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GOOD HEALTH
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BIOGRAPHICAL HEALTH STUDIES.

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

15. Robert Louis Stevenson.

AMONG the weird folklore tales of our pagan ancestors there is a suggestive story about a child whose parents tried to insure its happiness by inviting a large number of guardian fairies. Some of them endowed their little ward with good luck, others with rare talents and graces of body and mind, but by some fatal oversight the invitation committee had forgotten one of the luck-bringing elfs, whose resentment eventually neutralized the blessings of all her sisters.

In a similar manner a lack of sanitary knowledge is apt to blight the benefits of the most liberal education. Few men of the nineteenth century entered the arena of life under apparently happier auspices than Robert Louis Stevenson, the Scotch Dumas, as one of his admirers calls him. Both his father and grandfather were famous engineers, and his mother's family boasted several artists and *savants*, who seem to have transmitted their moral characteristics to the young *literateur*. At ten years of age he was already a leader of the Edinburgh playground, "a living picture of a gipsy boy," as one of his teachers describes him, "black-eyed, long-armed, agile, and indefatigable, but withal full of generous impulses, and evincing demonstrative symptoms of distress when his wild pranks had caused anything like serious mischief. His *penchant* to play truant had nothing to do with mental incapacity, and considering his love of adventure, I expected that he would turn out a second Gordon Cummings, or modern knight-errant, of the Burton and Trelawny type." His restless spirit revolted against the geometrical drudgery of a polytechnic institute, and as he was unable to specify a predilection for any special branch of pursuit, his father decided to give him, in the meantime, the benefit of a versatile course of study and let him choose his vocation in after years. In addition to his college studies he had private lessons in music and drawing, architectural draughtman's work, too,— still with a lingering hope that he would decide to follow in the professional footsteps of his grandfather, the champion lighthouse builder of Great Britain.

Finding his aversion to mechanics unconquerable, an eminent barrister of his father's acquaintance managed to interest him in the study of law by loaning him Pitaval's collection of "*Causes Celebres*,"— a sort of detectives' Decameron,— though with rather an unexpected result: the lad becoming monomaniacally fond of mystery stories and filling his note books with marvel tales of his own. Still he did look into Blackstone, while he continued his classical and miscellaneous studies, till in his eighteenth year he had acquired a fair knowledge of Latin, Greek, French, mathematics, ancient and modern history, mythology, geography, political economy, and ethics, besides music, fencing, drawing, elocution, versifying, and novel writing.

"Those Buddhist saints have filled some 50,000 volumes with instructions about ceremonies and forms of prayer," says Captain Mc Neill, in his description of a Thibet monastery,— "pity not one of them thought of mentioning the fact that the ventilation of a crowded building would benefit both the body and the mind of the true believer." And what a pity, too, that the managers of a British college with its curriculum of half a hundred different 'graphies and 'ologies, never thought of adding

a sanitary text-book — not a cyclopedia of surgery and therapeutics, but a little hygienic primer, — say of ten pages, with a few hints on the significance of stimulant vices and the origin of pulmonary disorders. On those topics the polyhistor Stevenson, the brightest youth of the Athens of the North, remained as ignorant as a child, — considerably more ignorant than an instinct-taught animal.

They did teach him fencing and swimming, because there seemed a chance that his adventurous disposition would lead him into the army, but natural hygiene! — they would as soon have thought of teaching vegetable chemistry to a boy who had no intention of becoming a druggist. In 1866, young Stevenson, then hardly in his seventeenth year, published a semi-devotional memoir on the "Pentland Uprising" which evinced considerable insight into the Covenanters' system of preserving their creed from the contaminations of worldliness, but in regard to the importance of preserving his lungs from the contamination of tobacco-reeking club-rooms the young author's knowledge was so deficient that a year after, his parents had to consult a specialist in respiratory affections. Robert had become a victim of the nicotine-habit, and began to suffer from a hectic cough that defied medication. The idea of a cure by a removal of the cause never entered his mind. He renounced swimming and picnicing, became extremely careful in keeping his windows closed, and tried this drug and that, but his cough got worse; and in 1875 his relatives persuaded him to try "a change of climate" — the usual way of relieving a nonplused drug doctor of an inconvenient responsibility.

Indoor life and overheated bedrooms had saturated his lungs with disease-germs, he had become "as thin as a rake and almost as cross," and consented to try the air on the other side of the Channel. For a few weeks he circled about in Northern France, near and nearer to Paris, like a moth around a burning candle, and finally yielded to his Bohemian instincts. For all he knew, his desperate cough might take a fatal turn before the end of the year, and he could not think of leaving this planet without having taken a peep at the Vie Bohéme of the modern Babylon. Strange to say, the first sanitary result of the experiment was an agreeable surprise. Mental excitement probably operated as a palliatory stimulant; the historian of the Covenanters had got rid of his asceticism in one week, and luxuriated in a summer sea of pleasure, "too charmed to be sick," and beginning to wonder if the gray kirk-dullness of Scotland had not something to do with his troubles. He felt like a fish released from a tank-prison and carried along on the currents of a swift-flowing river, till the inevitable reaction set in with a vengeance. He had a hemorrhage of the lungs that sobered him at once; he renounced the temptations of the Jardin Mabille, and after a few weeks' penance with graham crackers and cod-liver oil, set out for the Cevennes, with their sunny slopes and the keen, pure air of their summit regions.

That, at least, was the advice of a Paris physician of Scotch descent, a personal friend of the Stevensons, who ought to have accompanied his young visitor for a month or two, and taken out his pay in the charms of a conversation which, he confessed, made his prescription an act of personal self-denial. An American critic, who ranks Robert Stevenson next to Macaulay as the greatest master of English style, holds that nevertheless his literary gifts were a trifle to his conversational ability — a curious illustration of its charm being the almost incredible fact that he not only persuaded an accomplished American lady to leave her husband, but won the friendship of that husband so completely that he volunteered a divorce and permitted his only son to follow the fortunes of the irresistible Scotchman.

The Paris doctor, too, probably thought it incredible that the brightest traveler of the age should fail to take care of himself, and beat the established order of nature at its own game. Robert Stevenson really seems to have by that time arrived at the conclusion that he must seek happiness outside of metropolitan city walls; but in setting out for the highlands he took his smoking-outfit along and a large assortment of warm undergarments. Buttoned up to the neck and sweltering under a double or triple stratum of flannel undershirts, he roamed about the heights of the Cevennes, wondering why the air failed to relieve his congested lungs, but hoping for the best, and meanwhile seeking solace in strong tobacco and French literature. On returning to his *auberge*, he used to get through with his dinner as soon as possible, then retire to his room, close every window, and light his pipe near a superheated stove, rejoicing in sleet-storms that gave him a pretext for enjoying those luxuries all day as well as half the night. When he could not sleep, he had resort to his private medicine chest. From a letter dated in the autumn of 1877, it would seem that he had contracted a passion for chemical narcotics, but freed himself by indulging in a double allowance of cigarettes.

He had been an occasional contributor to English

periodicals ever since he crossed the Channel, and before long found the demand for his literary work an additional excuse for protracting his indoor occupations. The success of his first novel decided him to renounce the plan of the Edinburgh barrister forever, and trust for bread to his pen. His poetry, too, became extremely popular, so much so, indeed, that one of his friends predicted a time when he would surpass the author of Waverley in verse as well as in prose. In 1882 he calculated that four hours of work a day, for five days in a week, would abundantly suffice to secure him against actual want, and that in a few years he should be able to live upon the royalties of his published books.

That relief from the cares of what he calls the "base fundamental problem of existence," re-acted on his health for a while, and permanently on his temper. Without enemies, without prejudices, and without conscious causes for self-reproach, he became the most easy-going of mortals, an incarnation of that tolerance that renounces the task of reform, and makes the best of extant mixtures of vice and virtue in every fellow-man. That disposition was strengthened by his habit of "studying up social facts" for his projected novels. He was fond of slumming, and like Emile Zola, trained himself to analyze moral monstrosities as he would a physical freak of nature, relying on the conviction that all things are pure to the true philosopher, as well as to the true saint.

As long as he confined himself to snap-shots a folly flying, that plan might really have involved no serious personal risks, but in one of his restless moods the temporary victor of a life-and-death struggle against a legion of consumption microbes conceived the insane project of crossing the Atlantic in an emigrant ship, with a view of writing up the horrors of a steerage passage from personal experience.

The result could not have been worse if the author of "Ten Nights in a Barroom" had thought it necessary to secure realistic impressions by keeping himself howling drunk for a couple of weeks. In the foul fumes of a floating Black Hole of Calcutta the dormant microbes awakened from their slumber, the smouldering fire of the hectic fever broke out into raging flames, and the ill-fated experimenter reached New York City "as sick as a dog, and with premonitory shivers of pleurisy, diphtheria, and pneumonia, with aneurisms added to suit the climate" — more than half seriously ascribing his condition to the raw coast-winds of the western hemisphere.

He barely managed to drag himself to the next hotel, where he collapsed, and like a ship-wrecked mariner, vowed penance, if fate should ever permit him to view his native shores again. Heroic remedies palliated the trouble for the time being, but hardly on his legs again, the unhappy convalescent started for California in the bunk-caboose of an emigrant train, and had to pay the penalty in a martyrdom of pulmonary congestion that made him renounce the vanities of the world for the first four weeks of his sojourn on the Pacific slope. Then followed the miracle of his matrimonial conquest, and the spoiled favorite of fortune once more got a new lease of life.

He took his wife to France, and tried to keep his hectic troubles in check by keeping house on the idyllic plan, and carefully avoiding every cause of mental irritation. There is really something in that idea. Moral peace is a pathological palliative, and the Russian boors try to mitigate the virulence of smallpox by calling it *Matrushka Ivansvna* (literally "Little Mother Jackson"), and treating the patient with the utmost kindness, enjoining every visitor to avoid ill-tempered expressions, and modulating his voice in the sweetest possible key. The *rationale* of the specific may be found in the fact that passions of ill-humor have a debilitating after-effect that gives the microbes of germ diseases an ugly advantage.

Stevenson, with his wife and his stepson, Lloyd Osbourne, lived in a honeysuckle-wreathed little villa, far from the excitements of city life, and made it a rule not to let trifling annoyances provoke him into an unkind word. An English press correspondent describes a visit to that cottage, whose only guardian was a frowsy Scotch terrier. The visitor had hardly crossed the threshold when the canine broke out into a furious, more-and-more-aggressive, fit of barking and had finally to be hustled into an adjoining room. Hoping to calm the little pest, the would-be interviewer kept quite still for a while, but the moment she tried to speak, the dog, too, became audible, and kept up a deafening noise, till the stranger thought it the wisest plan to retire from the contest. Stevenson followed her out into the garden: "Please, do n't feel angry about this," said he again and again, "the poor little thing is jealous; please, do n't think us ill-mannered, he only barks because he loves us so" — all in a peculiar, sweet, deprecatory voice that made a strange impression on the visitor.

The Stevensons ought to have stuck to that cottage, but even dove-like placidity could not altogether counteract the irritating influence of nicotine: thirty cigarettes a day, as an average, by that time;

and when the pains in his chest became unbearable, the patient fell back upon his theory of an uncongenial climate. His wife was loath to leave, and before renouncing their rural Eden they tried all the patent compounds of the nostrum market. Every symptom of improvement was hailed with hallelujahs to the merits of the supposed specific, and the strange nightmare novel of "Doctor Jekyll and Mr. Hyde" was published about this time,—indicating, of course in an intentionally exaggerated form, the author's belief in the omnipotence of drugs. By swallowing a certain mixture, Dr. Jekyll, in quest of physical gratifications, can metamorphose, not only his body, but his moral constitution, and enjoy himself like an unscrupulous savage; then swallows another specific and resume his original characteristics. At all events, the plot of the story also suggests the recognition of a very important fact, viz., the inevitable *progressiveness* of all unnatural habits, for after turning himself into a brute a few dozen times, the learned doctor finds that he requires stronger and stronger tonics to accomplish his regeneration, till he finally perishes during an irremediable eclipse of his human attributes.

The Stevensons returned to America. It was the time of the Mountain-Cure craze, which in the United States had taken the form of a belief in the miraculous efficacy of the Adirondack highlands for the relief of pulmonary affections. Hundreds of tent-campers had experienced the benefits of a plan which they could have adopted at home without a dime of expense, if cheap remedies had a chance of popularity and logic a ghost of a chance against the power of the night-air superstition. A closed tent on the summit of a high hill offers about the same facilities for breathing cool air as an open bedroom window of a lowland residence in nine out of ten summer nights, without counting the winter chance, but a closed canvas house filled with a dense murk of tobacco smoke would have to be removed to the top of Pike's Peak to give a consumptive the least hope of recovery.

In the intense winter frosts of the polar regions the dugouts of the Esquimaux get rid of their microbes in spite of all other atmospheric impurities, but the camp on a midway terrace of the Adirondacks proved a failure; and Robert Stevenson decided to purchase the hope of health at the price of a voluntary exile from the lands of civilization.

One gleam of insight into the true causes of his trouble may have had something to do with that resolution. "During the last year of his residence in America," says Charles Lanier, "he would not permit the approach of a person who was under the influence of a 'cold in the head'—so delicately did his physical nature respond to the most subtle impressions."

In other words, he had begun to suspect that catarrhs, miscalled, are due to the agency of microscopic parasites whose germs float in the atmosphere of a sickroom and make "colds" as contagious to enfeebled constitutions as measles and diphtheria.

Perhaps he also wished to avoid the fate of his countryman, Bobbie Burns, who according to Carlyle, was literally talked to death by his male and female admirers. Protracted conversation fretted the lungs of the lionized *literateur*, while his good nature made it very hard for him to deny himself to friendly visitors; so he wisely decided to remove himself from the sphere of temptation, and in 1888 chartered the yacht "Casco" and sailed away for the South Sea Islands.

His wife and stepson, Lloyd Osbourne, accompanied him, and in their sincere anxiety for his sanitary welfare overruled his personal predilection for the Sandwich Islands, and persuaded him to pitch his tabernacle a little nearer the Equator. They finally agreed on the Samoan archipelago, where the weary wanderer found a haven of rest on the foothills of a mountain range a few miles above the harbor of Apia.

In the immediate neighborhood of the coast, the climate of Samoa corresponds to that of Rio Janeiro. The moderate elevation of the Stevenson villa might equal a difference of a few degrees nearer the Temperate Zone, and thus amount to the equivalent of, say, Havana or Tampico,—sultry, winterless, but still with the chance for the enjoyment of an occasional cool night.

From a social, or rather unsocial, point of view, the new home proved, however, a complete success. The patient had escaped the idle gossipper nuisance, and there were weeks when fruit and milk venders were the only callers.

Foreign travelers, indeed, rarely failed to take a peep at the only local lion, but their arrival in that hermitage of the antipodes was so rare that their visits formed holidays in the life of the exiles.

"I know I have no chance of complete recovery," said Stevenson, when he bade his American friends his last farewell, "all I can hope for is to linger some four or five years longer, before I cough my poor soul out some fine morning."

The result of the last sanitary experiment then, after all, exceeded his expectations. He chartered

the "Casco" in his thirty-eighth year, and had just celebrated his forty-fourth birthday when night-fever and a rapid decline of his strength announced the beginning of the end. His death was mourned by the entire population of the little archipelago, and forty natives cut a path through the forest, to bury him where he ought to have lived, on the high, airy plateau of the Tannitava range.

(To be continued.)

A VISIT TO THE SANITARIUM.

BY J. S. REEKIE.

IN response to the very cordial invitation of the managers of the Battle Creek Sanitarium, a large company of stockholders and their friends spent a most profitable evening visiting the institution on the occasion of the recent annual meeting at Battle Creek, Mich. As many of the visitors remarked, it was a great surprise to see the immense growth of the work. To adequately describe the Sanitarium is beyond the scope of this brief sketch, so we will content ourselves with a few glimpses into the various departments.

VIEW OF THE FRONT DRIVE, LOOKING NORTH FROM MAIN ENTRANCE.

At 6 o'clock on the evening of February 23, the Sanitarium corridors began to take on an unusually busy aspect. The delegates began to come in by twos and threes, until there seemed to be one continuous stream of people. They were directed to the gymnasium, there to be organized into companies, and systematically visit the different departments of the institution.

Such an assembly as was there congregated, comprising, as it did, representatives from all parts of our own and many foreign lands, was an impressive scene, even for so cosmopolitan a place as the Sanitarium, and the audience was as interested as it was interesting. Those who had watched the Sanitarium from its birth and nourished it in its infancy, by their means and influence, and those who until that hour were acquainted with it only by representa-

tion, were alike curious to see its present proportions.

Promptly at 7:30 Dr. Kellogg, supported by a band of intelligent members of the training classes, made his appearance. The chaplain, Elder McCoy, offered a brief prayer, followed by a few remarks by the Doctor, who said that it was his purpose to let the institution speak for itself. He then outlined the program of the evening.

The fact that dormant energy lies at our very fingers' ends, unused by us for lack of knowledge on our part, was very simply and effectually demonstrated by one terse question addressed by the Doctor to his helpers; namely, "What would you do if in a case of an emergency in a foreign land you needed an electric current and your battery would not run?" This was answered in as many ways as there were members of the class in electricity. One would use an orange; another, carbon; another, pieces of old hoop iron; another, five potatoes connected by alternate pieces of zinc and copper, etc. These were demonstrated before the audience. All that is necessary is to know how, and you are ready for anything. Such is the practical nature of the instruction imparted to the nurses in training.

SWEDISH MOVEMENT DEPARTMENT.

Companies of thirty or forty were formed, led by a physician or a graduated nurse; and as these filed out at intervals of three minutes, the doctor gave some most valuable instruction on how to stop hemorrhage,— first, of the throat, by compressing the artery against the spinal column; then of the arm, by pressing the artery that supplies that region upon the uppermost rib between the sternum and the scapula. Various other parts were then experimented upon, and the extent to which skill will supply the lack of strength was demonstrated by the doctor's handling with the greatest ease a (supposed) unconscious patient much larger than himself. The doctor remarked, "Every minister ought to be a good Samaritan, and if he should meet a wounded neighbor and have no beast to carry him on, he ought to take the place of the beast himself."

But we will follow one of the companies that has now left the room on a tour of inspection.

Down the staircase and just beneath the gymnasium is the manual Swedish department. Here one is treated to a good hand-shaking by the institution, or rather by the machinery of the institution. Patients who have lost the power to exercise their own muscles and thus gain strength, are here helped out by the modern panacea for nearly all of man's wants — machinery. Hand-shaking, foot-shaking, body-shaking, spatting, smacking, kneading, and rolling are all done by machinery.

Through a tunnel and up into the conservatory we next went. Here are tropical plants and flowers in their summer bloom. These are cultivated for the special benefit of the sick, to whom a flower is a messenger of peace and comfort, a token of God's care and love.

Thence we went to the bakery. During 1894, 100,000 loaves of bread, 160,000 pounds of crackers, and 150,000 pounds of granola were made in this building. Kneading, cutting, rolling, and molding are all done by machinery, which runs night and day, except Sabbaths. Neat little sample packages of granola and caramel coffee were given to the visitors. Both of these are the result of investigations into the food elements of different grains, and alone would stand as a good reason for the establishment of such an institution.

The laundry, in which all the laundry work of some 600 individuals is done, adjoins the bakery.

Here, too, machinery supplies the place of muscle.

The power house contains a very fine type of modern engine. Eight boilers, whose furnaces burn crude oil, are ranged in a long row. That so much power could there be generated with so little noise and apparently so little effort, is a wonder. Each of these boilers is of sixty-five horse-power, and six are constantly in use. In the same house are three dynamos of 260, 450, and 1000 lights respectively.

We next visited the creamery, where all the milk is sterilized. Every precaution is taken to secure immunity from contagious diseases. Milk is a very common means of contagion. It is here believed that no milk should be used as food, unless it has been subjected to a heat sufficient to destroy all germs that may have entered it.

After sterilization, the cream is separated from the milk and placed in ice chambers for preservation until it is used. In another department milk is converted into kumyss. Kumyss is not only an excellent beverage, but also a valuable food for dyspeptics and invalids generally.

The dormitory for the lady nurses is a large building of four stories and one hundred and twenty rooms, the basement of which is used as a dining-room for all the helpers. This will seat three hundred to three hundred and fifty at one time. In the large, clean-looking kitchen, cooks were busy preparing the grains for the morrow's breakfast. The same marked cleanliness and tidiness is characteristic of all parts of the building.

In our journey we have wandered a little from the main building, and now turn our faces again toward that mammoth structure. Entering the laboratories, we see the chemists assisted by some young men of the medical class busily engaged in analyzing the various fluids of the body. By this means a much more intelligible basis is given for the diagnosis of diseases. Here those indescribably horrid little things called germs, which fill everything and with which our bodies are carrying on a continual warfare, are detected and labeled. Cancer cells, consumption germs, and malarial parasites are, by the aid of powerful lenses, brought from the chaos of "diminity" to our range of vision.

The operating room, situated on the top floor of the Hospital, was next visited. This room is beyond doubt, the most thoroughly equipped of its kind in this part of the country. A most remarkable percentage of successful operations has here been performed. The floor, walls, and ceiling are of a white material easily washed and upon whose surfaces the least speck of dirt would be seen. Cleanliness seems to be the first, last, and all-the-way-between law of this department, as it is of all others that we visited. The bedding and all articles of clothing, bandages, etc., are cleansed by being subjected to a very great heat in which no germ can possibly live.

A sham operation was being performed as at the weekly rehearsals of the nurses. The attendants in spotless white, each at his post and intently watching the movements of the operator-in-chief, surrounded the table. In an adjoining room, sham patients were being prepared for their turn. Some were receiving the anæsthetic. Everything spoke of skill and care. A small gallery runs across one corner of the operating room, in which some of the medical students were sitting, intently watching the operation.

THE LABORATORY OF HYGIENE.

The different wards were far more pleasant than are generally seen in a hospital. The face of every nurse bore a pleasant smile, which is so cheering and hope-inspiring to the invalid.

On the first and second floors are the GOOD HEALTH offices and the *Medical Missionary* office. The cooking school is held in the basement. Here cookery is studied as it ought to be — as a science. According to a German proverb, "As a man eateth,

so is he," food and its preparation take rank as one of the causes of man's degradation or elevation. The proper preparation of proper food will ensure sound physical, mental, and moral health. This fact has been fully recognized and acted upon by the Sanitarium authorities. A Sanitarium nurse is not only taught how to care for the sick and win them back to health, but also how to preserve health. A nurse's education is not complete without a thorough course in cooking.

On returning again to the main building of the Sanitarium, we were shown through the bath-rooms and doctors' offices. In the bath-room the nurses were taking and giving treatment to each other. This is the manner in which they are taught. There were foot baths, leg baths, sitz baths, full baths, electric and galvanic baths, electric light baths, shampoos and massage, and treatments of almost every description were being illustrated.

The doctors' offices contain many interesting appliances for the searching out and curing of disease. The largest static-electrical machine in the world threw sparks upon the company as it filed by, and in another department every one had an opportunity to test the strength of at least one muscle upon the strength-test machine, which can be adjusted by means of levers and screws to test fifty different sets of muscles.

The evening closed with a very practical talk by the Doctor on a very practical subject—dress. The talk was illustrated by stereopticon views of the human body, both in its perfect physical proportions and in its deformed state, caused by improper dress.

The real value of the Sanitarium is seen in its influence for good upon many in this and other lands whom it has blessed through the living missionary, trained within its walls, and by the printed page. The gospel of health, which is the right hand of religion, has, by these means, gone to earth's remotest bounds. Every year, wornout missionaries from many lands come here to recuperate and gather not only health but many valuable lessons in the care of health. The principles upon which this institution was founded are God-given, and that is why it prospers.

THE OPERATING ROOM.

IT is proposed in London to organize an insurance company to guard house owners and tenants from entering upon or acquiring unsanitary property. The association would exclude from its books all houses in bad condition; while all property receiving a certificate of good condition, for the guidance of investors and householders, would be subject to periodical inspection by the proper authorities.

THE INFLUENCE OF OCCUPATION ON LENGTH OF LIFE.

DURING thirty-four years and eight months there died in the State of Massachusetts 161,801 men over twenty years of age, whose occupations were specified in the registry of their disease. The average at which they died was fifty-one years. The number is so great and the period covered is so long that by the study of the classification of the employment of those dead, we can get a very fair idea of the comparative ages at which men in different occupations and in an ordinarily healthy community are swept away by death.

It is noticeable that of all who died, the cultivators of the earth attained the highest average age, about sixty-five and a half years, and they made up one fifth of the total number. We all know why farmers as a class, not only in this but in all countries, should live to a ripe old age. They enjoy good air and are free from many of the cares that beset those living in cities, to say nothing of the constant noise and excitement which destroy the nerves and rack the system. It is rarely that a farmer dies before his hair is gray. Farmers, as a rule, too, do not to any degree indulge in alcoholic beverages. One important fact must be taken into consideration concerning the farmer and his age, which is that the weaklings of the farmer's family do not, as a rule, remain on the farm after attaining an age fitting them for some pursuit. Such are sent to cities to choose a trade or profession, and only the strong and healthy ones who are fitted for the work are retained upon the farm.

The class next to the farmers in the average of life is that class called "active mechanics abroad," such as brick-makers, carpenters, masons, tanners, millwrights, riggers, calkers, slaters, and stone-cutters; but the average age of the 12,000 of those who died in Massachusetts during the period mentioned, was much below that of the farmers. It was only about fifty-two and three fourths years,— a little over a year more than the average age of all the classes together. Of all these outdoor trades, the ship-carpenters showed the highest age — more than fifty-nine, and the slaters, who pursue a dangerous calling, the lowest — about forty. The average age of all the others of these trades, except the stone-cutters and brick-makers, was about fifty-one, and above the average of all the classes.

Next to the active mechanics abroad come the professional men, whose average age at death was over fifty-one. Of this class the longest-lived were the judges and justices, proverbially celebrated for their great age. They lived on the average sixty-four years, and led all the trades and professions except that of the farmer, whose average was over sixty-five, and those denominated as gentlemen, who averaged sixty-eight — the highest average age attained by any of the classes. The deaths in only six different occupations were at an age on an average above sixty. They were (1) the gentlemen, sixty-eight; (2) the farmers, sixty-five; (3) the judges, sixty-four; (4) the lighthouse keepers, sixty-three; (5) the basket-makers, sixty-one; and (6) the pilots, sixty.

In some countries, clergymen are the longest-lived; but in Massachusetts they fell below all these classes, the average age of the 1000 of them who died during the thirty-four years being only a little above fifty-nine. Of the professional men, those set down as students died at the earliest age, the average being only about twenty-three; then came the professors, well over fifty-seven years; then the lawyers, fifty-six years; then the physicians, over fifty-five years; public officers, fifty-five. Sheriffs, constables, and policemen died at the average age of fifty-three, while editors and reporters were gathered into the tomb before they had completed their forty-seventh year. The lives of comedians were also short, hardly reaching thirty-nine years on the average, and dentists were cut down at the average age of forty-two. The artists also died early, their average being forty-four years. The musicians lived only to forty-two, and the teachers died at about the same age. The merchants, financiers, agents, and clerks came next after the professional men; and one of the classes included under this head, that of gentlemen, exceeded all others in its average, over sixty-eight years. The bankers, who lived on the average to more than fifty-nine years, were the longest-lived of this class, and then came bank officers, nearly fifty-six; merchants, over fifty-four; booksellers, about fifty-three; manufacturers, fifty-two; and innkeepers and brokers, fifty years. The shortest lived of this class were the telegraphers, who died at the average age of twenty-eight. Clerks and bookkeepers also died early, at the age of thirty-six. Railroad agents and conductors departed this life on the average at about forty years, and druggists and apothecaries at forty-two, while saloon and restaurant keepers were put to final rest at forty-one. — *Washington Star.*

PHYSICAL EXERCISE FOR WOMEN FROM A MEDICAL POINT OF VIEW.

BY LAWRENCE H. PRINCE, M. D.

(Read before members and friends of the West Side Ladies' Gymnasium of Chicago, Feb. 12, 1895. Lenore Fancher, Director.)

LADIES AND GENTLEMEN: I have been invited to address you on a subject that is of very great interest to me, especially from a medical point of view, — a subject that directly affects the individual, and indirectly posterity, — a subject that is of more practical importance to-day than it has ever been before, and one that must sooner or later demand the earnest consideration of the entire medical profession and of all others who are interested in improved health and strength and beauty for the human race. The importance of the cultivation of the physical as well as the mental capacity of human beings has been long recognized as regards man, but, in the case of woman, interest in the subject has been rather less than lukewarm until a very recent date, and the subject is still far from receiving the attention it demands. We have been too much the slaves of fashion and of custom to allow common sense or reason to prevail in the adjustment of many of the most important problems of life.

How often do we rebel against our better judgment and against common sense in order that we may not displease Dame Fashion by departing from her prescribed customs, no matter how much we may sin against nature in so doing. And how prone we are to devise plausible excuses for doing those things we despise doing, and for not doing those things we should love to do. I use the pronoun "we" advisedly, for what I have said applies to men as well as to women. Custom is often but a relic of barbarism or of what was thought necessary at a former time. We take it for granted that the author of a fashion or method or custom must have known what he was doing, and that because others have accepted his views without question, we must not trouble ourselves in the matter. The past fifteen years have witnessed a great change in this respect, and while reason and common sense are still more or less subject to their masters, fashion and custom, the slaves are asserting their rights more and more vigorously, and before long the former dictators will be subject to the decrees of reason.

The subject of reform in matters of dress may seem at first glance to be out of place in an address on physical culture, but a little reflection will show how inseparable are the two. Physical perfection is impossible where free movement and normal development are impeded by improper clothing. In order that the very best results may be secured from physical culture, the clothing should be so modified as to produce, when worn, the least possible amount of pressure or constriction upon blood-vessels, muscles, or internal organs. The oft-repeated assertion that the use of corsets and other tight-fitting garments is necessary for the purpose of producing and maintaining a correct form, is not accepted as gospel truth by the intelligence of the women of to-day, but it is nevertheless true that many, though having knowledge of the truth, do, through force of habit and obedience to custom and fashion, cling to the evil.

Common sense and fashion are at war upon this and other similar questions, and as common sense is in a very fair way of scoring a victory, I will only suggest to those already actively engaged in physical culture, and to those contemplating becoming so, that physical exercise will amount to little or nothing in the way of benefit, if perfect freedom of motion

be restricted, at least during exercise, by improper clothing. I refer not only to bands and tight-fitting garments that interfere with free expansion of the chest and free movement of the joints, but as well to anything that will interfere with the free passage of blood through the blood-vessels, as tight sleeves, tight waist-bands, tight wrist-bands, tight collars, constricting garters, and tightly fitting slippers or shoes. If these things cannot be given up during exercise, then it would be better not to exercise.

My advice to those friends who desire exercise and yet who are opposed to developing a normal chest capacity or a waist measurement that would be in proper proportion to the rest of the body, is to keep away from systems of physical culture such as is represented here to-night, for if anything will produce symmetrical physical development, this will. Women especially, in their eager striving after the attainment of mental perfection, often lose sight of the important fact that the brain, the organ of the mind, depends for normal action and especially for progressive development upon a healthy and properly developed body. It is true an occasional exceptionally bright mind may belong to a sickly, poorly developed body. It is the exception, I assure you, and what of the succeeding generation, if any there be? "A sound mind in a sound body," should be the motto of parents and teachers, and the forced or over-development of the mental at the expense of the physical faculties in children should be carefully guarded against. Continued forced-development of the mind with neglect of physical training, carried on through a few generations, would result in both mental and physical degeneration. If the mind has been developed along a certain restricted line, that mind becomes narrow, abnormal, deformed. If one's occupation requires the constant exercise of certain muscles, or groups of muscles, and no other form of exercise is taken, such a one cannot be said to be a perfectly developed individual, and being imperfect, cannot, from the nature of things, beget perfect offspring. We should aim to secure symmetry in the development of both the mind and the body.

In the literature of the subject of physical culture, much stress is laid upon the great influence that the proper physical development of man has upon the strength of a nation and upon the health of future generations, but for some unaccountable reason women have been very largely left out of the question. Now, as woman is to an important extent concerned in the matter of future generations, why should not the importance of physical as well as of mental development be applied to her as well as to man? The stand that woman has taken in recent years against her centuries of bondage, and the rapid advance she has made in matters of dress reform and physical culture, will relieve her of much suffering and consequent unhappiness, and be of inestimable value to future generations and therefore to society and to the state.

Is there any good reason why woman should not perfect her physical organization? Why is it a good thing for man to develop his muscles of respiration, and a bad thing for woman to do the same? There is no difference in the construction and function of the male and female lungs, and when normal, their relative size is the same. Then why the usual great relative difference in the size of the thorax? There is no difference in the structure or function of the liver, stomach, kidneys, or intestines of man and woman, and their relative normal size is the same; then why the difference in the relative size of the waist? The same may be said of the muscles, of the joints, of the nerves, blood-vessels, and of the extremities as a whole. For woman's comfort and happiness and health, and for posterity's sake, physical perfection in woman is just as desirable as it is in man. Will physical culture make a woman masculine, or detract in any way from her womanly grace or beauty? Most emphatically, no. A proper development of the body by correct dress and by proper physical culture will just as surely add to the woman's beauty of form and carriage as it will to the man's. There can be no beauty without harmony, and there is no harmony or grace in a figure made up of poorly proportioned parts.

From my experience and observation, as one deeply interested in physical culture and in medicine, I am convinced that there are no reasons favorable to physical culture for man that may not be applied to woman. It is only by the exercise of muscles that they develop. After childhood we cease, as a rule, to use all of our muscles to the best advantage. Therefore systematic exercise is necessary for uniform and symmetrical development. With normal development comes normal function. Non-use of a muscle is followed by a decrease in its size, together with a corresponding loss of function. As the various structures and organs of the body are more or less dependent upon each other, a want of harmony in one part will no doubt more or less seriously affect other parts. A disturbance at one point is very often the cause of trouble at one or more other points.

Just so is it when the different parts of the body are out of harmony with each other in point of development. The primary object of exercise should be the attainment and maintenance of a normal development of all parts of the body and of a healthy activity of all the organs; in other words, to bring the body to as near a state of perfection as the peculiarities of the individual and his environment will allow.

The special effect of physical exercise must of necessity vary with the individual. The results are more or less influenced by a large number of factors, such as heredity, natural tendencies, age, mode of living, condition of health, etc. However, the influence of proper physical exercise upon the growth and development of the various tissues of the body is in almost all cases definite and well marked.

By properly regulated exercise all the muscles are improved and strengthened. The bones themselves are made firmer and more powerful and the skeleton as a whole is favorably modified as to size, form, and strength. The symmetrical development of the skeleton depends largely upon the condition of the muscular system. If there be a normal development of one group of muscles and a lack of development of an opposite group, the result will be a want of uniformity in the form, size, and strength of the bones and in the carriage or attitude of the body. Unsymmetrical muscular growth results nearly always in awkward attitudes and movements. Exercise increases the demand for oxygen, and the result is increased lung expansion. Many thousands of air cells are brought into active use that before had either never been filled with air or only partially so. Oxygen is carried to the tissues in larger quantities, and there is a more rapid and thorough elimination of carbonic acid. This means greater size of chest, increased lung capacity, and purer blood.

The circulation of the blood is also vastly improved under exercise, and the purified blood is thus made to properly circulate in tissues and organs where there had previously been at best only a sluggish flow. This would naturally be of great advantage to the part affected, in that there would be a more rapid supply of nourishment to the part and an equally rapid removal from it of waste or poisonous material. Proper circulation of the blood through an organ is necessary in order that it may perform its function in a normal manner. Improper circulation will interfere with normal function, and produce congestions, which are a very frequent first cause of inflammations. You can thus readily see that exercise, by its pronounced effect upon respiration, and circulation, and muscular action, must necessarily have a beneficial influence upon the functions of the several organs of the body.

The brain and spinal cord and general nervous system partake, with he other organs, of the benefit of exercise, and improved nervous and mental action is the natural result. The quality of the nerves and nerve cells is improved, just as is the quality of the bones and muscles. By means of a well-developed nervous organization, the greatest amount of work may be accomplished with the least expenditure of force. A nervous organization that is made normal and kept normal by physical training, has no use for either sedatives or stimulants.

That regular systematized exercise is in a large measure preventive of disease, I am firmly convinced. As we have seen, the chief effect of exercise is the establishing and maintaining of harmonious action of all the tissues and organs of the body. The more nearly perfect this harmony, the less liability there is of a departure from health. Healthy tissues, of whatever kind, offer a certain amount of resistance to disease. They are better able to resist the thousand or more existing causes of disease, and they are much less certain to be seriously or permanently injured if attacked than if they were previously in a condition more or less below par. The possession of healthy organs of circulation and respiration, digestion, excretion, and of a healthy nervous organization, will give to the individual the very best chance, other things being equal, of escaping disease, by preventing the occurrence of the numerous daily aches and pains not usually reckoned as disease, nor usually amenable to ordinary treatment. A healthy condition of all the organs will add to the person's happiness and comfort, and also to the happiness and comfort of those about him. It is the oft-repeated torment of the slight departures from health that is responsible for much of the misery of the world. I repeat, that I know of nothing so likely to bring about this desirable condition of perfect health and to maintain it, as regular systematic exercise.

Exercise of a proper kind will in many cases prevent or modify deformity by counteracting the effects of occupation, and maybe of heredity. It will thus prevent or modify stoop shoulders, spinal curvatures, flat chests, etc., in those predisposed to them by virtue of their occupation. Properly regulated exercise will prevent the excessive accumulation of fat in those predisposed to this condition.

Physical exercise is not only of great value in the prevention of disease, but is, either alone or in conjunction with other measures, of very decided aid in the treatment of many more or less chronic diseases. Disorders of the alimentary tract, which are so common in women whose work is sedentary and monotonous, are more quickly and permanently relieved by exercise of the proper sort than by any other means known to me. The longer these conditions go on, the more surely do other organs become involved; the more distressing and complex become the symptoms, and the more certain is that woman's prospect for becoming a confirmed invalid. Let such a person place herself under proper physical training, and I am sure she would be relieved of most if not all of her physical and mental sufferings.

(To be continued.)

WHAT PHYSICAL EXERCISE HAS DONE FOR THE AMERICAN GIRL.— The name of American girl was once a popular synonym for "nerves," ill-health, and all the ailments engendered by want of exercise, foolish diet, and irregular habits of life. The American woman was believed to be a pallid hothouse flower, brought up in a suffocating atmosphere where no sun could tan and no fresh air could blow the roses into her cheeks or invigorating life into her lungs. She was supposed to live on candy and novels, and too often to sink into a nervous invalid before she was thirty. When contrasted with the English girl, whose outdoor life made her the picture of abounding health and rosy-cheeked energy, she suffered in the comparison. However exaggerated this popular opinion may have been — as popular opinions usually are — it undoubtedly had a foundation in fact. Our mothers certainly had no such ideas of outdoor life and sport as we have to-day. The American girls of a former generation were not so addicted to the free, open-air life of the English girl, and the result was a naturally less robust physique and the preponderance of nervous over muscular force. Not that American women were not strong with the power to endure and the grit to go through anything; in this they were not surpassed by any, but in so far as their strength was not muscular, but nervous, the wear and tear was greater.

A generation has sufficed to effect a complete change, and our English cousins no longer hold a monopoly of outdoor sports. Where thirty years ago the girl who went boating and fishing, climbing trees and jumping fences, with her brothers was looked upon as a tomboy, and regarded with severe disapproval, the reverse is now the case. Outdoor life, delight in action, the spirit of sport, have taken hold of American womanhood. Girls of strong, active physique, erect carriage, and energetic spirit, delighting in tennis, riding, boating, walking, are now the rule; the feeble, indoor do-nothing is the exception, and the result is a tall, vigorous race with free step and cheeks aglow with the ruddy color of physical health and energy. Walk along the avenues of New York, Boston, Chicago, or any large city at the fashionable hours, and the procession of bright, animated girlhood which passes before one's eyes gives ample proof of summer activity in the country and city work in gymnasium and riding-school. All over the country where there are men and money to start a club and create a sporting interest, the women also have their fair share of advantages, and in not a few cases their fair share also of work in setting the organizations on foot. There are few country clubs, hunt clubs, tennis clubs, or other sporting clubs throughout the Union which have not a lady membership, and which do not recognize the claims of women in sport in a perfectly matter-of-course way; there are hardly any which have not at least a ladies' department, with its dining-rooms, reading-rooms, and sitting-rooms, where the wives and daughters of the members enjoy the social advantages of club life, besides the privileges accorded to them in the matter of sport; and in very many, especially of the smaller clubs, the ladies have been among the most interested and indefatigable promoters, sharing equally with the men in the government and other concerns of the club.— *Elizabeth C. Barney, in the Fortnightly Review.*

PROPERLY conducted lung exercise will aid digestion, increase the desire for food, improve nutrition, increase the weight, add to the vital force and lengthen life.

HEALTHFUL circulation, natural waists, broad shoulders, erect carriage, deep breathing, sunshine, and open-air exercise give us the vigorous muscles, musical voices, fair faces, rosy cheeks, clear complexions, that brighten homes, lighten hearts, and cheer and bless the world with long and useful lives.

THE FAMILY AT HOME.

"The dearest spot on earth to me
Is home! sweet home!"

THIS ought to be true of each member of every family; not only, nor chiefly, because of the shelter, protection, and provision of the home for daily wants, but for the blessed associations of home life.

The two classes constituting the home are parents and children, each having peculiar responsibilities because of peculiar relations, while the welfare of all is so interwoven as to make home a restful and refreshing place, if each does his part; and so interwoven also as to leave the home in actual desolation if there is a failure on the part of any member to strengthen and adorn the household!

It has been written that "stories usually end with a marriage ring." There is somewhat of truth in this; but there is another truth of far more significance, which is, that after the ring is given and received, the *real life begins*. Then comes the call for tenderness, sympathy, patience, charity, the exercise of forgiveness, the bounty of self-sacrifice, and the steady play of pure affection.

In every home, however, whatever its constitution and surroundings, there will be clouds with the sunshine, want with plenty, sorrow with joy! No home in all this world has uninterrupted beauty and bounty! If the home is to realize, in any large measure, its true riches, each member must recognize individual responsibilities; each find his place, and fill it; each stand by the others with firm fidelity whatever changing lot may be experienced; each lift the other up if there be any falling or faltering; each rejoice more in the common good than in the good of self, and each sacredly guard the household in both its pleasures and possessions.

There is nothing more essential for the welfare of the home than a sense of co-partnership in all things — a co-partnership never to be dissolved while the family exists! Each advancing year makes new demands on the whole family for the exercise of all those kindly charities and amenities whose fragrance filled the house when first it was called "*home*."

We rise out of one necessity into another, as the days, and even the hours, go by. Households crowd the stream of life as ships crowd our bays, driven in for shelter from the wild waves of an open sea. Youth and manhood, infancy and age, sail on together, some in calm and some in storm,— each heart freighted and ballasted and held on its course, or held at anchor, by warm hearts and willing hands in the family group, or left to drift and come to wreckage because warm hearts and willing hands are wanting! . . .

No two members of this family are alike in temperaments, tastes, preferences; no two are laden with the same responsibilities. Some are disposed to impugn the wisdom and love of God in allowing such differences of dispositions and demands as are found in the same family. Any one, however, who is worth living with has an individuality and self-assertion of his own. The husband has no use for a wife of precisely his own temperament and tendency, who has his peculiar way of seeing things and putting things! He will attain his highest manhood by *differences* rather than by *similarities* in his wife; that is, if he is large enough to recognize these differences, and wise enough to utilize them! Children born of such parentage shall have greatest endowment!

The best homes are constituted of persons of different tastes and temperaments, like the different tones in music and the different colors in painting. These absorb and evolve different qualities of heart — inspiring, complementing, and supplementing each other.

Friction, however, is easy. Souls in this imperfect world, though linked in purest love, cannot live together without the peril of opposing sentiments

and conflicting judgments. The thing demanded is that these natures patiently pursue their course, loyal to each other, while the blending process is perfected. Husband and wife must hold each other steady, and help each other on to individual victory.

The children, too, must exercise a like patience with each other, and help each other to progress in the chosen path. Positive traits of character are to be respected, and they are to be admired. Sometimes even stubbornness is prophetic of a commendable career! "Goodishness" is not an element of greatness. . . .

The family will have a home, only by recognizing imperfections in its members, and making the best of them, allowing each to sing his own song and work out his own mission.

The real work of the home is to encourage, sustain, guide, stimulate, and bless.

It must not, however, be forgotten that all character cannot be developed by the same methods, or all lives cheered by the same scenes. There must be accurate discernment of conditions, and wise adaptation of means to ends. No one member of the family must seek to have his own way irrespective of others' wishes and needs.

The husband who attempts to conform his wife to all his views and whims will — if he succeed — make her less of a woman. The wife who seeks to fashion her husband after the mould of her own disposition and desire will — if she succeed — spoil the man.

Parents who insist upon the same results in all their children, will have poor success in attaining them, and will live in endless friction; for the children are not alike in their mental or moral make-up — not alike in their powers or possibilities. Many a child, like a garment in a tailor's shop, is spoiled by the fitting process! Poor lawyers have been made out of good merchants; poor doctors out of good farmers; poor preachers out of all classes. It is a great thing for a child to be guided into his proper sphere. Nothing is more essential for the family at home than to study adaptations, and to be patient with individual peculiarities. . . .

The sad thing confronts us, as we look out on life, that many children and youths practically desert their homes, seeking pleasures in other associations, finding what are called "good times" with others, rather than with the family at home.

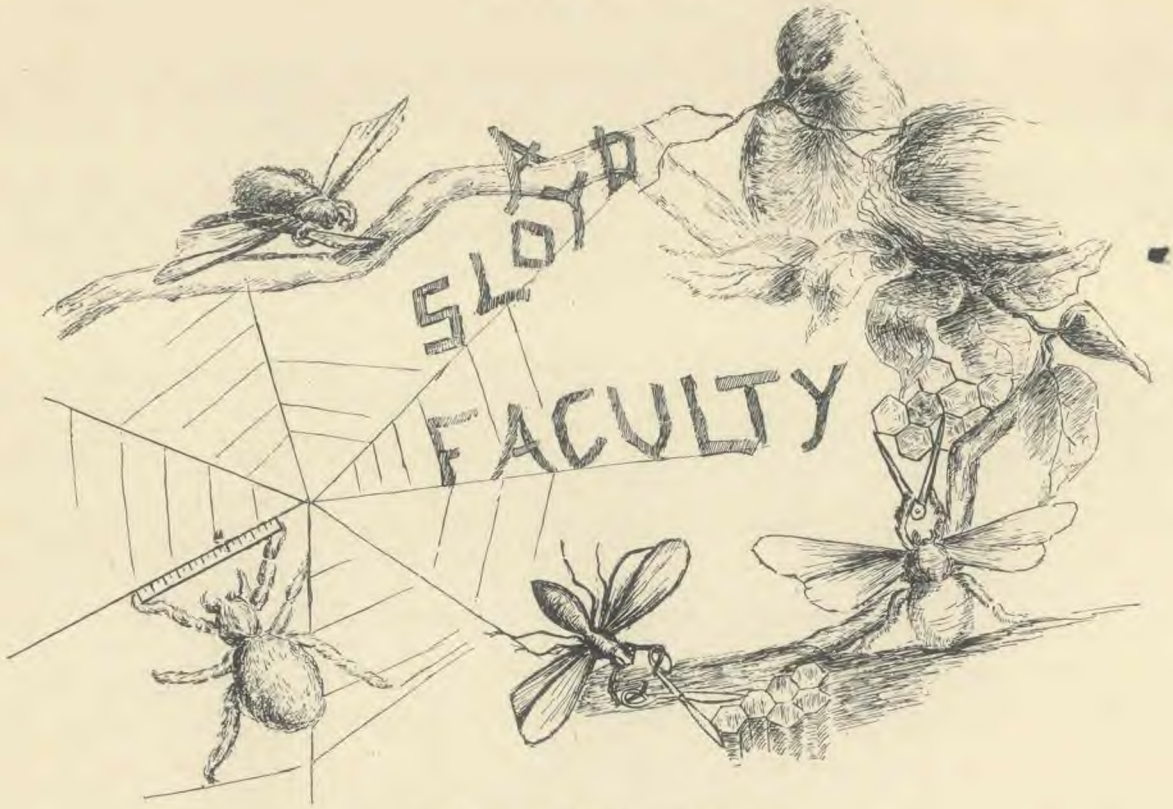
To prevent this we must have a "*child home*," an atmosphere of *child life*.

There must be books, and games, and studies, and recreations of common indulgence, conversation together on matters of common concern, a sharing of each other's joys and sorrows, a living in each other's sympathies, a bearing of each other's burdens. In the family children should shield and serve, as well as be shielded and served. One of the saddest sights in all this world is a weak, worn mother, hard at work, while the daughter is dressed out for "society" in silks and satins, laces and feathers. Next to this in sadness is the father toiling on for the support of his family, while the son is spending his father's earnings in worse than useless luxuries.

In the home, whether he be parent or child, each should feel that he has an important part to bear in what the family possesses of joy, power, rest, refreshing, victory.

Parents owe their children the best they can give them. Children owe their parents every possible action and utterance which can cheer their hearts, lighten their burdens, increase their joys, make restful and rejoiceful their declining years.— *J. E. Twitchell, D. D., in Mothers' Journal.*

Social Purity Work for Fathers.— We have a great deal to say in our literature about the confidence that should exist between a mother and her daughter, but we ignore altogether too much the frankness that should exist between a father and his son. It is not right to expect that our girls shall bear the whole burden of moral responsibility. Our boys must be taught that the world expects uprightness in a man just as much as it looks for it in a woman. If the men of to-day are protected by an unfair moral discrimination, that is no reason why the men of to-morrow should be so sheltered. If it is for women to elevate their conception of the moral standard for men, it is for the young men of to-day to adjust themselves to that higher measurement. A healthy frankness between the boys of to-day and their fathers is the first step. This is man's part in the aim for social purity. Women must cease condoning actions in men which they will not tolerate in women; men, to whom experience has come, must unfold it to the younger men. It is a favor to a boy that his feelings shall be analyzed for him by his father; that he be taught that his self-control, or his loss of it, means an ascent or a descent in the social scale. There is no harm in a father's pointing out these things to his son; the harm comes when the father neglects to do so. A young man should never be expected in any point of morality to experience what his father can explain and warn him against.—*Ladies' Home Journal.*



BY MARTHA WATROUS STEARNS.

THERE was nothing selfish about Miss Muffet. She enjoyed her sloyd so much that she wished every one else to enjoy it too; so after consulting with Miss Pussy and Boy Blue, the three determined to do missionary work on that contrary member of the Mother Goose family known as Mistress Mary. They thought that a visit to that interesting sloyd room to which Master Spider had introduced Miss Muffet, might improve her disposition, so they stopped for her on their way there. She was in her garden, as usual, watching the plants grow —

"Silver bells, and cockle shells,
And fairy maids, all in a row"—

very peculiar botanical productions, and not any more useful than Mistress Mary herself.

"Come with us," said they, "come see our sloyd room. We are going to do some sloyd work too."

"I don't know what sloyd is and I don't want to do anything," said Mistress Mary.

"That's why we asked you," put in Miss Pussy; "come and find out."

Now, Miss Mary, imagining they wanted her company, resolutely said, "No, I can't;" but Boy Blue had not taken care of the pigs and calves for nothing; he noticed a similarity of disposition, and brought his professional tactics to bear at once. "All right," he said, "don't trouble yourself, we'll have a room full without you," and then started off briskly.

Mistress Mary called them back, of course, just as he expected. "Perhaps, if you will wait a minute for me to get ready, I will go with you," she said condescendingly. "I don't suppose I shall learn anything new, but perhaps the walk will be pleasant."

The truth was, Mistress Mary considered herself better educated than any other member of the Mother Goose family; of course, if she really had been, she wouldn't have thought so, but she was one of the older sisters of the family, and had just graduated at a young ladies' boarding school, so there was some excuse for her. Miss Muffet and Miss Pussy and Boy Blue were just little folks of the family, with whom she did not often associate. The children led the way up a steep mountain path through a tangle of underbrush.

"Oh stop, children, you'll tire me to death. What do you mean by taking me to this outlandish place? There are no sloyd rooms or any other rooms up here."

"Yes, there are; you'll soon see," Miss Muffet laughed; "but really, Mistress Mary, why does

anybody as big as you get tired before we little folks do?" and Miss Muffet looked up pityingly at Mary as she leaned to rest against a tree trunk, panting for breath.

"I should think you would be tired," sighed Miss Muffet. "I would suffocate if my waist was no larger than yours. I don't see how you breathe at all. It's funny, I think, that I'm the biggest round, and you're ever so much the oldest," and Miss Muffet expanded her sturdy little form to the utmost.

HEXAGONAL PRISMS TOURMALINE AND HONEY.

"O well, you haven't gotten your form yet," replied Mistress Mary.

"I hope I will never get it, then, if it's going to be like yours so I can't breathe. How did you get yours?"

"I never saw such exasperating children! don't you know a pretty thing when you see it? Large waists aren't nice; when you get big and wear corsets, you'll get a pretty waist too."

"Did wasps wear corsets to make their waists small?"

"Oh, of course not; they were made with small waists."

"Then I s'pose if they were made so, small waists wouldn't hurt them; but our waists were made large; the Bible doesn't say we were made in the image of wasps, and I'm not going to change myself into one, and I don't believe but you would breathe better if you would stay the way you were made."

"Well, is this sloyd?" snapped Mistress Mary.

"No, not exactly," explained the children, "and yet if you're not made so you can do anything, you are not of much use for sloyd or anything else, for sloyd means work — 'hand skill.'"

It was not far to the cozy little camp under the bushes where busy work was going on, and the children soon scrambled up the path to the spot. Mistress Mary dragged herself slowly up afterward, and dropped down under the bushes beside the children with a sigh, "Well," she said, on catching her breath, "I don't see anything remarkable here. Where is your sloyd?"

"There's one of the teachers now!" exclaimed Boy Blue, pointing to a branch where perched a plump tree sparrow busily weaving a nest.

"Nonsense! that's only a bird building its nest," returned Mistress Mary.

"Did you ever try to weave anything round like that?" said he, "because if you should try it, I think you would be glad to have a bird help you out."

"Here are the rest of our teachers," said the two little girls, carefully pulling aside the leaves from the branch where the sparrows worked.

"Oh horrors!" shrieked Mistress Mary, "just look at that enormous spider, and those dreadful bees; and there's a wasp's nest, too. Oh, I shall be stung to death, I know! Why did you ever bring me into such an awful place?"

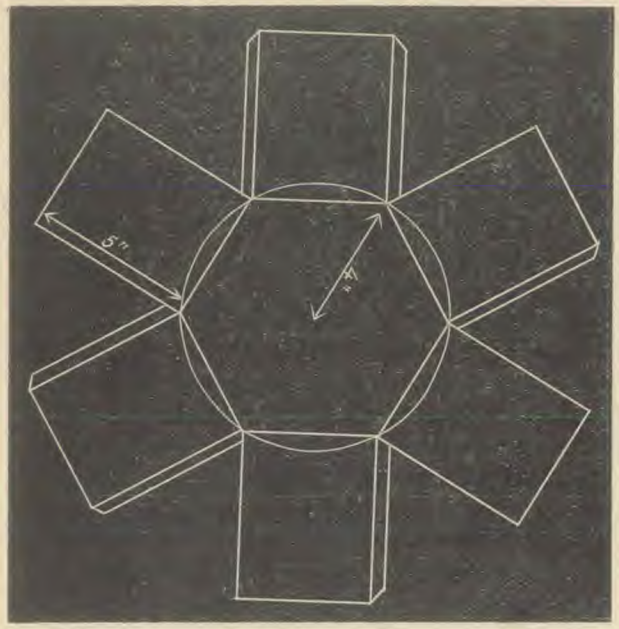
"Why, this is our sloyd room, at least the study part of it. You see we come here and get ideas for our work, and it's ever so much nicer than going to stuffy old books for them; for you see here we get them right straight from headquarters. Our sloyd teacher tells us that when we come here to study, it is letting God tell us his thoughts, because, you see, it is his thoughts that are working all around. When we watch the bird, we find how God told the bird to work, and the same with the bees, wasps, and spiders. God told them all how to do their own work, and gave each its own way. Sometimes he lets two work one of his thoughts out in different material. You see that bee is making six-sided prisms in wax, while the wasp is making them in paper; and over there God put the same thought in rock where it would keep longer. See that tourmaline crystal? It's just exactly the same shape as the other things. That's God's way of teaching geometry."

"But I came here to find out about sloyd," persisted Mistress Mary, "and what has all this to do with sloyd?"

"Everything has something to do with everything else. Sloyd just means *hand skill*, and we have whole series of models planned that will give us skill if we work them out, easy ones at first, and then harder. We make things in paper, pasteboard, basket straw, and wood. Some things are shaped the same, but made in different materials, and everything has to be useful; for among all the beautiful things God has made, not one is useless. You see, to learn to be skillful ourselves we have to study skillful workers, and there are none so skillful as those whom God has trained. Our teacher says he uses them to make living pictures to show us how to work; and if we only look at them enough, we shall see something of use to us in every one."

"But, my dear children, this may be all well enough for little folks," exclaimed Mistress Mary,

"but don't you know that I have graduated in arithmetic, algebra, geometry, trigonometry, French, German, Latin, modern and ancient history, literature, moral philosophy, mythology, physics, natural



HEXAGONAL CUFF BOX.

history, geology, astronomy, physiology, geography, language, penmanship, music, and painting in oils, water color and mineral color,—everything, in fact, that a young lady should know, and do you mean to say that I ought to do sloyd?"

The children looked dazed at such stupendous knowledge as was bound up before them in the form of Mistress Mary. Finally Boy Blue recovered himself sufficiently to remark that he guessed she had n't studied natural history much or she would n't be so afraid of spiders and bees, they were such interesting things. Miss Muffet did n't believe she knew much about physiology, or she would n't pinch her feet and choke her waist; and as a general test of her knowledge the children thought she must be able to *make* something remarkable. So Miss Pussy meekly said, "I suppose, then, you know so much you can make ever so many nicer things than we can. Will you please tell us something you make and what you do?"

"I do n't know that I *make* anything in particular, unless it is French candy and salad dressing. Of course I do n't do dressmaking and housework. I play the piano when I feel like it, and I like to copy pictures if my art teacher is with me to touch up my work some."

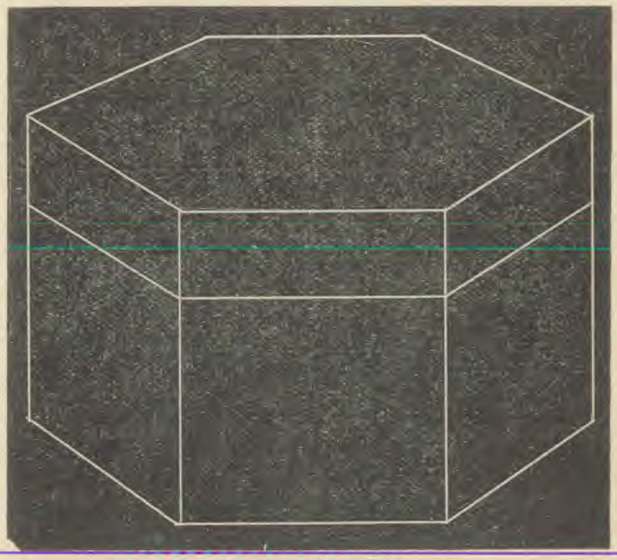
Boy Blue's eyes opened wide, "You know all these different things," he said, "and you do n't *do* anything with them? I do n't see what is the good of having so much in your head if you do n't get it out where it can do somebody some good."

"Will you please tell me," returned she, "what *good* you can get out of studying that piece of honey-comb?"

"We 've already told you some things," the children said. "From studying the form we can make several useful things; see, it is a pretty six-sided prism. If we work it out in just the same proportions, only larger, we can make a lovely six-sided music roll. Just now we are going to make a collar and cuff box by changing the proportions some, but keeping the form. We are going to make it in pasteboard and cover it with leatherette paper. See, here's the drawing—first we draw the circle with a four-inch radius, then divide it into six equal parts. On each of these we draw rectangular sides with margins, to glue together. Then we draw the cover the same way, only with a radius an eighth of an inch greater, so that the cover will fit over the box. And the paper covering we draw and cut, the same way, only making it an eighth of an inch larger on every side, to allow for covering the edges.

"Come with us for our next lesson, Mistress Mary, and we will show you something else we make."

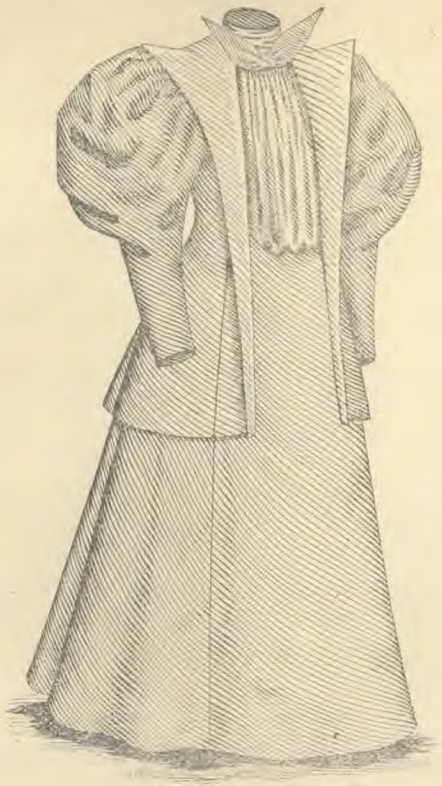
"Well, perhaps," she answered, "I would rather like to show you what I can do."



HEXAGONAL CUFF BOX.

They wondered if she really could make anything, but for once felt sure that in the garden of her mind would grow better thoughts than of—

"'Silver bells and cockle shells
And pretty maids all in a row."

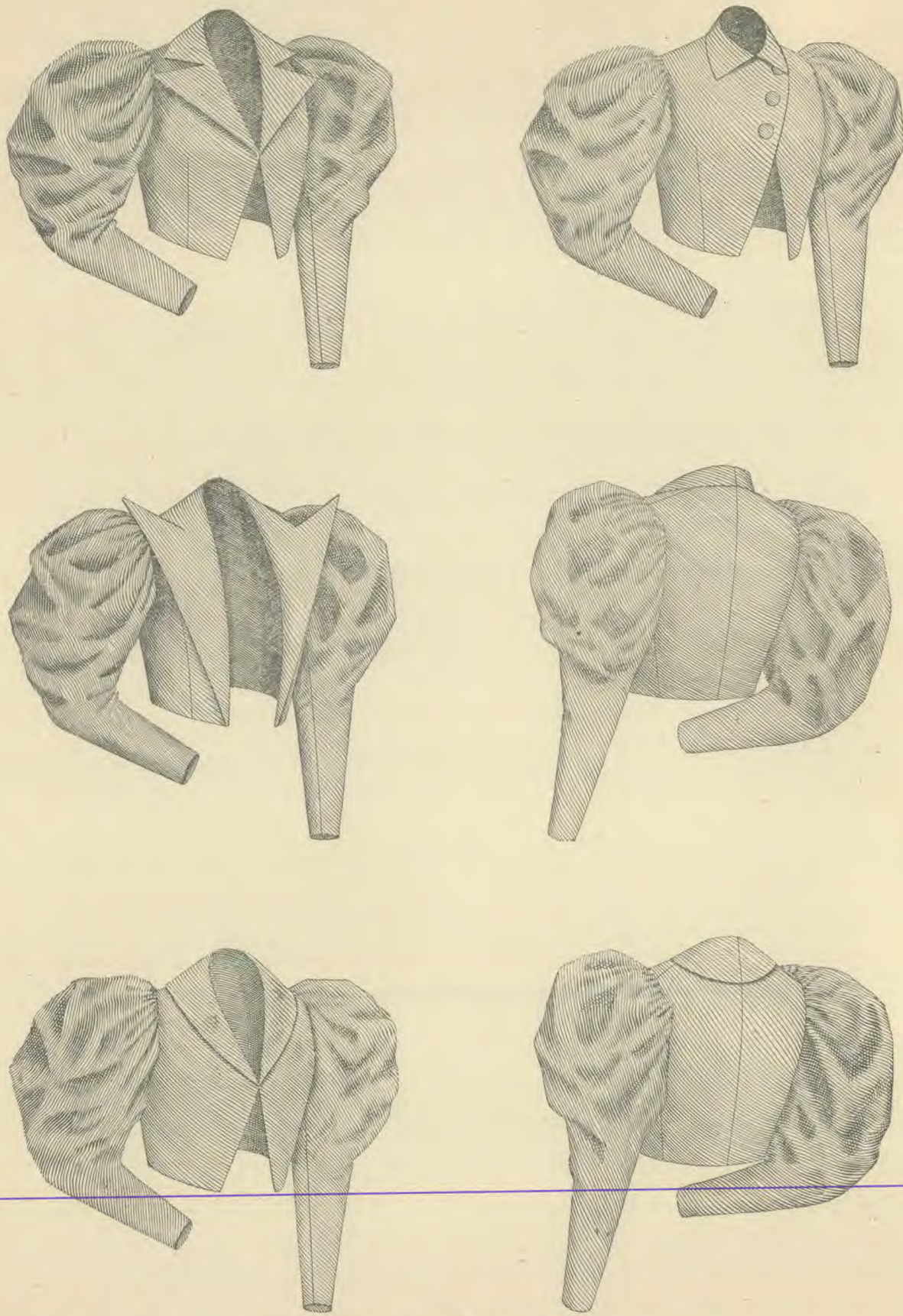


VARIÈTÈ COSTUME.—FRONT.

VARIÈTÈ COSTUME.—BACK.

VARIÈTÈ COSTUME.—FRONT.
With Short Jacket.

VARIÈTÈ COSTUME.—BACK.
With Short Jacket.



Different Styles of Variètè Jacket.

THE BATTLE CREEK SANITARIUM DRESS SYSTEM.—No. III.

With the advent of a milder season come naturally new fabrics and new styles of dress. The costume especially designed for this month, the Variètè gown with coat and jacket, is, as will be seen, both elegant and seasonable. It is well named the "Variètè," as it affords so many changes. It is also the economical gown, *par excellence*, as, since it is made up of so many pieces, it is the more adaptable, lending itself readily to the utilization of half-worn dresses, wraps, etc., which would otherwise be thrown aside. The popular combination of several different colors and fabrics in a gown, which prevails this season, also favors this. To the wise and thrifty woman who does her own dressmaking, great things are possible with this series of patterns.

The arrival of spring suggests also radical changes in the underwear, which must soon be made, in order to accommodate ourselves to the exigencies of the season. The union suit of wool or flannel must soon be replaced by one of lighter weight, which later must in turn give way to one still lighter, as, for health's sake, wool should form the covering of the body in all seasons. As a matter of cleanliness, it is suggested to wear the combination suit made of some washable material between the union suit and the tights during the winter season. Thus, to those who have done so the only change necessary will be to leave off the tights and don a lighter weight union suit. In a previous number the wearing of tights in connection with the Dr. Lindsay Divided Skirt was suggested on occasions of extreme exposure to cold, but though this arrangement is entirely possible, it is hardly practicable, for any length of time, on account of its great inconvenience. Indeed, when wearing the Dr. Lindsay skirt no tights are needed, neither any other skirt.

Adjustable Front for Variètè Costume.

The accompanying cuts are of the different articles which together form the Variètè costume. They comprise five distinct garments, as follows: —

Variètè Skirt and Waist.— This pattern is in seven pieces: Front, back, and under-arm gore of waist; and front gore, side gore, and three godet gores in back of skirt. This skirt in the present instance is developed in canvas, and is therefore without lining. Any cotton goods of medium or heavy weight may be used, also wool, silk, or satin. The three last mentioned would require a lining of cambric with an interlining or facing of chamois fiber. The quantity of material needed is six and one half yards of

Variètè Coat.—Front.

thirty-six inch goods. Price of pattern, 30 cents.

Variètè Vest Front.— This pattern is in four pieces: Outside portion, lining, and two collar portions.

Variètè Coat.—Back.

China silk is used in designing this article, but soft wool goods, crepe de chine, or silk crepon will develop satisfactorily. The quantity of material used

is one and one eighth yards of twenty-two-inch goods. Price of pattern, 10 cents.

Variètè Jacket with Dart.— This pattern is in four pieces: Front, back, collar, and sleeve. The jacket will develop nicely in material like the remainder of the dress, or silk, velvet, or satin. The material needed is two and one half yards of thirty-six-inch goods. Price of pattern, 25 cents.

Variètè Jacket without Dart.— This pattern is in four pieces: Front, back, collar, and sleeve. The garment may be developed in any preferred goods. The quantity of material needed is two and one half yards. Price of pattern, 25 cents.

Variètè Coat. — This pattern is in five pieces: Front, side-gore, back, sleeve, and collar. The garment is developed in canvas in the present instance, but wool goods in heavy or medium weight may be very satisfactorily used. Four and three quarters yards of thirty-six-inch goods is needed. Price of pattern, 25 cents.

Patterns of each of the garments mentioned can be furnished in the even sizes from 32 to 44 inclusive, — that is, 32, 34, 36, 38, 40, 42, and 44, bust measure. These patterns will be furnished separately at the prices given above, or patterns for the entire costume will be sent for 50 cents.

In ordering patterns, *in every case the bust measure must be given.* The measure should be taken close up under the arms and over the fullest portion of the bust, drawing the tape measure slightly, but not too close. In filling an order when the bust measure sent is an odd size, as 30 or 31, our custom is to send the next larger size (in such a case we should send 32), on the presumption that it is easier to fit a larger pattern down than to enlarge a smaller one.

For all patterns, address Sanitarium Dress and Pattern Department, Battle Creek, Mich.

PALATABLE DISHES WITHOUT MILK.

THERE is a growing class of invalids who find the use of milk in their diet inimical to their progress healthward, while those upon whom the preparation of their food devolves are often greatly perplexed to know what to provide that will afford the requisite variety from day to day, supply the proper nourishment, and at the same time prove appetizing and palatable. As an aid to such, as also to those housekeepers whose milk supply must of necessity be limited, we offer below menus and recipes for several dinners requiring no milk for cooking or serving: —

DINNER NO. 1.

plit Pea Soup, with Croutons,
Mashed Potato, seasoned with beaten Yolk of Egg
(one egg to about five medium-sized potatoes),
Macaroni with Tomato Sauce, Browned Wheat with a Dressing of Nut Meal,
Graham Bread, Sticks,
Stewed Fruit, Fresh Fruit.

DINNER NO. 2.

Tomato and Vermicelli Soup with Croutons,
Mashed Beans, Brown Sweet Potato,
Rice with Lentil Gravy,
Rolls, Zwieback,
Stewed Fruit,
Roasted Almonds and Filberts.

DINNER NO. 3.

Canned Green Pea Soup, with Croutons,
Succotash of equal parts Split Peas and Canned or Stewed Dried Corn,
Apple Macaroni,
Browned Rice with Black-raspberry Sauce (see Jar. No.),
Graham Bread,
Stewed Fruit, Nut Crisps,
Prune Dessert (see March No.).

DINNER NO. 4.

Swiss Lentil Soup, with Croutons,
Baked Sweet Potato with Tomato Gravy,
Baked Parsnips,
Ceraline with Grape Sauce (see Jan. No.),
Graham Puffs,
Stewed Fruit,
Pineapple Tapioca.

Split Pea Soup.— For each quart of soup desired, simmer a cupful of split peas very slowly in three pints of boiling water for six hours, or until thoroughly dissolved. When done, rub through a colander, salt, and add for flavoring a slice or two of onion or celery. Reheat, and when boiling stir into it two teaspoonfuls of flour rubbed smooth in a little cold water. Remove the slice of onion with a fork just before serving.

Tomato and Vermicelli Soup.— Cook a cupful of broken vermicelli in a pint of boiling water for ten minutes. Turn into a colander to drain. Have boiling two quarts of strained, stewed tomato, to which add the vermicelli. Season with salt and serve hot.

Canned Green Pea Soup.— Rub canned green peas through a colander to remove the skins. Add boiling water to make of a proper consistency, season with salt, and serve hot. If desired, the soup may be flavored with onion or celery, the same as directed for split pea soup.

Swiss Lentil Soup.— Cook a pint of brown lentils in a small quantity of boiling water. Add to the

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

A lentil sauce prepared in the same manner as this soup, only of somewhat thicker consistency, makes excellent dressing for rice or potato.

Croutons.— *Croutons* for soup are prepared by cutting stale bread into small squares or cubes, and browning thoroughly in a moderate oven. Put a spoonful or two of the *croutons* in each plate, and turn the hot soup over them.

Macaroni with Tomato Sauce.— Break a dozen sticks of macaroni into two-inch lengths, and drop into boiling water. Let it boil for an hour, or until perfectly tender. In the meantime prepare the sauce by rubbing a pint of stewed or canned tomatoes through a colander. Heat the tomato to boiling and thicken with a little flour; a tablespoonful to the pint will be about the requisite proportion. Add salt to season. Dish the macaroni in individual dishes, and serve with a quantity of the sauce poured over each dish. Tomato sauce prepared in the same manner forms a very palatable gravy for boiled or baked sweet potato.

Apple Macaroni.— Stew some nice tart apples, sufficient to make about two pints and a half of rather thin sauce, sweeten a little, put into the inner cup of a double boiler, heat to boiling, and cook in it a cupful of macaroni broken into inch lengths from one to two hours as needed. Serve hot.

Graham Puffs.— Beat the yolks of two eggs in two cupfuls of ice water; then add gradually, beating well meantime three and one fourth cupfuls of graham flour. Continue the beating, after all the flour has been added, until the mixture is light and full of air bubbles. Add last the whites of the eggs, beaten to a stiff froth, and bake at once in heated irons.

Rolls and Sticks.— Beat together until all of a foam the yolk of one egg and one third of a cup of ice water. Into this incorporate flour enough to make a dough which will clear the board without dusting with flour, but not so stiff that it will be difficult to shape. Shape and bake as directed for breakfast rolls in the March number. For the sticks make a smaller roll not thicker than one's finger and cut in longer lengths. Less time will be required to bake.

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

Browned Wheat.— Put some wheat in thin layers on baking tins, and brown lightly and evenly in the oven. Cook in a double boiler four parts of boiling water to one of grain, for three or more hours. Serve with a nut meal prepared as for nut crisps.

Baked Parsnips.— Wash, scrape, and divide; drop into boiling water a little more than sufficient to cook them, and boil gently till thoroughly tender. There should remain about one half pint of the liquor when the parsnips are done. Arrange on an earthen plate or shallow pudding dish, not more than one layer deep; cover with the juice, and bake, basting frequently until the juice is all absorbed, and the parsnips delicately browned. Serve at once.

Browned Sweet Potato.— Slice cold, cooked sweet potatoes evenly, place on slightly oiled tins in a hot oven, and brown.

Mashed Beans. — Soak over night in cold water, a quart of nice white beans. When ready to cook, drain, put into boiling water, and boil till perfectly tender and the water nearly evaporated. Put the beans through a colander to remove the skins, season with salt, put into a shallow baking dish, smooth the top with a spoon, and bake in the oven till dry and mealy throughout, and nicely browned over the top.

Pineapple Tapioca. — Soak one cup of pineapple over night in one and one half cups of water. Add two and one half cups of water and cook in a double boiler until transparent, then add one cup of sugar and one juicy pineapple minced fine with a sharp knife. Mold, and serve cold with or without cream.

Roasted Almonds. — Shell fresh sweet almonds, and blanch by pouring boiling water over them; let them stand for two or three minutes, drain off the hot water, and drop into cold water. Press between the thumb and fingers and the kernels will readily slip out of the brown covering. Place the blanched nuts on perforated tins, and brown lightly in the oven. Filberts may be blanched and browned in the same way.

HOW TO RENDER WATER PURE AND WHOLESOME AS A BEVERAGE.

THE earth's surface is three fourths water, and as great a proportion of the human body is composed of this very useful compound. A human being weighing one hundred pounds, would, if crushed to complete dryness, yield seventy pounds of water, leaving only thirty pounds of solid matter. In infancy and youth the proportion is even greater, and diminishes to a less amount in old age.

This water is used in the work of building up and repairing the human structure, and in making the useful secretions of the body, besides being cast off in great quantities by the excretory organs, as the skin, kidneys, and lungs. The supply must be furnished from without the body in proportion to the amount used and expelled, or all tissue activity will cease and death ensue. This is the reason a person perishes so much sooner from lack of water than from lack of food.

The great demand for water by all living things, both animal and vegetable, to enable them to exist and grow, has been met by nature with a bountiful supply of this very useful fluid in the oceans, seas, lakes, rivers, springs, and brooks of surface water, and the underground lakes and streams reached and utilized by man by digging or boring to them through the earth's surface. A great deal of the water used by animals and man exists in the vegetable and mineral compounds used as food. The sun is constantly vaporizing great volumes of the surface water, by heating the atmosphere and increasing its absorbing powers, or its capacity to take up and hold watery vapor. Thus constant volumes of vapor are ascending into the region of the clouds, where, in the colder, more rarified atmosphere, it is condensed into water, and returns again to the earth in the form of rain, snow, mist, or hail.

High up in the air, where the rain or snow is formed, water exists in an almost chemically pure form; and if there were some vast aerial reservoir to catch and hold it, and supply pipes to furnish earth's inhabitants with this pure water, the question of a pure, wholesome water supply would once and forever be settled. But pure aerial water has to wash at least all visible things before it is used by mankind as a beverage, as it pours down through the air in rain and snow. Especially that which falls first encounters a great deal of foul matter in the region of cities and towns, and in the densely populated districts.

The lower atmosphere is always loaded with smoke, dust, and foul gases. The dust is often a compound of foul animal excretions and other decaying organic matter, and living organisms, many of which are disease germs. Thus the vaunted reputation of rain water for purity, unless it be collected after a prolonged wet time, and from a clean receiving surface, is very much impaired; and when we remember that rain water, as it is usually collected in cisterns, washes all the additional dirt that has been deposited on the roofs of dwellings and other buildings, adding more germs to the supply already there, we will cease to wonder at the foul odors of so many cisterns, or that cistern water, despite its proverbial softness, is neither a clean nor a wholesome drink for human beings.

All the water which fills our springs and fresh-water streams, lakes, and rivers, both above and under the ground, come from the same source as the cistern water. A portion of the rain, snow, etc., runs off the surface into valleys with water-tight bottoms, and another portion settles into the earth until a stratum of clay or rock is reached, which prevents further sinking. This water has not only washed the air, but also the surface of the earth as it passed over it into the lake or stream, or sank directly downward; hence it is more or less contaminated. Add to this the fact that the surface of the earth is often saturated by filth, and that vast streams of foul sewage from every hamlet,

town, and city are poured into the natural waterways, and it will at once appear that the sources of water contamination are many. It will no longer be a matter of wonder that we read of epidemics of cholera, typhoid fever, and like disasters, which carry off thousands of people. The nurse, or whoever is responsible for the welfare of the sick and helpless, as well as the head of every household, ought to be interested and anxious to learn to use any practical method which will insure a supply of pure water for household use and the sick-room.

The diseases which are known to come from foul water are Asiatic cholera, dysentery, diarrhœa, typhoid fever, and malarial fever. It is also probable that many other diseases, as diphtheria, scarlet fever, yellow fever, etc., are conveyed by impure water; for we have already seen that the sun-distilled water that comes down pure from the clouds becomes foul by having to wash the air and earth. If it were not for the natural systems of water purification, man would soon be poisoned and the race extinguished, from the use of dirty water.

The foul matter in the dirty water is either in the form of solution or suspended matter. It may be organic or inorganic. Among the organic impurities the most dangerous are disease germs. Yet one of nature's most efficient water purifiers is a form of germ which lives on decaying organic matter. These germs, to get their food, convert its elements into a form in which they can combine with oxygen and form gases, conspicuous among them being carbonic acid gas, which gives spring water its sparkle. When water is flowing in a running stream, this oxidation will take place if the water is not constantly fouled by too much sewage running into it, or the flow is too sluggish to keep it mixed with fresh supplies of air. As the water passes through the ground, it is strained, and the germs which destroy and live on decaying organic matter render it sterile by destroying the food on which disease germs live, and generating a poison that kills them. The small cavities in the earth are also filled with air, and this, as in the running streams, oxidizes the water and renders it safe for most uses, unless the ground, like the stream, is saturated with filth, or unless filth from cesspools, privies, or other filthy places, runs directly into the well.

As we can never be sure that nature's methods will be successful where crowds ignorantly foul the air and soil the waterways, we should be able to strain and render water sterile, or free from germs, under all circumstances. Boiling, if prolonged, will kill all living things in water, but it does not remove either suspended matter or matter in solution. Some manner of straining apparatus must be devised, or some method of causing the foreign matter to sink to the bottom. Many filters have been made for this purpose only a few of which remove anything but the coarser suspended matter, while they allow the germs, as well as the matter in solution, to pass through. Unless the filtering matter is frequently changed, cleansed, and sterilized, it will soon become very foul, and instead of cleansing the water will add to its impurities. Pasteur, a noted French scientist, has devised an unglazed porcelain filter, which can be cleansed by heating in an oven, by firing, or by saturating with alcohol and setting it on fire. Other material, as porous stone, porous sand, or composite, may be used in the same way, and the filter may be similarly cleansed, thus avoiding the objection which is made to most domestic filters, that the layers of charcoal, gravel, sand, etc., soon become so full of organic matter that they foul instead of cleansing the water, so that the filter must be destroyed and a new one made at short intervals. This is apt to be neglected in most households.

CANDLEWICK FILTER.

Often a filter which will strain out at least the suspended matter, has to be gotten up on short notice. For this a couple of pitchers, or glasses, may be used, with a bent glass tube, or a rubber tube an inch or a half inch in diameter through which several strands of lamp wick, soft cotton or woolen yarn, or clean strips of cloth have been drawn, enough to fill the tube snugly, about an inch hanging out from either end. Run enough clear water through the tube to dampen the filtering material, then fill one pitcher with water and set it eighteen inches or two feet above the other. Put one end of the tube in the upper pitcher, and let the other end hang over the lower dish. The water will flow out drop by drop, leaving all suspended matter in the wick or other filling. This water, after boiling to sterilize it, will be quite pure for drinking water.

A clean towel or another piece of clean cloth will answer fairly well as a strainer without the tube, having only some dish to hold the water and one to re-

ceive it. A glass funnel, or even a bottle with the bottom out, inverted, and hung by a cord above a receiving vessel, will also make a good temporary filter. Some clean cloth should be put in the neck of the bottle, and the bottle being filled above with clean cloth, wool, felt, cotton, sand, or charcoal. Of course all these filtering materials must be clean and frequently changed, and the water must always be boiled to make it safe for drinking purposes. Blotting paper or filtering paper will answer as a strainer; or even letting the water settle will render it comparatively safe. A small lump of alum, about the size of a grain of popcorn, well dissolved in a gallon of water, will cause the suspended matter to settle and cleanse the water somewhat. But all such water must be boiled.

Besides germs and decaying organic matter, water often contains various mineral substances in solution, as carbonate of lime, common salt, sulphur, iron, lead, etc., either dissolved out by the water in passing through rocks and different layers of earth, as from lead, iron, or other metal pipes through which the water flows. Of lime salts found in water, carbonate of lime is the most common. It forms what we know as "hard" water, and much of it may be precipitated by boiling. It is not a dangerous impurity, unless in great amount. Neither does a small amount of iron, soda, or sulphur render water very harmful. Salt, alum, and all other minerals and alkalies in greater quantities, make water both harmful and unpalatable. Lead and zinc are directly poisonous, therefore lead and zinc pipes should not be used to convey water.

Distillation will render water pure and free from both organic and inorganic impurities. Good drinking water can be secured from sea water by this method. A fire, a vessel with a tight-fitting lid, and a spout or pipe to conduct the steam to some cool condensing surface which will hold water, will give pure drinking water, but unless it is aerated, the water will taste flat to those who are not used to it.

There is a great deal of pure water stored away in fruit, and in traveling, when the purity of the drinking water is uncertain, and one has no way of either filtering or sterilizing it, the free use of fresh ripe fruit will supply the needed fluid to the body without the risk of contagion from the steamboat or car water-tank. Unfortunately, most travelers' lunch baskets are made up of thirst-inducing food, such as cheese, dried beef, codfish, dried halibut, ginger snaps, cake, pie, etc. When one sees how often such persons visit the drinking tank after a meal, they cease to wonder why so many travelers become ill when on a journey. A little care about drinking water, and an effort to learn, and to invent methods for filtering and sterilizing water, may save many lives by preventing epidemics, such as typhoid fever, cholera, etc.

HOW TO ADMINISTER WATER INTERNALLY TO THE SICK.

WATER may be made to enter the circulation through the mouth, the rectum, or by hypodermic injections into the connective tissues under the skin. A moderate amount may also be absorbed by wrapping the body in wet sheets, or by placing the patient in a full bath. Patients who are helpless,—as those unconscious from brain disease, those reduced by fever, lung trouble, heart disease, and other like acute or chronic disorders, or who are too weak to make their wants known, and infants too young to speak,—often suffer greatly because the nurse neglects to give them water at regular intervals. On hot summer days the writer has often seen a restless, crying baby sink into quiet slumber after it had received a refreshing drink. The water quieted its nerves much better than could any soothing syrup, and without any risk to life or reason, as so often follows the use of opiates.

It is often thought that a person in a profound stupor cannot take water because he is unable to swallow. Water can be administered to a patient in this condition by placing him on his back and feeding it to him with a spoon. Always touch the lips with the spoon, and then putting it far back on the tongue, pour the water down slowly, then close the lips by gentle pressure on the under surface of the lower jaw, and wait until it has been swallowed before giving another spoonful. You will often be surprised to see how much your helpless patient will be revived in a short time.

In my own experience I remember being hastily called to see a case of puerperal convulsions in which the patient had been unconscious for many hours. For fourteen hours she had been kept in a profuse perspiration, in order to eliminate the poison; but being unconscious, and supposedly unable to swallow, no water had been offered to her. Her lips were dry and parched, and her tongue seemed ready to crack. The administration of water with a teaspoon was begun at once. At first it was very

difficult to excite the muscles of deglutition to action, but after a few spoonfuls of water had been administered, the muscles acted much more promptly, and in a short time a tumbler full and a half had been swallowed. The patient, now thoroughly aroused, seized the glass with both hands and drained it to the bottom. When that was removed, she reached out eagerly for more. After a goblet and a half more had been given her, she turned over on her side and went to sleep, and some time later awoke rational. In all fevers, especially when the patient is in the last stages and too weak or indifferent to know when he needs a drink, water should be offered him at stated intervals, and frequently.

Before giving a patient a drink, always have the mouth rinsed out, if the patient is strong enough, or swabbed when he is too weak to make the necessary exertion. This is very important, as the mouth often contains many disease germs, which should not be swallowed.

Always carry water to the sick in a clean glass, or a bright silver or other metal cup. Glass is to be preferred, if it is at hand. With care in the use of straining and boiling, as before directed, the water ought to be pure, sparkling, and palatable. It may be either hot or cold, as prescribed by the physician or relished by the patient. When ice-cold, it should be taken in very moderate quantities. The best time to drink water in the morning is an hour before eating; in the evening, before retiring; and midway between meals. Much fluid should not be taken with the meal, or just before or within two hours after a full meal. When a person is very warm, cold water should not be taken too rapidly. It is best sipped slowly or taken by the spoonful.

Very weak persons who are conscious, often have to be given drink without raising the head. In such cases a glass tube or a drinking cup with a spout may be used. In cases in which the stomach refuses to retain either food or drink, water may be given by enema. Water administered by enema should be about a teacupful in quantity, at a temperature of 95° to 98°, and administered very slowly. In some cases, as in cholera, cholera morbus, etc., where all the fluids of the blood are pouring out through the mucous surfaces of the alimentary tract, water has to be injected into the tissues under the skin. This will be done, of course, only under the direction of a physician. The water is made slightly saline by using an even teaspoonful of salt to each pint of water. Unless distilled water is used, it should be prepared by boiling and filtering. A few ounces may then be injected into the tissues above the groin, or into any other part of the body where there is loose tissue.

After water has been filtered or otherwise cleansed, it should be kept covered in a clean, cool place. If kept in or near the sick-room, it is better to keep it in rubber- or glass-stoppered bottles than in an open pitcher.

Ice is sometimes relished by the sick, and is often put in water to cool it. Ice is always of doubtful purity, unless made from distilled, filtered, or sterilized water; and as freezing does not kill the germs, it is better to cool the water by putting ice around the vessel instead of in it. If ice is taken internally, it should be given in small pieces, and care must be taken to see that the ice is pure. A large pin is a good instrument to use in breaking off pieces of ice to feed the patient. In hot weather, ice in small chunks can be kept folded up in flannel, old newspapers, or any other non-conducting, porous material. It will keep longer if stored so as to allow the water to drain off. A piece of flannel fastened over the upper edges of a vessel, but not large enough to reach to the bottom, in which the ice may be laid, makes a simple and handy refrigerator for the sick-room.

It seems like a simple thing to give a cup of water to the sick and suffering, but it requires much care to administer the fluid in the proper quantity and of the right quality, by proper methods, and at the proper time. The most simple thing is often made a most powerful agent for either good or evil, according to the method by which it is administered.

REMEMBER that it is dangerous to use, for any domestic purpose, water which contains any living disease germs, unless it has been thoroughly sterilized by boiling. Many epidemics of typhoid fever have been caused by the milkman's using infected water to rinse his milk cans. The germs thus get into the milk, and in a few hours increase greatly in numbers, and being swallowed by the consumers of the dairy products, cause this very tedious and dangerous disease to spread mysterious over a whole neighborhood. Other bowel diseases may be conveyed in the same way. Dishes washed in impure, infected water, may infect the food placed in them. Clothing also may be likewise infected. Such water is unfit for use for either bathing or swimming. Disease germs need only to find an entrance into the human body, and they will multiply very fast. Each species of germ will produce a disease of its own kind.

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

TEA INTOXICATION.

THE *Medical and Surgical Reporter*, one of our ablest medical journals, publishes the following very suggestive article in relation to the baneful effects of tea drinking: —

"To speak of this beverage as 'the cup that cheers, but not inebriates' must be regarded as an instance of purely poetic license. As the best work of the poet is likely to be produced when he is thoroughly intoxicated with his subject, this line may be regarded as of such origin. Certainly it belongs to the realm of poetic fancy rather than to that of scientific fact. And it may be claimed that its author, by his subsequent melancholia and suicide, demonstrated the danger of indulgence in this direction.

"No one who has practiced among the poor of a large city can have failed to recognize the baneful effects of excessive tea drinking, especially among sewing women. James Wood (*Medical News*) says: —

"'Of the 1000 consecutive cases applying for general treatment at our largest dispensary, 100, or 10 per cent, were found to be liberal indulgers in tea, and suffering from its deleterious effects, yet no one of them came for treatment of the tea habit, but for various other complaints. They were loath, when apprised of the cause of their illness, to believe that such a harmless household commodity ever produced any bad effects. Of these 100 cases, 20 per cent complained of persistent dizziness, 19 per cent of indigestion, 45 per cent of headache, 20 per cent of despondency, 19 per cent of palpitation of the heart, and 15 per cent of insomnia.

"'When tea has been used for a considerable period in excess and its detrimental action has been constant, well-defined symptoms supervene, a few of which are vertigo, mental confusion, sensible palpitation of the heart, restlessness, insomnia, hallucinations, nightmare, nausea, neuralgia, anorexia, constipation, prostration, and anxiety, and a peculiar kind of intoxication ending after hours of vigil in a torpor from exhaustion.

"'What worse line of symptoms could follow the use of a beverage so commonly employed, it is hard to imagine, and that many people use it to excess is unquestionable. Many have confessed to an inability to "get through the day" without copious imbibitions of what is, in many cases, a strong decoction. Some drink every twenty-four hours as much as fifteen pints, and some there are who are unable to judge of how much they consume.'"

OYSTERS AND TYPHOID FEVER.—Again and again the oyster has been charged with the grave crime of originating epidemics of typhoid fever. Not long since, Dr. C. A. Lindsley, Secretary of the State Board of Health of Connecticut, made an investigation of an outbreak of typhoid fever at the Wesleyan College, located at Middletown, in which two students had died. He expressed himself as thoroughly satisfied that diseased oysters were the cause of the epidemic, stating the following facts: —

"On the evening of October 12, at three secret society banquets held at Wesleyan College, raw oysters were served. Ten days later about twenty students were taken with typhoid fever. The oysters were taken from beds in the Quinnipiac River very near the outlet of a sewer. Dr. Lindsley has learned that the wife of a member of the firm which owned these oyster beds, died a short time ago of typhoid malarial fever. A daughter was also taken ill with the same fever shortly after her mother's death."

In view of the above, those who are in the habit of eating oysters will do well to see that they are

thoroughly cooked. The custom of eating raw oysters must be a relic of savagery. According to an anonymous poet:—

> "That man must have had a palate covered o'er
> With brass or steel, who, on the rocky shore,
> First broke the oozy oyster's pearly coat
> And risked the slimy morsel down his throat."

Cooked typhoid fever germs are not likely to give rise to typhoid fever, but they must certainly be regarded as not the most appetizing of viands. Would it not be better for the scavenger oyster to pursue the even tenor of his way unmolested? He does a useful work in consuming the ooze and slime of the ocean bottom, eating up the disease germs which find their way into the water through sewers and otherwise, laboring as a sort of sanitary policeman, to clean up the ocean bottom and prevent its waters from becoming stagnant and unwholesome.

ORGANS THAT NEVER GROW OLD.—Dr. Balfour, who has made a careful study of the human body, asserts that there are two organs of the body, which, under normal conditions, never grow old; these are the brain and the heart. Old age is the result of changes in the arteries. An eminent French physiologist has very well said, "A man is as old as his arteries." The walls of the arteries become hard and rigid with advancing age; the blood-vessels gradually shrivel up, and thus the nutrition of the tissues is cut off, and almost every organ of the body shrivels in consequence, and loses, in large part, its activity.

This change usually begins about the middle of life. In persons of sedentary or gross habits of life, the change begins earlier and progresses more rapidly than in those who live abstemiously and take much exercise in the open air. But the change comes sooner or later in all who live to an advanced age. Dr. Balfour, however, tells us that the change referred to does not normally take place in either the brain or the heart. The vessels which feed these organs remain elastic and with their full caliber, thus supplying their usual amount of blood and nutriment to the organs to which they are distributed, and so maintaining their vigor and activity to a most advanced age. This explains the reason why the brain often retains its wonderful activity up to almost the last day of life, even in advanced age.

MRS. ERNEST HART ON MEAT EATING.—Mrs. Ernest Hart, who had charge of the Irish Village at the World's Fair, whose husband is the editor of the *British Medical Journal*, the leading medical publication of the world, recently accompanied her husband on a trip around the world, and in an article in the *Hospital* recently expressed herself as having been led by her observations to the conclusion that meat-eating is one of the causes of a bad temper. She declares that in no country is a home life rendered so miserable by ill-temper as in England. "If we compare," says Mrs. Hart, "domestic life and manners in England with those of other countries where meat does not form such an integral article of diet, a notable improvement will be remarked. In less meat-eating France, urbanity is the rule of the home; in fish- and rice-eating Japan, harsh words are unknown, and an exquisite politeness to one another prevails even among the children who play together in the streets. In Japan I never heard rude, angry words spoken by any but Englishmen. I am strongly of opinion that the ill-temper of the English is caused in a great measure by a too-abundant meat dietary, combined with a sedentary life. The half-oxidized products of albumen circulating in the blood produce both mental and moral disturbances. The healthful thing to do is to lead an active and unselfish life, on a moderate diet, sufficient to maintain strength and not increase weight."

A NEW DISEASE FROM MILK.—Telegraphic despatches bring a report of a new and mysterious malady which has recently broken out in Berlin. The leading symptoms of the malady are inflammation and the formation of pustules in the throat. The patients suffer from high fever and intense thirst. Professor Virchow has made an investigation of the outbreak, and expresses the opinion that it is due to infection communicated through the milk of cows. The opinion has been expressed by medical men, that the disease is a form of the so-called foot-and-mouth disease which hitherto has been observed only in cattle.

Evidence is accumulating on every hand to show that cow's milk is an article of food quite as unsafe for human consumption as cow's meat, and that the time has come when the use of unsterilized milk must be regarded as a hazardous proceeding. The prejudice which has existed against the sterilization of milk is gradually dissappearing, and physicians are coming to understand more and more the danger and the disadvantages of the use of raw milk, either by invalids or by human beings. The time cannot be far distant when the sanitary laws of cities will require the sterilization of the public milk supply, and unsterilized milk will be looked upon with as great a degree of suspicion as cholera-infected water.

ARTIFICIAL RESPIRATION IN CASES OF ELECTRICAL SHOCK.— The frequency with which death from electric shocks occurs nowadays since the introduction of electricity for the running of street-cars, street-lighting, etc., renders valuable the following recommendation by the French Minister of Public Works, with reference to the method of procedure for persons who have been apparently killed by electrical shock : —

"The victim is to be, first of all, taken into an airy place ; three or four persons should be taken there to assist, and no one else allowed to enter. The clothing is to be loosened and efforts made to re-establish respiration and circulation as soon as possible. To re-establish respiration, recourse can be had to the following two methods ; viz., drawing of the tongue and artificial respiration. In the former case, the mouth of the victim is opened with the fingers, or, if there be resistance, with a piece of wood, the handle of a knife, spoon, or fork, or the end of a walking stick. The front part of the tongue should then be taken between the thumb and index finger of the right hand, bare or covered with, say, a pocket handkerchief, to prevent slipping. The tongue is then strongly pulled, and allowed to relax, in rhythmical imitation of respiration, at least twenty times a minute. These movements must be continued without a break for half an hour or more. For artificial respiration the subject should be laid upon his back, the shoulders slightly raised, the mouth open, and the tongue free. The arms are taken at the height of the elbows, supporting them strongly on the walls of the chest, next bringing them above the head, describing the arc of a circle. These movements are to be continued at least twenty times a minute until the re-establishment of natural respiration. It is suitable to commence with the movement of the tongue as described, simultaneously, if possible, with the adopting of artificial respiration. At the same time, it is desirable to try to restore circulation by rubbing the surface of the body, by beating the body with the hands or with wet towels, throwing cold water on the subject from time to time, and applying ammonia or vinegar to the nose."

———

TIGHT LACING AND GALL-STONES.—According to Dr. Marchand (*Deutsche Medicinische Wochenschrift*), the relation of tight lacing to the development of gall-stones is rendered very clear by noticing the situation of the gall-ducts in the liver deformed by tight lacing. The furrow caused by lacing runs directly across the right lobe of the liver, as the result of which there is a tendency to atrophy of the gall-bladder. When tight lacing has been practiced to an extreme degree, an artificial fissure is formed in the liver, giving rise to what is termed the "lacing-lobe," which carries with it the gall-bladder. The constricted portion of the liver is found to be just at the point of junction of the gall-bladder with its duct. In these cases, according to the author, it is common to find the gall-bladder greatly distended, extending far beyond the border of the liver, and frequently an examination made *post mortem* reveals the presence of gall-stones.

Stagnation of the bile is well known to be one of the most important causes of the formation of gall-stones. A change in the composition of the bile, from catarrh resulting from congestion of the mucous membrane and the thickening of the bile due to failure of the gall-bladder to completely evacuate itself, gives rise to the formation of small masses which serve as nuclei for calculi ; hence anything which obstructs the free outflow of bile through the cystic duct must favor the formation of gall-stones.

Marchand is also of the opinion that many cases of cancer of the liver should be attributed to tight lacing. It is only a few years since Langenbuch was obliged to open an abdomen to remove a "lacing-lobe" of the liver which had been so completely sep-

arated from the rest of the organ as to cause its death, rendering its removal necessary.

In view of such facts as these, it is the duty of every physician to take special pains to warn his patients against the evil effect of this pernicious practice. Few women are conscious of the fact that they are injuring themselves by tight lacing. But physicians generally preach to deaf ears in an audience composed largely of votaries of fashion.

GERMS IN THE TOOTH-BRUSH. — The tooth-brush is a common and favorite lurking-place for germs. When used for cleaning the teeth, the brush necessarily becomes more or less infected, and unless very thoroughly cleansed, small particles of food are left behind which, constitute choice food for germs, encouraging their development so rapidly that the ordinary tooth-brush, when examined microscopically, is found to contain great quantities of microbes.

Two remedies may be employed as a means of preventing this diseased condition: 1. By thorough cleansing of the tooth-brush after use; 2. By the use of a proper antiseptic in cleansing the teeth, the tooth-brush itself being also prepared to resist the encroachments of germs. The Antiseptic Tooth Paste, manufactured by the Sanitary Supply Co., Battle Creek, Mich., we have found to be a valuable means of cleansing the mouth and the teeth. It also keeps the tooth-brush sweet.

SOAP AS A GERMICIDE. — During the cholera epidemic in Europe, experiments were made for the purpose of discovering the best germicide for sterilizing the water to be used for bathing. It was found that ordinary toilet soap in the proportion of 2.5 to 1000 parts, will kill the cholera germ in ten or fifteen minutes. Soaps containing salicylic acid and carbonic acid are found to give no better results than ordinary toilet soap. A bath of thirty gallons of water would require a little more than one half pound of soap. A gallon of water would require two and a half drams, or a little more than one fourth of an ounce.

SCAVENGER DIET. — One of our neighboring cities is at present very much excited on account of the recent discovery that one of the local farmers, engaged in the business of raising hogs, has for a long time been purchasing old horses which had outlived their usefulness and feeding them to his hogs. These good people are probably not aware of the fact that the hog is a natural scavenger, and will eat not only horse meat but every other kind of meat. The hoggish nature of the animal is well illustrated by the fact that a hog will even eat a hog. The animal is a natural scavenger, and of such filthy habits that it can in no way be considered a wholesome article of food for human beings.

ANSWERS TO CORRESPONDENTS.

HYPOPEPSIA. — H. W. J., Minn., writes: "1. I have hypopepsia with acid fermentation. Are fruits in general good to use in such a case? 2. Please specify preferable kinds. 3. Is sterilized milk harmful in this case? 4. Would it be beneficial to use peas, beans, lentils, etc.? 5. I am subject to faint spells nearly every day. What ought I to do for them? 6. I have constipation. Is an enema taken two or three times a week harmful?"

Ans. — 1. Fruits may be used in most cases of acid dyspepsia, if they are well chewed. Stomach washing is necessary in some cases. The antiseptic tablets referred to in answer to "A Diligent Reader" in this number, are also valuable in such cases.

2. The best kinds of fruit are strawberries, grapes, peaches, and baked apples.

3. The use of milk encourages acid fermentation.

4. Yes.

5. Correct the indigestion.

6. No, unless the bowels can be made to move in some other way. But it is preferable to regulate the action of the bowels by other means. Granose manufactured by the Sanitas Co., Battle Creek, Mich., is valuable for this purpose.

CONDENSED STEAM AS DRINKING WATER. — L. A. P., Mich., inquires: "Is the condensed steam of impure water preferable to ordinary well water for drinking purposes?"

Ans. — Yes, but it will be necessary for the water to be distilled twice in order to get rid of the unpleasant flavor.

A RED NOSE. — "A Reader" inquires: "1. What is the cause of a red nose? 2. Would the fact that I am not a strict teetotaler have anything to do with it? 3. Please give me instructions how to remedy it."

Ans. — 1. Whisky and dyspepsia.

2. Yes.

3. Become a teetotaler and get a good digestion.

HEALTHFUL FOODS — VENTILATION — ROUND SHOULDERS, ETC. — "A Diligent Reader" asks the following questions: "1. Please give a list of some healthful foods. 2. Please name, also, some unhealthful foods. 3. Please give some advice how to secure good ventilation in a suite of two rooms, with either steam or furnace heat. 4. Which is better, steam or furnace heat? 5. How can round shoulders be remedied? 6. I am troubled with frequent stomach ache. What ought I do for it? 7. Is it a healthy condition of the

body when the feet perspire? 8. What is a good blood purifier? 9. Is there any way to have a clear complexion without injuring the health?"

Ans.— 1. Send to the Sanitarium Food Co., for a catalogue of its foods. All edible fruits, nuts, and grains, and most vegetables are wholesome.

2. Almost everything on the bill of fare of the popular hotel may be included under the head of unhealthful foods, also the majority of articles which appear on the ordinary table.

3. Make two openings into the room,— one for the air to come in at, the other for the air to go out at. The questioner is probably chiefly interested in the question of the removal of the impure air. If the fresh air is warm when it is admitted, the outlet should be at the bottom,—it should communicate with the ventilating shaft passing straight up through the roof. The opening should be sufficient to provide at least thirty square inches of outlet for each person occupying the room.

4. Indirect steam heat and furnace heat are essentially the same.

5. Put the chest forward and keep it there.

6. Stop eating indigestible food. The stomach ache is probably due to distention of the stomach with gas, the result of fermentation of sugar or sweet foods ; it may be due to the indigestion of starch. Antiseptic digestive tablets will usually relieve this system temporarily. Sometimes lavage of the stomach will be necessary. The tablets may be obtained from the Sanitas Co., Battle Creek, Mich.

7. No.

8. Pure water, exercise, deep breathing, and frequent bathing.

9. Yes. Get the blood pure, the muscles strong, the whole body healthy, and the complexion will be clear, unless naturally dark.

Loss of Speech and Hearing.— W. H. A., Ont., writes as follows : "My son, now four years old, lost speech and hearing about a year and a half ago. He has had measles and whooping cough since. Physicians and specialists say there is no obvious reason why he cannot both hear and talk. His health is good, and nothing indicates that he suffers pain. Please give me advice concerning the case."

Ans.— We cannot advise in this case, without examining the patient.

Diet for Strength.— "A Reader," R. I., inquires : "What is the best diet for strength, as in the case of a person of past middle age, who is debilitated ?"

Ans.— Fruits, grains, and nuts. The Sanitarium Health Food Co.'s preparations are invaluable for such a case.

Acid Dyspepsia.— Neuralgia.— Mrs. C. J. N., Wis., writes as follows : "1. I am sixty-four years of age. Have had acid dyspepsia for many years and within the last two years have suffered greatly from neuralgia of stomach. Am a light eater, and diet is very plain. No tea, coffee, pastry, or sweets. Please advise as to what is best in diet and treatment. 2. Please give directions for making whole-wheat and gluten bread."

Ans.— 1. The Sanitarium Food Co.'s granola is excellent for such a case. Granose is also valuable. Antiseptic tablets will be found valuable as well as palatable. The application of a hot bag after each meal is also helpful in such cases.

2. See Mrs. Kellogg's "Science in the Kitchen."

Paskola.— T. S. S., Ohio, inquires in reference to Paskola. "1. Has an analysis of Paskola ever been made, to your knowledge ? 2. What is your opinion in relation to its merits ?"

Ans.— 1. Yes. The chemist of the Department of Agriculture at Washington made an analysis some months ago. The results can doubtless be obtained by addressing the Department of Agriculture.

2. Our opinion is, that it has no merit.

Scott's Emulsion of Cod-liver Oil.— J. E. W., Wash., asks : "1. What are the ingredients and their proportion of which the above-named article is composed ? 2. What is the nature of cod-liver oil ? 3. Is it a valuable medicinal agent ?"

Ans.— 1. The fat abstracted from the livers of dead codfish.

2. It is simply oil containing a little bile extracted from cod livers.

3. We find no use for it as a medicinal agent. We can recommend it for shoe-leather, but it is too impure to be used for fine machinery.

Talking in the Sleep.— C. A. S., Ill., asks ; "1. What causes a person to talk in his sleep ? 2. Is there any remedy for it ?"

Ans.— 1. Troubled sleep.

2. Good digestion and plenty of exercise out of oors.

"Vita-ore."— E. M. F., Neb., inquires : "Have you ever made an analysis of the above-mentioned patent medicine?"

Ans.— No.

Butterine, etc.,— E. B. B., Penn., asks : "1. In what does 'butterine,' 'New Process Butter,' etc., differ from regular butter ? 2. Are these various manufactures wholesome ?"

Ans.—1. Butters of the sort referred to consist chiefly of other animal fats than the fat obtained from milk.

2. The properties of these butters, as regards health, may not differ much from ordinary butter,— some of them may, in fact, be preferable to ordinary butter, as containing a less number of germs, but ordinary butter is not an article to be recommended.

Headache–Inflamed Eyes.— T. E. H., Miss., writes thus : "My daughter, fifteen years of age, is attending school. She complains of headache over and at the back

of the eyes. While at school her sight seems to fail and the eyes grow red and inflamed; away from school and study her eyes are all right again. Several of the scholars at the same school are in like condition. Are spectacles indicated in such cases?"

Ans.— The case requires the attention of a skilled oculist. Probably glasses would be needed.

AN OLD BULLET WOUND.— "A Reader," writes thus: "Please tell me the right treatment for the following case: An old soldier received a bullet wound while in the army, and has doctored it more or less ever since. The wound is in the thigh, close up to the hip. During the last few years it has gradually grown larger and more painful. It is now as large or larger than a man's hand."

Ans.— The case requires the attention of a skillful surgeon. It should not be neglected.

SUPERFLUOUS HAIR.— "An Inquirer," Penn., asks: "1. Is it possible to destroy the roots of superfluous hair? 2. If so, what is the process?"

Ans.— 1. Yes.

2. The application of a current of electricity to the roots of each individual hair. The process is somewhat painful, but successful.

GASTRITIS.— E. R. B., Mich., writes that he has an attack of what the doctors call gastritis. He takes no solid food, nothing but broth and stale bread. There is no change for the better, however, and he asks for advice concerning diet and treatment.

Ans.— We recommend for this case the Sanitarium Food Co.'s gluten, No. 3.

BUTTER — DIET.— T. H., Wyoming, writes: "1. Having learned from GOOD HEALTH that butter is not a good food, I would like to ask, What can be used as a substitute for butter? 2. Is not the butter which commands a high price fit to eat? 3. What kind of diet would you recommend?"

Ans.— 1. Sterilized cream.

2. High-priced butter is not always better than cheaper brands.

3. A diet of fruits, grains, and nuts. Sterilized butter may be used when cream does not agree with the stomach.

COLD FEET AND LIMBS.— "A Reader," Washington, a young woman twenty-four years old, who wears neither elastic bands nor corsets, and enjoys good health generally, suffers greatly from the cold, especially in the feet and lower limbs. She takes a reasonable amount of exercise, both indoors and out. She asks: "What course of treatment would you advise, and what diet is best to make blood and create heat?"

Ans.— The diet best calculated to make blood and create heat is a natural diet of fruits, grains, and nuts. The coldness of the extremities is probably due to indigestion. Fomentations to the stomach at night, followed by a moist abdominal bandage to be worn during the night, and a cold sponge bath on rising in the morning.

NIGHTMARE—PAIN IN BACK AND HIPS, ETC.—L. F. M., Iowa, asks the following questions: "1. What causes mucus to drop from right nostril after holding head down a few seconds? 2. If caused from catarrh will not the use of the nebulizer be beneficial? 3. If so, what inhalant would you recommend? 4. What would be the probable cause of an almost constant pain in the back across the hips? 5. What causes a headache and a tired-out feeling on every slight exertion? 6. What do you think of the Ralstonites? 7. Are not their ideas of food and water correct?"

Ans.— 1. Catarrh of the nose.

2. Yes, but we think the volatilizer better.

3. What for convenience is termed B. C. M. E. W. solution, a mixture containing benzoin, menthol, oil eucalyptus, oil of wintergreen, and other volatile oils.

4. Some rectal or pelvic disorder.

5. Disturbance of the abdominal sympathetic.

6. Very good people; earnest seekers after a better way, but, unfortunately for themselves, very gullible.

7. A strange mixture of truth and error, sense and nonsense.

PAIN IN THE LEFT SIDE — NEURALGIA OF STOMACH — SODA CRACKERS. — M. T. S., Kansas, writes: "I am troubled with a pain in the left side; if I lie on that side, can hardly breathe. What does this indicate? 2. What treatment would you recommend for neuralgia of the stomach? 3. Are soda crackers healthful?"

Ans.—1. Probably intercostal neuralgia. Possibly it may be some difficulty of the heart or lungs. The case should be investigated.

2. Correction of the indigestion which is the cause of neuralgia.

3. No.

GENERAL DEBILITY.— Mrs. B. G., Iowa, writes: "1. I am suffering from general and nervous debility, and am able to be about only a part of the time. What diet is best for me? 2. Should meat or fat in any form be eaten in a case of this kind? 3. Please give advice as to treatment."

Ans.— 1. The Sanitarium Health Food Co.'s products are just the thing for you,— particularly granola, zwieback, oatmeal wafers, gluten No. 3, and No. 2 gluten biscuit.

2. No.

3. Take a cold sponge bath every morning, followed by a vigorous rubbing. Fomentation over the stomach and liver daily will also be found beneficial.

INSECT IN THE STOMACH.— F. W. H., Ill., writes concerning an account in a newspaper of the death of a boy who, in drinking, was said to have swallowed a water bug. The newspaper stated that "a *post mortem* examination revealed that a portion of the heart had been eaten away by an insect, causing his death." He inquires: "Is it possible for an insect thus to live in the human stomach?"

Ans.— No.

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 recommendation.]

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.

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.

No. 256 is a boy six years old, having blue eyes and light brown hair. He is just as needy and deserving of a home as an orphan. His step father has deserted him, and his mother, who is failing rapidly with that dread disease, consumption, wishes to see him placed in a good home. He has been living in the country, not having had many associates, and has not been neglected. He is with relatives in New York, who can care for him 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. 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?

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.

WORSE THAN ORPHANS.— Two colored children living in Colorado have lost their mother, and as nothing is now known of their father, they surely deserve the sympathy of those who have an interest in those who are needy. The oldest (No. 266) is a boy twelve years old, while the little girl (No. 267) is only four. These children had a mother who gave them good care, and we earnestly trust that some one will deem it a privilege to take these little ones and direct their feet into the right path. The person who writes us concerning these children says, "I believe them to be bright, active children, with no bad habits."

MYRTLE (No. 268) is a little girl living in Illinois. She is ten years old, has blue eyes and light hair. One who knows her says she is "very bright, active, and affectionate." She is now living with relatives who already have a large family, hence they wish to place her in some good home. Complete legal control can be given.

No. 270 is a boy ten years old, living in Ohio. His father is dead, and his mother is in such poor health that she cannot care for him. He has brown eyes and hair. His health is good. He has never been sick. He is said to have a kind disposition, and has not been neglected.

No. 271. — A motherless boy fourteen years old has been living with some friends in Iowa, who at present have another motherless child with them; and as they are unable to care for both of them, they wish to find a good home for this one. He has blue eyes and light hair, is steady, obedient, and willing to work.

STELLA (No. 255) has been placed in a good home in New York, but her brother is not yet provided with a permanent home.

A friend writes about a little girl who went to Minnesota to live, stating that she is getting along nicely and seems to be contented.

A mother who took two children says, "We could not think of giving them up, for we have learned to love them as our own."

PERSONS making applications for children advertised in this department are requested to send with their applications the names and 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.

VISITING DAYS AT THE HASKELL HOME.

PERSONS intending to visit the Haskell Home will please note that the visiting days are Sundays and Wednesdays, from 4 to 6 P. M. It is necessary to make this announcement, as so large a number of visitors have called at the Home on other days that the very interest of the friends, which we have no desire to discourage, has been something of a hindrance to the workers. J. H. KELLOGG.

CLOTHING FOR THE POOR.

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

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

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

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

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

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

LITERARY NOTICES.

THROUGH the courtesy of its officers we have received reports of the Michigan State Horticultural (formerlly Pomological) Society. They show that this Society has been in existence for over twenty years. Its meetings have been occasions where the most intelligent men of the State as well as delegates from societies in other States, all practical farmers and fruit growers, have met to exchange experiences in this line, and to discuss questions bearing directly upon the success of every individual owner, even of so much as a garden spot, within the radius of like conditions of climate and of soil. That Michigan owes her present status in fruit growing in large part to the influence of this persistent pioneer effort, can hardly be doubted.

The Experiment Station, located at South Haven, an annex of the State Horticultural Society, and in charge of the veteran pomologist, T. T. Lyon, is constantly employed in testing the merits of new fruits, seeds, etc., and their capabilities in this soil and climate. This institution is therefore qualified to speak *ex cathedra* on these subjects which are of vital importance to every gardener and fruit grower in the State,— indeed they ought to be of special interest to every man, woman, and child who loves a plant or flower, or who sets a shrub or tree. Typographically neat and exceptionally well edited, these reports are a credit to the Society whose transactions they embody, and are a valuable acquisition to any library. They are furnished free to members of the Horticultural Society. Annual membership fee, one dollar. Address Edwy C. Reid, Sec'y., Allegan, Mich.

"NATURE STUDY FOR THE COMMON SCHOOLS."— By Wilbur S. Jackman, A. B., teacher of Natural Science, Cook County Normal School, Chicago, Ill. Henry Holt & Co., publishers, New York.

This book has been prepared as a guide for teachers in the common schools, and it is intended that the study shall have a place in the regular program of daily lessons. The work is superior as a text-book in its plan and scope, and formulates intelligent methods for conducting the study of Natural Science in schools such as cannot fail to be both interesting and profitable to teacher and pupils. The book must win success as its merits become known.

"MECHANICAL HEATING AND VENTILATION."— By M. C. Huyett, Chicago, Ill.

This little volume, although evidently to some extent intended as the advertising medium of an excellent system of heating and ventilation, nevertheless contains a large amount of invaluable matter for architects and builders. The writer has evidently given the subject of ventilation careful study, and the tables which he has prepared must prove of great value to any person who is not thoroughly familiar with the principles of ærostatics, or possessed of a profound knowledge of physics. Some of the most valuable of the data presented seem to be based upon the authoritative work of Bok, which, however, is not only rarely to be met with in this country, but presents formulæ too complicated and cumbersome for use by the ordinary architects. The practical formulæ presented by Mr. Huyett will prove very serviceable to architects who are in need of practical and ready methods of making the computations necessary for scientifically arranging the heating and ventilation of public buildings.

"ANTISEPSIS AND ANTISEPTICS."— By Charles Milton Buchanan, M. D. The Terhune Co., Newark, N. J.

Laymen as well as the medical profession are coming to understand and to be interested in asepsis and antiseptics. No other of the results of modern scientific investigation have so important a relation to human life and health as those which relate to germs, especially to the means of destroying and preventing the development of these organisms. The most destructive maladies to which human beings are subject are due to the action of germs. How the development of germs may be prevented and the germs themselves destroyed, is clearly shown in this little work, which also embraces the history of the development of this subject through the labors of Koch and Pasteur and their successors. This book fills a real want, and it is to be hoped that it will have a wide circulation.

Scribner's Magazine for April abounds in Easter features. The cover itself is a very striking arrangement of lilies. The frontispiece is a particularly excellent engraving by Closson of a painting called "The Worshipers." Then follows a striking series of Easter pictures by four of the best illustrators of our day — Smedley, Lynch, Abbey, and Weeks. These illustrations represent Easter scenes in New York, Paris, Old England, and Jerusalem. Another original feature of the number is an Easter hymn (written many years ago by Thomas Blackburn), interpreted in a series of six full pages by Henry Mc Carter. These pictures are of remarkable decorative value.

PUBLISHERS' DEPARTMENT.

SPRING has opened bright and early at the Battle Creek Sanitarium, and finds the institution well filled with patients from all parts of the United States, and a few also from foreign countries. This institution has, from a small beginning made by its founders more than twenty-five years ago, gradually extended its reputation until now it is known throughout the whole civilized world. People visit the Sanitarium here, not because of the extraordinary skill possessed by its physicians or any extraordinary feature in its climate, but because of the fact that they find here exemplified in a very thoroughgoing manner certain principles of healthful living, and certain common-sense principles of health-getting whereby the chronic invalid may be treated out of sickness into health. Its great patronage, now amounting to several thousand persons annually, has not been built up by ingenious advertising, or by any of the artifices adopted by charlatans, or by medical inventions, but by solid hard work in behalf of the sick and the afflicted. The medical management of the Sanitarium have ever felt it incumbent upon them to bring to their aid, in their efforts for the relief of those who place themselves under their care, every aid, device, resource, and remedy afforded by rational means. Secret remedies and nostrums of all sorts are studiously avoided, the medical work of the institution being conducted in the frankest manner possible. The patient is taught that if he gets well, it is because he has learned how to cooperate with nature, who is really the true physician. Thousands have gained here the knowledge whereby they have been not only able to regain health but to remain in good health after having been cured, thus being lifted from chronic and often helpless invalidism to permanent usefulness.

* * *

THE SANITARIUM DRESS AND PATTERN DEPARTMENT.—This department, inaugurated with the present volume, the publishers are glad to say has awakened great interest among our subscribers. This is evidenced, not only by the increase in our circulation, but by the large amount of correspondence which is called for. The interest on the subject of dress reform, which is growing and extending everywhere, is one of the many evidences that civilized women are seeking the true way in which to possess themselves of all their womanly rights. Emancipation from the slavery of dress and from the thralldom of disease resulting from the conventional dress, is certainly one of the inalienable rights which every woman should be ambitious to obtain. The Sanitarium dress system is the result of a great amount of patient and painstaking labor on the part of numerous persons, who, uniting their varied talents, have produced results which we believe had never previously been obtained, and which greatly surpass anything which has been elsewhere done in this line. Those who have made use of the patterns which have appeared in the pattern department, have reported most excellent results. It is sufficient commendation of this department to say that it is in charge of a lady who for several years acted as designer for one of the largest firms in the world engaged in designing patterns for children's garments as well as for ladies' dresses. For particulars, address Sanitarium Dress and Pattern Department, Battle Creek, Mich.

* * *

COLDS are often more frequent and troublesome in the spring than during the winter months. For the speedy relief of a cold at the outset, every family should have one or two of the Sanitarium volatilizers. These simple instruments require no bulb or other apparatus to operate them, never get out of order, and are the most effective means of treating colds of the throat and nose, and even catarrh, both in its acute and chronic stages. By the aid of the volatilizer, the medicament is applied in such a manner as to find its way to the remotest recesses of the air-passages. Both the throat and the lungs may be more effectually medicated by this simple device than by any other means. The cup shown in the illustration found in our advertising columns is made of spun brass, nickle-plated, and so is seamless, and can never leak.

* * *

WE are glad to learn that the Nebraska Sanitarium at College View, near Lincoln, Neb., is prospering beyond the most sanguine expectations of its founders. Under the able management of the superintendent, Dr. A. N. Loper; the president of the board of managers, A. R. Henry, who was also the founder of the institution; and the treasurer, Mr. J. Sutherland, the institution has developed phenomenal success. Although not open to patients until the first of January, it is already filled to overflowing, and the managers have been obliged to make provision for the accommodation of a larger number of persons. This, fortunately, they were able to do, by renting excellent accommodations in the immediate vicinity where patients can have the benefit of steam heat and well-ventilated rooms, and be in every way as favorably situated as in the institution itself. The treatment rooms are large enough to accommodate fifty patients, and we trust the time is not far distant when that number of patients, or a larger number, will be under treatment at the institution. This branch Sanitarium is conducted in all respects upon the same principles as the institution at Battle Creek, and there is no reason why it should not be of as great usefulness as is the Battle Creek Sanitarium.

* * *

HEALTH FOODS.—The Sanitarium Health Food Co. are the pioneers in the manufacture of genuine health foods. Various other parties have undertaken to manufacture what they have chosen to term "health foods," but for the most part, these articles are altogether different from what they are represented to be. The manufacture of the foods made by the Sanitarium Health Food Co. was begun nearly twenty years ago, the purpose being to supply an urgent demand for articles of this sort at the Battle Creek Sanitarium. The

other so-called health foods at that time in existence were carefully investigated and found to be unworthy and unreliable. There was, indeed, scarcely one article which was found wholesome as a food for invalids, and some were of a highly objectionable character, being well calculated to create disease in healthy persons.

The first health food produced, and one which has, by long experience, proven to be of the highest value, was granola. The characteristic feature of granola is its extreme solubility and digestibility. In the process of manufacture, its starchy or farinaceous constituents are, in part, digested by exposure to a high temperature for a period sufficiently long to convert the starch into dextrine and soluble starch, thus rendering it readily accessible to the digestive fluids. By various improvements which have been made from time to time, this characteristic property has been increased until at the present time granola represents one of the most easily digestible and soluble of foods. There is no other similar health food manufactured which compares with it in this respect. The process of manufacture is known only to the manufacturers, the Sanitarium Health Food Co. Others who manufacture this article, produce, in some instances, a fairly good substitute for it, but it has never yet been successfully imitated, and indeed, long and very diligent research by the aid of expert chemists would be required to produce a food equal to the granola manufactured by the Sanitarium Health Food Co., the excellence of which is the result of numerous and carefully conducted experimental researches extending over many years. Very recently further improvements have been made in this superior article of food, by which its excellence is still further increased.

The latest thing in the line of health foods is granose. (See advertisement.) This article is manufactured by special methods combined with special machinery constructed for the purpose, and possesses some characteristic merits which are unapproached by any other food. These merits may be briefly summed up as follows: —

1. It represents the whole wheat kernel. The various milling processes by which the best elements of grains are often excluded from the finished product, are avoided in granose by the fact that it is made directly from the wheat kernel, the grain being at no time in the process of manufacture subjected to the action of millstones or other milling processes.

2. Granose is, in the process of manufacture, not only thoroughly cooked but in part digested. It is repeatedly and for long periods subjected to the action of heat, both dry and washed, until it is brought into a condition in which it is perfectly prepared to be acted upon by the digestive organs.

3. Containing all the constituents of the grain, granose is a most excellent food remedy for constipation. It is claimed by the manufacturers, and the claim is substantiated by many others who claim to speak from experience, that the use of this food alone is sufficient to effect a cure, in many instances, of chronic constipation, a disease which is becoming constantly more prevalent and health-destroying in civilized lands.

4. Granose has the further advantage over other health foods, that it is exceedingly palatable. Its delicate flavor and delicious crispness commend it to the palate of the most fastidious invalid, as well as to persons in ordinary

health. It is, indeed, a food for the well as well as for the sick. No other health food has ever been produced which has commanded such universal favor at its introduction as does this. Thus far, the supply has not equaled one tenth of the demand, owing to the limited facilities for producing it. But this difficulty will soon be overcome, as additional machinery is being constructed as rapidly as possible.

* * *

MRS. J. J. WESSELS who, with her sons and a few other friends, has recently founded a Sanitarium in Cape Town, South Africa, a building for which is now being erected, is at present stopping with one of her sons at the Battle Creek Sanitarium. Mrs. Wessels, we understand, expects to remain a year or two in this country. Few women have had the opportunity which Mrs. Wessels has had to accomplish so much good with the means which Providence has entrusted to their care, and fewer still have made so wise a use of the means entrusted to them.

* * *

MAY FESTIVAL.—For the May Festival at Ann Arbor, May 16 and 17, 1895, the Michigan Central will sell excursion tickets at one fare for the round trip, good for return until May 19, 1895.

* * *

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.

* * *

INTERNATIONAL CONFERENCE, EPWORTH LEAGUE.—June 25 to 27, 1895, the Michigan Central will sell excursion tickets to Chattanooga, Tenn., and return at one fare for the round trip, good returning within fifteen days from date of sale, provided, however, that if the ticket should be deposited with the local agent of the initial line at Chattanooga, on or before June 30, 1895, the return limit may be extended until 30 days from date of sale.

* * *

BAPTIST YOUNG PEOPLES' UNION OF AMERICA.—On July 16 and 17, 1895, the Michigan Central will sell excursion tickets to Baltimore, Md., and return at one fare for the round trip, limited for return until August 5, 1895.

* * *

MICHIGAN HOME SEEKERS' EXCURSIONS.—On May 7, 1895, the Michigan Central will sell excursion tickets to Lansing and points north on the Saginaw division, and to all points on the Mackinaw, North Midland, Saginaw Bay, and Northwestern divisions, and to many points on connecting lines, at one fare for the round trip; limited for return to 20 days from date of sale. Stop-overs will be allowed in either direction north of Lansing, Saginaw, or Bay City, within the limit of the ticket.

GRANOSE,

A NEW FOOD-CURE for CONSTIPATION AND INDIGESTION.

GRANOSE is a preparation from wheat, in which all the elements of the grain are preserved, and by combined processes of digestion, cooking, roasting, and steaming, brought into a state which renders assimilation possible with the smallest amount of labor on the part of the digestive organs. **It is accepted by many stomachs which reject food in all other forms.** GRANOSE has the advantage of being not only in the highest degree digestible, wholesome, and curative of many disorders of nutrition, but at the same time it is

THE MOST PALATABLE OF FOODS.

The delicate, nutty flavor of GRANOSE, its delicious crispness, its delicate, appetizing odor, and above all the remarkable manner in which it agrees with the most refractory and fastidious stomachs, justify the assertion that it easily surpasses, for general purposes, all other food preparations which have been placed upon the market.

A SOVEREIGN REMEDY FOR CONSTIPATION.

Within two or three days after beginning the use of this food, the great majority of persons suffering from chronic constipation find themselves ALMOST ENTIRELY RELIEVED, and the continued use of the food insures regular movements of the bowels in nearly all cases except those in which intestinal inactivity is due to mechanical causes, for the relief of which surgical measures are, of course, required.

Notwithstanding the above representations with reference to the excellent qualities of this food, the manufacturers assert, in the most positive manner, that **Granose is pure wheat,** containing no other ingredient whatever except a minute proportion of chloride of sodium. This food is already in use in a number of the principal sanitariums, in which it is daily verifying the above statements.

For sample, address,

SANITARIUM HEALTH FOOD COMPANY,
Battle Creek, Michigan.

MALTED GLUTEN

A New Food

For Dyspeptics, Anæmics, and Neurasthenics.

This product is the result of a long series of experiments and a long and extensive experience in the treatment of maladies of nutrition by a physician who has for many years given special attention to this class of disorders.

MALTED GLUTEN is especially indicated in cases in which starch digestion is imperfectly performed, with resulting acidity, flatulence, eructations of gas, emaciation, and anæmia. It is also very valuable in cases of gastric neurasthenia. In cases of dilation of the stomach, accompanied by foul breath and coated tongue, it is invaluable as a means of securing intestinal asepsis.

MALTED GLUTEN furnishes the farinaceous food elements in a state of complete digestion, **ready for immediate absorption.** The gluten which it contains has been subjected to malt digestion and is in a state of fine division, so that it is promptly acted upon by the digestive fluids. Gluten is of all food elements **the only one which is capable of sustaining life indefinitely.** It will thus be seen that **MALTED GLUTEN IS A PERFECT BLOOD AND FLESH-MAKING FOOD.** It is free from the unpleasant flavor of the various meat peptones, and is especially adapted to those cases requiring perfect intestinal asepsis, in which meat peptones and meat preparations of every description are contra-indicated. It has proved a **sovereign remedy** in cases of **nervous headache, sick headache, obstinate nausea, and vomiting,** and numerous cases in which all other food substances were rejected by the stomach. For sample, address

SANITARIUM HEALTH FOOD CO.,

FACTORY:
BATTLE CREEK, MICH.

28 COLLEGE PLACE, CHICAGO, ILL.

For RECREATION
AND RECUPERATION
RIDE A

Monarch,

THE KING OF BICYCLES.

Best Spring Tonic you can take for "that tired feeling."

Absolutely the Best that Money can Produce.

Strictly Up-to-Date.

Light, Strong, Speedy, Handsome.

Four Models.

Weight, 18 to 25 lbs.

Prices, $85 to $100.

Send for Catalogue.

MONARCH CYCLE CO.

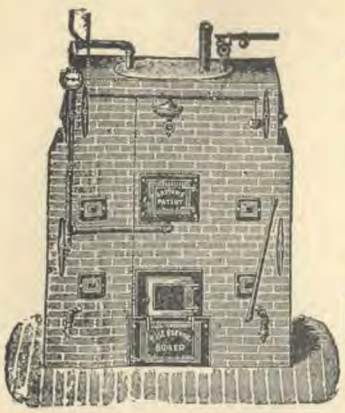
Factory and Main Office, Lake and Halsted Sts. **Retail Salesroom, 280 Wabash Ave.**

CHICAGO.

DETROIT BRANCH: 310 Woodward Ave. GEO. HILSENDEGEN, PROPRIETOR.

OTHER BRANCHES:

NEW YORK. SAN FRANCISCO. PORTLAND.
SALT LAKE CITY. DENVER. MEMPHIS.



THE "HAXTUN" BOILER FOR STEAM AND HOT WATER HEATING.

Base-Burner.

18 YEARS SUCCESSFUL USE.

KEWANEE BOILER CO.

96 Lake St., CHICAGO. KEWANEE, ILL.

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'v'd Ex.	6 Atl. Ex.	42 Mixd Tr'n.	2 Pt. H Pass		11 Mail Ex.	1 Day Ex.	3 R'd L'v'd	23 R. C. Pass.	5 P'ific 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	12.45	12.40	.....	.....Cassopolis	2.15	9.40	5.13	.....	3.28
2.33	.....	†1.33	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	7.00	.....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
.....	.....	10.20	.....	.....	.....Boston.....	.....	.....	.....	.....	7.00

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

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

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.*

Clubs and Dumb-Bells

By the use of these the muscles can be exercised and developed, giving vigor, appetite, and cheerfulness to the user.

SIZES: 1-2, 3-4, 1, 1 1-2, 2, 2 1-2, 3, and 4 lbs.

The ½ lb. is adapted to the use of children from 2 to 4 years of age ; the ¾ from 4 to 8 years of age.

We furnish outfits for home gymnasiums at various prices from $10.00 upwards. One of these outfits ought to be in every home.

Send for Catalogue.

SANITARY AND ELECTRICAL SUPPLY CO.,

BATTLE CREEK, MICH.

The Umschlag

ONE of the most useful inventions of Dr. Priessnetz, the father of modern hydropathy, was the umschlag, or heating compress, as it is sometimes called by the Germans. There is no better remedy for indigestion, inactive bowels, or sleeplessness, than this simple measure, when properly applied. The umschlag consists of a properly-adjusted bandage, moistened and worn about the body at night, to be replaced by a dry bandage during the day.

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

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.

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PATENTED 1891 IN UNITED STATES, GREAT BRITAIN, CANADA, AND AUSTRALIA.

The Strongest, the Lightest, the Cheapest, the Most Durable, the Handsomest, the Most Convenient, and every way the very best Stationary or Portable Bath Tub ever invented.

Sixty-three different Styles, Patterns, and Sizes, varying in price from **$10** to **$50** each.

A special line mounted on rubber-tired wheels for hospital use.

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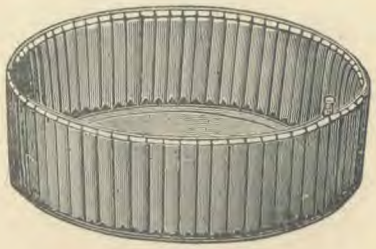
85-87 West Congress St., DETROIT, MICH.

INVALID CHAIR CUSHION.

This cushion adds all the comfortable effects of upholstering to any ordinary chair, as it covers both the seat and the back. Will adjust itself readily to a wheel-chair, as well as to ordinary chairs and rockers.

CARRIAGE  CUSHIONS.

RUBBER BATH TUBS.



When a bath tub is obtainable that can be folded up and carried in an overcoat pocket, no one need be without the facilities for bathing. When inflated, this tub is perfectly stable, although made entirely of rubber. Its many advantages will be apparent when it is considered that it may be used in any room, and afterward folded up and tucked away in a drawer.

Prices on Application.

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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.

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Physicians and Surgeons

when treating diseases in which Neuralgia, Pyrexia or Hyperpyrexia, is attended by WEAK HEART ACTION will find that no Analgesic or Antipyretic equals

Antitoxine

(STRENGTHENS THE HEART'S ACTION.)

An Antipyretic, Analgesic, Antineuralgic and Antitoxic, which, while powerful in the relief of pain and reduction of elevated temperature, is perfectly safe in every case, as it *strengthens the heart's action.* For sale by all Leading Wholesale Druggists. This remedy is manufactured and owned exclusively by THE BRITISH ANTITOXINE MFG. CO. of London, England. Free samples will be sent to all doctors and druggists who apply to the importers. Imported into this country solely by

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"BABY POWDER,"

The "Hygienic Dermal Powder" for Infants and Adults.

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PROPERTIES —Antiseptic, Antizymotic, and Disinfectant.

USEFUL AS A GENERAL SPRINKLING POWDER,

With positive Hygienic, Prophylactic, and Therapeutic properties.

GOOD IN ALL AFFECTIONS OF THE SKIN.

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

THE MANUFACTURER:

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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**

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Battle Creek Sanitarium,

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

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Special Advantages:

An Elevated and Picturesque Site.

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BATHS OF EVERY DESCRIPTION.
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