolving ovens. After the crackers are baked, they are put into a cracker conveyor, which carries them to any part of the building desired. Granola and Granose, two important foods which have found their way into many American homes, are manufactured here. This company has recently begun the manufacture of graham flour, corn-meal, corn grits, crystal wheat, and various other cereal breakfast grains, which are subjected to the most thorough purifying processes.

The visitor again takes the elevator and ascends to the third story, where he sees a large company of young ladies busily engaged in packing in cartoons the various foods manufactured, and men at work packing the cartoons into boxes for shipment to every part of the world.

Besides this main building, the Sanitarium Food Co. has three other factories, one heretofore mentioned, just in the rear of the Sanitarium, also another factory near the Michigan Central railroad tracks where the Caramel-Cereal is produced. A few rods from this building is another large building, which has been recently equipped and set in operation as a canning-factory, where are produced various kinds of the choicest cann fruits and vegetables, in quantities sufficient not only to supply the growing needs of the Sanitarium, but also for others who appreciate pure foods.

Thus having visited the various points of interest in and about the institution, our visitor completes his circuit by returning to the reception-room in the main building. To say that he often expresses surprise as he progresses on his tour of inspection is putting it but mildly. Nearly every one rounds out his trip by expressing most profuse thanks for the opportunity just afforded him of looking over the institution, and not infrequently it is said, "I knew there was a Sanitarium in Battle Creek, but I had no idea that it was such a mammoth institution as I have seen. I am perfectly amazed at the completeness of its equipment, and the thoroughness with which its various methods and appliances are utilized for the care and cure of the sick."

A Wheel-Chair Social on the Lawn.

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.

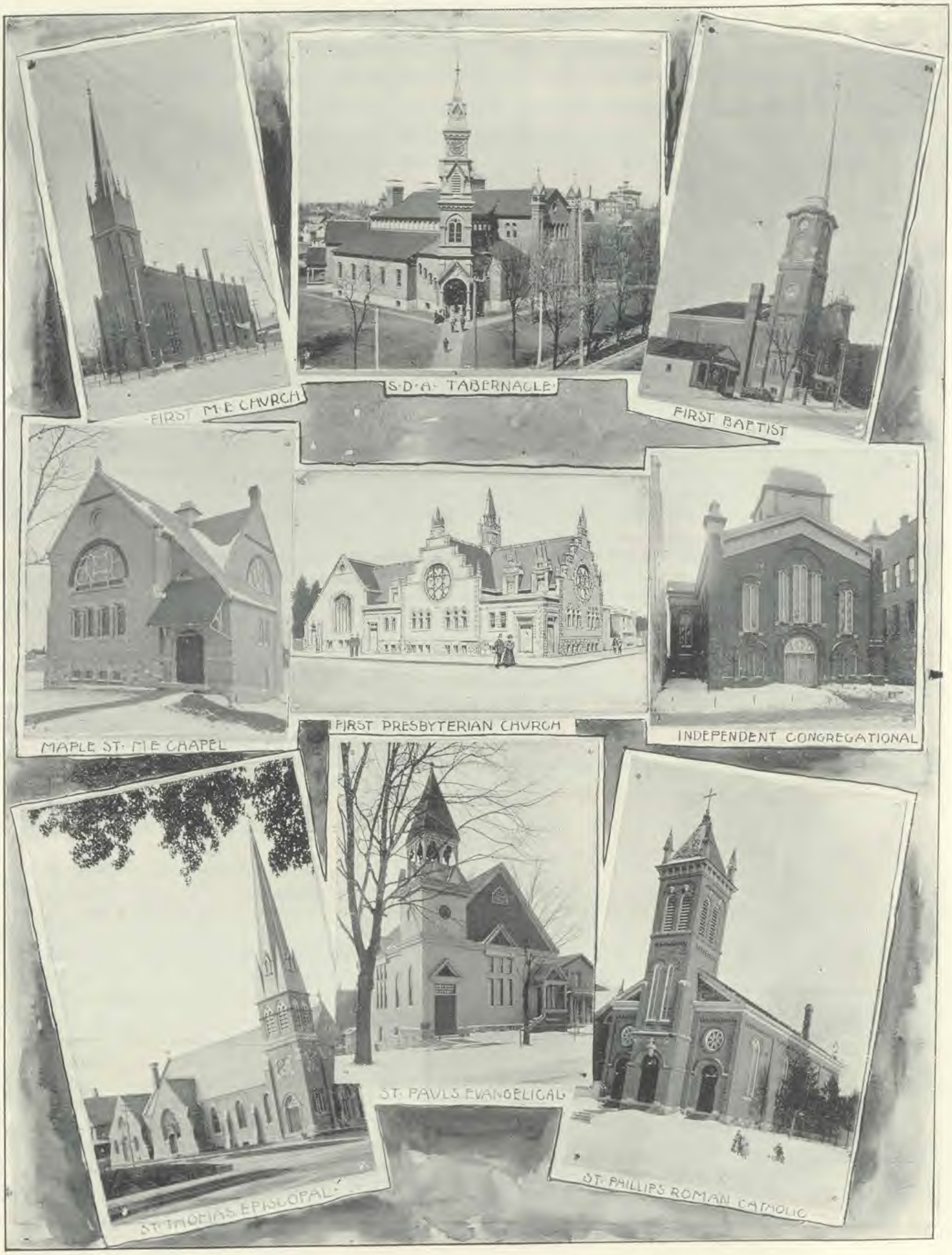
The Nichols & Shepard Company, the other thresher manufactory, is located in the eastern part of the city. This is a great industrial concern and has always been prosperous. It is managed by the Hon. E. C. Nichols and David Shepard, both of whom are men of excellent business ability and large experience,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

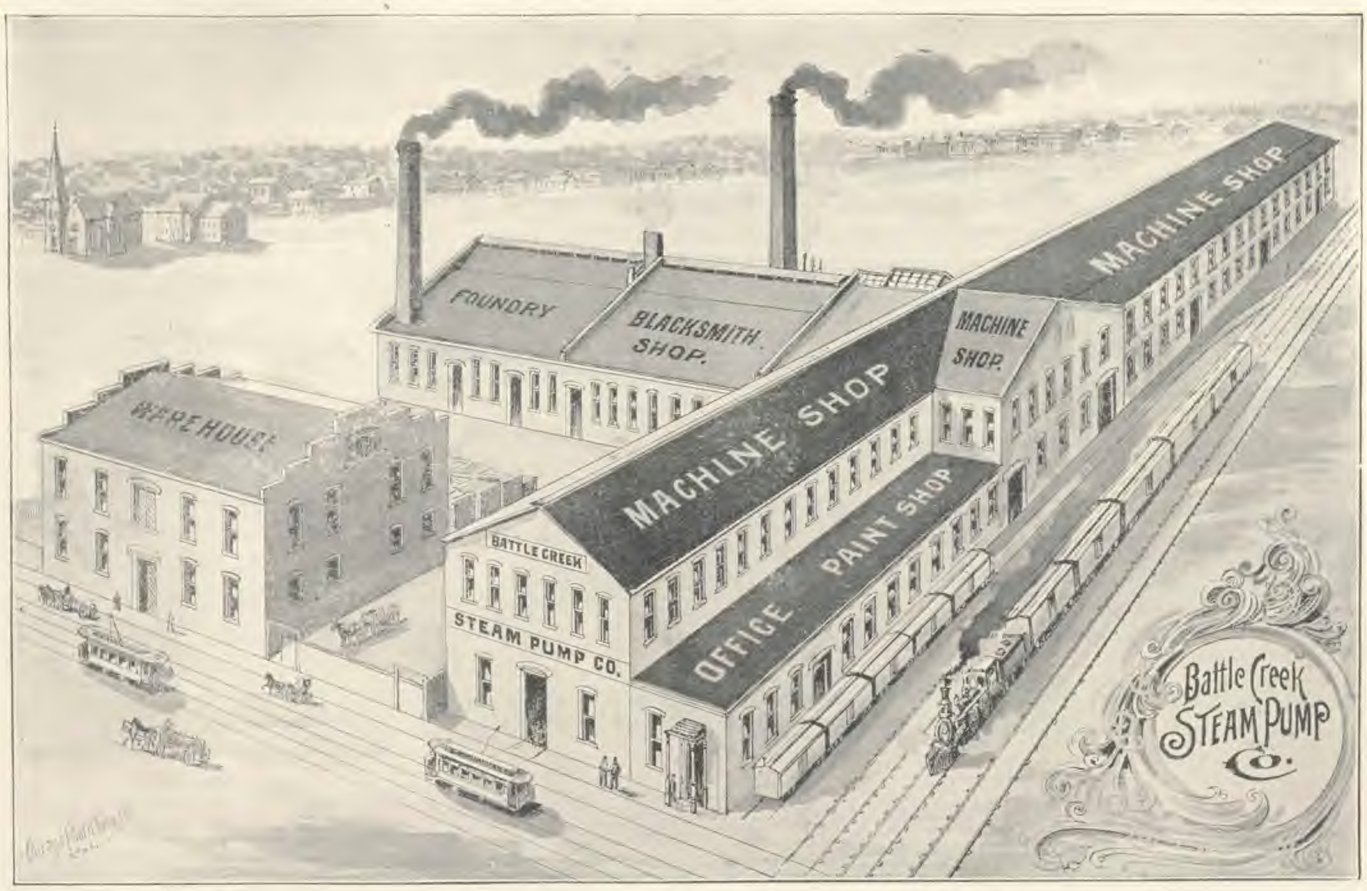
There are several other manufacturing firms in the city, besides the extensive repair shops of the Grand Trunk Railway, in all employing about 2500 men.

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.



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.

W. C. GAGE & SONS
THE PRINTERS

BATTLE CREEK, MICH.,
Make a Specialty of

LARGE CONTRACTS.

COMPLETE EQUIPMENT.

Electrotyping and Engraving of all Kinds.

First-Class Work in Every Department.

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.

D. Magner, Battle Creek, Mich.

Agents Wanted for a new household article.

EVERY FAMILY WANTS IT.

Send stamp for full particulars. **Large Profits.**

R. E. HART & CO., 40 Lincoln St., Battle Creek, Mich.

MARR & DUFF,

Headquarters for

Staple Dry Goods
AND NOTIONS.

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.

Duplex Printing Press Company.

CAPITAL, $300,000.

Manufacturers of
PRINTING PRESSES.

IRVING L. STONE, President.
V. P. COLLIER, Vice-President.
AUSTIN W. ALVORD, Secretary.
FRANK W. DUNNING, Treasurer.

OFFICES AND WORKS,
SOUTH MCCAMLY, CORNER HOUSTON ST.
TELEPHONE 148.

AMBERG & MURPHY,

Wholesale and Retail Drugs, Chemicals, Perfumes, Sundries, Rubber Goods.

NO. 5 EAST MAIN ST.

Chas. F. Bock & Son,

Headquarters for the Leading Stoves in America.

Garland, Red Cross, Round Oak. GARLAND STOVES AND RANGES Magee, and Steel Ranges, Mantels,

GRATES, AND TILE HARDWARE.

18 West Main St.

For the very latest and best styles in

Silks, Dress Goods and Trimmings

and all fine

DRY GOODS

call at

L. W. Robinson's, Trump Block.

H. T. HARVEY, D. D. S.

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

Suite 1, 2, 3 Trump Building, 35 West Main Street, BATTLE CREEK, MICH.
Telephone, Office 202; Residence, 202, 3 rings.

THE

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.

SANITARIUM LIVERY,

S. I. ABBEY, Prop'r.

169 Champion Street, South Side. Telephone 11.

Battle Creek, Mich.

First-Class Outfits,

SINGLE OR DOUBLE,

At Reasonable Rates.

H. A. PRESTON,

Boots, Shoes, and Rubbers.

Fine Goods a Specialty.

No. 7 E. Main St., Battle Creek, Mich.

BOOKKEEPING AND BUSINESS PRACTISE

For Grammar and High Schools and Academies. Used in hundreds of leading schools.

It cannot be adequately described; you must see it.

Nothing else like it; nothing else equals it.

As Cheap as the Text-book Method and a thousand times more practical.

Send for descriptive catalogue containing full particulars.

Address
ELLIS PUB. CO.,
San Francisco, Cal. *Battle Creek, Mich.*

Mason, Rathbun & Co.,

Dealers in

LUMBER, LATH, AND SHINGLES.

OFFICE and YARD,
102 South Jefferson St.

BATTLE CREEK, MICH.

TITUS & HICKS,

Merchant Millers,

We make a specialty of GRAHAM, WHOLE-WHEAT, SANITARY FLOUR, and WHEAT GERM GRITS made from the choicest MICHIGAN WHITE WHEAT.

Mail orders solicited and satisfaction guaranteed.

TITUS & HICKS, Battle Creek, Mich.

ARTHUR D. SMITH,
FINE CLOTHING AND GENTS FURNISHING GOODS
16 W. MAIN ST., - BATTLE CREEK, MICH.

RUEL M. SPEER
Dentist Fine Crown and Bridge Work a Specialty.
49 & 51 West Main St., - BATTLE CREEK, MICHIGAN.

RILEY, FISCHER & CO.,

4 W. Main and 5 N. Jefferson Sts.

ONE PRICE

Clothiers

AND GENTS' FURNISHERS,

Battle Creek, - Michigan.

NELSON ELDRED, President. *F. A. ALLWARDT, Cashier.*

INCORPORATED 1871.

City Bank

of Battle Creek, Mich.

DIRECTORS: NELSON ELDRED, S. H. MORLEY, J. M. WARD, R. SANDERSON, W. H. ELDRED.

Prompt Attention Given to Collections.

The National Bank

of Battle Creek, Mich.

Successor to First National Bank, Organized 1863.

CAPITAL, $150,000.

E. C. NICHOLS, President. *CHAS. AUSTIN, Vice-President.*

JAMES BOUGHTON, Cashier.

We pay 4 per cent. interest on Savings Deposits.

WILLIAMS HOUSE

New Management.

The only hotel in the city with steam heat. Centrally located. First-class in every respect.

$2.00 per Day.

D. C. MILLER, Proprietor,

Battle Creek, Mich.

W. B. BARNES,

Merchant Tailor.

Special attention given to Sanitarium guests. Suits cleaned and pressed. Repairing neatly done. Leave orders at office.

11 EAST MAIN ST.

LANDON A. DUDLEY,

Dealer in Fine Footwear,

Boots, Shoes, AND Rubbers.

Full line of everything from the fashionable Picadilly and Razor toe to the soft and easy shoe for the sick room.

6 WEST MAIN STREET.

50c.

IS THE WEDGE

Being driven in our Dress Goods that comprise all the latest styles, patterns, novelties, and designs, and they are High Grade.

HOFFMASTER,

Battle Creek, - - Mich.

Send for samples.

The Leader

Foreign and Domestic Dry and Fancy Goods.

Everything Strictly as Represented.

DOCKSEY, BEAN & WATSON,

8 E. MAIN STREET.

JEWELER C. C. THOMA OPTICIAN.

DIAMONDS, WATCHES, JEWELRY.

Eyes Tested Free.

SILVER, CUT-GLASS, and CHINA.

Sanitarium SOUVENIR SPOONS Battle Creek

Repairing and Engraving our Specialty.

9 W. MAIN ST., BATTLE CREEK, MICH.

W. S. KEET,

FURNITURE OF ALL KINDS.

FUNERAL DIRECTOR AND UNDERTAKER.

PHONE: RESIDENCE, 122; STORE, 93.

22 W. MAIN ST. BATTLE CREEK, MICH.

BATTLE CREEK FLOURING MILLS Manufacture all kinds of GOOD HEALTH FLOURS, including Wheaten Grits and Whole Wheat Flour

for wholesale and retail trade at home and abroad.

FRANK W. WARD.

J. F. HALLADAY & SON,

Wholesale Grocers.

Agents for STANDARD OIL CO., at Battle Creek, Mich.

54, 56, & 58 EAST MAIN STREET, BATTLE CREEK, MICH.

KNIGHT & BEACH, Manufacturers of

Sash, Doors, Blinds, AND Builders' Material.

POLISHED PLATE, ART AND WINDOW GLASS AND GLAZING.

OFFICE AND SHOPS, 129-141 W. MAIN ST.

L. B. BROCKETT & SON,

Hardware, Stoves, and Tinware.

TELEPHONE 31. 59-61 WEST MAIN ST.

POPULAR MEDICAL WORKS.

The Home Hand-Book of Domestic Hygiene and Rational Medicine,

the most popular medical treatise ever published; 1700 pages; prices: —

Muslin, Richly Embossed in Jet and Gold,	$4.50
Half Buffing, Marbled Edges,	5.00
Library, Marbled Edges,	5.50
Full Morocco, Royal Edition,	9.00

Ladies' Guide,

a work which has saved the lives of hundreds of women, and the health of thousands. Ought to be in the hands of every young woman, and every wise mother; 700 pages; prices: —

Cloth, Embossed in Jet and Gold,	$3.00
Half Buffing, Marbled Edges,	3.50
Leather (Library Style),	3.75
Half Morocco, Gilt Edges,	4.25
Full Morocco, Gilt Edges,	5.50

MODERN MEDICINE PUB. CO., Battle Creek, Mich.

Man, the Masterpiece,

a work which deals with the practical questions upon which every young man ought to be informed, concerning himself. Special chapters devoted to sexual physiology. A work which ought to be in the hands of every young man; 600 pages; prices: —

Cloth, Embossed in Jet and Gold,	$3.00
Half Buffing, Marbled Edges,	3.50
Library (Leather), Marbled Edges,	3.75
Half Morocco, Gilt Edges,	4.25
Full Morocco, Gilt Edges,	5.50

MODERN MEDICINE PUB. CO., Battle Creek, Mich.

Good Health,

a family health magazine, every number of which is worth many times the subscription price. Every intelligent mother needs this journal to enable her to keep abreast of the progress of the age in domestic hygiene, child culture, and all that pertains to the health of the home.

Price, ... $1.00 a year.

Address

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

Windsor BICYCLES

THE

American Beauties

FOR

1896

Win Love at First Sight

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

Windsor, $85 and $100.

For Catalogue, address

SIEG & WALPOLE MFG. CO.,

Chicago Branch—285 Wabash Ave., Kenosha, Wis.

Address all Correspondence to Kenosha, Wis.

THE CYCLONE WASHER

Stands Without a Rival.

Gives more satisfactory results with less expenditure of energy than any other washing machine. **Buy a "Cyclone" and save your strength,** is what the people say. We give the following from among the testimonials we are receiving daily.

TERRA CEIA, FLA., Jan. 29, 1896.

CYCLONE WASHER CO.,

I received the washer some time ago, and to say that I am pleased with it is too tame. I am perfectly delighted with it. Have shown it to several, and they are all pleased with the work and talk of buying one. Shall begin for orders and will want a dozen in a few days.

Yours truly,
MRS. E. A. LENNARD.

BATTLE CREEK, MICH.,

MESSRS. COON BROS.,

Gentlemen: It gives me pleasure to add one more to your list of testimonials for the "Cyclone Washer." We have one in our family, and do not see how we could get along without it. The washing, instead of a drudgery, has become a mere pastime. It ought to be in every family.

Sincerely,
FRANK ARMSTRONG.

MANUFACTURED BY **COON BROS.,**
20 HANOVER STREET,
BATTLE CREEK, MICH.

Agents Wanted Everywhere.

The New Crusade.

(FORMERLY THE "MOTHERS' FRIEND.")

A Monthly Periodical Issued in the Interest of the Home and Society.

EDITED BY MARY WOOD-ALLEN, M. D.

The success of the "Mother's Friend" in the first year of its existence, induces the publishers to **enlarge its size and broaden its scope.**

While continuing to emphasize the educational phase of Purity Work, it will also discuss the Rescue Work, the questions of legislation in behalf of morality, and all topics of health and heredity.

It will aim to present in a plain and practical way, an answer to the many moral problems that are continually presenting themselves to parents, and are not treated in other periodicals.

The **NEW CRUSADE** will wage a peaceful war against all forms of evil, and strengthen the good name which it has earned as the "Mother's Friend."

Send for circular concerning **club rates and advantages secured** to those who desire to club with other periodicals.

Personal problems can be presented to the editor, and if of general interest, will be answered through the publication.

Single Copy, 5 cts.
Subscription, 50 cts. per Year.

For sample copy or further particulars, address the publishers,

WOOD-ALLEN PUBLISHING CO.,
ANN ARBOR, MICH.

CARAMEL-CEREAL.

A MOST delicious substitute for the Coffee Bean, and contains none of its harmful properties.

Progressive physicians have, for many years, recognized the fact that tea and coffee are responsible for indigestion, impoverished blood, starved nerves, bad complexion, facial eruptions, and other ailments, and consequently have felt the necessity of a substitute which would be **agreeable,** and at the same time **reliable.** This demand has been met by **Caramel-Cereal. Caramel-Cereal** is prepared from wheat by a process which develops from the grain an aroma and a flavor closely resembling those of genuine Mocha or Java.

Caramel-Cereal has been used for over twenty years at the **Battle Creek Sanitarium,** and the demand has increased daily until it has become the most widely known of all cereal products.

Try it, and you will always use it.

Price 15 cents per pound package in handsome carton.

MANUFACTURED BY

Battle Creek Sanitarium Health Food Co.,
Battle Creek, Mich.

THE attention of those contemplating a visit to Europe is respectfully invited to the

INSTITUT SANITAIRE,

BASLE, SWITZERLAND.

This establishment, organized and conducted on the same principles as the Battle Creek (Mich.) Sanitarium, offers to the public what cannot elsewhere be found in Europe,—a combination and skilful application of the latest developments in the use of rational remedies.

Switzerland is annually visited by thousands for its unrivaled scenery and health-restoring climate; other places for their baths; but the popular resorts do not combine the advantages of climate and ordinary baths, with **strictly hygienic diet, massage, mechanical exercise, electricity,** and the **skilful application of the most approved hydropathic appliances,** and other natural remedies.

The **INSTITUT SANITAIRE** is conducted by those who received special preparation for this work in the Battle Creek Sanitarium. Treatments are administered by trained attendants under the direct supervision of a physician. Hygienic board and Sanitarium Health Foods are provided. Terms moderate. For particulars address,

INSTITUT SANITAIRE,
48 WEIHERWEG, BASLE, SWITZERLAND.

Superintendent Wanted . . .

For a small Sanitarium, with farm, garden, horses, cows. Acceptable to people; economical, with thorough business capacity; sterling integrity; gentlemanly but not afraid of work. Address,

M. D., Care Good Health Pub. Co.,
BATTLE CREEK, MICHIGAN.

Cannon-Ball Massage

CANNON BALLS are effective in combating certain forms of disease, as well as in destroying life. An eminent German physician discovered a few years ago that by means of a cannon ball covered with leather a patient suffering from inactive bowels may often effect a cure by the regular use of the cannon ball, rolling it along the course of the colon, beginning low down at the right side. This remedy has been in successful use for many years at the Battle Creek Sanitarium.

Send for Catalogue. **SANITARY AND ELECTRICAL SUPPLY CO.,** Battle Creek, Mich.

BEN-HUR
BICYCLES

ARE

ELEGANT in
DESIGN,
HIGHLY
FINISHED,
and HONESTLY BUILT.

We take great pains in keeping up the standard of excellence, and BEN-HUR Bicycles are to be compared only with the finest goods on the market.

ELEGANT CATALOGUE FREE.

CENTRAL CYCLE MANUFACTURING CO., Indianapolis, Ind.

Cushion Device is here.

There is a **Richmond** in the Field.

The Cushion Frame Bicycle gives . . . . . .

No Jar,
No Jolt,
No Strain.

50 per cent. of Ease and Pleasure added to Wheeling.

. . . . For Descriptive Catalogue address . . . .

Richmond Bicycle Co.,
Richmond, Ind.

EASTERN BRANCH,
97 Chambers St., New York.

The "Natural Abdominal Supporter"

Especially designed for persons of both sexes who are suffering from prolapse of the bowels or stomach, floating kidney, and other abdominal or pelvic displacements. The "Natural Abdominal Supporter" is more

Efficient, Comfortable, and Convenient

than any other which has been devised, and supports the organs of the abdomen in a natural way. No other single measure is so valuable in the treatment of the diseases of women and many forms of dyspepsia and constipation. Obviates the necessity for internal supports, and for surgical operations in many cases.

Does not interfere in any way with any bodily movement nor with the clothing. For descriptive circular, address,

MODERN MEDICINE COMPANY, Battle Creek, Mich.

A FIRST-CLASS LINE
FOR FIRST-CLASS TRAVEL.

Chicago, — New York, — Boston,

Via Niagara Falls and Buffalo.

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

A SUMMER NOTE-BOOK

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

R. H. L'HOMMEDIEU,
Gen'l Superintendent,
DETROIT.

O. W. RUGGLES,
Gen'l Pass'r and Ticket Agent,
CHICAGO.

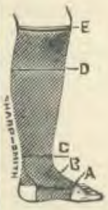
THREE HIGHEST AWARDS RECEIVED

AT THE

WORLD'S COLUMBIAN EXPOSITION,

Largest Manufacturers in the United States

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



Sprains,
Swellings,
Varicose
Veins, etc.

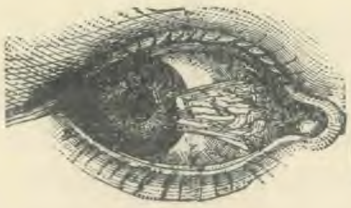
Abdominal Supporters.

DEFORMITY APPARATUS

Artificial Limbs, Crutches,

Trusses, Invalid's Furniture.

SHARP & SMITH, 73 Randolph St., Chicago, Ill.



THE CHICAGO COLLEGE AND HOSPITAL
. . OF . .
Ophthalmology and Otology,

3111 Indiana Ave., CHICAGO, ILL.

Incorporated Jan. 25, 1878,

FOR THE HIGHER EDUCATION OF PHYSICIANS AND STUDENTS IN THE SCIENCE OF OPHTHALMOLOGY, OTOLOGY, LARYNGOLOGY, RHINOLOGY AND COLLATERAL BRANCHES, TO CONFER THE

Degree of "Oculist and Aurist,"

And to grant Diplomas for proficiency in these Special Departments of Medicine and Surgery.

All teaching is individual. Matriculants work as assistants, examine and treat patients, and operate under the direction of the Teachers. The classes are limited in number, so that each member, as soon as competent, may personally treat as many patients as possible. Special attention is given to the most modern treatment of the routine cases which are daily encountered.

The Degree of "OCULIST AND AURIST" will be conferred upon candidates who pursue the full course and pass a satisfactory examination, and in addition to the COLLEGE DIPLOMA, a CERTIFICATE OF ATTENDANCE upon all branches taught will be given to all students who shall have attended one full session and passed the examination upon all the subjects of the same.

For full particulars and prospectus of the College Curriculum, address the Dean,

PROF. B. A. CAMFIELD, M. D., 3111 Indiana Avenue, Chicago, Ill.

AIR MATTRESSES.

THE Air Mattress has proved itself to be unequaled for *comfort and durability*. Not only does it fit the form perfectly when reclining, but may easily be made hard or soft by regulating the quantity of air contained. It is always perfectly clean, free from vermin or unpleasant smells. It requires no springs, as nothing is more elastic than air; and it is always "made up." It is cool and soothing in summer, and warm and comforting in winter. In cases of sickness it is indispensable, as it prevents bed-sores.

MADE IN ALL SIZES.

This cut shows Camp Mattress folded  in a shawl-strap ready for traveling.

PRICES ON APPLICATION.

SANITARY AND ELECTRICAL SUPPLY COMPANY,

BATTLE CREEK, MICHIGAN.

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:

JULIUS FEHR, M. D., Ancient Pharmacist,
HOBOKEN, N. J.

Only advertised in Medical and Pharmaceutical prints.

Battle Creek Sanitarium

is acknowledged to be the

Oldest and Most Extensive

Sanitarium conducted on Rational Principles in the United States. It has the special advantages of an

Elevated and Picturesque Site, and

Remarkably Salubrious Surroundings. The buildings are lighted by 1700-light plant, Edison incandescent system. Safety hydraulic elevators. General parlor, 40 x 50 feet. Dining-room with a seating capacity of 400. Cuisine unsurpassed.

Everything an Invalid Needs.

Special dietaries prepared as directed. The institution affords facilities for

Baths of Every Description:

Turkish, Russian, Vapor, Electric, Water Baths of all kinds, the Electric Light Bath, and a large Swimming Bath.

Scientific Hydrotherapy.
Electricity in Every Form.
Massage and Swedish Movements (by Trained Manipulators).
Mechanical Appliances of all sorts.

A Fine Gymnasium (with Trained Directors).
Classified Dietaries.
Unequaled Ventilation, and
Perfect Sewerage.

Artificial Climate for those needing special conditions.

Thoroughly aseptic surgical wards and operating rooms.
All conveniences of a first-class hotel. Incurable and offensive patients not received.
Trained Nurses of either sex furnished at reasonable rates.

For Circulars, address **Battle Creek Sanitarium,** **Battle Creek, Mich.**