FEBRUARY, 1895.

GOOD HEALTH

CONDUCTED BY

J. H. KELLOGG M.D.

Subscription price $1.75
(Including Companion Volume)

PUBLISHED MONTHLY.

GOOD HEALTH, VOL. 30, NO. 2.

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BATTLE CREEK, MICH., February, 1895.

GOOD HEALTH
A JOURNAL OF HYGIENE
MENS SANA IN CORPORE SANO.
VOL. XXX. NUMBER 2.
BATTLE CREEK, MICHIGAN. FEBRUARY, 1895.

BIOGRAPHICAL HEALTH STUDIES.

BY F. L. OSWALD, M. D.,
Author of "Physical Education," "The Bible of Nature," etc.

13. Alexander III.

THE history of mankind abounds with illustrations of the fact that error is a more fruitful source of human misery than malice; where the ill-nature of Nero would have butchered hundreds, the bigotry of Philip the Second slaughtered tens of thousands. A personal demon, going about in the shape of a roaring lion, could not have devoured more human lives than did the witchcraft delusion. The fallacies concerning the cause and cure of lung diseases have caused more mischief than all the wars kindled by hatred and truculence.

Nor can we reasonably doubt that the natural penalties of ignorance are as severe as those of vice; and if the religion of the future should recognize that truth, the fate of Alexander the Third may be destined to furnish the text of many an impressive sermon.

The late autocrat of the Russian Empire was neither a despot nor an egotist, but his gross religious, political, and sanitary prejudices made existence a burden to himself and millions of his subjects, and achieved their own cure by shortening his life by at least thirty years.

The remarkable contrasts between his character and that of his father are partly due to the circumstance that he was a second son, and that his parents bestowed their chief educational care upon his elder brother, Prince Nicholas Alexandrovitch, whom contemporaries of all nations agreed in describing as "a marvel of goodness and cleverness." Compared with his younger brother, the crown prince was a frail and rather sensitive lad, but in his twenty-third year had already become the idol of his countrymen, and the news of his death at a Mediterranean winter resort caused a sensation almost resembling the frenzy of national sorrow provoked by the murder of Germanicus. In St. Petersburg people cancelled the programs of festivals and draped their doors in black, as if they had lost a near relative; but the most sincere mourner was the thick-headed boy, whom the genial crown prince had often bantered about his dullness and fits of mulishness. Alexander was rather proud of his clever brother, but he certainly did not envy him his prospects, and in moments of irritation his chief solace was the thought that Nicholas would have to wrestle with the thousand-fold problems of governing an overgrown empire, while his lucky juniors could take their ease in country seats and the administration of out-of-the-way provinces.

The first effect of his changed destiny was that of a sore disappointment; he became moody, misanthropic, and finally what the Germans call *pietistic*, *i. e.*, religious from disgust with the present phase of existence, and ready to transfer his hopes to the prospect of a better hereafter. Still, he was not entirely without ambition, and from his changed points of view came sometimes to consider himself the destined reformer of his nation, and resolved to begin the good work by discouraging the frivolities of his former associates.

Baron Dennis-Ambert, who saw him in the winter of 1866, describes him as a "squat, headstrong youth, who appears to be in a chronic state of ill-humor, and is said to have inherited the physique of his maternal grandfather (the grand duke of Hesse-Darmstadt) without the brains of that accom-

plished prince." The St. Petersburg wits called him the "young steer," and questioned the possibility of his outgrowing his dislike to court ceremonies sufficiently to assume the functions of an heir-apparent. About his muscular development there could be less doubt. He knocked down obnoxious flunkies left and right, and there is an ancedote about a curious memento of his wrath presented to the chief steward of the Winter Palace. That functionary had been bullied till he laid his grievance before the czar in person, who at once summoned the crown prince and proceeded to read him the riot act in a rather emphatic manner. The major

Alexander III.

domo stood trembling at the unexpected violence of the storm he had ventured to provoke, and felt rather relieved when the entrance of an imperial adjutant diverted the czar's attention to other topics. But about the same time the crown prince emerged from the corner of the buffet where he had been standing, pale and speechless with rage, and as he passed the informer, he handed him a chunk of metal which on closer inspection proved to be a silver sugarbowl, twisted and re-twisted out of all resemblance to its former shape.

As a matter of duty, the crown prince began to study political economy and attend sessions of the cabinet council, and as a matter of duty also he consented to marry the bride of his brother, the Princess Dagmar, of Denmark. He is said to have remained more faithful to his marriage vow than any other prince of the Romanoff dynasty, but the inevitable additions of etiquette bother almost broke the heart of the young Benedict. He intrigued for the permission to seek relief in provincial inspecting tours, and returned with the reluctance of a schoolboy resuming his studies after a pleasant summer vacation. At certain times of the year his presence at the imperial dinner table was *de rigueur*, but he compromised the matter in a characteristic way of his own. Instead of tasting the delicacies of the *menu* or paying the least attention to the cross-fire of conversation, he would busy himself whittling the knobs of a French walnut, or placing tidbits within reach of his neighbors left and right, then retire at the first possible moment and lock himself up in his private room to enjoy a dinner all of his own, sometimes with the connivance of the steward, but oftener by the management of a confidential officer of the guard.

The outbreak of the Turkish war gave him an opportunity to establish his reputation for personal courage, but the brilliant exploits of General Skobeloff altogether eclipsed the achievements of the perfunctory crown prince, whose love of solitude was moreover so deeply rooted by this time that he heartily welcomed the treaty of peace, and hastened back to his St. Petersburg palace-den, and the congenial company of the metropolitan Pictists, who had begun to recognize the value of his reactionary tendencies for their party purposes. The causal connection of rationalism and rebellion became one of the cardinal tenets of his creed, and at his supper-parties his grunt of dissent promptly silenced comments on the absurdities of the orthodox church.

"That 's what comes of encouraging scoffers!" were his first words on learning his father's fate, and for the next thirteen years all the energies of the absolute ruler of the largest empire of the Caucasian race were devoted to the task of crushing out liberalism in all its forms: gagging the press, muzzling free speech, studding the frontier with barriers against literary contraband, reviving obsolete blue-laws, harassing university teachers, bullying their students, dragonading the Protestants of the Baltic Provinces, abrogating the scant remaining privileges of the Polish Catholics, and driving millions of Hebrews to the verge of suicide. American readers still remember the murmurs of protest against the outrageous treatment of Siberian convicts — women and children many of them — and the still more inhuman persecution of dissenters in the western bor-

der-provinces, where travelers could witness scenes like those described by Las Casas in the track of the West Indian slave hunters: fugitives dying under the wayside trees, or moaning faintly, "Hunger! hunger!"

And the czar perpetrated his barbarities in the honest belief of doing his duty as a patriot and a Christian ruler, and the opposition of sinners drove him almost to insanity. The protests of a committee of foreign philanthropists and the discovery of nihilist plots repeatedly provoked him in a manner to justify the remark of Leo Hartmann, that "the oppressor of 115,000,000 human beings is, after all, the unhappiest man of his empire." In his fits of rage he would stagger to his private apartments and collapse in a window-niche, then pick himself up and stalk to-and-fro like a madman meditating murder, and repulse intruders with a violence that admonished his chamberlains to lock the very corridors of the neighboring rooms and countermand the arrangements for the next three or four meals. As a self-prescribed sedative, the autocrat at such times often swallowed a quart of sherry and went to bed, till he awoke from a fever dream and resumed his meditations in a window-corner, muttering to himself, and perhaps crouching into a recess of the cushioned alcove, where a discreet attendant would cover him up with pallets. Like his predecessor, Nicholas I, Alexander the Third became at last so haunted with the dread of assassins that he renounced the luxury of outdoor exercise. As usual in such cases, physical inactivity begot a chronic torpor which before long reacted on the functions of the brain and made the sluggish potentate averse to any measure of reform that might have implied the necessity of intellectual exertion. His alleged love of peace, too, may have had something to do with that constitutional sloth. He was no coward, and hated the ruler on the throne of the German Empire with an intensity that would have made him enjoy the explosion of another Franco-Prussian war *minus* a Von Moltke and *plus* a possible Bonaparte *redivivus;* but the idea of having to participate in a scuffle of that kind made his indolence shudder, and he contented himself with strengthening the bulwarks of his western frontier forts and whetting his cavalry sabers in an audible manner whenever Kaiser William vaunted the improvement of his infantry tactics.

Habitual indoor life avenged itself in digestive difficulties. As early as 1887 the plethoric czar consulted a French specialist in dyspepsia, but dismissed him when he recommended pedestrian exercise and a change of diet. The blue-pill alternative did not suit him altogether either, but his made-dishes of hot-spiced *ragouts* were not much better. His *chef de cuisine* at that time was a native of Vienna, famous for his *paprica* stews and his *gulash á-la* Buda Pesth,—a mixture of broiled mutton and pepper in almost equal proportions. The imperial sherry, too, gave way to stronger tonics, and Alexander the Third had reason to envy the sound sleep of the poorest *mujik* who moistened his rye bread in a plate of cabbage soup. The court-physician then recommended "passive exercise"—a long sea-voyage, or better yet a railway trip to the Caucasus, where steep grades and rough tracks could be relied upon to give a tourist an equivalent of horseback riding. The czar got under way, but so did the nihilists, and a few hundred miles south of Moscow the emperor was favored with the details of a timely discovered plot to blow up the entire imperial family at Novotcherkask, in the country of the Don River Cossacks. Only the dread of incurring the suspicion of timidity prevented the relinquishment of the projected journey; the court-train, loaded with sharpshooters and detectives, and preceded by a "test-locomotive," reached Transcaucasia, but all the same the train was ditched in the defile of Borki, at a spot which the advance guard engine had passed in safety. Both the czar and the czarina were severely bruised, and though the connection of the accident with nihilist tricks has never been clearly established, the mere suspicion was enough to make the imperial dyspeptic renounce the passive-exercise remedy.

His fits of insomnia got worse than ever, and in the winter of 1888 he tried, as a last resort, to earn a few hours of sound sleep by shoveling snow in the castle park of Czarske Salo. The specific itself would have been less objectionable than the time of its application: the short hour from dinner to the evening twilight of a Russian winter day. Work of that kind upon a full stomach disordered the patient's digestion to a hopeless degree, and he became subject to chills, and fond of overheated rooms. His bedrooms were so warm that an effect akin to stupefaction could be made a substitute for natural sleep, and the members of the imperial family who were now and then honored by the visits of his Majesty, could not please him better than by keeping their parlors at a bake-oven temperature. At one of these visits Alexander III contracted the contagion of the grippe, which finally saved the nihilists the trouble of another conspiracy. Like catarrh, influenza is proximately due to a micro-organism akin to the consumption microbe, and requiring for

its development a stagnant, warm, and impure atmosphere. The grippe is an indoor disorder, and it is a suggestive fact that its numerous international epidemics can in every case be traced back to the country where the economizing of foul air for the sake of its warmth is carried to the most preposterous extreme. The same, by the way, holds good of the *rinderpest*, or cattle plague, which has five times made the tour of the world from a starting point in Eastern Russia, the cradle of contagious lung diseases.

The attack of influenza that alarmed the family of the czar in the spring of 1889, was at first not of that malignant type that compels a patient to keep his bed and shakes him with successive fever fits, but merely a lung affection resembling a severe cold, and showed signs of abatement when a severe relapse was brought on by the prescription of a lancet-and-nostrum practitioner. The czar lost his appetite, sat moaning all day with his head bandaged, and in the attempt to cross the room was frequently seized with cramps that obliged him to hold on to his bed till he could regain his easy chair with the aid of an attendant.

One of the Darmstadt princes visited St. Petersburg about this time, and recommended the services of a German specialist, but the insubordinate conduct of the Battenberg ruler of Bulgaria had completed the czar's aversion to the very mention of Teutonic topics, especially if coupled with reform plans, and he answered the importunities of his visitor with the remark that he would sooner die in conformity to the rules of the orthodox medical school than be bothered with the movement cures and dietetic experiments of a sanitary reformer. That semi-facetious confession may really have come near expressing the state of his mind when he dismissed Dr. Theodore Bischoff the next winter, and re-engaged his old Moscow doctor, Zacharin, a specialist of perhaps deserved fame in skin-diseases, but whose preference for the heroic old-fashioned remedies made a resort to his prescriptions a rather perilous expedient in the treatment of lung disorders.

A correspondent of the Cologne *Gazette* had an interview with that Moscow medicine man a few months ago, and contrary to his expectation found him a man of extensive information and of strikingly original views on some topics, however firmly wedded to old traditions in other respects.

"What do you think of homeopathy, Doctor?" asked the press correspondent, by way of trying what lawyers call a leading question.

"O, its a very useful experiment," said the Moscow *sangrado*, "only its followers should stop calling it by a wrong name. What it has proved is that many patients can recover better without any medicine at all, and there is no doubt that doctors are troubled with the sufferers from a thousand petty ailments that had better be left in the hands of grandmother Nature.—But look here," he added after a pause, "do you know that your countryman, Hahnemann, was on the track of a great truth when he evolved a doctrine that has made him the victim of more ridicule than all his trillionth and quadrillionth fractions of grain doses?"

"By his appeals to classic precedents, you mean?"

"No; don't you remember that he set all Europe a chuckling by his assertion that nine tenths of the worst disorders of the human race were merely a modified form of *itch*?"

"And your practice in the northeast has made you a convert to that doctrine?"

"Not altogether," laughed the Muscovite, "but don't you see that your friend was evidently on the close track of the germ-theory of disease? He spoke of *itch*, to illustrate his idea, but what he really meant was that a large number of diseases,—all contagious disorders, he might have said,—are due to the agency of microscopic parasites."

Dr. Zacharin had also the courage of his conviction in respect to some very sensible tenets of natural hygiene. "Get out of this, every one of you, and open all the windows," he said, when he found the czar in a crowded sickroom with the usual bake-oven temperature, "the air in here is enough to give one a fit of the cholera." When the flunkeys hesitated, he did open the windows all around with his own hands, and then proceeded to spoil his good work by bleeding the sick man within an inch of his life, and in spite of the czarina's pathetic protests.

"Oh, of course, we must desist," he said, "if your majesty agrees to assume the responsibility for all consequences. On the other hand, if you will let me go ahead, *I* will make myself responsible for the immediate good effects of the operation in reducing this feverish pulse."

Like the companions of Lord Byron, the relatives of the czar suffered themselves to be over-persuaded, and like Lord Byron, the czar had to admit the momentary abatement of his fever—the exhausted organism having to pause before resuming its struggle with the life-endangering foe. But in the meantime the strength of that foe waxed irresistible, and the fatuous phlebotomists might just as well have tried to extinguish a conflagration by silencing the firebells.

The czar had taken refuge in his Livadian winter resort, at the southern extremity of the Crimea, in a valley bathed by the waves of the Euxine and sheltered from the north wind by a range of majestic mountains. The foothills of those mountains are clothed with oak forests that form one of the few remnants of the grand *sylvania* which once covered the shorelands of the Mediterranean from the Caucasus to the western promontories of the Spanish Sierras, and in sheltered nooks myrtles and olive trees weather the winter in the open air.

Two years ago a few weeks' garden work in that ideal seaside resort would have scattered the grippe microbes as the mountain breezes scatter a dust cloud, but under the influence of drugs and venesection the disorder had passed the remedial stage. The constitution of a physical giant collapsed under the attacks of invisible foes, aided by not altogether invisible prejudices, for it is said that on the arrival of the telegram announcing the death of the czar, an indignant mob demolished the Moscow residence of Dr. Zacharin.

(To be continued.)

A HEALTH RESORT.

[THE following account of the Battle Creek Sanitarium was prepared and published without the knowledge of the managers, in the Chicago *Inter Ocean*, by a special correspondent of that paper who spent a few weeks in the institution for rest and treatment during the last summer. The article was republished in the Louisville *Courier-Journal*, the proprietor of which was also stopping at the Sanitarium at the same time. The article gives so clear and correct a picture of life at the Sanitarium, from an invalid's standpoint, that it will doubtless be of interest to many of our readers.]

While enjoying a lazy rest under the shady foliage on the lawn of this institution, a pleasant daydream came over me, and I thought to send a message to the sick, to the unfortunate ones who had never heard of, or, hearing, had never seen, this charming place.

In 1866 a few persons, feeling the necessity for an institution for the advancement of sanitary reform and rational medicine where the sick could be well cared for, organized a company for that purpose. The first building erected was a frame house which might perhaps accommodate twenty patients. The work has met with phenomenal success. Both rich and poor come here for help. The total number of employees is now over three hundred, and the surplus earnings, above what is expended in necessary improvements, go into the work of caring for the sick poor.

The Sanitarium proper embraces a number of buildings for the care of the sick. They occupy a hilltop in the northwestern end of the town, commanding a view of beautiful rolling country, green fields, and shady groves almost as far as the eye can reach. The main building is a handsome structure five stories in height, with mansard roof, bay windows and broad verandas, giving it an air of beauty and comfort. It will accommodate three hundred patients. The hospital, where surgical patients are located, has accommodations for one hundred more. There are also some twenty cottages used in various ways, a large new dormitory for the resident nurses, a dressmaking establishment, a laundry, a large steam bakery and food factory, where the special breads, crackers, and grains used in the Sanitarium and furnished to the trade are prepared. In the near neighborhood are homes for orphan children, the aged, and the insane, all under the management of the Sanitarium.

A corps of sixteen physicians, eleven of them men and five women, with one hundred and sixty-five nurses, both men and women, conducts the medical work of the institution.

The ideal of the equal suffragist is realized in this institution, for men and women stand side by side in every department of the work, from the physician to the helpers in the household, and, so far as I know, are equally efficient. Among the physicians are graduates of Bellevue, N. Y., Ann Arbor, Cincinnati, Rush Medical, and the Woman's College, Chicago. Nurses are expected to remain for five years, fitting themselves as medical missionary workers to go into any field of labor. Quite a colony of them have been at work in Chicago as district nurses, connected with the Chicago Medical Mission there. Mention of this mission was made in a lengthy article which appeared in the columns of the *Inter Ocean* last winter.

One of the most striking features of this place which impresses the visitor, is the spirit of kindness which seems to animate every one in any way connected with the institution. A cross or impatient word is never heard, a frown never seen, excepting,

perhaps, among the guests. A helping hand is always ready to push a wheel-chair or help along a feeble patient. There are no servants here, but all are *helpers*. Even the nurses are required to assist in the domestic work, and twelve hours of the twenty-four constitute a working day. One is impressed with the religious spirit which predominates. From the early dawn, when the morning hymns of devotional exercises are wafted from the nurses' chapel, again at noon, when a second service is held, and at sundown, one never forgets the one ruling thought.

The question would naturally arise: Are all the patients as happy and satisfied as the employees? By no means. Such a state of affairs would be unheard of in a sanitarium. Many come here expecting to find a rapid cure for some chronic trouble that the family physician has long since tired of and is only too happy to cast off. Others, again, forget that they are not passing their time at a summer hotel, with a Delmonico *menu*. Others complain of the long waits for special treatments, and fail to consider the many other sufferers ahead of them.

But, on the whole, grumblers are few and homesickness passes away after the first week, and one learns good lessons of patience. Are many cured here? Yes, many more than those who fail to be relieved, and more would be helped were they to follow conscientiously the regulations for diet, exercise, and treatment prescribed. Human nature likes its own way, and human nature has to pay the price.

What is the treatment here? you ask. So we will imagine our friend, Mrs. A., of Texas, a poor, broken-down invalid, entering the institution. She arrives at Battle Creek over the Grand Trunk or Michigan Central R. R. At the station she finds a carriage, or an ambulance, if too ill to sit up and has previously notified the house of her arrival. A short drive through shady streets and hillsides brings her to the beautiful garden of the Sanitarium, which, if it be evening, will be brilliantly lighted with electric lights, the piazza will be gay with guests comfortably taking their ease, and groups of wheel-chairs with pillowed invalids enjoying the air may form a picture of delicious ease. After being assisted to alight, Mrs. A. will be met by a medical matron, a sweet-faced nurse in white dress and cap, who will show her to her room, see to her immediate needs, call a special nurse or physician, or order a refreshing bath. Next morning a physician will call to take a history of Mrs. A.'s case. This document will be presented to the medical superintendent, and as soon as possible thereafter Mrs. A. will be summoned to appear in the doctor's office. The doctor's assistant, another happy-faced, white-robed nurse, will prepare the patient for examination. Every muscle, every nerve, lungs, heart, stomach, liver, and bowels will be thoroughly searched for diseased places. The doctor will take all the time he likes while making his diagnosis, no matter who waits outside. Nothing is allowed to disturb him during his examination. It is Mrs. A.'s turn, and to her is given special attention. She may be told that she has "a prolapsed stomach," "a floating kidney," or a "hyperæsthesia of the lumbar ganglia of the sympathetic nerve," but she need not be frightened, for all women have that. If the stomach proves to be the root of all evil, which is often the case, she will be ordered a test breakfast—four crackers and a glass of hot water. After the lapse of an hour the contents of the stomach will be deftly removed by an ingenious method, and sent to the laboratory for a chemical examination. Mrs. A.'s finger will also be slightly pricked and a drop of her blood be placed under the microscope. The action of the kidneys will also be examined. She will go to the strength test room to learn the strength of all the muscles; then to the measurement room, where nearly all the Bertillon system of anthropometry will be gone through, and a chart will be made out for future comparison. Mrs. A. by this time will be very well known to the Sanitarium physicians. Her treatment will be prescribed, and indicated on a card sent to her soon after. A general program runs as follows: —

A Day's Doings. — Treatment in bathrooms, 11 o'clock, A. M.; mechanical Swedish movements, 6 P. M.; manual Swedish movements, 6 P. M. Exercise in gymnasium: Breathing exercise, 7:30 A. M.; calisthenics, 8:30 A. M. and 4:30 P. M. Outdoor exercises twenty minutes daily. Office treatment to special cases. Static, faradic, and sinusoidal electricity applied as may be necessary.

She may be put on the rest-cure, when she will be expected to spend all her spare time in a state of absolute rest to body and mind, have her meals in bed, and be wheeled in a chair to her treatment, which will be specially arranged to suit her case. Outdoor exercise will be taken in her chair under charge of a nurse or friend.

Should Mrs. A.'s trouble necessitate a surgical operation, she will remain in the Sanitarium until she is in a proper condition, when she will be taken to the operating room in the Hospital, and afterward accommodated in a private room there under care of a special surgical nurse until she has recovered.

Should our friend prove to be Mr. A., of Texas,

he will undergo the same experience, excepting that he will have male attendants.

While all this may sound rather formidable, and savor too strongly of hospital life, it must not be suspected that all who come here are miserable, or very ill people. The managers endeavor as far as possible to banish that idea from the minds of their guests, and prefer to have them consider this a home, where all sanitary conditions, healthful exercise, and excellent dietary can be secured. Incurable cases are not taken.

Very little medicine or drugs of any kind are given, the slower and surer way of healthful living, and assisting nature in all forms of massage, baths, Swedish movements, electricity, and gymnastic exercises being first brought to bear to promote a cure. In special equipments for these purposes the Sanitarium stands unrivaled. Almost all known baths are given, and the first electric light bath was attempted here, with most successful results. Every kind of machine is used in the mechanical Swedish movement department, several special ones being specially invented and constructed for use here. The largest machine ever made for static electricity has recently been placed in the electrical department. Special rooms are fitted up for the cure of lung diseases, where patients breathe medicated air. These various departments are under the care of specialists, no patient being permitted to overdo. At the end of each month new tests of strength and blood are taken, and comparison with the record of the previous month noted on the chart.

Careful attention is paid to diet, the daily *menu* having been arranged from a long list of articles, which years of experience and chemical tests have proven to be most nourishing to the system. While meat, butter, and coffee are allowed to ordinary patients whose digestion remains unimpaired, they are prohibited to dyspeptics. The drinking of hot water, an hour before meals, is highly recommended, and little or no fluid at meal-time. Two meals are furnished in the dining-room, breakfast at 8 A. M., dinner at 3 P. M. Two minor meals in addition are furnished those who take food in small quantities and need "feeding up," at 12 M. and 7 P. M., and a special tray may be ordered in the room should the patient need more nourishment.

Kumyss, and all kinds of fruit juices are served at meals, on order. Two bills of fare are arranged for the dining-room, that for the order table differing from that for the general table in the absence of meat and butter and the addition of a long list of articles prepared to order.

ORDER TABLE.

MENU.

Breakfast, Tuesday, July 24.

FRUITS.

Bananas.

GRAINS.

Grains of Gold. Graham Peach Mush.
Gluten Mush. Rolled Oats. Graham Grits.
Gofio. Granola. Avenola.
Dry Gluten. Wheatena.

VEGETABLES.

Baked Potatoes with Cream Sauce. Pease Puree.

TOASTS.

Toast Whole-Wheat Wafers. Zwieback.
Cream Toast. French Berry Toast.
Tomato Toast.

BREADS.

Graham Crackers. Graham Gems.
Dyspeptic Wafers. Graham Rolls.
Coarse Graham Bread. Graham Puffs.
White Crackers. Fine Graham Bread.
Oatmeal Crackers.

SAUCES.

Apple. Stewed Prunes. Blackberries.

LIQUID FOODS.

Caramel Coffee. Graham Grits Gruel.
Boiled Milk. Cream. Milk.

ARTICLES PREPARED TO ORDER.

Pease Puree. Buttermilk. Milk with Lime Water.
Poached Eggs. Milk Custard.
Snowflake Toast.
Egg Toast. Cream Toast.
Lemon Rice. Tomato Toast.
Egg-nog. Egg Cream. Prune Toast.
Floated Egg. Gluten Biscuit.
Junket. Pop Corn.
Poached Yolks of Eggs. Charcoal Crackers.
Grape Toast.

Sunny parlors, comfortable nooks, and shady lawns, where are flowers in profusion, and a beautiful fountain playing constantly, are all for the use of the invalid guests. People of distinction from all parts of the world are frequent visitors, and are ready to entertain in the line of their special talents.

Picnics to a lovely lake near by are given every two or three weeks during the summer season. On a high bluff overlooking the lake stands the cottage of the Sanitarium, on the broad piazza of which dinner is served. A pretty little steamer makes numerous trips during the day, while small rowboats are at the disposal of those who care to row or fish. Loads of wheel-chairs and hammocks are sent on ahead, and those who are unable to walk may rest in the shade of the forest trees. On picnic days all treatment stops, except in serious cases. Nurses, and all who can be spared, attend, to supply the needs of guests, songs are sung and speeches made, while a band of music discourses at intervals. Guests may return at any time, so that no one need feel too great fatigue. The physicians heartily ap-

prove of these pleasant breaks in the routine of Sanitarium life.

The reader will see that everything is not solemn at this home for the sick, and he or she, if here, would see a great many more bright and happy faces than troubled or unhappy ones. Indeed, the wide verandas, the great parlor filled with light from three sides, and the wide halls filled with activity and life, remind one much more of a pleasure resort than a hospital.

"THE DIETETIC FAD."

BY W. S. MANNING,

Secretary and Lecturer of the Natural Food Society, London, Eng.

HAVING had W. H. Wakeham's article with the above title pointed out to me in the issue of GOOD HEALTH for November, 1894, I would be glad in the interests of truth, if not of health, to make a brief reply. That many nuts contain more mineral salts than grain may be perfectly true, but then the quantity of nuts taken daily would not on the average amount to more than a fourth of what is usually ingested with bread from other starchy seeds. This reduced quantity of lime would suffice to supply all the bone-making material needful in youth, but nuts would rarely be taken the year round — or in quantities sufficient to block up the system or to produce ossification. The ox gets his bone from grass alone. The statement that bran is needful to impart vigor to the digestive functions may be true for the bread-eater, but those who use fully ripe fruits in place of bread, etc., are never troubled with defective action of the bowels. It is claimed that bran produces this increased vigor by setting up inflammatory conditions in the intestinal canal. In support of this I know of one vegetarian who died about fifty. He had lived largely on brown bread, and his mortal disease was a completely worn out mucous membrane in the lower bowels, as I was informed by his widow, also a strict vegetarian.

As to starch being turned into glucose, digested in the stomach — with very strong digestive powers, and if healthy conditions with respect to fresh air, and ample outdoor exercises are always enjoyed — it may be quite true, but with dyspeptics and many others the case would be quite different. The question still remains, however, Why use such starch foods to obtain our needful carbon only after it has been transformed into glucose when the same or better glucose can be got in such easily assimilable and very enjoyable conditions in fresh sweet fruits?

Mr. Wakeham admits that "the food value of fruits has not been over-stated" by the advocates of our system of diet. Will not your readers therefore perceive that fruit must eventually supersede grain foods because it can be used without any trouble in preparation and because of the "conservator of energy" that must be secured by dividing the need of setting up a glucose manufactory and cornstarch work somewhere in the intestinal tract?

It was further suggested that man has not much improved the grains during the past two thousand years because they are still so small; but the Agricultural Profinot, at Las Cruces, New Mexico, has in one generation improved wheat fully twenty per cent, and the "pedigree" wheats of England are also increased to the same extent by individuals.

It is alleged also that the anti-starch theories are opposed to vegetarianism, or to "rational diet reform" because they will drive millions "to the maximum consumption of the flesh of animals." Even if this should prove to be the case and it should result in a great increase of physical vigor and of nerve energy to mankind generally, would not this be a decided blessing to the world? It is quite clear that the Scriptures tolerated both war and flesh eating, and until vegetarians will resolutely refuse to pay taxes to enable the nations to inflict the awful agonies and butcheries to be seen on every battle field, it seems inconsistent to condemn flesh eating merely from the ground of humanity. We want to obtain at any cost a diet that makes for universal health, and that I am firmly convinced will be got in the speediest and most permanent way by gradually adopting a complete diet of fruit and nuts and olives, and by discarding starch foods before meat as a rule. With perfect health following rational food reform it would soon prevail universally.

Doctor.— "You do n't look well, Robinson."

Robinson.— "No; I can't sleep at night on account of lung trouble."

Doctor.— "Nonsense; your lungs are all right."

Robinson.— "Yes, mine are; the trouble is with the baby's."

EXERCISE AS A REMEDY FOR OBESITY.

(Concluded.)

THE amount of exercise required by an obese person is sufficient to burn up not only the amount of food which is eaten each day, but also to draw upon the reserve tissues, thus reducing the weight. The weight cannot be reduced by exercise unless the amount of exercise is more than sufficient to consume the new material daily taken in as food. A healthy individual requires only sufficient exercise to consume that portion of his daily food-supply which is not required for tissue-building and heat-production. But the overfat person must take a larger amount of exercise than this, in order to consume a part of the reserve tissue which he has accumulated to an abnormal extent. In no other way can his flesh be reduced.

As ordinarily employed in the treatment of obesity, exercise often, we may say generally, fails of the object sought to be attained. The reason for this is that the amount of exercise taken is much too small. The overfat person may actually see his weight increasing while taking what he imagines to be a considerable amount of exercise. The amount of exercise taken must be in excess of that required to maintain an ordinary individual in health. If the amount of exercise is only sufficient to stimulate the digestive vigor and the nutritive forces of the body, it may act in a manner exactly the opposite of that which is desired. Not infrequently we have been told by persons for whom we have prescribed exercise as a means of reducing flesh, "Why, doctor, I have been in the habit of taking a walk every day for years, but I can't see that it does me the slightest good." Beginning with such exercise as the obese patient is able to take without injury, the amount must be gradually increased from day to day until a point is reached at which there is a natural diminution in flesh. Too rapid a diminution of flesh must not be sought, as the kidneys and other eliminative organs may be overtaxed by setting free in the blood too great a quantity of waste matters at once, and the vital powers may be impaired and great injury done. Nevertheless, the amount of exercise must be sufficient to induce fatigue, since it is probable that nervous fatigue is an important element in the reduction of flesh. Free perspiration should be induced, and of course care must be taken to avoid injury from sudden change.

As just remarked, the element of fatigue is important in exercise for the reduction of flesh. It will be noticed that if the same exercise is taken daily, the patient soon becomes accustomed to it, so that it seems to lose its effect. On this account a variation in the exercise prescribed is essential to success. The reason for this is to be found in the fact that exercises to which we are accustomed are less fatiguing than those to which we are unaccustomed, especially when the exercise is of a sort requiring a certain amount of dexterity; for example, work which involves balancing movements or special efforts to maintain the equilibrium by coordination is much more fatiguing than ordinary exercise. This is the reason why it is so much more tiresome to walk a crack in the sidewalk or the iron rail of a railroad track than to walk the same distance upon a board surface. No more actual work, as measured by foot-pounds, is done in one case than in the other, as the weight of the body has been transported through the same distance, but the coordinating centers have been much more severely

exercised in one case than in the other, and much greater fatigue is the result. The more difficult the exercise the more effective it will be in the reduction of adipose tissue; hence such gymnastic exercises as require attention to secure the constant coordination of many muscles are more effective in the reduction of fat than simply walking.

The effect of walking, however, may be greatly increased by giving attention to two things: First, the patient should walk a little faster than his natural gait, or so that he must give constant attention to his legs in order to keep them up to the proper rate of motion, or he should be required to climb a hill or a mountain-side, increasing from day to day the length of his climb or the steepness of the grade over which he walks.

Professor Oertel, of Germany, who has acquired a great reputation for the cure of obesity, has laid out, in connection with his establishment, a series of walks upon the neighboring mountain-sides, where patients are required to exercise daily, reaching from day to day higher and higher stations until the amount of work done is sufficient to accomplish a decided reduction in flesh. When a mountain-side is not accessible, the same results may be obtained by making the patient walk in a treadmill which is so arranged that the incline can be made more or less, as desired, thus giving the patient an opportunity to walk up a gradual incline or to make a steep climb, as the case may require.

The only difficulty experienced in the application of exercise to the cure of obesity is the fact that some patients are so feeble at the start that the amount of exercise which can be taken is altogether insufficient to accomplish any results whatever. In such cases the exercise first administered must be of a passive character, such as massage, manual Swedish movements, etc. Great patience and skill are required in cases of this sort, to conduct the patient to recovery.

Respiratory gymnastics are of especial value in these cases, as a means of inducing an increased supply of oxygen, and so favoring the consumption of the wastes which are set free by the massage. By making the fleshy man breathe more rapidly and more deeply, we may burn up his tissues more rapidly, and thus secure one of the advantages of exercise.

As before remarked, the obese man should be made to exercise sufficiently to induce vigorous perspiration. Perspiration induced by exercise is much more effective in reducing flesh than the perspiration resulting from a hot bath, for the reason that in the latter form of perspiration the skin only sweats, whereas in the perspiration produced by exercise the muscles sweat, so to speak; that is, the muscles cooperate with the sweating by setting free a quantity of waste matters to be dissolved by the blood and carried off through the skin. The increased amount of oxygen introduced in connection with exercise also aids in the solution and elimination of waste matters which have been set free. It is thus evident that perspiration induced by exercise must contain a large amount of solid matter, and hence must be more effective in reducing weight than the perspiration induced by heat alone. Sweating-baths are useful in connection with exercise as a means of aiding in the reduction of flesh, but should not be relied upon as the main feature of a course of treatment.

Abundant exercise and a spare and carefully adjusted diet are the essential features of a rational system of treatment for the cure of obesity. Hot baths and cold baths are useful accessories. Hot baths aid elimination; cold baths stimulate oxydation or combustion of the tissues and accumulated waste substances.

Another point is worthy of notice,— the time at which exercise should be taken. Experiments made by Lombard and others have shown that ability to exercise is much greater after taking food. It is, consequently, clear that the exercises taken before breakfast or when fasting will much more readily produce fatigue, and hence be much more effective in reducing flesh, than those taken at other times. The reason for this is that when food has recently been taken, the newly received food-substances are a source of supply to meet the demands of the system for oxydizable material, so that the residual tissues are not drawn upon, as during fasting.

Still another reason why exercise before breakfast is advantageous for the obese, is that the blood at that time is more alkaline than at night. This is a condition which favors oxydation, or tissue consumption. Various vital processes result, during the waking hours, in the production of an acid condition of the tissues and a diminished alkalinity of the blood. In the morning the normal alkalinity of the blood and tissues is raised, and as this condition particularly favors the combination of oxygen with the waste substances in the blood and the tissues, it is apparent that exercise taken in the morning must be more effective in reducing flesh than if taken at other times.

In conclusion, we would say a word by way of caution against over-training. Too great a reduc-

tion of flesh in a person who has long been excessively fat must be carefully avoided, as great injury may result. Consumption and other wasting diseases have sometimes supervened in cases in which the training has been carried to excess, reducing the patient's weight to a dangerously low point. The attempt should never be made to reduce the weight of the patient to his normal figure if his weight has been for a long time considerably above the normal point; for example, if the normal weight of the individual has been one hundred and fifty pounds and his abnormal accumulation of flesh has been such as to make his weight two hundred pounds, no attempt should be made to reduce the weight below 160 or 165 pounds. Indeed, in most cases it is wise to stop a little short of these figures. The body, to some degree, adjusts itself to the excessive accumulation of flesh, and the withdrawal of the entire excess may require so great an amount of readjustment of the tissues as to exhaust the vital forces to a dangerous degree. A person whose weight has been double his ordinary weight should be satisfied with the removal of one half or two thirds of the excess.

Not all cases of obesity are curable. When a constitutional diathesis has been thoroughly established, the best that can be accomplished, in many cases, is to secure the reduction of one half or two thirds of the surplus weight, and to maintain the reduction by close adherence to a special regimen of exercise and diet. The improvement in cases of this sort can be maintained only by a constant employment of the means by which it has been secured. When a marked reduction in flesh has once been secured, it is not in all cases necessary to continue exercise with the same degree of vigor, or to restrict the diet to the same extent as may have been necessary to secure the reduction.

Careful observation will show to each individual just the amount of exercise and the amount of food necessary to maintain the desired equilibrium in his nutritive processes. No little self-denial and perseverance are required in cases of this kind. But the obese person must appreciate the fact that obesity is one of the penalties which nature inflicts for the violation of her laws. Even though the disease may be hereditary, as it is in some cases, it is still a verification of the Bible proverb, "The fathers have eaten sour grapes, and the children's teeth are set on edge." If obesity in these cases cannot be actually cured, great improvement can be made, and the dangers and inconvenience of this morbid condition may be greatly lessened, in fact, almost entirely obviated.

RUNNING AS AN EXERCISE.

For those who can bear it, running is a very fine exercise, and particularly for brain workers — understand me, not for everybody, but for those who spend most of their time at their desks. Any man under sixty or sixty-five, not weighing more than 150 pounds, and with a sound heart and lungs, may, with reasonable care, practice it safely. The advantages are: (1) That it makes him forget his cares and labors, whatever they are, in order that he may give the closest attention possible to running; (2) one can get a great deal of exercise in a very short time; (3) every part of the body is called into play, and much oxygen taken into the lungs and blood.

The precautions and suggestions for those who adopt it are the following: —

(1.) It should be in the open air, and during the season when the weather is not too hot; (2) The body should be lightly and loosely clothed; (3) The position should be an upright one; (4) In the beginning the runs should be short — not over 200 feet, — and only moderately fast; (5) An interval of walking should then follow, and then another run, which may be a little faster; then another interval of walking. This may continue for half an hour. If the heart does not become strained, one or two of the runs may be fast, so as to call as much effort into the legs as possible. This will be a great relief to the brain and an excellent aid to sleep. Put some will-power into the effort.

The methods of running are important. There are three: —

1. To run as a boy runs, swinging both arms vigorously and raising the body at each step considerably. For exercise alone this is the best way, though it causes the expenditure of more force. The attitude should be upright, the head well back on the shoulders. The knees are well bent at every step, and the foot comes down on the toes and fore part.

2. Running as soldiers are taught to run in the German army, by keeping the knees stiff and throwing the foot forward as far as possible at every step, coming down also on the front of the foot. This method requires some effort, and the results are also

good, but not quite so good as by the first method described. They may be alternated.

3. The third method is the one advised by M. De Raoul, a French artillery captain, which may be thus described: The principle is to run without leaping, to raise the body as little as possible above the ground (the more it is lifted the more force is expended), to keep the knees bent, the upper part of the body inclined forward, so that practically you are always running after your center of gravity. The feet must be raised only very slightly. M. De Raoul, who has had many years of experience, says that he can take any man between twenty and sixty, and teach him to run as long as his legs can carry him, without getting out of breath. Some men can, on the very first trial of the method, run seven or eight miles without stopping, while, with the ordinary tactics, they could not have run over one mile. The first five eighths of a mile is usually covered in seven minutes and a quarter, the second in six minutes, and the third in five minutes and forty-five seconds. After a long run, according to his method, a brisk walk is not tiresome; all the muscles which work in both cases do not belong to the same group; and while one exercise is performed, the muscles which minister to the other, rest, or if they do not rest, are exercised in a different way. Whoever undertakes running as an exercise should go at it carefully, and not overdo it, either in length of time or intensity of effort. The slightest pain in the heart or difficulty of breathing should be a hint to cease for the time being, and only to begin again with moderation when these symptoms have disappeared.

By the time the exercise is over, a gentle perspiration should appear and a glow at the extremities. It would then be very unwise to sit down, for a stiffness would set in, which is very undesirable. For the first few days there may be a little soreness of the muscles, which will gradually disappear. A bath and a rub-down or oiling after the exercise will be excellent. The reader may ask if the writer knows about this exercise by experience, or if it is only a theory. In answer to this question, he will say he knows about it by long experience, and that he has not told half the subject will bear. All he asks and insists on is that only those should take the exercise to whom it is suited; that they should go on carefully and never go to excess; and that they should start to do it right, as they would a mechanical problem or the writing of an essay.— *English Paper.*

To Develop the Neck.— The neck is apt to be thin and scrawny, the cords showing distinctly, if there is any defect in it. There are two ways to remedy this, and they should both be used daily and vigorously. First, try massage. Wherever the neck is in need of flesh, with the ends of the fingers tap it thoroughly; then, using the soft part of the forefinger and the thumb, pinch the flesh until it is reddened, but do not pinch hard enough to hurt it; after this, stroke it lightly with the palm and fingers, working from the chin down and outward over the shoulders. Follow this same method where those unsightly hollows come under the collar-bones. Hard rubbing will remove what little covering your bones may be wearing, but gentle stroking will put it on. This is true of all parts of the body, and has been confirmed by masseurs from Hippocrates to the experts of to-day.

After you have faithfully rubbed yourself, take warm sweet or cocoanut oil and rub it into the neck, shoulders, and chest, as long as you can work it in. You will be surprised to see how much the skin will absorb. When no more will be taken in, wipe the surface with a soft cloth, and go to sleep. The effect of these movements will be quicker if they are preceded by a hot-water bath.

An exercise for promoting a fine neck is this: Stand erect; bend the head so the chin will touch the chest; bend to right as far as possible; bend backward — you can bend so far backward that the head is almost a right angle to the body — bend to the left. Repeat this five times night and morning. Keep the body straight. All the yielding must be in the muscles of the neck.

It is impossible to have fine shoulders, neck, and chest unless the chest rounds out instead of lying flat. One teacher of physical culture tells her pupils to try to roll a ball on the chest — trying to hold it there is as effectual. A good exercise to promote a full chest is to raise it, by muscular effort and breathing, toward the chin. Keep in mind what you want to do when you practice. Another breathing exercise is this: Stand erect, the chest coming farther forward than the abdomen; breathe slowly all the lungs will hold. Take so deep a breath that you distinctly feel it. Exhale forcibly. Do this in a room with windows open, ten times before you dress, and as many more before you go to bed.— *D. M. Morrell, in Far and Near.*

"Is young Jimkins improving in violin work?"

"He's improvin', or we're gittin' used to it."

THE EDUCATING INFLUENCE OF THE MEAL-TIME.

BY MRS. E. E. KELLOGG, A. M.

HUMAN nature is so susceptible to externals, while good digestion is so dependent upon the conditions surrounding us, that all the accessories of pleasant environments — neatness, cheeriness, and good breeding — should be brought into requisition for the daily gathering of the family at meal-time. The dining-room should be one of the airiest, pleasantest rooms in the house. Let plants, flowers, and pictures have a place in its appointments, that the association with things bright and beautiful may help to set the keynote of our own lives in cheerful accord.

Let the table around which the family meals are taken be at all times a model of neatness and simplicity. Says a writer upon this topic: "There is no silent educator in the household, that has higher rank than the table. Surrounded each day by the family who are eager for refreshment of body and spirit, its impressions sink deep, and its influences for good or ill form no mean part of the warp and woof of our lives. Its fresh damask, bright silver, glass, and china give beautiful lessons in neatness, order, and taste: its damask soiled, rumpled, and torn; its silver dingy; its glass cloudy and china nicked, annoy and vex us at first, and then instil their lessons of carelessness and disorder. An attractive, well-ordered table is an incentive to good manners, and being a place where one is incited to linger, it tends to control the bad habits of fast eating."

The hour of meal service should be made cheery with bright, sparkling, and appropriate conversation, that the only attraction about the meal may not be merely the food. It seems to me that the table conversation, if properly directed, can be made to serve as a most efficient help in educating children to understand that the purpose of eating is not merely the appeasement of hunger or the gratification of the palate, but the acquirement of strength for labor or study, that we may be better fitted for usefulness in the world. If of all the family gatherings that of meal-time is made the most genial and pleasant and one in which the children can participate, the meal-time will be hailed with delight because of the social pleasures it affords, while the mere pleasure of eating will take a second place. The benefits which will thus accrue from such a "feast of reason and flow of soul" are many. Not only will it help in making appetite subservient, but it will aid digestion, and, if properly planned, the table talk may be an excellent means of stimulating thought and conversational powers in the children.

Even for the baby the act of eating should not be purely a pleasure of the senses. If it is, as one writer has said, "undue prominence will be given to eating, and it will assert a place which does not belong to it, and which no after wisdom will be likely to correct. There is an endless variety of ways by which social and æsthetic pleasures may be united to that of eating, even for the small child, so that his whole self will not be concentrated on the mere animal pleasure of eating. A flower to share the child's attention, some pet toy that has become companionable through his imagination, can be given until he is old enough to come to the family table, which should then offer him a feast of sociability and kindly attentions. Let the child's imagination be so directed that his eating, as well as his play, shall be a fit preparation for mature life, and he will 'eat to live and will not be robbed of his reason and his will through his appetite."

Do not let the food upon the table furnish the theme for conversation, thus emphasizing the pleasures of the palate in the child's mind, and instilling the notion that eating is the best part of life,

whereas it should be considered only a means to a higher end.

The habit some mothers have, when seated at table, of asking, "What would you like, Georgie?" "What will you have, Helen?" instead of helping the children to some portion of suitable food and taking it for granted that they will eat of it and be satisfied, is a most potent element in the downward training toward sensuous gratification and the establishment of a love of appetite in a child's character. A child thus treated grows to think he *must* have what he *likes*, whether it is good for him or not. It is not strange that an appetite thus pampered in childhood becomes uncontrollable in maturity. The natural, unperverted taste of a child will lead him to eat with a relish that food which is best for him.

The child's appetite can be educated to enjoy all wholesome foods, if mothers are true to their duty; but like the formation of all traits of character, this training will be easiest accomplished at the beginning of life. "It is difficult to turn the course of the great river, but that of the small stream at its source may be easily changed."

Good manners at the table have also a most influential bearing upon character. Upon this point Dr. Bushnell says: —

"Good manners are a kind of self-government which operates continually to keep the body under, and hold the sensualizing tendency of food in check. Animals have no manners, and the higher gift of manners is allowed to man, to keep him from the coarseness and lowness to which his animal nature would otherwise run. In this view good manners are even a sort of first-stage religion, for the reduction of the body. If the child is practiced carefully, at his food, in deferring to his superiors and seniors; in the restraint of haste, or greediness; in the proprieties of position, and the proper use of utensils; in the limitation of his feeding by his wants, and a good-natured submission to restriction when restriction is needed for his good, he will not grow sensual in that manner, but his mind will be all the while getting sovereignty over the body. The Christian training of children, without any care of their manners in these respects, is only the training, in fact, of barbarians and savages."

PUSSY IN THE WELL.

BY MARTHA WATROUS STEARNS.

WHO put her in? Oh, no one at all! She just jumped into the big iron bucket herself, pressed the electric button in the well, and down, down, she went! But that was never Mother Goose's pussy-cat that "little Johnny Green" threw in the well and "big Johnny Stout" "pulled out," to the intense delight of all small Mother Goose readers; for whoever heard of electric buttons in Mother Goose's days? No, she was a '95 revised edition of the old story, and did not wear a fur coat or walk on four paws. Our Pussy was just a dear, loving-hearted little girl, who loved everybody and everything, and because she did love everything, she wanted to know all there was to be known about everything, and the best of it was she always wanted to find it out for herself. Now like all members of Mother Goose's improved family, she was a diligent sloyd student, and determined to find out for herself where the pretty crystals "grew" from which her sloyd models were designed.

Miss Pussy had always supposed that everything in the order of stones was to be found as well on top of the ground as inside of it, so she started one day in search of crystals. She began in her own door-yard, but it yielded her nothing but commonplace pebbles and small boulders of very ordinary looking quartz and limestone. She bravely attacked them with her geologist's hammer,— an old hatchet head, — but with no interesting results; they were the same all through,— no crystals there. Then she decided to take a run with a frisky mountain brook near by, to see if they could not run over something together, that she was looking for. So they both went side by side, and the brook talked while it ran, and asked Miss Pussy if she noticed any of the shapes she wanted among the slippery stones he ran over; but though she looked carefully, she could see nothing but rounded water-worn stones.

"O, Miss Pussy," he bubbled, laughingly, "why don't you stop and think whether you are looking in the right place for your crystals? What do you suppose would happen to one of those eight-cornered little prisms if it was thrown down here for me to run over? Now soon I am going to take a big jump down some rocks, which always tires me so I lie quite still and rest after I have gone over, in a pleasant little shallow near by. Sit by me there, and watch the stones where I fall."

Miss Pussy did so, but at first saw nothing, and world-like, thought that because *she* saw nothing, there was nothing to be seen. Still she kept looking; then she noticed that the stones where the current

was strongest were smoothest and roundest. The stones nearer the bank were more angular, with rougher edges. She picked up a sharp-edged rock and threw it into the water under the force of the fall. The water sent it bounding up against a fine round stone.

"Oh, how you hurt me!" cried the new-comer, "See! you've nicked off one of my corners."

"Not at all," replied the pretty round stone, "it's your own ugly corner that hurt you. Don't you see that a smooth thing like me has no edge to hurt with? Now look at my friends here, how smooth they are! Well, I will tell you a secret; a great many years ago, when the brook first came this way, we were as sharp-cornered little rocks as yourself; but he kept knocking us together till our corners were all gone, and since then we've been as happy a family as you ever saw. It is a geometrical impossibility for us to hurt each other. We are so round, you see, that no matter how we are bumped together, we scarcely touch. So get rid of your own corners, little rock, if you don't wish to be hurt."

As Miss Pussy listened, her eyes told her about the rocks; for "seeing" is just letting our eyes talk to us about things outside of us. She knew at once that she was looking in the wrong place for her crystals, and that the place to go for them would be high up among the rock-ledges on the mountain-side; but she was glad she had stopped with the brook, for she had something to think about; and as she went climbing up for her crystals, she wondered if she was a round little girl, or all corners.

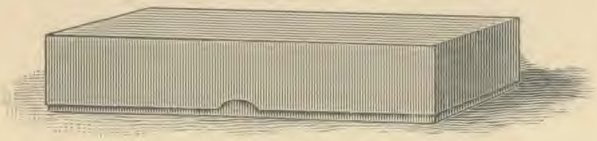
After a hard climb, she came to a large shaft house high up among the rocks, and heard the heavy thud, thud, of the great engine as it pulled up the buckets of ore. The superintendent of the mine smiled at her inquiry as to whether crystals "grew" in his mine, but told her she could take a look for herself, and held the big iron bucket while Miss Pussy jumped in. He gave her a candle and some matches, told the engineer to lower her to the bottom of the shaft, and then Miss Pussy touched the electric bell as a signal, and the great wheel went round and round, slowly unwinding the heavy chain from which swung the bucket, and down, down, she went into the deepest, blackest hole that ever a poor fur-coated pussy was thrown in. Miss Pussy thought it as nearly like going off in the cars as anything could be, only the steam engine stood still, and instead of pulling her over the ground, it pushed her into it.

At the first level the bell rang, and Pussy's bucket stopped. A tall miner was waiting with another bucket of ore to load on, but seeing the unusual load already in, he told Pussy he guessed there was already a bucketful of gold, and he would wait till next time. So he thumped the electric bell, and down went Pussy to another level.

At each of these underground stations the rock had been tunneled out, making long, dark halls. In the floor of each was laid a narrow track, along which the miners pushed the little ore-cars to meet the shaft bucket; and long lines of dark figures, with picks and drills, were busy working in the darkness, for the candles scattered here and there gave hardly more light in the intense blackness than so many matches would have done. At each level the bucket stopped, then the electric bell would ring, and Pussy's journey downward begin again, till she was really afraid she would never reach the bottom, there were so many of these underground stations. When at last the bucket grounded on the lowest level, and a big, good-natured miner lifted her out of her muddy seat and asked what a little girl like her wanted to be

LEAD CRYSTALS.

doing with a thousand feet of mountain on top of her, she hardly knew herself, for she was as dizzy as a ship at sea, and felt the way the picture of Atlas looks with a world on top of him, and felt "sol-



Glove Box Completed.

emner," she told the big miner, than she had ever felt in church; and she wondered if the thick darkness down there, that seemed like a heavy curtain all around her, was n't a little bit like the dark time Pharaoh had.

Little streams of water trickled along the floor of the tunnel, and there was a continual drip, drop, from above. It was a good deal like a well, after all, and our Pussy began to wish that there was a "Johnny Stout to pull her out."

"So you 're the little girl that wants to see where the crystals grow? Well, you take my hand and I 'll show you a whole nest of them, just opened up by our last blast yesterday."

They walked along "most a mile," Pussy thought, through mud and water, though really it was only a quarter of a mile, when the miner stopped and held his candle close to the rocky side, and told Pussy to look sharp.

She could only see a crack in the rock at first, but as she looked, a beautiful cave in miniature opened before her, lined with shining crystal forms, six-sided prisms and pyramids, little rose-shaped mounds of bright points, and lying at their base were glistening veins of metal.

"Oh, how pretty, prettier than anything in the world I have ever seen!" cried Pussy. "What makes them grow so lovely?"

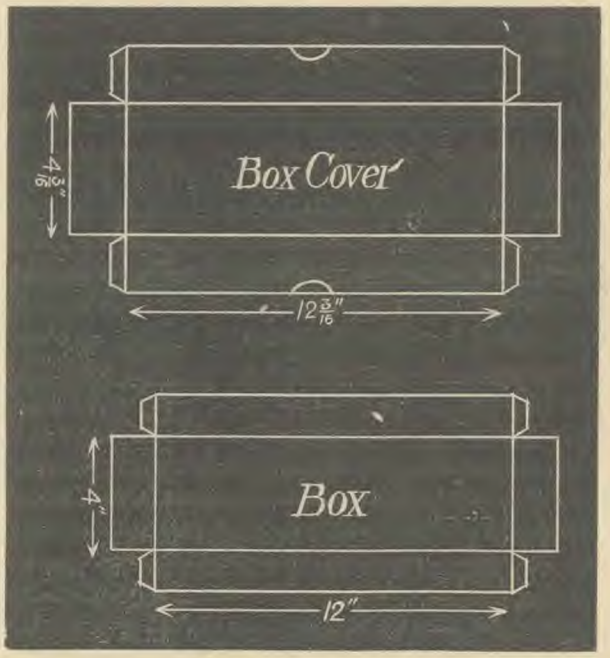
The miner took his pick and with one or two blows loosened a beautiful piece, and as he did so the metal broke up into oblong crystal forms.

"Are those silver crystals?" exclaimed Pussy.

"Not quite, little girl; they are a mixture of silver, copper, and lead, mostly lead, and no matter how they are broken, they always cleave in just those shapes. If you should dissolve all the salt you could in a cup of hot water, and put it away to cool, as the water evaporated, you would have clear, shiny crystals something like these quartz prisms you think so pretty; but if you could melt some silver, copper, and lead together, and cool it in just the same way this was cooled, you would have metal crystals just like these, that would break up in just the same way. But what power makes different substances form in particular shapes, when they take the form of solids, no one knows any more about, than the power that will make a pine tree, an elm, and a rose all grow out of the same ground without taking each other's forms."

"I guess," said Pussy, reflecting, "it's because God started us all in the shape we could n't get out of. It makes me think, deep down here, of that verse about him, 'He putteth forth his hand upon the rock, he overturneth the mountains by the roots,'" and, she added hesitatingly, "do n't you think these lovely crystals must have been one of his beautiful thoughts he put in the rock when he touched it?"

When our little Pussy reached home, after her underground visit, she decided to make her next sloyd model like the oblong lead crystals she had brought with her from the mine. It will be a lovely shape for a glove box, she thought, and went to work at once drawing a pattern for it like this: —



Pattern of Glove Box.

The box she drew twelve inches long by four wide, and two inches deep, and the cover she made twelve and one fourth inches long by four and one fourth inches wide, and two inches deep. Then she cut it from thin strawboard, and wherever it was to be bent, she creased it half through with a knife, always allowing a half inch margin on the lap where two edges were to be glued together. After gluing with

strong glue, she cut the paper cover out of pretty dark red leatherette paper, making it the same shape, but one sixteenth of an inch larger every way and adding one half inch margin to fold under the edges of the box. Then she spread flour paste smoothly on the paper, pressing it down well over the box, and laid it away to dry with a book on top to prevent warping. When it came from the press, she had a glove box as neatly made as could be bought, and had gained a skill of hand that could not be bought.

THE BATTLE CREEK SANITARIUM DRESS SYSTEM.

VARIOUS garments from this system of dress have been written up from time to time in these columns during the last two years. Originally the outcome of extensive labor, research, and experiment, it has already won a large measure of public favor. It has recently been elaborated and perfected, and while the underlying principles remain the same, the various costumes designed have taken on a new beauty and attractiveness as the result of the combined skill and experience which have lately been brought to the work. These costumes, while giving freedom to every portion of the body,—a waist that nowhere presses or constricts, and an armhole that, even with the arms lifted above the head, neither draws nor wrinkles,—fairly rival in beauty of conception and harmony of adjustment, the best work of conventional dressmakers. It is not a pleasant experience, the wearing of an ugly or eccentric garment; healthful or otherwise, we yet wear it always under protest. It is quite another thing, however, when hygiene and "good form" unite in a costume whose distinguished effect is at once recognized, even by the most ignorant of critics. That this is the case with the costumes evolved from the Sanitarium

MARIETTE COSTUME — FRONT VIEW.

MARIETTE COSTUME — BACK VIEW.

Dress System will be apparent as we glance at the fine style of the costume here illustrated.

For the benefit of those of our subscribers who have been with us too short a time to have acquainted themselves with this system, we will give its leading principles, as well as some of the advantages it possesses over other systems. The foundation of the costume comprises : —

1. Union underwear.
2. Tights.
3. A divided or circular skirt attached to a waist fitted to the individual. If desired, both the divided and the circular skirt may be worn, the circular skirt being buttoned to the lower part of the waist of the divided skirt.
4. A gown form, upon which may be draped any suitable style of dress.

In some of our costumes recently designed, however, the gown form is not used, but merely an ordinary lining to the dress.

This system ignores, or rather refuses to emphasize, the conventional "waist line," but locates the *division line* between the waist and the skirt of the dress at the point which will produce the best effect for the individual wearer. A short figure will require this line to be placed higher, a tall figure lower. It must, however, always be placed well above the lower border of the ribs, that there may be no compression of the soft portion of the body lying between the ribs and the hips, and that the entire weight of the clothing may hang from the shoulders.

Freedom of Movement in Mariette Costume.

The division line between the waist and skirt in this gown is two and one half inches above the hip bone. This makes the skirt really that much longer than the conventional skirt, so that the two and one half inches may be taken from its length, and give a dress skirt short enough to clear the filth of the street, and yet one whose length is neither odd nor noticeable. One can walk with much more ease and comfort in a dress of this length, and the sanitary aspect of the question should be taken into consideration. The inches taken off from the length of the skirt are in effect taken from the height of a tall figure, while in dealing with a short person the effect of greater height is given by placing the division line still higher, thus making the skirt really longer while still remaining a comfortable walking length.

Mariette Costume with Plain Sleeves.

The popular systems of dress fitting are all based upon the corseted figure ; this system deals alone with the natural curves of the body as exhibited when in perfect physical poise. The following are some of the advantages claimed for the Battle Creek Sanitarium System of Dress : —

1. It is practical, healthful, and artistic.
2. It lessens rather than exaggerates the physical peculiarities of the tall, spare woman, as well as those of the woman whose figure is short and stout, hiding defects, and so improving the appearance of those

not by nature blessed with what is called "a fine figure." It thus possesses a range of adaptability which is impossible to any of the conventional styles of dress.

DRESS FROM PARISIAN FASHION PLATE.

3. The principles of this system are of such a fundamental and general character that they can be adapted to any style which recognizes the outlines of the natural figure as its basis, and hence is not confined to any set or uniform style.

No woman who has deformed her figure by corset wearing would like to have a dress exactly fitted to her misshapen form. The attempts of such persons to adapt a healthful dress without the aid of proper instruction, is one of the principal causes of the unpopularity of dress reform, and the unwillingness of many intelligent women to make any attempt in the direction of reform in dress. First of all the misshapen figure must be corrected. This is easily accomplished, in the majority of cases, by having the woman learn how to stand and sit correctly, and how to discipline the neglected and weakened muscles of the trunk so as to enable them to hold the figure in proper shape.

The costume illustrated in this number, the "Mariette" costume, comprises fifteen pieces, — front, back, and under-arm gore of lining of waist, and front and back of outside of waist; upper and under portion of sleeve, and puff for sleeve; two collar portions, two trimming pieces for waist, and three skirt pieces.

The gown is developed in black serge, with the trimming portions, fold, and rosettes made of satin-finished silk, and edged with guipure insertion overlying white satin. Any kind of material may be used instead, that is not too stiff and wiry, either in silk, wool, or cotton, with any preferred decoration. The quantity of material needed is 6¾ yards of common width, 44-inch goods. Patterns of this gown may be obtained of the Sanitarium Supply Co., Battle Creek, Mich. Price, 40 cents.

A photo-engraving of a new costume by our special designer will appear in each succeeding number of this journal during the year.

SEASONABLE RECIPES.

Celery with Tomato Sauce.— Cut the white part of five heads of celery into small pieces. Cook until tender in boiling water, turn into a colander and drain. For three cups of stewed celery prepare a sauce with a pint of strained stewed tomato, heated to boiling, and thicken with a tablespoonful of flour rubbed smooth in a little cold water. Turn over the celery, and serve hot. If desired, a half cup of thin cream may be added to the tomato sauce.

Apple Dessert.— Pare some large tart apples, remove the cores, put into the cavities a little quince jelly, lemon-flavored sugar, or grated pineapple and sugar, according to the flavor desired. Have as many squares of bread, with the crust taken off, as there are apples, and place a filled apple on each piece of bread. Arrange in earthen pie plates, moisten well with a little quince jelly dissolved in water, lemon juice, or pineapple juice, according to the filling used. Cover closely and bake in a rather quick oven till the apples are tender. Serve with mock cream or cream and sugar.

Beet Coffee.— Wash good beets thoroughly, but do not scrape; slice, and brown in a moderate oven, taking care not to burn. When brown, break in small pieces and steep the same as ordinary coffee.

CORRECT POSITION AS A REMEDIAL AGENT.

THE most efficient remedial agents are sometimes neglected because they are so simple that no one thinks it worth while to study the best methods of applying them. In many cases they are calculated to do great good and relieve bodily pain, restoring the normal conditions to deranged organs of the body.

In cases of fainting or heart failure from any cause, nothing will restore the patient to consciousness quicker than placing him in a recumbent position with his head lower than the rest of his body. In some cases it is best to almost stand him on his head, when the fainting is profound. In these cases the brain has ceased to act because there is no blood flowing to it to keep the brain cells active; so by bringing gravity to aid the enfeebled heart action, enough blood may be caused to flow to the brain to stimulate the cells to action and start all the bodily functions into action again.

In case of hemorrhage from a wound, or any other injury, much may be done to arrest the flow of blood by elevating the injured member so as to favor the return of the blood from the wound toward the heart, and keeping the blood-vessels in the part as empty as possible. Sometimes when the wound is in the vicinity of a joint, as in the bend of the knee or elbow, flexion or bending may do a great deal to stop the bleeding by compressing the open vessels and giving time for blood clots to form in the open ends of the wounded vessels.

In all cases of congestion of dependent organs, due to venous dilatation, as varicose veins of the legs, the throbbing, heat, pain, and fullness of the surface vessels will cease at once if the legs are elevated higher than the trunk and rubbed upward. This will quicken the accumulated venous blood, and hasten its return to the heart and lungs; by a well adjusted bandage or rubber stocking the walls of the weakened vessels may be so strengthened as to keep up a normal circulation and prevent rupture of the blood-vessels, which causes hemorrhage, or indolent ulcers, which are often very difficult to heal. As the patient advances in years, the danger from senile gangrene is increased, and often a foot or leg may die while the patient has no other illness except that of the legs, due to stagnation of the blood.

The tired housewife whose feet and legs throb and burn when she is about her daily duties, can help herself a great deal by planning her work so as to do a part of it sitting down, and, while sitting, putting her feet upon a stool. By thus taking advantage of a change of position she will find rest, and the congested lower extremities will be freed from their extra load of stagnant blood. Vegetables and fruit can be prepared while sitting, dishes may be washed and wiped, grains looked over, and the unstarched clothes ironed, while the overwrought, busy feet and legs are resting and renewing their strength.

Babies and helpless or paralyzed invalids should be frequently turned over in bed to secure change of position. In the very weak, the internal organs may mortify from blood stagnation or the external tissues may die, forming bed-sores from lack of nutrition, causing death from blood poisoning, and exhaustion, while otherwise the patient might have recovered.

Patients in the later stages of typhoid fever and other acute febrile diseases of a severe type, often lose their lives because in their helplessness and stupor, friends and nurses fail to "disturb" them, as they say; they do not understand they are letting the body die by sections. This is mistaken kindness and forbearance on the part of the friends. The writer well remembers such a case where a patient ill of typhoid fever had been permitted to lie forty-eight hours absolutely still on the back, because he had had a hemorrhage of the bowels, and the family

feared it would bring on another if he were moved or disturbed in any way. His countenance was livid, his breathing labored, and the end seemed to be but a matter of minutes when this fact of his unchanged position was learned. Notwithstanding the imminent danger from heart failure from the exhaustion, the patient was gently turned to the right side and heat was applied over the heart, with heat and gentle friction to the spine. When his position was changed from the back to the side, all the surface circulation seemed to have ceased there, and the tissues felt hard and dead; but by using heat and gentle friction at first, and later hot and cold spraying alternately, the patient finally rallied, though it was many days before the immense bed-sores on the back healed. These bed-sores were the result of continuous pressure, which arrested the blood flow and caused such complete death of the flesh and skin as to render the reviving of it impossible. The change for the better in every symptom of the patient after being moved, was remarkable. Within an hour the temperature, which was at 106° F., fell to 104°; the respirations, which were 60, fell to 40; the pulse, which was so rapid and weak as to be uncountable, was decidedly perceptible at the wrist and could be easily counted, though still very rapid (150). The patient had improved very much in strength; the face had grown less dusky; and taken altogether, the change for the better was so marked and rapid that if it had been due to any drug taken internally, the drug would have earned the well-deserved reputation of being a most wonderful remedy, which had almost miraculously saved a dying patient.

There are many diseases of the respiratory organs and the heart in which the patient can only breathe in certain positions. Thus in pleurisy, especially if there is effusion, the labored breathing is often greatly aggravated when the patient lies on his well side, and he can often be greatly relieved by turning him on the back or onto the diseased side. The same is true of cases of pneumonia where one lung is filled up with exudate; also in cases of pressure from tumors or anything impeding the action of one lung by pressure. In these cases the uncrippled member has double work, to make up for the failure of the defective organ, and when the patient lies on the sound side, that lung cannot expand freely because it is compressed by the diseased lung on one side and by the ribs on the other; hence relief is obtained by lying on the affected side.

Patients who are rational and able to move, always instinctively move into the position in which they can breathe most easily, but young infants and those who are too ill and completely helpless often endure much needless suffering, and their life is endangered by a failure on the part of those who are caring for them to place them in a position where breathing will be the least impeded. The writer has frequently relieved such cases of labored respiration, especially in children, by simply turning them over. If a remedy is administered at the same time, the effect earns a good reputation for the remedy, by affording such quick and ready relief of distressing symptoms.

In cases of asthma the patient breathes most easily in the upright position, and also in all cases of fluid accumulations and tumors which fill the abdominal cavity and press upward on the thorax. In cases of dilated bronchial tubes where there is a sac which fills with matter, the distressing cough which frequently threatens the patient's life, from suffocation, can often be relieved and the cavity emptied by having the patient lie over the edge of the bed and pressing upon the thorax. The action of gravity in pressure will thus assist the spasmodic efforts of the bronchial tubes in emptying the cavity. The disagreeable choking sensation often felt by dyspeptics and hysterical patients, can be relieved and the gas expelled easily by turning on the left side. The knee-chest position, as has been often proven by experiment, is one of the most successful methods for replacing not only prolapsed pelvic organs, but prolapsed bowels, liver, stomach, spleen, and kidneys, as well as in cases of hernia. The tired housewife with a bearing-down, sickening pain in the lower part of the abdomen and spine, can relieve her pelvic pain and backache by stopping her work for five or ten minutes every few hours, and going to her room and taking this position for five or ten minutes, having the clothing perfectly loose, at the same time inhaling and exhaling deeply. Or a still better position which relieves the congestion of the lower extremities is to lie on the back on the floor, placing the feet on a chair or the bed, or to climb the wall, feet foremost, until the weight of the body is sustained by the shoulders and head. Keep this position for half a minute or so; then rest, and repeat ten or twelve times. This simple treatment can be taken for five or ten minutes, twice or thrice daily, and may save the overworked housewife a physical collapse and a large doctor's bill.

When there is inflammation of any part, as in a felon on the finger, a bruised, lacerated, fractured, or dislocated limb, a rheumatic joint, or any other injured vital organ in which there is over-fullness of the blood-vessels, care in taking the proper elevation and position, so as to favor the free flow of blood

from the diseased member, and in avoiding the straining or twisting of any sore ligament, tendon, or muscle, as well as pressure on the sensitive part, will contribute a great deal toward the comfort of the patient, and very materially aid in repairing the injury.

In nosebleed the hemorrhage is often greatly increased by the common practice of bending the head over a washbowl. This position favors the flow of blood toward the torn vessels, and keeps up the bleeding, sometimes until the patient faints and the weak heart action permits a clot to form in the open ends of the bleeding vessels. In nosebleed the head should be held erect and slightly backward, and cold and pressure should be applied over the brow and nose, and heat to the spine and extremities. In all hemorrhages of the internal organs, as the lungs, bowels, pelvic organs, and brain, the position should be such as to favor a free flow of blood away from the bleeding organs. In cases when there is a discharging abscess, the opening should be made in the dependent portion, if possible, and the position should be such as to favor a free discharge from the abscess.

Of the multitudes of bad habits of position causing disease and defective development in both children and adults, I have space for but slight mention. Many bad positions are the result of disease which causes weakness of the muscles supporting the body in a proper upright position. Examples of a stooping posture due to injury done to the muscles of the waist by bands and corsets, are everywhere to be met among women, and they are manifest in the protruding abdomen, stooping shoulders, and caved-in, hollow chest, and in the hollow region over the stomach; also in the languid step and listless, benumbed mental condition, which show the moral, mental, and physical degeneration of the person. Children often acquire bad positions from improper seats, from carrying burdens in one hand only, or from stooping over their books or work, sleeping on high pillows, ill-fitting clothing, and also from improper exercise which calls into use only certain groups of muscles while others are neglected and grow weak from disuse. Women especially suffer in this way. The practice of treating disease by proper position requires no special apparatus. It needs only a little skill on the part of the patient and nurse to know how to place the body so as to favor a normal blood supply and proper exercise of all the muscles.

HOW TO KEEP THE SICK-BED WHOLESOME.

MAN is constantly poisoning himself. Sick or well, every person is giving off waste matter which poisons the air, the clothing, the bed, and all other surroundings, unless there are provisions made for these waste products to be oxygenized and removed. The rooms of the dwelling-house must be ventilated and the foul air carried off, or disease will result. The clothing worn through the day should all be removed and aired at night, and the night clothing and bedding must be spread out to air during the day. Cleanliness and health demand this care in order to get rid of foul exhalations which cling to the bedding and clothing worn, even in health, when the bed is used but one third of the time. How much more important, then, do frequent changing, airing, and washing of the clothing become when the bed is used all the time, and is constantly saturated with not only the bodily waste, but with disease germs and poisonous products? The bed is also liable to be soiled with discharges from the bowels and bladder, from sputa, and from catarrhal discharges from the eyes, nose, and other mucous surfaces, as well as from pus and foul matter from running sores. Many will keep the outside of the sick-bed fair to view, but the costly, elaborate counterpanes and pillow-cases may cover a mattress saturated with stale urine and discharges from the bowels, which are constantly poisoning the patient himself, and endangering the life and health of all other members of the family.

Dried discharges from the bowels and lungs are especially dangerous in certain contagious diseases, as consumption, typhoid fever, cholera, yellow fever, etc., and great care should be exercised to prevent soiling of the bedding, as it is very difficult to cleanse, especially the mattress. Cover the mattress with an oilcloth or rubber cloth, and over that place the draw-sheet. Whenever the draw-sheet becomes soiled, do not allow the discharge to dry, but immediately remove the sheet and immerse it in some disinfectant solution, thus destroying the poisonous germs and preventing the further extension of the infection. If no disinfectant is at hand, boiling the sheet, if done thoroughly, will destroy all disease germs known. Soiled bedding should never be tolerated under the patient for an instant, and no one should be so uncleanly as to cover up a soiled sheet with a clean one, thus fouling two sheets instead of one, and leaving the patient to be bathed in the vile

effluvia from this fermenting mass of filth and disease germs, which are stimulated to activity by the heat of the patient's body and are pent up about him by the bedclothing. How often have I been obliged to turn away my head and hold my breath to avoid suffocation by the great volume of foul gas which escaped from under the turned-down bedding, when attempting to inspect an uncleanly kept patient's body!

In all contagious diseases, much may be done to keep the bedding fresh and clean by having two beds and two sets of bedding, one for the night and the other for the day. A helpless patient, or one partially deranged, or in a stupor, or delirious, should be carefully watched, and the bed-pan should be put under him at regular intervals, so as to avoid soiling the bed. Draw the sheets as tightly as possible, and keep the body clean by bathing. When there is scaling, as in scarlet fever, smallpox, and other eruptive diseases, oiling the body after washing will prevent the scales from forming and flying about in the air. The gases exhaled from the body which fill up the tiny canals running through the center of the fibers which form most fabrics, and also the matter used for filling mattresses, can be displaced by oxygen if the garments are frequently aired and shaken. The blankets, comforters, and sheets hung on the line on a windy day feel fresh, light, and fluffy, because every fiber is "blown up," so to speak, with fresh air. If we give the bedding a good sunning, a great many germs may be destroyed, and the patient who is tossing about, restless and feverish, under the ill-made bed filled with contagion, hot and hard from long use, will sink into a refreshing slumber, induced by the comforting and quieting influences of the well-aired and well-made couch.

If the supply of bedding is limited, it may require some careful planning on the part of the nurse to keep it properly aired; but usually less covering will be needed during the day than during the night, and the upper bedding can be aired piece by piece until all has been changed and aired sometime during the day. Even very weak patients can be placed on a cot and the under-bedding taken out and sunned, and thus a very dilapidated, flattened-out straw tick may be made into a comfortable resting place. To shake open the flattened straw, place it in the wind, or let two persons take the tick between them and shake it vigorously in the open air. See that it is made up free from lumps and wrinkles, and you will be surprised at the increased comfort to the patient in a bed that seemed too demoralized to admit of any improvement.

The suitable, comfortable sick-bed need not be of costly material. In the country there is usually plenty of straw, and two old sheets or a few yards of any kind of cloth will serve to make an extra tick. This cheap filling can be changed often and burned, and the covering washed. In cities, excelsior made of fine wood shavings can be gotten at little expense.

A sick-bed should be kept clean, dry, and free from wrinkles, crumbs, and every other irritating substances. The under sheet should be pulled tightly and smoothly over the mattress and snugly tucked in all around. The oilcloth or rubber sheet with draw-sheet should be used whenever the patient is so weak or indifferent as to pass the excretions involuntarily, or where there is a wound which is discharging copiously. Whenever the draw-sheet is wet or soiled, it should be removed and replaced by a clean one. Neglect to attend to these matters may result in a bed-sore so serious as to take the life of a weak patient, who might otherwise have recovered. Foul bedding also infects the air of a room and that around the patient's body, re-poisoning him, as well as infecting more or less all others who may come into, or be obliged to remain in, the sick-room.

WHEN a person has swallowed a tack, a pin, a glass bead, or any other sharp-cornered or pointed object, do not give a cathartic, as it is safest to let the object become imbedded in solid fæcal matter. It will thus pass safely along the alimentary canal without injuring the mucous surfaces. Give solid food, avoiding the use of liquids. A diet of mashed potatoes has been recommended by some physicians, in such cases. Always keep watch of the stools until it is ascertained that the foreign body has been expelled, thus setting the mind of the patient and his friends at rest.

WHEN a child gets irritated or worried over any task, as a lesson at school, have him drop his books, or slate, and pencil, at once, and run out in the open air awhile. The brain is getting tired, and the blood needs oxygenating and the muscles exercise to restore the healthy equilibrium of the body.

CONSUMPTIVES, and also the families in which they live, should be taught the danger of infection, and also how to destroy the germs which give rise to it, thus rendering the sick member of the family as harmless as possible to himself and others.

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

SALIVARY INDIGESTION.

A CURIOUS illustration of how scientific discovery sometimes hinders progress, is afforded by the erroneous views which have for some years prevailed in relation to the value of the saliva as a digestive agent. More than sixty years ago Leuchs discovered the fact that the saliva possesses the remarkable property of converting starch into sugar. Later investigators found that this property of the saliva is so active that if the sugar is removed by osmosis as rapidly as it is formed, a very small amount of saliva is capable of converting an almost indefinite amount of sugar. The subsequent discovery that the ptyalin, or animal diastase, as it was termed by Mialhe, required an alkaline or neutral medium to enable it to exercise its properties, led physiologists, almost without exception, to the conclusion that although possessing powerful digestive properties, the saliva is of very little practical value as a digestive agent, on account of the acid character of the gastric juice, it being supposed that the saliva becomes inactive as soon as it reaches the stomach.

The brief period during which the food remains in the mouth is certainly wholly insufficient to enable the saliva to make any very considerable progress in the digestion of the starch which constitutes about one half the weight of all foods of vegetable origin; and if it were true that the saliva in entering the stomach is immediately neutralized by the gastric juice so that its action ceases, it might properly be regarded as of no value except as an aid to the mechanical disintegration of the food. This theory, however, rests upon a false foundation. Chittenden and others have shown that the digestive power of the ptyalin of the saliva increases up to the point of actual neutrality,— in other words, is more active in a neutral than in an alkaline solution.

Hayem and Winter have shown that free hydrochloric acid makes its appearance in the stomach fluid only at the end of thirty minutes after the beginning of the digestive process. This gives ample time for the saliva to do its work. That the saliva actually does do an enormous amount of work in the stomach under favorable conditions, that is, when a sufficient amount of saliva has been mingled with the food by mastication, we have demonstrated by actual analysis in a great number of cases. During the last three years more than four thousand analyses of stomach fluid have been made in the physiological laboratory under the writer's charge, in connection with the Battle Creek Sanitarium. In each case, a careful determination has been made in reference to the action of the saliva upon starch, and with the result that in 14 per cent of the cases examined, the reaction of Lugol's solution has shown complete conversion of the starch. In 85 per cent the starch has been partially converted. In only 17 per cent has the blue reaction been observed, indicating little or no action upon the starch. It is more than probable that hasty mastication is one of the principal causes of dyspepsia in Americans. The gastric juice cannot act upon the starch; it can only act upon gluten and other nitrogenous elements of bread and other cereal foods after these elements have been set free by the action of the saliva upon the starch which constitutes the greater bulk of these food substances.

This neglect of mastication and resulting salivary indigestion, explains the enormous demand for malt preparations (we do not refer to beer, which is worthless as a digestive agent) which has sprung up within the last few years. The product of malt digestion, or maltose, is precisely the same as that of salivary digestion, the action of the saliva upon the starch resulting in the production, not of glucose, as was formerly supposed, but of maltose.

During the half or three quarters of an hour which intervenes between the swallowing of the food and the production of a degree of acidity sufficient to prevent the action upon the starch through the appearance of free hydrochloric acid, very active conversion of starch is taking place. If the food has been thoroughly masticated, so that it is broken up into fine particles, thus also ensuring an admixture of an abundant quantity of saliva, the great share of the starch elements of the food will be rendered soluble by conversion into dextrine, even if not completely converted into sugar, thus setting free the nitrogenous elements, which may be acted upon by the gastric juice in their turn.

It must not be forgotten, also, that the saliva is a most active peptogen; that is, the presence of the saliva in the stomach, in connection with the food, stimulates the glandular activity whereby an active and abundant supply of gastric juice is produced.

Another cause of salivary indigestion which we should mention, is the abundant use of sweets. In order that the saliva shall exercise its properties efficiently, it is necessary that it should act in a suitable medium. A temperature of 100° and an alkaline or neutral reaction are necessary for prompt and vigorous action on the part of the saliva upon the farinaceous elements of food. A low temperature hinders this action, and acidity stops it altogether. The presence of a large amount of sugar also hinders the action of the saliva.

It is thus evident that the copious drinking of cold water, or the taking of ice foods in connection with meals, is a means of producing salivary indigestion. The free use of strong acids, such as vinegar, in connection with cereal foods, is equally objectionable. Nothing could be more absurd than the combination of strong acids with vegetable elements, as in pickles. This is probably the reason why many persons find themselves unable to use acid fruits without fermentation. The acidity may be sufficient to neutralize the action of the saliva upon the starch.

Evidently it is not only physiologically absurd to add sugar to farinaceous foods, since the starch, which composes one half the weight of these foods, is all converted into sugar in the process of digestion, but the practice is also highly injurious, since it prevents the normal action of the saliva upon the starch. In this way, sugar, preserves, sweet sauces, confectionery, ice-cream, cakes, and other sweets, are in the highest degree conducive to salivary indigestion.

In the use of candy and glucose syrups, the injurious effects are intensified by the fact that chemircally prepared glucose is not a physiological sugar. The fact that glucose may be produced by the action of sulphuric acid upon starch, was discovered by Kirchhoff early in the present century. Dubrunfaut first, and later, Morris, O'Sullivan, and others have shown that the maltose produced by the saliva and the pancreatic juice, and the glucose produced by the action of sulphuric acid upon starch, are two entirely different products. Glucose is sweet, and, from a chemical standpoint, is a sugar, but is not the sugar produced by the action of either the saliva or the pancreatic juice upon the starch; hence it cannot be considered a substitute for these sugars. Glucose ferments with very great facility, whereas maltose does not so readily undergo fermentation. The same is true also of the sucrose, or cane sugar, which is formed in the natural process of plant growth. The wisdom of this arrangement is readily appreciated in view of the extremely favorable conditions for fermentation which exist in the stomach. Yeast and microbes of various sorts are always present in the stomach, where is found the degree of warmth and moisture necessary to facilitate the action of vegetable ferments upon saccharine substances. Nature has so arranged it that the saccharine substances taken into the stomach or produced in the stomach and in the digestive process shall not be readily fermentable. Both cane sugar and maltose are changed into glucose before absorption. But this change takes place apparently during the passage of the saccharine substances through the mucous membrane of the small intestines, since this part of the alimentary canal alone is possessed of the power of producing glucose.

The consequences of salivary indigestion are: Acid fermentations, heartburn, stomach and intestinal colic, dilatation, and catarrh of the stomach, and many evil effects arising from these conditions.

The remedy for salivary indigestion consists in prohibiting sweets, ices, and soft foods, and requiring patients to masticate thoroughly every particle of food swallowed. In many cases it is well to aid the process of salivary digestion by exposing the cereal food substances to the prolonged action of heat, thereby converting the starch into dextrine, rendering it more readily soluble, and hence more readily acted upon by the saliva. Granola and zwieback are invaluable articles of food for use in cases of this sort. The malt preparations are useful as palliatives in some cases, but it should be remembered that it is wrong to become dependent upon any artificial digestive agent.

HINDOO PRINCIPLES OF HEALTH. — The following "Principles of Health" we find published as a sort of statement of principles in the *Harbinger*, a vegetarian journal published at Lahore, India, by a native Hindoo, Durga Prasad: —

"1. Bathe with fresh water every morning before breakfast. Poor-blooded persons may use in winter a very little warm, but never hot, water. In bathing, rub all parts of the body with a rough towel from head to foot. Do not use soap daily.

"2. Do not put on dyed underclothing. Wash or change them at least twice a week. Night clothing and bedding should be well aired. Ladies should use loose garments.

"3. Abstain from fish, flesh, fowl, eggs, all intoxicants, wormy fruits, sour milk, impure water, cod-liver oil, much use of medicine. Besides distilled water, filtered, boiled, deep-well water is preferable. Take moderate quantities of good food. Live upon cereals, pulse, fruits, vegetables, and milk; *i. e.*, adopt the vegetarian system of diet. Eat when hungry. Eat slowly and chew well.

"4. Take systematic daily exercise without exhaustion. Bodily and mental occuptions may be in due alternation. Give reasonable rest to body and spirit by refined pleasures, so as never to be weary and lose the capability for enjoyment of life.

"5. Take sufficient rest, sleeping at least six hours after midnight. Early to rise and early to bed. Keep the air in sitting-rooms and bedrooms always clean and fresh, with a window open day and night, if there be no other ventilation. Keep no kind of lamp or fire burning in the bedroom.

"6. Be in sunny air and avoid artificial light as much as possible. Practice deep-breathing through nostrils with closed mouth.

"7. Keep the feet always dry and warm and the circulation of the blood regular. Be regular in eating, drinking, sleeping, studying, and working.

"8. Cultivate calmness, cheerfulness, and generosity. Help others in thought, word, deed, and example. Aspire to the good and the beautiful.

"9. Study science and appropriate one of the exact sciences. Elementary knowledge of hygiene and medical science is necessary.

"10. Do not be absorbed in material, but raise your thoughts to higher things also."

The above principles must truly be regarded as pretty nearly a complete guide to a wholesome and happy life. It is interesting to note that these principles are advocated, not by a Protestant or Christian missionary, but by a believer in the faith of his forefathers, a native Hindoo, who is an earnest disciple of the Vedic religion as expounded by Swami Daynand Saras Wati.

THE ACTION OF ACIDS UPON DIGESTION. — The question is often asked, What harm is there in the use of vinegar and other acids of that sort? — Vinegar is a most pernicious acid. Sir William Roberts, of England, has shown by experimentation, that one part of vinegar in 5000 parts of digestive mixture delays starch digestion in the stomach. One part in 2000 increases the length of time three and one half times. In the proportion of one part to 1000 of digestive mixture, the time of digestion is eight times as long as normal, and in one to 500 there is no digestive action at all. A teaspoonful of vinegar at a meal would practically destroy starch digestion, as it would delay it thirty minutes, and by that time the gastric juice would have become so acid as to prevent further action.

Dr. Roberts has published a little book giving an account of experiments which he has made with reference to the effects of what he called, "The Accessory Articles of Food upon Digestion." Among his experiments he ascertained the effects of tea, coffee, cocoa, vinegar, salt, sugar, alcohol of va

rious forms, wine, beer, brandy, and gin, upon the digestion of starch by the saliva.

Briefly stated, then, one part of vinegar to 2000 parts of digestive mixture, which is the same as about one eighth of a teaspoonful, or five drops, of vinegar to a meal, is sufficient to render the digestion of starch in the stomach over three times as long as it would be normally; and one part of vinegar to 500 parts of digestive mixture, which is the same as about ten drops of vinegar to a meal, is enough to cause starch digestion to cease altogether. Few persons would be ready to use such pernicious acids were they aware of their effect upon the digestive functions.

SCHOOLS FOR STAMMERERS.— The *British Medical Journal* suggests that schools for stammerers who are unable to pay the large price usually charged by instructors competent to relieve stammering, should be established at the expense of the State; and there certainly seems no reason why the State should not afford relief for this class of sufferers as well as for the blind, the deaf and dumb, and the feeble-minded. The essential difficulty in stammering is muscular spasm, which may involve the lips, the tip of the tongue, the back part of the tongue, and sometimes even the larynx, resulting in the various varieties of stammering or defective speech. In most of these cases the patient can be relieved by a particular course of training, which must be continued long enough to enable him to acquire habits of correct articulation. Thousands of persons whose usefulness is greatly impaired by this defect might be relieved by a proper course of instruction, and would doubtless gladly avail themselves of such instruction if it were afforded by the State, in connection with public State and educational institutions, either free or at a nominal cost sufficient to cover the expense. This is a matter worthy of consideration by educational authorities.

FOR MOSQUITO BITE.— Numerous remedies have been prescribed for mosquito bites, but a German writer says that ordinary soap is as good as any of them. He always carries a small piece with him on his country excursions, and in case of a bite, makes a lather over the affected part, and allows it to dry on. The burning is at once relieved, and all pain disappears. Should it return, as sometimes happens, it is necessary to repeat the application.

ANSWERS TO CORRESPONDENTS.

ALCOHOL IN FERMENTED BREAD, ETC.— E. S. B., Cal., writes: "1. In an English book I lately saw the statement that as many as sixteen grains of alcohol may be obtained from an ordinary sized loaf of fermented bread, by careful distillation. Is this true? 2. As I have some knowledge of chemistry, please tell me how to proceed to make the analysis. 3. The same author says much of the salts, particularly calcium phosphate, and their deficiency in bread as ordinarily made. Please give me information as to this. 4. He states also that in the consumption of fine white bread, the excreta contain about four per cent of water, while that of whole-wheat bread contains twelve and one half per cent. How is this? 5. Do you consider that the whole-wheat flour of this country is ground sufficiently fine? 6. Does the presence of bran cause a large per cent of the proteids to be excreted? 7. Are woody fiber or cellulose digested by herbivora and not by man? 8. What per cent of the different salts, particularly calcium phosphate, is necessary in the food of man for a single day? 9. Is calcium phosphate necessary in order that new cells and tissues be formed?"

Ans.— 1. The statement made is probably true, nevertheless it should be understood that the alcohol found in bread when it first comes from the oven is rapidly dissipated by evaporation, so that in stale bread there is likely to be no alcohol present.

2. The bread should be put into a retort and distilled in the usual manner.

3. Bread made from whole-wheat flour contains all the salts necessary for nutrition as well as every other element, with a possible deficiency of fat.

4. This simply indicates that fine white flour bread has a tendency to produce an inactive state of the bowels.

5. Yes.

6. The presence of bran hastens the passage of the food along the alimentary canal. Proteids are digested with more difficulty and less perfectly than the starch or fats of food, and hence more or less of the proteid substances taken in food escape with the excreta.

7. Most of this digestion probably takes place in the capacious colon of herbivorous animals. In man, the digestion of the cellulose takes place to a very slight extent only, nevertheless some observers have found that when lettuce and other foods containing a considerable amount of cellulose are eaten, more or less of the cellulose is digested in the human alimentary canal.

8. Wheat contains an abundance of all the salts required for the perfect nutrition of the body, hence may be considered in this respect a typical food. The proportion of salts found in wheat flour is 1.7 per cent.

9. Calcium phosphate is a constituent of all the tissues of the body, particularly of bone and nerve tissues. However,

it must be remembered that the calcium phosphates of the tissues is not an inorganic substance, but an organic. There is no evidence that the use of the calcium phosphates in the form of a chemical compound of that name can be rightfully considered in any sense as a substitute for a deficiency of calcium phosphates or other nutrient substances.

NUTRITIVE VALUE OF FLOURS — WHEN TO TAKE MILK.— S. C., N. Y., asks: "1. Are the best brands of patent white flour equal in nutritive value to whole-wheat flour, or as good for a person having a weak stomach? 2. When is the best time to take milk, before, after, or at a meal?"

Ans.— 1. The best brands of white flour contain, practically, nearly or quite as much gluten as whole-wheat flour, and in a few instances may be preferable to whole-wheat flour, although as a rule, whole-wheat flour is greatly to be preferred to any flour from which all the cellulose or woody substances have been removed.

2. Milk should never be used as a drink, but should be taken as a food, hence should be taken at meal-time only, and should be taken with some hard food which requires mastication.

CLIMATE FOR ASTHMA.— Mrs. M. A. A., Ind., asks: "1. What State has the best climate for an asthmatic person? 2. Please recommend a good book on climatology."

Ans.—1. Asthma is a very fickle disease, yielding best sometimes to one climate and in some cases to a very different one. Some asthmatics suffer less in a moist climate; others require a dry climate. Some enjoy good health in a warm climate, but are miserable in a cold climate; with others the reverse is true. In cases of so-called nervous or spasmodic asthma the matter of climate does not need to be considered. The disorder has its headquarters in the stomach and not in the lungs.

2. We know of no book which treats of the subject of climatology in a satisfactory manner.

IRRITABILITY OF THE HEART, ETC.— F. M. L. asks: "1. What shall I do for irritability of the heart? I sometimes have sharp pains in the region of the heart when attempting to turn over in bed. 2. I am also troubled with irritability of the lower bowels. What treatment shall I take? 3. Would extract of witch-hazel be of benefit in either of these ailments?"

Ans.—1. It is quite probable that the heart is not affected in this case. It is more likely that the affection is intercostal neuralgia. Fomentations applied over the spine, opposite the affected part, and also over the seat of pain, will probably give relief, at least temporarily.

2. Irritability is a very indefinite term. It is difficult to determine from so general a description what condition is present; it may be ulcer, hemorrhoids, chronic inflammation, fissure, or any one of several other conditions. The patient should be examined by a competent physician. A sitz bath and applications of hot and cold cloths over the rectum will frequently give temporary relief from pain in this region.

3. Hemorrhoids, if external, are frequently much relieved by the application of witch-hazel or other astringents.

WEAKNESS.— F. E. M., Ind., writes thus: "1. My wife is not sick abed, but is not well enough to be about the house and do her own work without a great deal of effort. When she gets up in the morning, she will frequently be obliged to sit down and rest before dressing. Her appetite is good, but she has no strength. She weighs about ninety-five pounds, whereas she ought to weigh one hundred and twenty. Our physician says the trouble is occasioned by a weak mucous membrane. Is this probably true? What will give her the desired strength?"

Ans.— Very likely the mucous membrane is weak, but it is also probable that the stomach, liver, nerves, nerve-centers, and in fact the entire body is weak. The patient needs a course of health-training. We would advise her to visit a good sanitarium for a few months. She needs, first, a careful investigation of the nature of her ailments. A test breakfast and an examination of the stomach fluid will show the character of the digestion and whether or not indigestion is present, and if so, to what degree. An examination of the urine should be made, also an examination of the condition of the kidneys, obtaining information as to tissue wastes. Very careful examinations should be made for the purpose of discovering the cause of the great disturbance in nutrition which exists in the case. This case is a serious one, and should not be neglected.

THROAT DISCHARGE.— J. W. B., Conn., writes in relation to his ailment, that it began about two years ago with a great secretion, apparently in the upper part of the throat, almost threatening suffocation, but which has gradually lessened in quantity, and changed from a glairy, transparent, tenacious fluid to a solid, heavy, though odorless yellow sputa. This varies in amount, but is constant, and comes up with very little irritation of the throat, although the throat is usually very dry. When lying in bed, if he turns upon his back, there comes immediately a great flow of mucus. He asks: "1. Is this disease catarrh? 2. Please give general directions for treatment."

Ans.— 1. Probably.

2. The patient probably will be benefited by the use of a volatilizer. A morning cool sponge bath, a careful dietary, abundant out-of-door exercise, and all health-building measures are likely to be helpful in cases of this sort.

FUMES OF CORN FODDER, ETC.— N. F. C., Iowa, asks: "1. Is it injurious to the health of man or beast to inhale the dusty or smoky fumes arising from imperfectly cured stacked corn fodder, weeds, etc.? 2. If injurious, what would be the probable effect? 3. Is such fodder proper food for a beast?"

Ans.— 1. Yes.

2. Dust is always injurious when inhaled, for the reason that it is not only foreign matter, hence likely to accumulate in the lungs and produce irritation there, but is also largely composed of germs which not infrequently become a source of disease.

3. Most animals are better able to defend themselves against germs, hence against dust, than are human beings. Dusty fodder ought to be moistened before feeding, and, if possible, the dust should be removed.

DANDRUFF— FALLING OF THE HAIR.— A. J S. asks: "1. What will remove dandruff? 2. My hair is falling very fast; what shall I do to keep from growing bald?"

Ans.— 1. Thorough shampooing of the scalp and the application of a mixture consisting of equal parts of alcohol and castor-oil are beneficial in most cases.

2. Have the hair cut short and shampoo the scalp every morning with cold water, rubbing it vigorously with the fingers. If dandruff is present, treat it as above suggested.

PASKOLA — COW'S MILK, ETC.—"A reader," Tenn., inquires: "1. Is Paskola a good food? 2. How can the milk from cows be pure when the flesh is infested with germs? 3. How soon after calving is it safe to use the milk of a cow? 4. Why is not the milk fit to use at once, if it is good for the calf?"

Ans.— 1. We cannot recommend it.

2. It cannot.

3. A few days.

4. The first flow of milk is intended to act upon the calf as a laxative. The young animal needs little nutrition for the first day or two, but it is important that proper activity of the stomach and bowels should be induced, a necessity for which nature makes provision in the peculiar quality of the milk first produced.

BURNING OF THE PALMS OF THE HANDS, STIFFENING OF THE JOINTS, ETC.— A subscriber writes as follows: "What is the cause of the burning of the palms of the hands, and the stiffening of the joints (no pain), whenever I stop the use of tobacco? These symptoms come on in a few days after stopping its use, and remain until I begin to use it again, when they leave me at once. Have been a heavy tobacco user."

Ans.— Probaby the use of tobacco is the cause of these symptoms. While the tobacco is used, the symptoms are disguised, although the morbid condition is present. The symptoms indicate a diseased state of the sympathetic nerves and the beginning of chronic rheumatism.

COLD FEET— PROPER QUANTITY OF UNDERCLOTHING, ETC. — F. H. R. asks: "1. How is it possible for a person engaged in sedentary pursuits to keep the feet comfortable in cold weather? 2. Ought one who suffers from the cold when wearing an ordinary amount of clothing to wear a double suit of underwear? 3. Is there any cure for baldness?"

Ans.— 1. Bathe the feet with cold water in the morning, and use warm foot-wear of the best makers.

2. Yes.

3. See answer to A. J. S., as above.

RUSH OF BLOOD TO THE HEAD.—W. L. J., Penn., inquires: "1. What causes a rush of blood to the head? 2. Would improper diet have anything to do with it?"

Ans.— 1. There are several causes, mental excitement and indigestion being the most common.

2. Yes. A stimulating diet promotes cerebral congestion.

TREATMENT FOR A DRUNKEN PERSON.— Mrs. E. M. S., North Dakota, inquires: "1. What is the treatment best calculated to restore a drunken person? 2. What will alleviate the headache that follows upon liquor drinking?"

Ans.— 1. A cold bath.

2. The headache which follows a drunken bout is nature's means of punishing intemperance. We agree with nature that intemperance should be punished, and hence decline to suggest any means of avoiding the penalty. The preventive measure of total abstinence is a sure cure.

COTTOLENE — TWO MEALS A DAY.— C. P., Oregon, asks: "1. Is cottolene manufactured from the oil of cotton seeds? 2. If so, is it objectionable as food? 3. In your opinion are two meals better than one a day for a person in ordinary health?"

Ans.— 1. Having made no personal examination of cottolene, we are not prepared to say whether it is a pure product of cotton seed or not.

2. We are of the opinion that cotton seed oil may be utilized as food to a reasonable extent without injury.

3. Yes.

TIRED FEELING IN KNEES— TICKLING SENSATION IN JOINTS, ETC.— P. N., Ill., writes: "1. Have a constant tired feeling in the knees, and a kind of tickling sensation in all the joints of the knees and feet. What is the cause? 2. What causes a hot liquid to come up from the stomach?"

Ans.— 1. The symptoms mentioned are frequently encountered in neurasthenia, and probably arise from disturbance of the abdominal sympathetic.

2. Indigestion, with fermentation of the stomach contents.

INHALATION OF STEAM IN A BATH.— J. C. T., Cal., inquires: "Is it harmful, either for a person who is strong or for one who has throat or lung trouble, to envelop the head while taking a steam bath?"

Ans.— Every human being requires an abundant supply of free air at all times. Life cannot be supported, even for a few minutes, by the inhalation of steam in the place of air.

FOOD FOR A CHILD.— M. B., Penn., inquires: "What is the best food for a child two years old, and how often should it be fed?"

Ans. — A child may begin the use of farinaceous foods as soon as its first teeth appear. With a child two years old, a diet consisting of milk, bread, and other grain preparations and well-ripened fruits is entirely appropriate. Granola, baked sweet apples, fruit toast, and similar foods are excellent for young children.

USE OF THE FLESH BRUSH.—A. S. P., Mo., inquires: "Do you recommend the use of the flesh brush in bathing?"

Ans.— Yes, if not abused. A brush should not be used with sufficient vigor to injure the skin. Some persons have such sensitive skins that the brush is not tolerated.

RELIEF DEPARTMENT.

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

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

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

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

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

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

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

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

A LITTLE German boy (No 244), nine years old, is in need of a home. He has blue eyes and light brown hair, and is now living in Florida with his mother, who is unable to care for him. He is said to be kind-hearted, and we doubt not, if he is surrounded by good influences and receives proper instruction, that he will be an honor to those who will thus direct his steps in the right path.

LITTLE Earl (No. 246), a Michigan baby seven months old, is in need of some kind motherly body to care for him, who will give him the care and attention that it is very necessary he should have at such a tender age. He is a pleasant and good-natured child, with blue eyes and light hair. Here is another opportunity for some one to train a child for usefulness.

No. 250 is a little girl nine years old, living in Kansas. She is at present with her mother, who has two younger children to care for, and owing to her financial condition, wishes to place the child in some good family where she will receive Christian care and training. She has gray eyes, dark, curly hair, and is of an affectionate disposition. Will some one offer assistance in this case?

TWO ORPHANS (NOS. 251 AND 252).—We have just received word respecting a girl and boy aged respectively eleven and six years. They are now living in Indian Territory with kind relatives, who have cared for them since their parents' death. The relatives are no longer able to care for the children, and request that they both be placed in the same home, where they will receive Christian training. The children have brown eyes and light hair, are in good health, and are now living in the country. The children know scarcely anything of the care or love of an own mother and father, as they were deprived of such care when very young. Is there not a home in the Southern or Western States that will open its door to these children who are in such great need?

WILLIAM (No. 254) is a boy thirteen years old living in Michigan. He has a slight blemish in one eye, impairing the sight; otherwise the boy is in excellent health, and bright and clean. This boy's mother is dead. His father is in poor health, so he wishes to place the boy in a private family.

STELLA (No. 255) is a little girl eight years old, with brown eyes and hair, and her brother (No. 256) is six years old, having blue eyes and light brown hair. These are just as needy and deserving of a home as are orphans. Their stepfather has deserted them, and their mother, who is failing rapidly with that dread disease, consumption, wishes to see her children placed in good homes. The children have been living in the country, not having had many associates, and have not been neglected. They are now living with relatives in New York, who can care for them but a short time longer.

Two half-orphan girls (Nos. 257 and 258), eleven and nine years old, need a mother to care for them. Their father is not able to work all of the time, on account of ill health, hence desires to place his children in private families. The children both have blue eyes and light hair, and are of a loving disposition. They are now living in one of the New England States. Will some kind friends in the East offer them a home?

No. 259, another Michigan boy, nearly two years old, with blue eyes and auburn hair, needs a home.

The mother lives in hopes of sometime being able to provide for the child, but at present she wishes to place him in some good family.

No. 260 is a little girl nearly ten years old, with dark brown eyes and hair. She is said to be intelligent, generous, and very playful. She has not had many school privileges, hence there is a grand opportunity for some one to see that she is trained properly and receives the instruction that will be the means of preparing her for a life of usefulness.

No. 261 is a boy fifteen years old, living in Indiana with a family who took him two years ago. He had had no religious training, but they have given him such privileges as they could, but now they feel as if they cannot assist him in obtaining the education he needs. The boy is a Christian, intelligent and well advanced in his studies, but he longs to have an opportunity of obtaining an education, and is willing to work for his board and clothes while attending school.

Is there not some one living near a college or high school, who will be glad of an opportunity to help this aspiring youth to realize his noble desires?

One of the objects of the Relief Department is to help the worthy sick poor, and although not much of a report of this line of the work has been given in this department, some interesting cases have been brought to our attention, which have enlisted our sympathy and have been helped in their need. One case that seemed very sad was that of an aged woman who had no home, no children, and was living with relatives who did not want her longer. She was not well, but was able to do some work. This aged woman wrote to us concerning her condition, and as she was well along in years and weakened with much anxiety and care, we sought a home for her where she could be surrounded with kind friends. We think the door of the right home opened to admit her. We quote the following from her letter: —

"I write to let you know that I am with these dear friends at this place. I think we will be well satisfied with each other. They are a very pleasant family. I am well satisfied with the family and if I can only be well enough to be a help to them instead of a burden, I think I will be contented. I thank you for the interest you took in providing a place for me. I pray that the Lord will bless you in all that you have to do, and at last gather us all in his everlasting kingdom."

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

Nos. 262 and 263. — A little boy and girl eight and six years old living in Pennsylvania have been brought to our attention. They are motherless, and their father, being in very poor circumstances, needs assistance. He desires to place his children in the homes of Christian people. We learn that they are good children, easy to teach, and of good appearance. They are now with their aged grandparents, who cannot care for them longer.

CLOTHING FOR THE POOR.

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

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

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

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

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

5. Clothing intended for the Chicago Medical Mission should be sent to 40 Custom House Place, Chicago, Ill.

LITERARY NOTICES.

THE WERNER SERIES OF SCHOOL BOOKS.— The Werner Company, of Chicago, Ill., well known as among the most successful publishers of modern times, have recently undertaken to furnish the educational public with a new series of school books covering the leading branches of education, and in a manner more in harmony with the spirit of progress in educational matters than most of the textbooks now in use. The following is a partial list of these excellent works : —

"Columbian Elements of Arithmetic."
"Columbian Complete Arithmetic."
"The Werner Mental Arithmetic."
"Primary Spelling Book," by Buckwalter.
A series of five Normal Readers.
"History of the United States," by Ellis.
"Greek Mythology," by Scull.

All of these works are printed on fine coated paper and are illustrated by finely executed engravings. The press-work is excellent and the binding substantial. The most important of all is the subject matter, which cannot be too highly complimented. Each work represents the latest stage of educational progress in its line.

The Werner Company have been so fortunate as to secure for the head of their Educational Department, Prof. W. J. Button, who was for many years the Western manager of the Educational Department of the house of Harper Bros., New York City.

THE *New England Kitchen Magazine* is now well along in the first half of its second volume, and with, let us hope, as long a subscription list as it deserves.

This monthly is devoted to the interests of domestic science, and everything, in fact, which pertains to the welfare of that foundation of a home,— the kitchen. It is edited by Mrs. Estelle M. H. Merrill and Miss Anna Barrows, who are well known throughout the country as exponents of the principles of scientific cookery as well as of kitchen ethics. Their collaborators are other women notable as being principals or directors of popular cooking schools ; there is an instructor in chemistry in a New England college, and one is the President of he National Household Economic Association. This is truly a journal for the people, in that it teaches temperance in eating and drinking and improved methods in ordinary processes, rather than the preparation of elaborate and expensive menus, the management believing that the knowledge most needed by the average housekeeper is how to make of simple and inexpensive materials palatable and nutritious dishes. $1 per year. The New England Kitchen Publishing Co., Boston, Mass.

"SOCIAL PURITY—THE RIGHT TRAINING OF CHILDREN," by Professor Edward B. Rawson, is an eight page leaflet, just published, No. 28 of The Philanthropist Series. It is a plain, forcible, yet delicate presentation of the right training of children concerning chastity and purity. It will be a great help to parents, and is a specially valuable leaflet for use in mothers' meetings, and by White Cross and Purity Societies. It merits a wide circulation. Price, by mail, 20 cents a dozen; $1.00 a hundred. Address the Philanthropist Pub. Co., No. 39 Nassau Street, New York.

Good Housekeeping begins its twentieth volume with the January number, which is fully up to its usual standard of excellence. The "Food Question" series of papers promised for 1895 are inaugurated in this number with the article, "Waste of Food," by Anna Barrows. There is a paper on "Milk and Its Products," by J. Brewster Sedgwick, M. D. In an interesting paper, "Spots and Stains," Hester M. Poole gives some methods of effectually removing discolorations from linen, cotton, and woolen goods, as well as from furniture. But these alone constitute only a small portion of the good things lying *perdu* in this valuable number. Two new departments are added with the new year, an important one, "Mothers and Children," and a department of "Sunday Song and Sermon," made up from suitable original and selected matter. Clark W. Bryan Co., Publishers, Springfield, Mass.

THE *Harbinger*, published at Lahore, India, is a little paper devoted chiefly to the advocacy of vegetarian principles and temperance. It declaims vigorously against the slaughter of animals, the use of tobacco and liquor, and various other social evils. We are glad to find in its columns, extracts from able writers, among whom we note the name of Sir Benjamin Ward Richardson. The *Harbinger* seems to be the originator of a number of vegetarian societies located in different parts of India. We wish for this print that prosperity which its mission deserves.

PUBLISHERS' DEPARTMENT.

A DELIGHTFUL winter is being enjoyed by everybody at the Battle Creek Sanitarium this year. For nearly six weeks the weather, while not extremely cold, has continued steadily at a temperature sufficiently low to preserve the snow which fell about New Year's in rather unusual quantities for Michigan, and sufficient to make capital sleighing. Every day the patients are out in small parties of from four to a dozen or more, enjoying the splendid sleighing and the tonic cool air. After all, there is no tonic equal to nature's best of tonics,—oxygen at zero temperature. A winter with plenty of snow, sunshine, and without piercing winds, except occasionally a very slight blow, is the best season of the year for getting health; and that such weather, as well as other advantages afforded by the Battle Creek Sanitarium, is appreciated by its patrons, is evidenced by the fact that just now the institution has a larger number of patients within its walls than ever before at this season of the year.

***

MR. D. T. JONES, Superintendent of the Medical Missionary Sanitarium at Guadalajara, Mexico, has just arrived at the Sanitarium and reports the enterprise there as being in a very prosperous condition. He has in mind an industrial enterprise which will include the founding of a Sanitary Community, which will settle upon a large tract of land where crops of various sorts can be raised, and trades of different kinds be carried on and taught. Mexico is in great need of such an enterprise as this. A tract of probably 50,000 acres will be required. In a recent prospecting tour on horseback toward the Pacific coast from Guadalajara, Mr. Jones found some very delightful haciendas, varying in size from 20,000 to 200,000 acres, and most picturesquely and advantageously located, which can be purchased at very moderate prices. There is such an enormous amount of unoccupied land in Mexico that one can acquire a small kingdom for a very moderate sum of money. One tract of 50,000 acres is offered for 25 cents per acre, American money. We shall doubtless hear more of this enterprise in the future.

Mr. Jones, reports that a number of patients have arrived at the Guadalajara Sanitarium, and are well pleased with Mexico. There is certainly no more delightful climate in the world than that of the high table-lands of tropical Mexico. The altitude is sufficiently great (a little more than 5000 feet) to be above the excessive heat, so that the temperature never rises so high as with us in summer; at the same time the tropical sun prevents winter frosts. Palms, bananas, figs, oranges—all tropical plants—flourish in the open air the year round. Flowers bloom perpetually and in a luxuriance which is never seen in the North, even in the best kept greenhouses. In Mexico one can buy at any time for five cents or less, an armful of magnificent roses, any one of which would cost half a dollar at a flower stand in one of our large cities.

The most interesting feature of Mexico, however, is the people, whose quaint manners and primitive customs are a source of perpetual interest and surprise. It is astonishing

that so many Americans run off to Europe every year sight-seeing, when we have as our next-door neighbors, a people and a country vastly more interesting than any to be found in Europe.

***

DR. L. J. BELKNAP, formerly connected with the Battle Creek Sanitarium, has for five or six months been doing pioneer work in Portland, Ore., and with so much success that the necessity for a branch institution there and its success under proper management, has been demonstrated. Steps are being taken for the organization of a permanent enterprise.

***

BY recent reports from South Africa we learn that the work on the Sanitarium at the Cape of Good Hope is advancing rapidly. Two physicians are making preparations to take charge of the work there, as soon as the building is completed, which will be in a few months from the present time.

The Sanitarium in South Africa will be the center for an extensive philanthropic and health educational work, which will be of service, not only to the civilized inhabitants of Cape Town and other Cape cities, but will also extend its beneficent influence to the benighted natives of the Dark Continent. It is hoped that medical missionary operations may be begun in Zambezi and Mashonaland at no distant day. It is expected that Dr. Sanderson and his sister, Mary Sanderson, M. D., will take charge of the medical work of the Sanitarium when it is opened. The Sanitarium enterprise in South Africa owes its origin chiefly to the generosity of the different members of the Wessels family, among whom should be prominently mentioned Peter H. D. Wessels, Philip Wessels, J. J. Wessels, and also the generous mother of this remarkable family, Frances Wessels, whose philanthropic enterprises are to be found in many quarters of the globe.

***

G. P. REPLOGLE, the Sanitarium trained nurse who was sent to South Africa with his wife and sister-in-law, Miss Stone, also trained nurses, to engage in work as missionary nurses, report excellent success. They have their hands full of work, and there is an increasing demand for services such as they are able to render. A bath-house has been constructed in a popular district, the patronage of which is very satisfactory and constantly increasing. The work has the support of the leading physicians of South Africa and prominent officials of the government.

***

OUR Relief Department, established less than two years ago, has met with such a hearty cooperation on the part of the public that we have been able to find good homes for more than sixty children who otherwise would have suffered for the commonest necessaries of life, or would have been left to wander in the streets without parental supervision or care. The interest in this department is by no means decreasing. Applications are constantly being received for homes for children, and an equal number of applications from childless homes offering to receive these little waifs. These two wants, like many others, are of such a nature that one neutralizes the other, and it will only be necessary that some one should take the trouble to bring the two together.

***

THE Sanitarium Food Co. have found their business so rapidly increasing during the last few months that they have been compelled to enlarge their force and increase the number of work hours, until now they are running twenty-four hours every day, and are only barely able to fill their orders. The superior merits of the food manufactured by this company have won recognition wherever they have been introduced, and there is, at the present time, an increasing demand for them in all parts of the United States.

***

SANITARY CLIMATOLOGY.— The Secretary of Agriculture has shown his interest in scientific progress by requesting the Weather Bureau to organize a department devoted to Sanitary Climatology. The Chief of the Department, Prof. Mark W. Harrington, in the interest of this new departure, desires to communicate with persons interested in Sanitary Climatology, in all parts of the United States. One plan of investigation will be a collection of facts concerning vital statistics as relating to meteorology and climatology. We believe much good may result from an investigation of this kind.

***

"BODY RESTED, MIND AT EASE."— That is what it is when traveling on the fast trains of the Chicago, Milwaukee & St. Paul Railway; besides there is no chance to "kick," for the accommodations are up to date, the trains keep moving right along, and get there on time. These lines thoroughly cover the territory between Chicago, La Crosse, St. Paul, Minneapolis, Aberdeen, Mitchell, Sioux Falls, Sioux City, Yankton, Council Bluffs, Omaha, and Northern Michigan. All the principal cities and towns in that territory are reached by the "St. Paul" lines, connecting at St. Paul, Council Bluffs, and Omaha with all lines for points in the far West. Write to Harry Mercer, Michigan Pass'r Agent, Detroit, Michigan, for one of their new map time tables and a *brochure* giving a description of the Compartment Sleeping cars. Tickets furnished by any coupon ticket agent in the United States and Canada. The finest dining-cars in the world are run on the solid vestibuled, electric-lighted, and steam-heated trains of the Chicago, Milwaukee & St. Paul Railway.

***

HOME SEEKERS' EXCURSION.— On March 5, April 2 and 30, 1895, the Michigan Central will sell excursion tickets at one fare for the round trip to all points in Alabama, Mississippi, North and South Carolina, and Tennessee, and to many points in Florida, Georgia, Kentucky, Louisiana, and Virginia. For full particulars call on or write to Geo. J. Sadler, ticket agent M. C. R. R., 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.

NON-ALCOHOLIC KUMYSS

AFTER careful and long-continued experiments, we have devised a method of preparing kumyss which is not only free from alcohol, but also possesses other advantages of a superior character. Ordinary kumyss contains a considerable amount of alcohol, due to the fermentation of cane sugar, which is added for the purpose of producing carbonic acid gas. The amount of alcohol depends, of course, upon the amount of sugar added and the age of the kumyss. The sugar is made to ferment by the addition of yeast. Kumyss made in this way contains yeast alcohol, and, if the alcoholic fermentation is not complete, a variable quantity of cane sugar. In addition, ordinary kumyss contains a variety of toxic substances, resulting from the development of the miscellaneous microbes which are usually found in milk.

The improved form of kumyss which we offer is made from sterilized milk, and by processes which render it absolutely uniform in quality. The method of manufacture is such that its constituents are definite and constant. It is more palatable than ordinary kumyss, in consequence of the absence of foreign microbes, and is particularly suited to cases in which milk in its ordinary form disagrees with the patient, and in which so-called "biliousness" is a troublesome symptom. Cases of hypopepsia are rapidly benefited by it. It is also of great service in the treatment of gastric neurasthenia, or nervous dyspepsia.

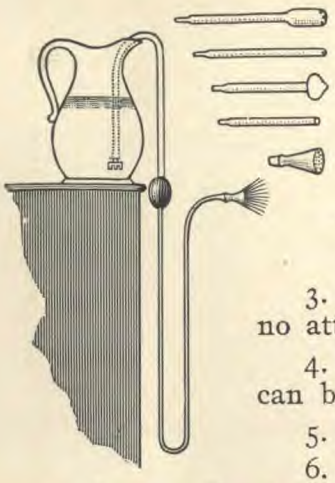
It is extensively used in some of the largest medical institutions in the country, and has received the highest commendation from those who have investigated its merits. This kumyss is put up in pint and quart bottles, and will be shipped to any address at the following price:—

Pint Bottles, per doz., = = $2.00.

Sanitarium Health Food Co.,

BATTLE CREEK, MICH.

Universal Syphon Syringe



THE accompanying cut is a representation of a new form of syringe recently perfected, which possesses the following excellences:—

1. Requires no fountain, as it can be used with a pitcher, a pail, a basin, or a washbowl,—anything that will hold water.

2. It has no valves or other fixtures to get out of order, no bag to become leaky, never injects air, and is always ready for instant use.

3. It is automatic in action. After being once started, it requires no attention while in use.

4. It is the most compact automatic syringe ever devised. It can be carried in the pocket of a dress or coat.

5. It is the simplest of all syringes, and requires no special care.

6. It never fails to work.

7. It is offered at about half the price of ordinary fountain syringes, and is superior to any of them.

PRICE, including all fixtures, in a small box, $1.50. If sent by mail, 14 cents extra for postage.

SANITARY AND ELECTRICAL SUPPLY CO., BATTLE CREEK, MICH.

CHICAGO & GRAND TRUNK R. R.

Time Table, in Effect Nov. 18, 1894.

GOING EAST. Read Down.					STATIONS.	GOING WEST. Read up.				
10 Mail Ex.	4 L't'd Ex.	6 Atl. Ex.	42 Mixd Tr'n.	2 Pt. H Pass		11 Mail Ex.	1 Day Ex.	3 R'd L't'd	23 B. C. Pass.	5 P'fic Ex.
a m	p m	p m				p m	p m	pm		a m
9.00	3.10	8.15	a m	.....	.....D. Chicago A.....	6.45	1.50	9.10	.....	7.50
11.25	5.05	10.30	6.00	.....	.....Valparaiso.....	5.05	11.35	7.10	.....	5.45
p m										
1.05	6.30	12.00	10.05	.....	.....South Bend.....	3.10	10.15	5.44	....	4.10
1.46	7.12	11.45	12.40	.....	.....Cassopolis	2.15	9.40	5.13	.....	3.28
2.33	.....	11.33	3.42	.....	.....Schoolcraft.....	1.20	.....	.....	.....	.....
2.44	7.55	1.48	4.30	a m	.....Vicksburg.....	1.10	8.52	.....	p m	2.37
3.30	8.36	2.40	6.20	7.0	.....Battle Creek.....	12.15	8.15	3.55	9.35	1.50
4.33	9.26	3.25	.....	7.47	.....Charlotte.....	11.14	7.23	3.07	8.40	12.53
5.10	9.55	4.00	.....	8.20	.....Lansing.....	10.40	6.55	2.40	8.00	12.20
6.30	10.45	5.03	.....	9.30	.....Durand.....	9.35	6.05	1.55	6.50	11.28
7.30	11.17	5.40	.....	10.05	.....Flint.....	8.35	5.35	1.28	5.47	10.35
8.15	11.50	6.15	.....	10.43	.....Lapeer.....	7.49	5.02	1.00	5.10	10.01
8.42	a m	6.35	.....	11.06	.....Imlay City.....	7.28	.....	.....	4.48	.....
9.50	1.00	7.30	.....	12.05	.....Pt. H'n Tunnel.....	6.50	3.50	11.55	3.50	8.45
	p m					a m	a m	a m	p m	p m
9.25	.....	.....	.....	.....	..... Detroit.....	.....	.....	10.40	4.05	8.45
	a m	p m					p m			p m
.....	8.15	5.25	.....	.....	.....Toronto.....	.....	9.20	.....	.....	1.00
	p m	a m					a m			
.....	8.15	7.25	.....	.....	.....Montreal	.....	9.15	.....	.....	.....
	a m	p m					a m			
.....	8.12	7.15	.....	.....	.....Boston.....	.....	8.30	.....	.....	.....
	a m	p m					p m	a m		p m
.....	7.50	4.25	.....	.....	.....Susp'n Bridge.....	.....	10.15	7.05	.....	2.25
	a m	p m								p m
.....	7.00	5.40	.....	.....	.....Buffalo.....	.....	.....	.....	.....	1.00
	p m	a m					a m	p m		p m
.....	8.53	8.03	.....	.....	.....New York.....	.....	8.15	6.10	.....	8.00
		a m								p m
.....	.....	11.20	.....	.....	.....Boston.....	.....	.....	.....	.....	7.00

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

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

Valparaiso Accommodation daily except Sunday.

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

† Stop only on signal.

A. R. McINTYRE, *Asst. Supt., Battle Creek.*

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

MICHIGAN CENTRAL

"The Niagara Falls Route."

Corrected Nov. 18, 1894.

EAST.	*Night Express.	†Detroit Accom.	†Mail & Express.	*N. Y. & Bos. Spl.	*Eastern Express.		*Atl'ntic Express.
STATIONS.							
Chicago.....	pm 9.30		am 6.50	am 10.30	pm 3.30		pm 11.30
Michigan City.	11.35		8.50	pm 12.17	5.20		am 1.19
Niles.....	am 12.45		10.15	1.15	6.23		2.45
Kalamazoo....	2.15	am 7.20	11.55	2.30	7.40		4.35
Battle Creek...	3.00	8.10	pm 12.50	3.05	8.18		5.22
Jackson.....	4.30	10.00	2.40	4.25	9.35		6.50
Ann Arbor.....	5.40	11.05	3.50	5.15	10.25		7.47
Detroit.....	7.10	pm 12.20	5.30	6.15	11.25		9.20
Buffalo.....				am 12.35	am 6.45		pm 5.30
Rochester.....				3.38	9.55		8.40
Syracuse.....				5.40	pm 12.15		10.45
New York.....				pm 1.45	8.45		am 7.00
Boston.....				3.45	11.45		10.50
WEST.	*Night Express.	*N.Y.Bos. &Chi.Sp.	†Mail & Express.	*N.Shore Limited.	*Weste'n Express.	†Kalam. Accom.	*Pacific Express.
STATIONS.							
Boston.....		am 10.30		pm 2.00	pm 3.00		pm 7.15
New York.....		pm 1.00		4.30	6.00		9.15
Syracuse.....		8.30		11.30	am 2.15		am 7.20
Rochester.....		10.37		am 1.20	4.10		9.55
Buffalo.....		11.45		2.20	5.30		pm 3.30
Detroit.....	pm 8.45	am 6.30	am 7.20	8.30	pm 1.10	pm 4.35	11.10
Ann Arbor.....	10.25	7.30	8.43	9.25	2.12	5.57	am 12.15
Jackson.....	11.40	8.35	10.43	10.30	3.15	7.35	1.25
Battle Creek...	am 1.17	9.48	pm 12.15	11.43	4.31	9.13	2.55
Kalamazoo....	2.10	10.27	1.00	pm 12.22	5.09	10.00	3.36
Niles.....	4.00	11.48	3.00	1.40	6.27		5.00
Michigan City.	5.09	pm 12.50	4.25	2.45	7.22		6.00
Chicago.....	7.10	2.40	6.35	4.30	9.05		7.50

*Daily. †Daily except Sunday.

Kalamazoo accommodation train goes west at 8.05 a.m. daily except Sunday.
Jackson " " east at 7.27 p. m. " "

Trains on Battle Creek Division depart at 8.10 a. m. and 4.35 p. m., and arrive at 12.40 p. m. and 6.35 p. m. daily except Sunday.

O. W. RUGGLES, *General Pass. & Ticket Agent, Chicago.*

GEO. J. SADLER, *Ticket Agent, Battle Creek.*

Science in the Kitchen.

By MRS. E. E. KELLOGG, A. M.,

Superintendent of the Sanitarium Experimental Kitchen and Cooking School, and of the Bay View Assembly Cooking School, Superintendent of Mothers' Meetings for the N. W. C. T. U., and Chairman of the World's Fair Committee on Food Supplies for Michigan.

A REMARKABLE BOOK.

Brimful of Information on

Subjects of Interest to Every Housekeeper,

And to Every Civilized Human Being.

A Thousand Important Questions Answered Clearly and Simply,

Most of which are not Answered Elsewhere.

THIS book has long been looked for, and anxiously waited for by thousands who have known that it was in preparation. It is not a compilation of the detestable and unwholesome mixtures called "recipes," which are the product of unskilled and aimless experimentation, but is the result of carefully directed researches carried on in the light of the most modern knowledge upon the mixture of food and the hygiene of dietetics. *This work is the product of many long years of patient toil and experimental inquiry.* The large opportunities for observation, research, and experience which Mrs. Kellogg has had in the constant supervision of the cuisine of the Sanitarium and the Sanitarium Hospital, and the ever increasing necessity for new methods and original recipes to supply the growing needs of an immense health institution numbering always from 500 to 700 inmates, have served to develop an altogether New System of Cookery, the outcome of which is this valuable work that we now offer to the public. **Agents wanted everywhere** to introduce this popular and rapidly selling work.

PRICE, in Oilcloth, $2.75; Muslin, marbled edges, $3.00.

MODERN MEDICINE PUB. CO., 65 Washington St., Battle Creek, Mich.

The Volatilizer

A NEW INSTRUMENT FOR THE TREATMENT OF

CONSUMPTION, COLDS, COUGHS, NASAL CATARRH, AND ALL CHRONIC DISEASES OF THE NOSE, THROAT, AND LUNGS.

This instrument, which is the result of long experience in the use of medicaments in the treatment of various affections of the air passages, is intended for the purpose of applying medicated air to the nose, throat, lungs, eustachian tubes, and ears. It has been tested in the treatment of a large number of cases at the Battle Creek Sanitarium and elsewhere, and is believed to be the most effective instrument for the purpose which has been devised. It is comparatively inexpensive and durable, being made of nickeled copper, so it is scarcely possible for it to get out of order.

A Nebulizer and Volatilizer Combined.

A nebulizing tube accompanies the instrument, so that if for any reason the use of a Nebulizer is desired, the instrument can be used for this purpose also, so it is not only a Volatilizer but a Nebulizer as well.

A list of formulæ adapted to different conditions accompanies each instrument.

PRICES:

Spun Brass, Nickel Plated, Complete, -	$2.50
Without Bulb and Nebulizing Tube, -	1.50
When sent by mail, add for postage, -	.12
Solutions for use with Volatilizer, per oz.,	.20

SANITARY AND ELECTRICAL SUPPLY CO.,

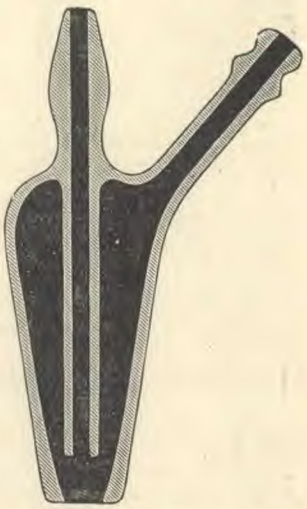
BATTLE CREEK, MICHIGAN.

• EAR DOUCHE •

NO REMEDY is so valuable in the relief of earache as a current of hot water passed into the external canal of the ear. Many cases of inflammation of the ear resulting in perforation of the drum membrane and partial or complete destruction of hearing, might be prevented if the ear douche were employed early and perseveringly. Most of the cases of deafness resulting from diphtheria and scarlet fever would be prevented by the proper employment of this simple means of treatment.

The great obstacle to the use of the ear douche is the inconvenience of its application. A suitable tube may not be at hand, and even if a suitable tube is in readiness, it is exceedingly inconvenient for the patient to sit or lie in the required position for the length of time required to accomplish good results, and even the best-directed efforts of a skilled nurse do not always prevent the clothing of the patient from becoming wet about the neck and shoulders, and the subsequent chilling resulting sometimes makes the patient worse than before.

All these disadvantages are overcome by the ingeniously-devised tube for the administration of the ear douche, cuts of which are here shown. The instrument is made of hard rubber, and consists, as will be seen by reference to the accompanying cuts, of an inner tube which conducts the water to the ear, while an outer tube conducts it out, and at the same time is so shaped as completely to close the opening of the ear. The water is conducted off by a second tube attached to the device, into a receptacle. By the aid of this instrument a patient may lie in any position, and no attention to protection of the clothing is necessary. Thus the treatment can be kept up for several hours, if desirable, and in inflammation threatening complete destruction of hearing, the case may usually be speedily brought to a favorable termination.



EVERY FAMILY OUGHT TO POSSESS THIS INGENIOUS AND USEFUL INSTRUMENT.

It will be sent postpaid on receipt of 75 cents.

SANITARY AND ELECTRICAL SUPPLY CO., Battle Creek, Mich.

"It is of inestimable value." — *Boston Globe.*

18th Year of Publication. Circulates in Every State and Territory. Used by Government Officials as the Standard.

The American College and Public School Directory

Contains Classified Lists and Addresses for the entire U. S. of all

1. Colleges, Female Seminaries, and Academies. 2. Normal Schools. 3. Business Colleges. 4. Schools of Science. 5. Schools of Theology. 6. Schools of Law. 7. Schools of Medicine,—Regular, Eclectic, and Homœopathic. 8. Schools of Dentistry. 9. Schools of Pharmacy. 10. State Superintendents. 11. County Superintendents. Also leading: 12. City Superintendents. 13. Principals. 14. Assistants, etc. Gathered from Official Sources and revised to date of issue.

HANDSOMELY BOUND IN CLOTH.

C. H. EVANS & CO., Evans Building, St. Louis Mo.

TEACHERS WANTED. American Teachers' Bureau, St. Louis, Mo. 10th Year.

A BARGAIN COLLECTION OF

FLOWER SEEDS

10 Choice Annuals, (everybody's favorites), all new fresh seeds, sure to grow and bloom this season. **Pansy,** 40 colors and markings; **Phlox,** 20 colors; **Verbena,** 18 colors; **Pinks** 10 colors; **Petunia,** 10 colors; **Asters,** 12 colors; **Balsam,** 8 colors; **Sweet Peas,** 12 colors; **Mignonette** sweet and **Sweet Alyssum.**

FOR 12 CENTS and the name and address of two of your friends who grow flowers, I will send, post paid, the complete collection, one pkt. each of the ten varieties (enough for any ordinary garden.) This is a **BONAFIDE** offer, made to introduce my home grown flower seeds to new customers and which I guarantee to please you or the amount paid refunded, and the seeds given as a present.

Miss C. H. LIPPINCOTT,
319 and 323 Sixth St. So., MINNEAPOLIS, MINN.

PATENTS

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