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J. H. KELLOGG M.D.

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# BIOGRAPHICAL HEALTH STUDIES.

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

## 11. Professor Helmholtz.

THE remarkable decrease of human longevity during the ghost-ridden Middle Ages, has been plausibly ascribed to the influence of that preternaturalism which turned the thoughts of men from earth to a land beyond the grave, and made thousands long for death as a deliverer from a vale of tears.

If, on the other hand, realism and the love of natural science can help to prolong the earthly tenure of life, the physiologist Helmholtz must have added a good many years to his chances of longevity. In all his voluminous writings there is not the faintest allusion to hyperphysical doctrines. He was a secularist and positivist of the most uncompromising type, avoiding the discussion of mystic topics as a mere waste of precious time, and it is a suggestive fact that the same aversion to empiricism and undemonstrated tenets made him eventually renounce the practice of drug-prescription and turn from the study of medicine to less evasive, though also less profitable, fields of research.

Professor Hermann von Helmholtz owed his patent of nobility to the recognition of his scientific merits. His parents were poor. One of his earliest recollections was a sickroom scene with the added horror of a bullying landlord threatening the eviction of the afflicted family. The sensitive boy resolved to do his share to redeem his home from the curse of poverty, but hardly needed that spur to make the best of every available chance for acquiring knowledge. His *Wissbegierde*, or penchant, for investigation, soon obtained the force of an all-absorbing passion. He would rummage the village junkshop, for old magazines and concoct plans for borrowing by proxy a volume from the public library of a neighboring town (Potsdam, Prussia), and once got locked up in the reading room of a clubhouse which he had entered under cover of darkness. That reading mania, however, had nothing in common with the fiction hunger of our dime-novel boys. For romances — even the romances of science — he had no taste whatever, and never ceased regretting the waste of a dollar spent for a work on "Cruises in a Star Balloon," which turned out to be a chronicle of an imaginary trip to Mars and the mountains of the moon. "We should not fool away a moment on visions," said he, twenty years later, "as long as the realm of the knowable abounds with so many interesting facts." And again: "Clear-seeing is better than dim-seeing by just as much as the gift of vision itself is better than blindness."

The Russian grippe, which made its American *debut* only a few years ago, was long known to the borderlands of the Muscovite Empire, and in 1836 the Helmholtz family was stricken with a lung fever that carried off Hermann's eldest sister, and brought his mother close to death's door. Young Hermann, then in his fifteenth year, recovered during a spell of clear cold weather, but the debilitating after-effects made themselves felt for years, and confirmed his parents' desire to give him the advantages of an education that would exempt him from the necessity of manual labor. Besides his stock of self-acquired knowledge he had a natural gift for oratory, and

attracted the attention of pedagogues who made repeated attempts to procure him a free scholarship in some government college, but had to content themselves with endorsing his testimonials and recommending him to officials of more decided influence.

In America a boy of his talents would have entered the lecture field as a revivalist, or made his way to the bar on the attorney's apprentice plan; but in Prussia the learned professions are all hedged in with classic curriculums and rigorous government examinations, and after knocking in vain at the side doors of various collegiate institutes, Helmholtz gladly availed himself of a chance to enter the surgeon's department of a military academy on a "free service contract." Pupils educated on that plan have to sign an agreement to serve the state without pay for several years after graduation.

"Woe be him who passes on an indenture," our grandfathers said of an emigrant who was shipped to America on condition of working out his passage debt on a colonial plantation, and at first look the free service scheme might seem an instance of charity in a very effectual disguise; but the terms of the contract do not debar the graduate from the chance of incidental emoluments. As long as the indentured surgeon attends to his hospital or barracks duties at the required hours, he is at liberty to pick up what outside practice luck or discreet enterprise may put in his way. A well-paid army doctor would be under double obligation not to let private calls interfere with his official functions, yet the largest fee ever offered a medical man of modern times was that accepted by a British regimental surgeon who had paid a few professional visits to an East Indian nabob.

In 1842 Helmholtz graduated with honors not often bestowed upon a charity scholar, and the same year was appointed assistant physician of a Berlin military hospital, though that position had been coveted by five other applicants. One of the two other assistant surgeons was Rudolph Virchow, an ambitious young man of similar antecedents and, like Helmholtz, gifted with an amount of scientific enterprise that could not long be bounded by the berth of an army surgeon.

As early as 1845 Helmholtz began to contribute articles on physiological and mathematical topics to various periodicals, and in 1847 published his classic work on the "Conservation of Force," *i. e.*, the theory that no particle of energy, any more than of matter, is ever lost, but continues to manifest itself, under modified forms, to the end of time. The genesis of that book, as stated by the author's friend Arnim, is very suggestive. In a controversy on the benefits of military gymnastics, Helmholtz had admitted that the expenditures of energy bestowed on athletic exercises would to some degree be withdrawn from the work of the drill-shed, but maintained that the loss would be compensated for by a general increase of physical vigor, and the lasting invigoration of the respiratory and digestive organs. Further reflection on the latter point suggested numerous analogues, and at last the general axiom which many scientists have ranked in epoch-making importance with the germ theory of disease and the principle of organic evolution.

The truth of the hypothesis (now almost a truism) was at first by no means generally accepted, but the consequent controversies served the purpose of bringing the young philosopher's name into more than national prominence. His weekly mail rose from a handful to a bushel of letters and pamphlets, and some of his admirers procured him the offer of the vacant chair of physiology at the university of Königsberg. His outside practice, too, had begun to improve, but the practice of medicine, in the ordinary sense; viz., the treatment of diseases by means of drugs, had already begun to grate on his conscience, and with the permission of his official superiors he went to Königsberg.

Fear certainly did not prevent him from an open attack on the theories of the artificial school, for in other questions he did not hesitate to steer his arguments against the strongest currents of established opinion, but in problems of medical reform he foresaw the endless squabbles, the personalities, even the charges of ingratitude to his early tutors and patrons, and deemed it, on the whole, the wisest plan to ignore the whole business.

"I 'm done with medicine," said he in 1849, in a conversation with an elderly relative, after stating his objections to the rôle of a drug doctor. "Are you, indeed?" sneered the old Potsdammer, "I fear you will also have to renounce the vulgar custom of eating and drinking. Do you suppose the book-buying public will care for your treatises on mathematical quibbles?"

But Helmholtz had not renounced the practice of surgery, and was never obliged to violate his conscience in utilizing the interests of his scientific experiments. Many of his physiological discoveries proved available for the treatment of diseases of the eye and ear, and his government patrons did not lose sight of him. He was continued on the Examining Board of the Recruiting Office and served on

several commissions for the investigation of problems of medical jurisprudence. In the latter capacity he published an interesting pamphlet predicting the possibility of identifying the blood stains of human victims by means of improved methods of microscopic examination. He had also a plan for facilitating the detection of simulated symptoms of insanity.

His hobby, however, remained the cultivation of what he called the demonstrable branches of physiology. With all his talent for literary polemics he disliked lengthy controversies, and was fond of axioms that could be established by visible and tangible proofs.

The climate of Königsberg did not agree with his lungs, and in 1855 he became professor of anatomy and physiology at Bonn on the Rhine, and three years later went to Heidelberg, the German Vaucluse, and all in all perhaps the most picturesque city of central Europe. Here he regained his health by long rambles on the Bergstrasse,—a shady, high, level road overlooking the valley of the Neckar,—and tried a cherry diet as a convenient substitute for the grape cures of the Rhenish health resorts. His lecture engagements left him plenty of leisure, and in the course of the next five years he published numerous treatises upon color-blindness, the mechanism of the human ear, and the methods for measuring the rapidity of nerve excitations. He also called attention to the possible uses of an instrument which was afterward constructed under his own supervision: the "ophthalmoscope," for the pathological examination of the retina.

The educational reform movement was agitating the public mind at that time, and Helmholtz, though himself a graduate of grammar drill, unhesitatingly cast his vote in favor of the substitution of living sciences for dead languages. "We act as if we had decades of superfluous time," he says, "whereas, in truth, our lives are far too short for the more and more intricate problems of modern civilization. What right have we to take ten or twelve of the best years of a young man's life and force him to accept in exchange a dead-letter knowledge of two or three defunct idioms that will never be of any practical benefit to him, and moreover, are almost sure in nine out of ten cases, at least, to be cast off as so much indigestible matter, by an eliminative process of our mental organism?"

The charge of being too aristocratic for a popular university professor he owed to his love of solitary studies, but also to his lack of sympathy with the alcohol orgies of the German students. This champion of realism could not see the necessary connection between the "culture of the manly powers" and the systematic development of an unmanning and mind-emasculating vice. Even without counting the loss of precious hours, he valued the blessing of clear thought too highly to endorse the sentiments of the imperial president of a beer symposium, and could become very sarcastic in his replies to the charge of exclusiveness and lack of nationalism.

In his serious discussions of the drink problem he often quoted statistics collected by the inspectors of the recruiting office, and proved that the stoutest soldiers of the Prussian army come from districts not specially addicted to the worship of Gambrinus. His investigations of the functions of the nervous system naturally brought him in contact with the exponents of mesmerism and mental pathology; but he took a somewhat one-sided interest in those problems, and declined to pursue them into the borderland of mysticism. "Don't encourage hysterical vagaries," was a frequent admonition to his inquisitive friends. As an indirect comment on certain hyperphysical speculation, he proved by actual measurements that thought is a mechanical process and requires an appreciable time to convey the mandates of the brain to the motor nerves.

For all that, Helmholtz made many friends in Heidelberg, and had ways of his own for convincing them that science had not made him a *Stuben Hocker* ("stove-room hermit") or misanthropist. He could plan vacation tours or take part in a Christmas frolic and keep a whole roomful of youngsters romping. "Like all men of true genius," says one of his visitors, "he is a sort of overgrown boy, and can put his mind *en rapport* with children and rustics far more readily than with the time-serving sophists of an academical sanhedrim."

The social atmosphere of a provincial town somehow does not agree with men of that type, and in 1871 Helmholtz returned to Berlin, where he succeeded Gustave Magnus as professor of physics. "The mental stimulus of a world's capital is an advantage not to be underestimated," he writes to a friend from the metropolis of the new empire, "and what a pity that from a sanitary point of view the chief cities of Europe have not been more judiciously located! The site of London adds fogs to inevitable smoke, that of St. Petersburg could hardly be worse, and might be so much better, remembering the garden lands of the southern Caucasus. Vienna could not help making an exception, in a country all lakes and loveliness, but Victor Emanuel

should dwell at Turin, and the emperor of Northern Germany at Coblentz or Cassel."

The reception of the now famous scientist at the Prussian capital, however, neutralized his occasional desire for another change. He was lionized as a champion of science, by the educated classes of a city which, like Athens and Boston, calls itself the *Hauptstadt der Intelligenz*,—"the hub of intellect,"—and among the works which had refuted the Potsdam uncle's prediction about the unpopularity of scientific works, were treatises on the cause and cure of diseases of the eye, the interaction of force and matter, a theory of eddies, a monograph on color, on the mechanism of the brain, and a most ingenious explanation of vowel sounds, as produced by the human organs of speech and the method of imitating them by artificial contrivances — certainly a considerable advance since the time when Aristotle defined the human voice as a "noise modulated by the contractions of the throat."

The short-sightedness so frequent among the pupils of the German city schools, Helmholtz attributed less to the nuisance of small print (German textbooks being generally in fair-sized type) than to the lack of opportunity for training the eye in far-seeing, in other words to an excess of indoor work and neglect of chances for outdoor excursions.

"They need not be out-of-town excursions," he adds; "the best about our aristocratic code of etiquette is that it has not made walking unfashionable. The most fastidious can indulge in promenades and strengthen their eyesight by far vision and their lungs with park air. Our opportunities for outdoor life are scant enough, without our neglect of those we have."

During the enthusiasm concerning the Koch consumption specific, he stood aside and honored his common sense by a prudent silence, and in private consultation by comments which may have saved hundreds from the folly of pumping their system full of tubercle juice. His own theory seems to have favored a change of climate, without a distinct recognition of the significance of the "mountain cure," and other evidences of the lung-expurgating tendency of cold air. The Kneipp method (the plan of bracing the organism by trotting barefoot in dew-drenched meadows, etc.) he justly considers merely a modified form of hydropathy.

In 1883 Kaiser William "rewarded his services to the cause of science" by a patent of nobility, and eight years after, his seventieth birthday awakened the hallelujahs of all the Fatherland. Delegations from ten or twelve different universities joined in serenading the gray-headed philosopher who had never stepped an inch out of his way to purchase popularity at the expense of candor, and the government made him president of the Imperial Polytechnic Institute of Charlottenburg, and loaded him with titles and orders of merit.

Under the weight of those honors he may have neglected his own advice upon the importance of outdoor exercise, for soon after his health gave way, and his friends urgently advised him to spend the next winter south of the Alps. In spite of nervous headaches and sleepless nights the president of the Polytechnic stuck to his post, but promised to make amends by treating himself to a good long summer vacation, and last year kept his word by crossing the Atlantic and taking a look at a country that would have interested him with or without the inducement of a World's Fair.

"All other nations," he wrote, under the impressions of that trip, "have passed through four stages of development,—the barbarous-rustic, the militant, the poetic-artistic, and the intellectual-industrial. The United States has reached that fourth stage at a bound, and before its land has been more than slightly scarred by the hoofs of war that have trampled the plains of the Old World into battlefields.

"Talk about gregariousness," he comments upon the rapid settlement of the Far West, "these millions of squatters have preferred elbow-room to all the social and climatic comforts of the old Eastern States."

On the first of September, Helmholtz had a stroke of paralysis, and died a week later (Sept. 3, 1894), in spite of the best medical aid and a heroic attempt to shake off the nervous torpor by an effort of will force.

Unlike the monastic recluse who renounces the world and prays for death, the plucky apostle of physical science had exulted in the triumphs of his career and sincerely regretted its close — though only as the approach of the "night when no man can work."

A still higher ideal may perhaps be realized after the restoration of human longevity to its health-earned maximum, when men will enjoy life and yet welcome its end, as peasants would the evening of a long and successful harvest day.

(To be continued.)

## MODERN NERVOUSNESS AND ITS CURE.

THE signature of our age is a thin-blooded, nervous generation. Only a few decades ago our women were so healthy that they were able to suffer occasional blood-lettings to counteract a supposed excess of blood. Now our girls are pale even in their school age, and the general complaint is that they are nervous. Not without reason is the age called a nervous one. While our ancestors, living under natural conditions, hardly knew what nerves were, we complain of excited nerves, even among our children; and adults, especially in the cities, who do not suffer from nervousness are exceptions. There is no doubt that weakness of the nerves, or neurasthenia, as the doctors call it, is an acquisition of modern civilization; and at this time, or since attention was called to it by the American, George M. Beard, as being a new disease, as it were, it is playing a formidable part with doctors and laymen.

The term *neurasthenia* does not so much signify a special affection of the nervous system as it is a fittingly chosen general name for a whole group of disorders, the character of which consists in the nervous system's failing to act properly on account of a deficiency of normal nerve substance. Such a condition, or at least a pronounced tendency to it, is in many cases inherited from parents; and only slightly unfavorable circumstances are required in the cases of children thus hereditarily tainted, for the development of pronounced neurasthenia. There is, besides the hereditary form, an acquired weakness of the nerves, which may be produced by a variety of causes.

The blame for the present conditions in this respect undoubtedly lies in the haste and pressure of the age, with its stern battle for existence. The increase of lunatic asylums and their crowded condition speak with admonitory plainness in this matter, and it is time that the right meaning was attached to the momentous phenomenon. Even in the country, where the hygienic conditions are relatively favorable, the evil of nervous weakness is gradually making itself more apparent. It is still more conspicuous in the larger cities, where, with the meeting of great masses of men, the clatter of railroads, and the driving of factories, excitement prevails by day and by night, so that it is almost impossible for the afflicted nerves to obtain the rest they need. To this haste and commotion are added the schools, with their examinations and other augmented demands, and modern business life, with its complicated machinery and its close competition, until it is no wonder that only a small proportion of the population escape these attacks on the nervous system.

There is no doubt that our general social conditions, in which the ease that once prevailed is approaching nearer and nearer to extinction, have a great deal to do with the preponderance of nervous diseases. On the other hand, it cannot be too impressively insisted upon that the individual has to a certain degree the means in his own hands of alleviating by a rational mode of life many of the evils to which modern man is exposed. But it must be remarked that the greater number of us, in spite of all the instruction we get, remain in incredibly dense ignorance of matters of personal hygiene. It thus occurs that many allow themselves to be guilty of sins against their own personality by which the health of their nerves is broken to the very marrow. Besides overwork, there are certain special indulgences,—the abuse of spirits and other stimulants, too early and excessive tobacco-smoking, and, in the majority of cases, all these combined,—by which the nervous system is at last disordered and often fatally injured. I was told by an army officer that he began to smoke in his twelfth year, and that when he marched to France as an ensign, he now and then smoked ground coffee when he had no tobacco. It is not to be wondered at that this man became insane at an early age, and had to be put in an asylum. In other cases there are more or less self-accused disillusions, cares, sorrows, and similar mental conditions, through which the nervous system is weakened and thrown off the track.

Through all these processes, waste products are formed in the body, which, acting as self-poisons, cause more or less disturbance in the nervous system. In consequence of the storing up of these self-poisons, people complain of sleeplessness, nervous pains appearing here and there in diversified alternations, and of being easily fatigued after brief mental or bodily effort. They are often cross, overcome by trifles, and very frequently complain of nervous disturbances. Nervous dyspepsia is, therefore, in many instances, associated with neurasthenia. Sadly numerous as such cases of neurasthenia appear to be at this time, our knowledge has advanced so far that we can, with good heart, give promise of comfort and courage to nervously afflicted persons. For, even in apparently critical cases, a surprisingly

favorable result may be reached by the exercise of a little patience, combined with a proper and intelligently directed general hygiene. I earnestly advise nervous people to avoid, as much as possible, all drug remedies. Especially would I warn them against habitual use of benumbing narcotics, however seductively they may operate at first. In my opinion, all these means ultimately do more harm than good. Of immensely greater value than drugs to those suffering from nervousness are the natural factors of healing,— air, light, water, quiet, exercise, etc.

The first thing required, is, of course, to remove the fundamental cause of the disease. As much rest as possible should be given from without as well as from within; a true religious condition, which a sure faith gives, is therefore of inestimable value. It is self-evident that such patients must try to be, as much as possible, in the open air, and mountain air is particularly advantageous. Extravagant as they may venture to be in the enjoyment of fresh air, they should guard against excessive and indiscriminate applications of water. If in anything a close adaptation of the treatment by the physician to the individual, is particularly necessary to nervous patients, it is in the use of water. By its abuse in nervous diseases, that most sovereign of all remedies has, after a short period of popularity, come into discredit. . . . It is, however, incontestible that water applications in the right measure, and in a manner adapted to the character of the affection, are excellent.

In connection with the water and air cures certain respiratory and muscular exercises are advantageous, and may, in certain advanced stages of the disease, be applied passively by massage and similar operations. Gardening and other occupations in the open air are of great benefit. Unhappily, in the large cities, where the majority of those thus afflicted live, there are only a few so fortunately situated as to be able to enjoy outdoor employment to any considerable extent. Those who are able to go into the country and work in the fields and woods will, perhaps, if they are prudent, and other conditions are favorable, effect a happy cure of their nervous disorders. Those who have no garden to till will have to depend upon gymnastics as a substitute. . . . Care should be taken to perform the exercises in a well-aired room, and not to carry them to excess.

A suitable diet, specially adapted to each case, is of great importance in all nervous diseases. The best general diet is usually one that is a little stimulating and blood-forming, with frequent changes. The usual courses of meat and wine should be considerably diminished, else the nerves will not be able to get the rest they need. Besides albuminous food, the necessary quantity of nutritious salts should be provided in supplies of fruit, green vegetables, and suitable milk and grain dishes. Very much to be recommended in nervous disorders are a well-prepared dish of oatmeal, a nutritive soup or other dish of the kind. Such light food will not indeed be relished by many because of its being so contrary to their former habits. In such cases, some savory addition to the cereal food may be a desirable expedient. The old German acorn coffee I believe to be of special value in diseases of the nerves. Unmixed, it is not very palatable to most people, but preparations may be made of it which will be found very useful in cases of nervous dyspepsia.

A suitable mental treatment should go hand in hand with hygienic and dietetic measures, if the most favorable results are to be secured. Patience is a particularly valuable medicine to the neurasthenic; for it is evident that a disordered nervous system can be brought into equilibrium only by time and the requisite endurance. In other respects the patient must try to contribute force to his cure through self-control, through strengthening of his will, and through bringing his mind up to a proper tone. The word of the poet, "Time is man's angel," is very applicable to the case; for the cure of even serious cases may be hoped for by following the hints we have given above; and a corresponding right application of Nature's healing factors may bring about speedy cures even in apparently hopeless cases.

For the modern world, as a whole, the essential thing to be done is to return to ways of life more harmonious with nature, and less vexing to body and soul. The way to do this is clearly pointed out in the teachings of modern hygiene. May society enter upon this way betimes, for its own good and the salvation of the future. — *Health.*

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THE humorist, Eli Perkins, tells how a certain doctor saved his life: "I once lay sick in a hospital in Alexandria,— dangerously sick. They sent for Dr. A., and he gave me some medicine, but I kept growing worse. Then they sent for Dr. B., and he gave me some more medicine, but I got worse and worse. Then they sent for Dr. C., and he did not come. *He saved my life!*"

## POSITION IN SLEEP.

"THE Philosophy of Sleep," by Robert Macnish, LL. D. (1858), has the following: "The head should be tolerably elevated, especially in plethoric subjects, and the position, from the neck downward, as nearly as possible horizontal. The half-sitting posture, with the shoulders considerably raised, is injurious, as the thoracic and abdominal viscera are thereby compressed, and respiration, digestion, and circulation materially impeded. Lying upon the back is also unwise, in consequence of its tendency to produce nightmare. Most people pass the greater part of the night upon the side, which is certainly the most comfortable position that can be assumed in sleep."

Dr. J. Mortimer Granville, in his book, "Sleep and Sleeplessness" (1879), says: "It is better to lie on the side, right side best, because when the body is thus placed, the food gravitates more easily out of the stomach into the intestines, and the weight of the liver does not compress the upper portion of the intestines. A glance at any plate of the visceral anatomy will show how this must be."

The London *Lancet* says: "It is, on the whole, impossible to ascertain either by experiment or observation which is the posture most conducive to sleep, and attempts to lay down rules for the guidance of bad sleepers are always arbitrary, generally empirical, and rarely of any practical value. The best plan must seem to be (taking a common-sense view of the subject) to place the body in such a position that the flow of blood through the vessels of the head and neck may be especially easy and free. The way to secure this is to allow the head to lie in a posture and on a level that cannot offer any obstacle to the free return of blood through the veins of the neck, and does not tend to make the blood flow especially in any particular direction, but leaves nature at liberty to act as she will."

The following is from a late newspaper writer on this subject: "It is better to go to sleep on the right side, for then the stomach is very much in the position of a bottle turned upside down, and the contents are aided in passing out by gravitation. If one goes to sleep on the left side, the operation of emptying the stomach of its contents is more like drawing water from a well. If you sleep on your back, especially soon after a hearty meal, the weight of the digestive organs and that of the food, resting on the great vein of the body near the backbone, compresses it, and arrests the flow of blood more or less. If the arrest is partial, the sleep is disturbed, and there are unpleasant dreams. If the meal has been recent or hearty, the arrest is more decided, and the various sensations, such as falling over a precipice or being pursued by a wild beast, or other impending danger, and the desperate effort to get rid of it, arouse the sleeper. That sends on the stagnating blood, and the person wakes in a fright — trembling, perspiring, and with a feeling of exhaustion in proportion to the degree of stagnation, and the length and strength of the effort made to escape the danger. But when the sleeper is not able to escape the danger, when he does fall over the precipice, when the tumbling building crushes him, what then? That is death! This is the death of those of whom it is said, when found lifeless in their beds in the morning: 'They were apparently as well as they ever were the day before;' and often it is added, 'and ate heartier than common.'"

## AIR AND LIFE.

ALL living creatures breathe, and air is as necessary to them as water, food, and a certain amount of heat. From a chemical point of view the air is composed of different elements. It is not at all a simple body, as was supposed up to the end of the last century, but a mixture of gaseous bodies, capable of being isolated and analyzed. Among these elements three preponderate in quantity and physiological importance. These are oxygen, azote, and carbonic acid. Oxygen and azote constitute the greater part of the air — the essential part. The most important of the accessory elements is carbonic acid, it being found in the air in the proportion of four or five parts to every ten thousand parts, varying according to locality. There are, besides, other bodies which enter into the composition of the atmosphere, as ammonia, azotic acid (found in rain water), and ozone, and oxygen condensed in some way under the influence of atmospheric electricity. These, however, exist only in very small quantities.

Every one knows that without oxygen there would be no life, either of plants or animals. Paul Bert,

however, has found by experiment a fact which, at first sight, seems very strange. This is, that oxygen, this gas, vital above all others, is a violent poison, for the plant as for the animal, for the cellule as for the complete organism; and, if found in the air in certain proportions, it immediately becomes an instrument of death. This is one of the most curious of recent discoveries. No oxygen, no life; too much oxygen, equally no life. We now pass to azote. If an animal or plant is placed in this atmosphere, death takes place without delay. It is not that azote is a poison, but it is inert, useless, and incombustible. Its respiratory role is valueless, and its only function seems to be that of tempering the action of the oxygen.

We come now to carbonic acid. This, as we know, is a very noxious element, injurious to animals and to plants; indeed it appears as a gas injurious above all others. Nevertheless, it is one of the essential bases of life. If it disappears from the air, vegetation is immediately destroyed; and in its absence but a few days would elapse before all that breathes would disappear from our globe. . . .

Thus we see that the atmosphere brings life and death at once. Each of its elements is indispensable to life, and each of them is an agent of death, according to conditions and proportions. The one which seems to be most vivifying can become a formidable poison; the most useless, the most noxious even, is shown by analysis to be an essential base of life. And the conclusion is, that if any one of these should disappear, the earth would immediately become a naked and barren globe, deprived of all life. Looking at this still further, another fact is revealed to us. It is that, according to the very happy expression of Dumas, all living creatures are only condensed air. Vegetables exist only by virtue of the air, animals by means of the vegetables. The elements of vegetable life are those of the air, and animals live on the vegetables. The connection is narrow, intimate, direct. Man is condensed air. And as this air, during the centuries that man has existed, has incessantly traversed through the bodies of our ancestors, being part of them for a time, and then again disengaged, our body is actually made up of the same elements as that of our ancestors. The substance is the same. And that substance, which is also that of the vegetables of the past, circulates ceaselessly through space. To-day or to-morrow, flower or fruit, it will incorporate itself,—here, in the slow growth of a mollusk; there, in the brain of a Descartes, a Pascal, a Joan of Arc, a Shakespeare. It never stops; its cycle, of which no human eye has seen the beginning, and of which none will be able to observe the end, seems infinite; passing alternately from life to death. Old as the world, and in spite of that, eternally young, it would appear (if it had consciousness) to have exhausted all that life contains of joy and of sorrow, and to have known all the emotions, the most noble as well as the most vile.

That air which so sweetly blows in our face to-day is all past existence; it is a myriad of existences, those of our ancestors, those also of the dead for whom we mourn; to-day it becomes a part of us, and to-morrow it will pursue its journey, metamorphosing itself without cessation; passing from one organism to the other, without choice, without distinction.— *Translated from Revue des Deux Mondes, by Public Opinion.*

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Underfed Working Women.—A correspondent of the Boston *Daily Traveler* gives his experience in relation to this subject as follows:—

"I have lunched for years where hundreds of working girls and women go each day for their mid-day repast; one in twenty-five, perhaps, will order something tending to nourish and strengthen; the other twenty-four leave the table more illy fitted for their afternoon's labor than when they sat down.

"I wonder if many of us realize what the working women lunch and work upon! Physicians would shake their heads, and say it could not be done. But it is, and such women last longer than would seem possible. A glance through the stores and offices, however, would show that the woman clerk vanishes almost entirely after thirty-five.

"At the table with me, yesterday, was a delicate young girl, a clerk in the shoe department of one of our immense establishments; and her repast consisted of two glasses of ice-water, two chocolate *eclairs*, and several pickles. Think of it! This to sustain her through a long, hard afternoon of fitting shoes! She dresses well; neither big sleeves nor smart gowns pass her by; a homemade hat minus feathers never rests upon her head, but her worn, anæmic face would suggest less feathers and more nourishing food.

"The majority of these women lunch upon a piece of pie and a cup of coffee, or an order of rich, spiced pudding, and a glass of ice-water. Occasionally one will rush through an order of fried oysters and a half dozen pickles. The wonder is that they

live through the second year. From the table, where they scarcely allow themselves time to swallow the several mouthfuls ordered, they hurry off to 'shop,' and use forty of the sixty minutes allowed for dinner in this way. Then back to the store to stand five hours in high-heeled, uncomfortable shoes, their pitifully attenuated waists tightly clasped in corsets and bands, and their trembling little stomachs containing ice-water and pie. Add to this the anxieties naturally attending a working woman's life, and is it surprising that their faces look harassed, nervous, and bloodless?

"The young man clerk—who can no better afford it—lives quite differently; substantial food forms the basis of his lunch, and usually vegetables and a glass of milk, all of which he masticates leisurely, and strolls back to the store, rested and refreshed. He is costumed in a loose, comfortable suit of lightweight flannel, his feet resting upon (not over) the soles of comfortable shoes, his circulation unimpeded, and his body well nourished. What wonder that he keeps his nerves well covered, that ill-temper finds not a home upon his face, and that we find him cheerily selling ribbons long after the girl with whom he knocked elbows as a cash boy is forgotten."

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VEGETARIANISM.—The following is from a conservative correspondent of the *Outlook*: —

"In connection with the awakening interest in vegetarianism, a curious point in my own experience comes to mind. Though myself scarcely carrying out the full idea of the system, inasmuch as fish and eggs form an important part of my diet, the fact occasions me surprise that neither the excessive heat of summer nor the cold of winter is realized to the same degree as when animal food was eaten. Meat, as we all know, has a tendency to produce inflammation in the system; consequently, it is quite apparent why the heat of summer should be oppressive and debilitating, while using it, but why the cold of winter should be less keenly felt without it, is something for which it is difficult to account. Indeed, so entirely would this appear to be a matter of the imagination that one might hesitate to speak of it, were it not that the experience has been shared by many.

"One hesitates also, even in behalf of a reform, at making so bold an assertion as to declare that human life is prolonged by abstinence from animal food; but there can be no doubt that the period of keen enjoyment—the heyday of life—is greatly lengthened by following the vegetarian idea, experience proving that the body nourished without meat longer retains its original proportions, its suppleness and elasticity. No vegetarian was ever known to suffer from obesity. If a beautiful woman at forty is obliged to give up tennis, to give up walking, to give up most of the pleasures of social life, because she weighs one hundred and sixty pounds, is existence the same thing to her that it would be without this burden of weight? Is it not a pity to sit down in one's very prime to question whether life is worth the living? The sitting down, and the lugubrious thoughts, to say nothing of the meat constantly eaten, only add to the cause of the trouble, the fast-increasing avoirdupois not only making pleasure a thing of the past, but causing the object of life, in its full achievement of good, to become an impossibility."

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A CURIOUS TEMPERANCE SOCIETY.—A very curious temperance society exists in the Siberian village of Ashlyka. Every year, in September, the members meet in the church and make a solemn promise to abstain from wine and all spirits for a year. They also sign an agreement that any person breaking the pledge shall pay a fine of twenty-five roubles to the church, and submit to be spat upon by his more continent fellows. A most peculiar feature of the custom, however, is that the members on the one day of the year when the pledge expires, allow themselves wine and brandy during the few hours which intervene before the pledge for the ensuing year is made.

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AN INTERESTING COMPUTATION.—Somebody has made the following computation regarding the use of tobacco: —

"Take the amount of money that is annually spent in the United States, for tobacco, convert it into silver dollars, and begin walking around the earth. Supposing that you could walk across the seas, dropping one dollar at every step of the way; when you have circumvented the globe thirteen times, you would still have fifteen thousand miles to travel before you wou d drop the last coin. In other words, if you could travel at the rate of forty miles a day, resting on the Sabbath, and dropping a dollar at each step, you would have a task that would last you thirty-seven years and three months."

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DR. ANDERSON BROWN, an English woman physician, has established an industrial farm for inebriate women. The experiment will be conducted under the auspices of the Women's Temperance Association, and one of its chief features will be outdoor occupations.


## EXERCISE FOR INVALIDS.

A LARGE proportion of those who become interested in physical exercise as a means of promoting health, are, to some extent, invalids. It is important that this fact should be kept in mind by those who undertake to direct physical training.

Muscular weakness lies at the foundation of a large share of the chronic diseases with which physicians have to deal, and which we find prevalent among the people of all civilized countries. As an illustration, I might mention prolapse of the stomach and bowels, which is almost invariably the result of weakness of the abdominal muscles, from neglect of proper physical training. Neglect of physical exercise produces dyspepsia, not only by causing displacement of the abdominal viscera, but by inducing a clogged condition of the body, thus preventing the proper elimination of the waste products. An inactive state of the bowels, dilatation of the stomach, and the resulting condition known as gastric neurasthenia, with a long train of nervous symptoms which are sometimes treated by nerve-specialists for years without success, can often be traced to a neglect of exercise. Weakness of the respiratory muscles, which is almost certain to result from neglect of exercise, in not bringing the lungs into full activity, produces a marked tendency in the direction of consumption. It not only produces a predisposition toward consumption, but also toward various other pulmonary diseases.

Muscular activity must be regarded as a very important and excellent curative agent in curable maladies. Among the first things I did when I first undertook the management of a sanitarium, was to organize a systematic course of exercise for the patients. I have now been engaged in the work of training invalids in physical development for over twenty years, and have become more and more convinced of the importance of physical training as a means of curing chronic maladies. One can readily see why many chronic invalids may be greatly benefited by exercise; for, if neglect of proper exercise is an occasion of disease, exercise properly taken is the best means of curing disease, by removing one of its chief causes.

Voluntary exercise is essential for all chronic invalids, except in cases in which the disease is of such a nature as to disable the patient; for the reason that exercise is the best of all possible means of renewing the tissues. The tissues of the chronic invalid are morbid and diseased. The only way in which he can be cured, is by a reconstructive process. He must have a new stomach, new nerves, new muscles, new liver, new kidneys, and a new heart. He must be born again, so to speak.

I was quite impressed by a remark made by a patient in my office some time since. I explained to him that his stomach was dilated, that his liver was torpid, that his bowels were prolapsed, that his nerves were hypersensitive, that his muscles were weak, relaxed, etc., and that he was in a bad condition generally. He finally looked up with a somewhat despairing expression upon his face, "Well, doctor," said he, "you will have to put in a whole new set of works for me." He was probably thinking of his old watch which he had taken to the watch-maker for repairs, and which had proved so defective that it was necessary to put in a complete new set of works. At any rate, his suggestion was a good one, I thought. This is just what we have to do for chronic invalids; they have to be reconstructed; and

exercise is the most powerful means by which this can be accomplished. By work a demand for a reconstructing process may be created. I do not think it possible to cure a chronic invalid in bed. We hear of the wonders wrought by the "rest-cure;" but rest-cure never cures; it only helps the invalid a little. It lays a foundation, but something more must be done for the patient, before he is really well.

Exercise is found to be especially beneficial in certain cases which are dependent upon muscular weakness, cases of spinal curvature, depression of the chest, flat or hollow chest, as we say, or in cases of prolapsed abdominal organs, as I have mentioned. But it must be remembered that while exercise is a powerful remedial agent, it is capable of doing harm as well as good, so it must be prescribed with discrimination and precision. The usual mode of prescribing exercise is about as sensible as it would be to send a sick man to a drug store with the instruction to "take some medicine." In prescribing exercise, the doctor usually says, "You need exercise; go to the gymnasium and take some." Each of these prescriptions is just about as sensible as the other. The reason that physicians have not been more particular in their prescriptions for exercise is, that there is not a clear understanding of the relation of exercise to morbid conditions. It is very strange that this subject is not taught in our medical text-books and medical schools.

Considering the relation of exercise to a few of the leading morbid pathological conditions in which it is specially indicated, I will speak first of exercise for persons who are convalescent, perhaps from a fever, or those who have been subjects of surgical operations or of wasting disease. The patient has no special disease, but is simply weak. He needs to be built up. No class of persons needs exercise more than such cases; yet there is no class of persons who are less capable of exercise, and who have less disposition for it. The weak man has little strength for exertion, and this fact must be considered.

Children, adolescents, adults, and old persons may be found in this class. We must consider age as well as condition. Children may take active and vigorous exercise without injury; while the adult requires moderate exercise and a great deal of it. A child requires frequent intervals of rest. The adult can take prolonged exercise at a moderate rate without injury; but, if he has passed the age of forty, he must avoid violent exercise. The aged man must avoid both prolonged and active exercises. He must take very moderate exercise, and must have frequent intervals of rest. He must be careful to take no kind of exercise which will put him greatly out of breath.

All these points must be considered, also, in relation to persons who are weak. A weak person is always prone to get out of breath readily, so he must take his exercises very slowly, and the movements must be such as will not require the expenditure of a great amount of strength. If very much strength is employed, there will be thoracic strain and abdominal strain, which may do him great harm.

The respiratory activity of the weak patient is very small; his heart is feeble, his muscles are soft and flabby, his nerve-centers are easily fatigued, and consequently his capacity for exercise is small.

Some patients are so weak that their physical training must begin in bed. They may see the need of exercise, but a bed-ridden invalid is in no condition to take active exercise. He is not prepared to take so great a leap as to change abruptly from a horizontal to a vertical position, as he must do in walking. The change of position alone might be too much for him, and not infrequently a bed-ridden patient remains such because he is not able to change at once from a horizontal to a vertical position and take a walk. The heart becomes weak in consequence of the patient's long remaining in the horizontal position; the ability to coördinate the muscles and hold the body erect is lost, to a considerable degree. I have many times seen such an invalid make his first attempt to walk after several years' confinement. He finds it impossible to control his limbs; his feet will not go where he directs them; his knees are weak, because the muscles are not strong enough to support the body. It is thus apparent that the bed-ridden invalid should begin to exercise the muscles of his arms, legs, and trunk in bed. I have arranged a regular program for exercises in such cases, which I have found very useful.

Some bed exercises may be taken by the invalid himself; these may be called active exercises. Others may be taken by the aid of an assistant; these may be called passive or active-passive exercises, according as the patient or the assistant takes the most active part. These exercises are called Swedish gymnastics, or medical gymnastics; they are employed in Sweden, and to some extent in this country. The writer visited Sweden some years ago for the purpose of becoming familiar with this mode of treatment.

A class of exercises which are of especial benefit to weak persons, and which can be taken very readily

without putting the patient out of breath, is known as respiratory exercises, or lung gymnastics, in which the arms are raised and deep breathing practiced at the same time. By these exercises the most feeble patient may be made to inhale an increased amount of oxygen, by which the blood is more highly oxygenated, the tissues are more highly vitalized, nutrition is promoted, and the patient may thus rapidly gain strength.

As strength and vitality increase, the patient is able to take more difficult exercises, until, by this daily practice in bed, he can sit erect. Soon he will be able to stand erect, and finally to take a few steps, because he has practiced exercise of the same muscles in bed, and has thus acquired considerable strength. Thus, when he stands upon his feet, he does not have to begin at the very bottom of the work of strengthening his muscles, but he has already progressed some little distance on the way, and so is prepared to take a few steps without injury.

After getting out of bed the invalid must learn to walk. Walking is the gentlest of all active exercise. When exercising on a level surface, even a feeble invalid can walk a little distance at the start, and his exercise may be gradually increased from day to day, until after a time he will be able to take more vigorous exercise, as in walking on a slightly uneven surface, or on an ascending plane, thus increasing the amount of work, and so progressively gaining in strength.

## PECULIARITIES OF CHARACTER INDICATED IN THE MODE OF WALKING.

In the form of the foot the sexes differ as much or even more than in that of the hand. A woman's foot is usually narrower in proportion than a man's, while his will be considerably stronger in the ankle and more powerful in the formation of the toes, especially of the ball of the great toe. When a woman owns a strong, firm, wide foot, many of us experience, perhaps, no sensation of surprise at finding her "strong-minded." When a man trips along on a delicate little foot, people instinctively believe him to be lacking in power, and often set him down as effeminate.

If, instead of the cramping imprisonment of boots and shoes, the foot from infancy were allowed a free, natural development, it may be questioned whether, under such conditions, it might not be rendered capable of performing other functions besides those of locomotion and sustaining the weight of the body. Certain at least it is that some unlucky mortals, born without arms, have managed to use a knife, fork, spoon, pen, paint brush, and even a violin bow. That the right foot is, like the right hand, ordinarily more mobile and at the same time stronger than the left, might be attributed to the more frequent exertion of this side, were it not that the peculiarity is said to extend itself even to the constitution, and the left extremities are asserted to be more liable to disease than the right.

The more difficult movements in stage dancing are usually executed upon the right foot, and it is generally considered that unless double practice be accorded to the left leg, an ungraceful preference for the right will be shown by the dancers in their performances. Most people tread more firmly with the right than with the left foot. There seems to be a greater capacity for propelling the body with the right foot; from this the horseman springs, with the left in the stirrup, and, unless left-handed, no boy in his play hops naturally upon the left foot.

To the attentive eye, none of the ordinary gestures or movements betray peculiarities of individual character more plainly than the gait — the sailor's rolling, the soldier's stiff, the countryman's jolting gait, are immediately recognized.

Slow steps, whether long or short, suggest a grave or reflective state of mind, as the case may be, while, on the contrary, quick steps seem to speak of agitation and energy.

Reflection is revealed in frequent pauses, and walking to and fro, and backward and forward; the direction of the steps wavering, and following every changing impulse of the mind, inevitably betrays uncertainty, hesitation, and indecision. The proud step is slow and measured, the toes are conspicuously turned out, the leg is straightened. In vanity the toes are rather more gracefully turned, the strides a little shorter, and there is very often an affectation of modesty.

Tiptoe walking symbolizes surprise, curiosity, discretion, or mystery. Obstinate people, who in an argument rely more on muscularity than on intellectual power, rest the feet flatly and firmly on the ground, walk heavily and slowly, and stand with the legs firmly planted and far apart. Turned-in toes are often found with preoccupied, absent-minded persons.

The toes pointed and dragged on the ground with slow, measured step give a pompous appearance.

Perplexity occasions irregular steps and abrupt movements. The prudent walk is measured and regular, entirely free from hurry, agitation, or precipitation.

The miser's walk is represented as stooping, noiseless, with short, nervous, anxious steps. In joy the walk is lively, for lightness, grace, suppleness, characterize a happy mind, although the walk is often modified in harmony with the cause of the joy; the joy of gratified ambition, for example, betraying itself by a different outward semblance from the joy of happy love. Disappointment walks heavily and with irregular step. When a revengeful purpose is hidden under a feigned smile, the step will be sinking and noiseless. — *Pall Mall Gazette.*

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How to Strengthen the Brain. — It stands approved by experience that nerves and muscles which remain inactive lose strength and shrink; and just so the brain needs exercise, and, in fact, earnest, hard labor — but not too one-sided — in order to become and remain strong and healthy. Overweariness and over-exertion, however, injure the brain, as they injure muscles and nerves. To furnish power and working capacity, the muscles and nerves require a sufficient amount of such nourishment as will produce matter and force; but overfeeding is an injury. It is just so with the brain.

Sleep is the indispensable rest of the brain, during which it recovers the substance lost by the wear of the day, and gathers up strength. Good sleep is the fundamental requirement for brain health. Every nerve stimulant, and on the other hand, all substances that produce artificial sleep, are nerve poisons, and are to be condemned. The worst foes of the human brain are alcohol, morphia, ether, cocaine, and the like, and their use is never justified.

Every one who desires to secure and to strengthen a healthy and useful brain, must, first, not only labor physically, but mentally; must really labor, and that daily, and not too little. Four hours of work a day for a healthy person is altogether too little. Let any one spend his time in enjoyment and idleness, and enjoyment soon ceases to be enjoyment. He will accumulate artificial wants in ever-increasing numbers until they burden his life. He will become more and more dependent and morose. His mental horizon will grow narrower continually, and more rigid. The plastic brain of youth — that is, its docility and adaptability — will become less and less active and capable of comprehending and elaborating new thoughts.

On the other hand, mental labor preserves the plasticity of the brain to a much more advanced age. Idlers, therefore, in spite of the best brain capacity, become prematurely old mentally, narrow-hearted, limited in horizon, and often absolutely stupid. We frequently observe moderately-gifted students becoming, by means of work, men of power; and highly-gifted young men, by means of idleness, gradually growing useless, peevish, and now and then narrow-minded. — *From an English Paper.*

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How to Get Warm. — It may not be generally known that when exposed to severe cold, a feeling of warmth is readily created by repeatedly filling the lungs to their utmost extent in the following manner: Throw the shoulders well back and hold the head well up; inflate the lungs slowly, the air entering entirely through the nose. When the lungs are completely filled, hold the breath for ten seconds or longer, and then expel it quickly through the mouth. After repeating the exercise while one is chilly, a feeling of warmth will be felt over the entire body, even in the feet and hands.

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How to Go to Sleep. — "If you have never done so, watch yourself go to sleep," said a Delsarte teacher, "and you will be amazed to see how tense your position is. Your knees are drawn and bended, your back is curved, the arms are *held* more or less tightly to the body, and the fingers are folded. The eyelids are *held* shut, not allowed to droop over the eyes, the neck is strained, and the head seems to touch the pillows only at the temples. The points of contact with the bed are really at the temples, shoulders, hips, knees, and ankles. Now look at a child sleeping. Every muscle is relaxed, every joint is inert and prone on the couch; his little frame finds rest at every point. The features are undone, so to speak, the nose widens, the mouth droops, the eyelids close easily; and with every line of expression obliterated, he finds utter and complete repose. The abandon makes him fall out of bed sometimes, such an inert body has he become. You may imitate him even to that degree, if necessary. Begin at your toes to relax, loosen all your joints and muscles, unbend your fingers, shake your wrists loose, take the curve and strain out of your neck, go all in pieces, in fact, and see how the day's fatigue seems to slip off from you, and the gentle mantle of rest and oblivion to enfold you like a garment."


## RESPONSIBILITY OF MOTHERHOOD.

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

Abstract of a lecture given before the Mothers' Class.

HUMAN beings created by God in his own image are endowed by him with most wonderful and God-like possibilities, and these possibilities are not a patrimony waiting until they shall have grown to manhood and womanhood, but lie folded in the little child, the mere babe, like the leaves and flowers within a seed to be unfolded and developed with every passing day. We are filled with admiration when we meet a cultivated, courteous, just, and upright man or woman, and with sorrow or disgust when we encounter some selfish, vile, besotted mortal. Yet both may have entered upon their earthly career with equal endowment.

Laying the question of heredity aside, since man is given no new or additional faculties after birth, the difference in these two beings must be largely due to the direction given to their natural faculties and capabilities by the training, discipline, and education they have received, or to the lack of these, through their own or some other's neglect.

The prevalence and increase of crime and wickedness everywhere around us emphasize the fact that the greatest need of the age is men and women of character and integrity. And how shall this need be met? Such men and women must be developed. In the children of the land we have good and ample material, and upon parents and teachers devolves the responsibility of their right development and education. This responsibility is a most important and sacred one. In no other calling in life are the finite and the infinite so closely connected as in the training and development of the hearts, minds, and bodies of the young. Indeed, the true laborer in this field is a co-worker with God. To the mother more than to any other one is accorded the privilege of guiding and training young lives. It is her hand which gives direction and trend of character to the little beings which God sends into the world, so plastic and impressible that they may be likened to clay in the hands of the potter. Just as the potter's clay goes from his hand to the decorator and glazier, so there are other processes in life that contribute to the fullness of character; but its general purpose and trend depend in the very largest measure upon the early work of the mother.

There is no prerogative that can compare with that of the mother, no field of labor that yields such grand and beautiful results, if she but use her powers rightly.

Reflect, for a moment, upon the influence of a single earnest, enlightened, consecrated mother; multiply that thought by the homes that make up a community, and it will not be difficult to estimate something of the power which lies in the hands of mothers, and to appreciate the importance and magnitude of their work. Most mothers realize to a greater or less extent something of their God-given responsibility, but too many overlook the fact that their golden opportunity for work with each child lies in his earliest childhood.

It has been said that before the child is seven years old the mother has done one half of what she will ever be able to do toward the formation of his character. All thoughtful persons must agree that education begins with the earliest dawn of intelligence, and it is the failing to recognize this fact that makes it necessary for so many children to reap the bitter fruit of early neglect. "It is impossible," as has been said by one of the wisest of teachers, "to correct in the second year the wrongdoings of the first, thereby heaping the shortcomings of one year upon those of the next. Mothers will say, 'As soon as my child understands more, I will endeavor to teach it to control its will and to do right.' What a

mistake! Then the most important time will have been lost. If good habits and inclinations, obedience, order, and other similar virtues have not been rooted in the first years of its life, it will be a most difficult task to uproot bad habits and implant new ones." There can be no doubt that a repeated course of action becomes in time a trait of character, and there is no soil so fertile for both the evil and the good as the early years of childhood.

Before Lord Shaftesbury was eight years old, his mother had done a work for him which, under God, made him the foremost philanthropist of the age. In contrast to this we have the facts connected with the childhood of the seven Chicago anarchists, four of whom were left orphans at a very early age, and all of whom were suffered to grow up without control and with no religious training.

Mothers need to begin early and continue late. There must be no cessation of their efforts until character is firmly fixed. While, as has been before stated, the early years are the mother's golden opportunity, yet it is a lamentable fact that there is seldom a period when the care of children is more frequently delegated to others than this very impressionable one. Hired girls, nurses, any one in fact who can look after the physical needs of the child, is entrusted with its care, while the mother devotes herself to pleasure, society, or some similar object. I have even known mothers who would hire their children cared for that they might spend their time in fashioning dainty garments for these same children or in doing their housework, preferring to entrust their little ones to unskilled hands rather than their fine china and bric-a-brac. Indeed, many are the mothers with whom the care of their homes and the preparation of table delicacies take the first place, and receive far greater consideration than the development and training of their children.

But you ask, "Should mothers seek no assistance in the care of their children?" — Certainly, if need be, but let hired help be chosen for the less important things of life, the care of the house, the sewing and mending, rather than for the children. Delegate to no untried hand the privilege of moulding and developing their lives. Keep the little ones near you, and devote your best energies to them. Sacrifice ease and personal pleasure, if need be, but never sacrifice the children. I do not mean that mothers should overtax their physical powers, and break down their health in the care of their children; for this would unfit them for their God-given work; but the mother's first duty is to her children, and no other worldly interest should be allowed to become of paramount importance.

Health is one of the first essentials necessary to the proper fulfillment of this duty, and lack of health is one of the most common excuses for giving the personal care of one's children to hired nurses. Mothers whose health is not the best need to consider carefully whether they are not making other unnecessary demands upon it, or allowing selfish interests and indulgences to sap the strength that ought to be devoted to their children. If there are busy, invalid, or poverty-stricken mothers whose circumstances are such that the time and attention for the best care and culture of their children is an impossibility, let them use every moment which they can command in the manner best fitted to accomplish the desired object. Let them set their ideal high, and work toward it. I venture to say that the majority of the mothers of our land could in some way secure time for their children if they were so disposed and realized the importance of it; if they appreciated the great blessing and honor bestowed upon them as co-workers with God in the training of lives for his service, and realized that of them will be required any wrong done to the souls or bodies of these little ones through their neglect. There doubtless may be portions of a child's education which can as well be undertaken by another, but the mother should know to whom it is entrusted, and keep a constant watch and care over it.

The mother's greatest hope for her children lies in utilizing in the best possible manner the first years of childhood. If she neglects this period, she may labor with what zeal she will, the results will never be as perfect as might have been secured from the careful ingrafting of precept and principle in those early years. But her responsibilities do not end with childhood; through all the years, even till manhood and womanhood, continued watchcare and guidance, advice and counsel, must be given; but happy is the mother who, having planted and cultivated the seeds of good thoughts and actions in the early years, has need only to prune and trim and watch as the child grows older.

The culture and training of children demand and ought to have the best that human intelligence aided by divine grace, can give. If the mother would do the work committed to her care acceptably to God, she must study to fit herself for it. She must begin with herself. She must seek to perfect her own character, that it may be worthy of imitation. She must study to become master of the art of education and development. She must seek to understand

child nature, and to learn the best methods of discipline and training. In fact, she must herself be a constant learner, and more than all she must love her work. The mother who does not love her work will not accomplish the best results, no matter how ceaselessly she toils. "The laborer's heart must be in his task." The other day I came across a pen picture of that true, old-fashioned mother of Bible times,— Hannah,— and there are so many points worthy of consideration by mothers of the present time that I am going to quote a portion of the sketch : —

"Hannah as a mother was enthusiastic. She believed that children were blessings from the Lord, and that motherhood was the highest possible honor. Another thing, when Hannah's child came, she considered it a part of her religious duty to take care of it. Instead, therefore, of going up to Shiloh to attend all the great feasts, as she had done before, she staid at home to give personal attention to the little one that God had given her. No doubt she supposed she was worshiping God just as acceptably in doing this as if she had gone up to all the great meetings. And who will say that she was not right? A mother's first obligations are to her children. She can have no holier or more sacred duties than those which relate to them; no amount of public religious service will atone for neglect of these.

"She may run to temperance and missionary meetings and abound in all kinds of charitable activities, and may do very much good among the poor, carrying blessings to many other homes, and being a blessing to other people's children through the Sabbath or mission schools; but if she fails meanwhile to care for her own children, she can scarcely be commended as a faithful Christian mother. She has overlooked her first and most sacred duties, to give her hand and heart to those that are but secondary to her.

"Hannah's way was the true one. A mother would better be missed in the church circles and at the public gatherings than be missed in her own household. Some things must be crowded out of every earnest life, but the last thing to be crowded out of a mother's life should be the faithful and loving care of her children. The preacher may urge that every one should do something in the general work of the church, and the superintendent may appeal for teachers for the Sabbath-school, but the mother herself must decide whether the Master really wants her to take up any religious work outside her own home. For the work there she is surely responsible; for that outside she is not responsible until the other is well done.

"Another thing about Hannah was that she looked after her own child. She did not go to an intelligence office and hire a foreign nurse at so much a week, and then commit her tender child to her care, that she herself might be free for social and religious duties. She was old-fashioned enough to prefer to care for her own child. She does not seem to have felt it any great personal deprivation, either. She even appears to have thought it a high honor and distinguished privilege to do with her own hands a mother's duties. And when we think what this child became in after years, what the outcome was of all her painstaking and toil, it certainly looks as if Hannah was right. If anything half so good would come ordinarily out of faithful mothering, there are certainly few occupations open to women, even in these advanced nineteenth century days, which will yield such satisfactory results in the end as the wise and true bringing up of their children. The great want of this age is mothers who will live with their own children and throw over their tender lives all the mighty power of their own rich, loving natures. If we could have a generation of Hannahs, we would then have a generation of Samuels growing up under their wise, devoted nurture.

"There is one other feature in this old-time mother that should not be overlooked. She nursed her child for the Lord. From the very first she looked upon him as God's child, not hers, and considered herself only God's nurse, whose duty it was to bring up the child for a holy life and service. It is easy to see what a dignity and splendor this gave to the whole toilsome round of motherly tasks and duties which the successive days brought to her. Nothing ever seemed drudgery, no duty to her little one was hard or distasteful, with this thought ever glowing in her heart. And is there any mother who may not have the same inspiration as she goes through her round of commonplace nursery tasks? Was Samuel God's child in any higher sense than are the little ones of thousands of mothers to-day? All children belong to God, and every mother is responsible for their moulding and training for his service. Hannah understood this, and found her task full of glory. But how many, even among Christian mothers, fail to understand it, and unsustained by a consciousness of the dignity and blessedness of this high calling, look upon its duties and self-denials as a round of toilsome, wearisome drudgery! It will be well worth while for every mother to study the motherhood of Hannah and learn from her of its blessedness."

## A SERMON FOR MOTHERS.

WHAT should we think of a person who cultivated a thistle by every winning effort of watering and care, and when it had grown to be a strong plant, repelling every one with its sharp thorns, showed surprise and disappointment that it had not the characteristics of a lily? This is exactly analogous to the conduct of many a mother in the up-bringing of her children. From thoughtlessness or mistaken tenderness she cultivates a crop of weeds worse than thistles, and is astonished and grieved when they come out in their true character at last.

The indulgent mother is so fond of her child that she cannot bear to refuse him anything, and so short-sighted that she cannot see that she is doing him a serious injury. Her work begins in the cradle, from her amiable desire that every one should admire and love him as she does, in taking great notice of him before others, in repeating his cunning doings, and, later, his bright sayings, constantly talking about his dress and his ways; in a word, making the child and all his concerns the most conspicuous object in the house. Few persons realize how early the baby begins to imbibe this sweet poison of praise and importance. Before he can talk, he is robbed of a child's greatest charm,— a sweet innocence and unconsciousness of himself that wins all hearts. From self-consciousness to conceit of his own importance is but a step, and then of course every whim must be gratified. We have all seen this vice in a baby before he could walk.

When this crop of self-will is well under way and flourishing, so that he becomes troublesome, then comes in natural sequence the next step, untruthfulness. The willful infant prefers the presence and care of his mother, from whose hands he gets everything he wants. He screams when she goes away; she deceives him, and very soon deliberately prevaricates. "O, no!" she says, "mamma won't go away," and the moment his attention is diverted she slips out and does go. "He does not notice or remember," you say? Does he not, indeed? Watch him and see.

When he is a little older, and begins to ask questions, there comes a fresh set of lessons in untruth from the parent, who cannot bear to refuse anything, even information. There is an old proverb which runs, "A fool can ask questions a philosopher cannot answer," and how much easier is it to satisfy a bright child, with an eager mind opening to all the wonders around him and craving to know about everything? It is pitiful to see the childlike confidence in the wisdom of parents abused — to see absolute untruth taken into the earnest mind and cherished as truth.

How sadly do we often see parents, when asked questions they are unable to answer, invent a ridiculous story, which the unsuspecting child absorbs greedily as perfectly trustworthy. The infatuated parent, too, thinks it is funny — a joke — and often casts a cunning look around among the grown people present, as if proud of his deceit.

In doing this, two things are lost sight of: First, that the child has reason; and second, that he will soon grow up. It is not long before he knows he has been deceived, and forms his judgment accordingly. Thus is learned a terrible lesson — that his mother or his father (for fathers too are guilty here) does not tell the truth. Now, there is no reason why a mother should pretend to know everything; soon enough the child sees for himself that she does not. How much better, then, to take a dignified position at first, and retain the child's respect by admitting frankly that she does not know, though at the same time she should honestly try to find out.

Not to speak of the result of indulgence on the health by means of improper food and habits, which particular form of baby killing is far from uncommon; nor, somewhat later, of bad associates, which the mother cannot control; how does this victim of an indulgent mother fare when he goes out into the world with no mistaken mother as a buffer between him and life's experiences?

As a child he is disliked and avoided by every one. As he grows up, he is the dread of teachers, and he is snubbed by his employers— when he gets them. When he reaches manhood, having no true ideas of life and his own insignificant place in it, filled with conceit and self-assurance, he makes few friends, and he has the almost impossible task of learning at great cost (if he learns at all) what would have come with ease in childhood. It is like sending a boy out into the world full grown without knowing his letters; he has to educate himself.

A mother should have tender and loving but firm control of her child from his first breath. She should as carefully shield him from self-consciousness, conceit, and willfulness as she does from scarlet fever and whooping cough. She should, above all things, set him a daily example of justice and truthfulness in the smallest affairs. In most cases the mother

herself is the victim of bad training, and her duty lies first with herself. Only by taking the matter seriously in hand, and trying to overcome her weakness, can the conscientious mother hope to avoid passing on her own faults to the next generation, to produce a fresh crop of noxious weeds in her grandchildren. — *Sel.*

## MY NEIGHBOR'S BOY.

He seems to be several boys in one,
So much is he constantly everywhere!
And the mischievous things that boy has done
No mind can remember nor mouth declare.
He fills the whole of his share of space
With his strong, straight form and his merry face.

He is very cowardly, very brave,
He is kind and cruel, good and bad,
A brute and a hero! Who will save
The best from the worst of my neighbor's lad?
The mean and the noble strive to-day —
Which of the powers will have its way?

The world is needing his strength and skill.
He will make hearts happy or make them ache.
What power is in him for good or ill?
Which of life's paths will his swift feet take?
Will he rise and draw others up with him?
Or the light that is in him burn low or dim

But what is my neighbor's boy to me
More than a nuisance? My neighbor's boy,
Though I have some fears for what he may be,
Is a source of solicitude, hope, and joy,
And a constant pleasure. Because I pray
That the best that is in him may rule some day.

He passes me by with a smile and a nod,
He knows I have hope of him — guesses, too,
That I whisper his name when I ask of God
That men may be righteous, his will to do.
And I think that many would have more joy
If they loved and prayed for a neighbor's boy.

— *London Christian World.*

THE NECESSITIES OF THE SPIRIT.— As you grow better, there are some things which are always growing looser in their grasp upon you; there are other things which are always taking tighter hold upon your life. You sweep up out of the grasp of money, praise, ease, distinction. You sweep up into the necessity of truth, courage, virtue, love, and God. The gravitation of the earth grows weaker; the gravitation of the stars takes stronger and stronger hold of you. And, on the other hand, as you grow worse, as you go down, the terrible opposite of all this comes to pass. The highest necessities let you go, and the lowest necessities take tighter hold of you. Still, as you go down, you are judged by what you cannot do without. You come down at last where you cannot do without a comfortable dinner and an easy bed, but you can do without an act of charity or a thought of God. . . . He who lives in the Spirit acquires a certain sort of feeling of the infiniteness of others, so that renown, wealth, dignity, sympathy, comfort, friendship, amusement, life, stand on one side, and honor, truth, bravery, purity, love, eternity, God, stand on the other. These last he must have. Those others he can do without. — *Phillips Brooks.*

DIFFERENCE IN TRAINING.— A distinguished lady of wealth and influence, noted for model specimens of children, was asked by a friend and mother: "Why are my children sickly and croupy, and yours always free from such conditions?" The reply was, "You rear your children indoors, I mine out; yours are educated to be waited on by your servants, I discipline mine to wait upon themselves; my children are early to bed, you give parties for yours with late hours, and allow them to attend parties and keep late hours from home, fashionably dressed; my children have plain wholesome food, adapted to their years, yours sweetmeats, rich and highly seasoned dishes, and are overfed generally; I teach mine to love nature and to feel that there is nothing arrayed so finely as the lily of the field, the bees, and the butterflies, that there is nothing so mean as a lie, nor anything so miserable as disobedience, that it is a disgrace to be sick, and that good health, good teeth, and good temper come from plain food, proper clothing, plenty of sleep, and being good."— *The Medical Age.*

WHO has not wondered at the delicate mechanism of a phonograph? How the sound waves are recorded and reproduced at will! After all, it is not half so delicate or wonderful as the way impressions are recorded and reproduced in the life of a child.

To face the small worries of life with an unruffled brow is a better recipe for preserving beauty than was ever concocted by any chemist. Amiability and placidity are emollients for the skin, as well as softeners of the character.

A DISTINGUISHED American author recently remarked to a friend, "I resolved when I was a child, never to use a word which I could not pronounce before my mother."

## SEASONABLE RECIPES.

CORN MEAL FLUFF.— Take of good, fresh corn meal one quart, fresh and rather dry snow three quarts. If salt is desired, mix a very little with the corn meal while dry. Mix the snow thoroughly with the corn meal, heap up in a dripping pan which has been previously oiled and cooled, and bake brown in a hot oven.

CORN MEAL AND FIG PUDDING.— Beat together a scant cup of best sifted corn meal with a cupful of molasses, and stir the mixture gradually into a quart of boiling milk. Cook ten or twelve minutes, or until well thickened, then set aside to cool. Add a cupful of finely chopped figs, one and two thirds cups of cold milk, part cream if it can be afforded, and when the mixture is cool, add two well-beaten eggs. Pour into a pudding dish and bake in a moderate, steady oven for three or more hours; the longer the better. When the pudding has baked an hour, pour over it a cupful of cold milk. Do not stir the pudding but allow the milk to soak in gradually. A pint of finely sliced or chopped sweet apples may be used in place of figs for variety, or if preferred, both may be omitted.

SWEET POTATO PIE.— Bake sufficient sweet potatoes to make a pint of pulp when rubbed through a colander; add one pint of rich milk, a scant cup of sugar, salt if desired, the yolks of two eggs, and a little grated lemon rind for flavor. Bake with only an under crust. The granola crust, mentioned in August number of GOOD HEALTH, may be used if the potato custard be first cooked in a separate utensil. If desired, the whites of the eggs beaten up with a tablespoonful of sugar, may be used for meringue.

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THE small brown specks which often accumulate upon lemons may and should be removed by soaking the lemons in cold water for fifteen or twenty minutes before needed for use, and then scrubbing with a small scrub brush.

VINEGAR and water will remove stains from zinc.

THE soles of shoes may be made waterproof, and much more durable, by applying several coats of copal varnish, letting each coat dry thoroughly before adding another.

To keep lemons, place in a jar of water, and put in a cool place. The can should be left without cover, and the water changed every day.

THE wire dishcloth is good for cleaning the rolling pin and molding board.

IT is said that a resident of Michigan has invented a machine for making bread that is intended to do away with the use of yeast or setting the dough to rise. Flour and water are poured into the machine, and come out loaves of bread, light, kneaded, and ready for baking. A harmless gas is forced into the dough by heavy pressure, and the bread is made to rise in ten minutes. Some such invention may sometime revolutionize bread-making.

TEST FOR WATERED MILK.— Dip a well-polished knitting needle into a deep vessel of milk, and withdraw quickly in an upright position. If the milk is pure, some of it will adhere to the needle; but if water has been added, the needle will be clean when removed.

IF the fire-bricks of the kitchen range have become broken, they may be cemented with a paste made as follows: —

Mix together equal quantities of salt and powdered soapstone, with a small quantity of water. This is said to harden rapidly and to be durable, as the soapstone which may be obtained of the druggist, is very lasting.

TO clean stovepipes, rub well with linseed oil while they are warm.

GOOD mucilage may be made by dissolving gum tragacanth in water, then adding a few drops of oil of cloves and a bit of alum.

A GOOD way to mend rents in woolen goods is to carefully baste a piece of rather stiff paper underneath the tear, and then draw it together with ravellings of the cloth or thread of the same shade.


## THE TURKISH AND HOT-AIR BATH.

THE Turkish bath consists of a prolonged stay in two or more rooms heated to different temperatures. The first room should be about 120° to 140° F. Let the patient remain in this room reclining on a couch until perspiration is established, then take him into the next room, the temperature of which is 150° to 170° F. Sometimes a third room is added, where the temperature is much higher. But these extremes of temperature are seldom required, 140° being as high as is needed for most patients.

This bath requires such an elaborate apparatus that it is not usually available in a private family, but a very good substitute can be improvised by using the same box as for a vapor bath, with the chair and blankets or the woven-wire cot, and an alcohol stove or lamp to heat the air. The alcohol may be poured into a narrow-mouthed cup with a cover which can be adjusted so as to regulate the flame. This may be set under the chair or cot, or in the box. There is need of great caution in the use of alcohol. Never put it in a plate, saucer, or any other wide-mouthed vessel, as the flames will be very likely to extend beyond the vessel, and thus set fire to the coverings. Not a drop should be spilled on the floor or the coverings. It is well to set the narrow-mouthed cup in a plate, this, in turn, being set in a pan containing an inch of water. Never try to blow out an alcohol flame, or to extinguish it by throwing water upon it, as this will only scatter it. Always smother it by covering it and thus excluding the air.

This bath must be made hotter than the vapor bath, as air is a much poorer conductor of heat than watery vapor. A temperature of 120° to 140° will be required to induce free perspiration. When this is thoroughly established, the patient should be taken into a room of 100° temperature, and the bath concluded with a thorough soap-and-water wash, finishing with a pail or dipper pour or a wet sheet rub; or the patient may be simply washed off with a cloth in clean water. Then wipe the patient dry and let him rest on a couch in a cool room for a time, or dress and take a walk in the open air if the weather is suitable. Always make the last bath a cool one, and be sure that the perspiration has ceased before the patient exposes himself to cold or dampness, or the surface may be chilled and a cold contracted. He should also exercise moderately while out of doors so as to keep up the surface circulation and prevent chilling.

This bath is a very powerful depurating agent, and is useful in cases of torpidity of the skin and liver, or at the beginning of fevers and other acute diseases. It is also useful in reducing flesh in obese persons.

It is also highly efficient as a cleansing measure, the profuse perspiration loosening the hardened epidermis from underneath, and the soap and water and rubbing removing the impurities from the surface. In cases of acute or chronic malarial poisoning it is useful as an eliminative treatment to remove the poisons from the body. In a case of third-day chills, the bath should be taken on the day when the chill is absent, so as to prevent accumulation of the poison as much as possible. In chronic cases where there is no defined periodicity, the treatment may be combined with other eliminative treatment, as fomentations to the liver, stomach, and spine, the warm-sheet pack, hot-water drinking, and the hot enema.

The hot-air bath may be given once or twice a week as the patient's strength will indicate. In the case of a patient with vigorous appetite and a tendency to take on flesh, the hot-air bath may be used two or three times a week. It also is useful for patients suffering from deficient elimination by the kidneys, and in all cases of torpid liver and a sluggish portal circulation.

Patients suffering from neuralgia and wandering pains in different parts of the body are often benefited by the use of this treatmeat. These pains are usually the result of some poison in the tissues of the body which require elimination.

This bath is a powerful remedy, and should be given carefully and properly, or it may be a source of evil as well as good. It should not be taken under three hours after a full meal, nor when the patient is very tired, as in the case of a very weak patient. When a patient has heart trouble or a tendency to faint, he should be watched very carefully while in the bath, and at the first sign of heart failure or faintness should be removed and laid with the head lower than the extremities. It is important as with any other treatment to have the first bath a success, as a nervous patient once becoming frightened in a bath could never afterward use the same treatment without being nervous, and losing all the good results that might otherwise come from this form of treatment.

Any prompt, careful person can give either the hot-air or the vapor bath; but everything must be in readiness, so as not to keep the patient sitting in the box or on the chair while the nurse hunts for blankets, fills the lamp, or heats the stones. It will be well for one who has never given these baths to test the alcohol lamp or cup beforehand, and be sure he knows how to control and extinguish the flame. Always have something at hand with which you can smother the flame. The writer has found a small tin pan or an ordinary tin washbasin very efficient. Be sure that whatever you use is entirely dry, as any moisture will spread the flame and give you trouble. Practice using this extinguisher under the chair and cover, or in the box, so that you will not be awkward about it. Also in giving the vapor bath, practice putting in the stones or bricks, so as to be sure you can let them down with the tongs or shovel without making a splash which would frighten the patient. These are seemingly little things, but the giving of a good treatment often depends on just such simple details, and the neglect of them is responsible for very many failures.

When the patient is in the bath, keep the face cool by frequently wiping it off with a moist towel; keep a cool cloth on the head if it is hot, and the feet in a warm footbath if they are cold. Always remain near, so the patient will not become frightened by feeling helpless and alone should any accident occur. Have everything in readiness to take him out without undue delay, and there will be no doubt but that the patient will be pleased and benefited by the treatment.

## PRECAUTIONARY MEASURES IN ORDINARY AILMENTS.

EVERY year hundreds and thousands of persons, especially children, lose their lives because the disease was not treated in time. A child is ailing, seems feverish at night, chilly in the morning, is peevish and irritable, and has a capricious appetite. In the words of the mother,—"Johnny is not like himself." And truly he is not like his ordinary, healthy, happy self. Some poison is working mischief somewhere in the little body, deranging and upsetting the nervous system, and making him feel generally uncomfortable and out of sorts.

Whether the indisposition is serious or not is what mothers, nurses, and all having the care of children should seek to discern at once. A clinical thermometer or a thermometer for testing the temperature of the body, should be a part of every household outfit, and whenever a child is ailing, its temperature should be taken and its pulse and respirations counted. The temperature of a child in health is slightly above that of the adult, it being 98.5° to 99.5°, while that of the average adult is from 98° to 98.5°. The temperature should be taken three times a day; when it reaches 101° or above for two days, it is an indication of something serious. The respirations of a newborn baby are forty per minute, and usually decline to thirty or thirty-five, by the end of the first month, continuing to decline until four or five years old, when they are twenty to twenty-five per minute. They still further decline to sixteen or eighteen at fourteen or fifteen years, which is the ordinary adult rate of respiration. The pulse at birth is usually one hundred and twenty to one hundred and forty, at one year one hundred and ten to one hundred and twenty, and gradually declines until fifteen, when it is about eighty or eighty-five. In adult life the normal rate is seventy or seventy-five. The pulse and the respirations are very difficult to count and very variable. In small children any exercise or other excitement may cause a rise of from ten to fifteen or twenty beats per minute, and the rate of breathing is increased in proportion. So a baby's pulse and respirations are of value only when they are observed while it is sleeping; the temperature, not being specially affected by

outside influences, is the most reliable indication.

After testing the temperature, pulse, and respiration, the next most important measure is to examine the throat for redness, swelling, or white patches, which may indicate either tonsilitis or diphtheria. Hundreds of children have contracted the last-named disease and died because of a neglect of these measures. A child with an apparently slight sore throat was permitted perhaps to go to some child's party, or some one in the family where the party was held had a sore throat. I know of a case where some twenty-five children were exposed to tonsilitis by being allowed to take a ride with a child suffering with it. As the child's temperature had not been taken, no symptoms of the disease had been discovered, and no danger was apprehended. Hence not only were the other children exposed, but the little one itself was made much worse.

After the examination of the throat and nose, the next inquiry should be as to the condition of the stomach. Many patients, especially children and young persons, owe all their trouble to a disordered condition of the stomach, due to a surfeit. The fever, headache, and bone-ache, may all disappear with the emptying of the stomach and bowels. Often such cases have an alarmingly high temperature for a short time, but the symptoms soon become less marked, and disappear when once the decaying food has been unloaded from the system. Constipation and accumulation of fæcal matter in the bowels often causes rise of temperature. So mothers and others caring for children should know whether the bowels are regular. The writer has seen cases in youth and children which were diagnosed as cases of tumor. In one case, when inquiry was made of the mother as to how long it had been since the bowels moved regularly, she could not tell, and by inquiry of the twelve-year-old girl herself it was ascertained that at least a week had passed without any action, the child meanwhile eating heartily of all foods found at a farmer's table. It was not until she was taken suddenly ill with chill and fever, that the case was looked into, and a course of mild cathartics, enemas, fasting, and fomentations prescribed, which finally dispersed the swelling, but the moving off of the impacted mass was the work of many days, and after it was over, the child was so weak and emaciated that it took weeks to recover her usual health.

The next inquiry should be as to the possibility of infectious diseases, as malaria, typhoid fever, or any of the eruptive fevers. Children are often victims of both malarial and typhoid fevers, and this should be borne in mind, especially if typhoid or malaria are in the neighborhood, or if there has been any danger of an infected water-supply in traveling or otherwise. Around every suburb in large cities, and also in small towns and villages without waterworks, there are always numerous cesspools, and also many wells, shallow or deep; and it is only a matter of time, modified by the porous nature of the soil and the depth and location of the well, when the contents of the cesspool will drain into the well; or, worse still, the contents of the privy vault may contaminate the water, and whole families be thus poisoned with filth. There are always children who are running around the neighborhood, visiting other children, so that a case of typhoid fever may occur in a home possessing a faultless water-supply.

When I see how indifferent many householders are as to the cleanliness of the family's drinking water, and how abused and sensitive they feel when its character is questioned, as if it were a personal insult intended to humiliate them, I feel like telling the story of the housewife whose kitchen sink began to smell badly, and who went to a druggist to get some disinfectant. Having on hand an amount of crude carbolic acid which he had found hard to dispose of, the druggist recommended it to her, telling her that he would sell it so cheap that she could afford to take a large quantity and use it freely. In a few days she returned to ask him if he had not some better tasting and less disagreeable smelling disinfectant, as the well water tasted and smelt so strongly of the carbolic acid that it could not be used. The fact that the contents of the cesspool which were draining into the well were worse poisons than the carbolic acid, never dawned on the woman's mind. And there are many others just as obtuse in relation to sanitary matters, who are sensible and reasonable on other subjects.

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WHEN a patient is sinking from heart failure, the action of this organ may often be increased by keeping him in a recumbent position and applying heat over the left side, just at the side of the left breast. This is important to remember, as children and others recovering from diphtheria and other severe acute diseases often die suddenly from some slight exertion, as rising quickly or stooping down to pick up something, and if the heart can be started to work again at once, the patient's life may be saved.

When a person drops down on the street or anywhere else, do not rush for him, as is usually done, and try to set him on his feet. He may have fainted, or had a fit, an apoplectic stroke, or a sunstroke, or some other serious disorder. Besides, he may have broken a bone in falling, as often happens in winter on slippery sidewalks. Observe his condition, and consider for a moment what would better be done for his safety, and be sure never to do an inconsiderate thing. Usually in these cases, quiet and a recumbent position is the best thing, and aimlessly lifting the injured person upright is the worst. Often a simple fracture has been changed into a compound fracture by the unwise efforts of bystanders to move or lift a person without considering or caring for the injured member. Never move the person, except carefully to change the position of the injured limb or other portions of the body that may be in cramped positions for one more natural and easy, or to liberate the injured member and place it in a position where there will be the least strain or dragging. Then wait until some contrivance in the form of a stretcher is ready to lay him on and carry him to a place where he can be properly treated. In moving the patient, where there is an injury, always be specially careful to avoid making it worse. A famous London surgeon is said to have fallen upon the ice and fractured his thigh. A crowd formed about him at once, but he kept them all off by using his cane vigorously and refused to be moved until an ambulance with trained attendants could be gotten from the hospital. He, in his surgical work, had seen too much of the evil results of injudicious meddling in surgical work to risk it in his own person.

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Conciseness and Decision Necessary with the Sick.— Let whatever you say to the sick be concisely and decidedly expressed. If doubt and hesitation exist in your own mind, never let it be communicated to theirs, not even (I would rather say especially not) in little things. Keep your doubt to yourself, your decision for them. People who think outside their heads,— the whole process of whose thought appears, like Homer's, in the act of secretion; who tell everything that led them toward this conclusion and away from that,— ought never to be with the sick.

Irresolution is what all sick people most dread. Rather than meet this in others, they will collect all their data, and make up their minds for themselves. A change of mind in others, whether regarding an operation or so simple a thing as re-writing a letter, always injures the patient more than the being called upon to make up his mind to the most dreaded or difficult decision. Farther than this, in very many cases the imagination is in sickness far more active and vivid than it is in health. If you propose to the patient change of air to one place one hour, and to another the next, he has, in each case, immediately constituted himself in imagination the tenant of the place, gone over the whole premises in idea, and you have tired him almost as much by displacing his imagination as if you had actually carried him over both places.

Above all, leave the sick room quickly and come into it quickly, though not suddenly nor with a rush. But don't let the patient be wearily waiting for when you will be out of the room or when you will be in it. Conciseness and decision in your movements, as well as your words, are as necessary in the sick room as absence of hurry and bustle. To possess yourself entirely will insure you from either fault — either loitering or hurrying. — "*Notes on Nursing,*" *by Florence Nightingale.*

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Tubercular Infection.— Probably the greatest scourge of the civilized world is consumption, or, more strictly speaking, tuberculosis. The disease is as contagious as smallpox or cholera; and as its victims live a long time, it is impossible to know just how many other cases may be either directly or indirectly infected from any one special case. The bacilli are found in the discharges from the lungs; from the bowels when the glands of the intestines are infected; and from abscesses when the glands of the neck or inflamed joints suppurate. These germs also often harbor in milk, butter, and meat. A consumptive who carelessly expectorates everywhere is continually endangering the life and health of other members of the household. The dried sputa becomes ground up into fine dust, and as soon as disturbed, fills the air with invisible particles, each loaded with tubercular germs, which are inhaled by the patient himself as well as the others of the family. So we often find one member after another dying, while others of the same family who are away from home remain well. Tubercular germs are very hard to destroy. The surest method is to burn them. They are most dangerous when dry, therefore all tubercular sputa should be received into spittoons and thoroughly disinfected, and, if possible, burned. In traveling, the patient may expectorate on paper or old cloth, which should be put into some close receptacle, as an oilcloth or rubber bag, and burned.

GOOD HEALTH
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BATTLE CREEK·MICHIGAN·

## AN EDUCATIONAL REVOLUTION NEEDED.

THAT a reform in our educational methods is one of the most pressing demands of the times is a fact which seems to be recognized more or less clearly by men in all classes of society. That our present methods of education do not produce the type of man demanded by our highest ideals, as viewed either from a practical business or from a moral or religious standpoint, must be evident to a great number of people. Our educational methods are one-sided. They are, to a large extent, notwithstanding many comparatively recent innovations, mediæval in character. The many years of plodding work devoted to the study of the writings of half-civilized men who lived and died thousands of years ago, in languages which are fully as dead as the men who wrote them, is unquestionably, for the great majority of those who pursue a classical course of study, a prodigious waste of effort. As Prof. Swing says (we do not quote his exact words), it may be very well to be able to express an idea in half a dozen different languages, but it must not be forgotten that with all these different modes of expression, there is only one idea expressed. It would certainly be far better to possess ten ideas with only one mode of expressing each than to be possessed of but one idea with ten modes of expressing it. There is a certain discipline to be obtained by a study of the classics, and a certain utility in the etymological and philological knowledge thus derived; but for the average man this knowledge possesses so little practical value that within three years after he has received his diploma, he has forgotten by far the greater part of what he had spent seven or eight years in acquiring.

Almost the same thing can be said of mathematics. Fully half the time spent in the study of mathematics, at least if we consider a complete course in this science, is devoted to subjects which have no immediate practical bearing upon the affairs of life, or which cannot be utilized in the study of the sciences. To require the student the same familiarity with the dead languages and with the subtleties of mathematical puzzles which was expected of the student two centuries ago, when almost nothing else was expected of him, while at the same time demanding of him efficiency in the numerous other branches of human knowledge which have developed chiefly within the last half century, is in the highest degree unreasonable and absurd. When our college curriculum is so arranged as to cut off two thirds of the time now spent in the study of the dead languages and one half the time devoted to mathematics, introducing as substitutes a more extended study of the anatomy, physiology, and hygiene of the human body, sanitary science, and manual training, and due attention to the development of the body and all its physical faculties,—when these reforms have been made, we may rightfully expect our educational institutions to turn out men and women far better prepared for the physical, mental, and moral conflicts of life than is the average graduate of the present time.

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TOBACCO AND MICROBES.—The claim has been made that tobacco is a preservative of the teeth and a prevention of such diseases as scarlet fever, diphtheria, and other maladies which obtain a foothold in the mouth, in consequence of its supposed antiseptic properties. Recent investigations, however, made by Dr. Pecholier, a member of the Faculty of Montpellier, have shown that this is an error, since microbes live and grow in the most concentrated infusions and decoctions of tobacco leaves. It has not been proven that microbes are less abundant in the mouths of tobacco-users than in those of nonusers.

## THE CONTAGIOUSNESS OF CONSUMPTION.

It is no longer a question among well-informed physicians whether consumption is or is not contagious. At the late Pan-American Medical Congress, this subject was thoroughly discussed, and with practical unanimity declared to be one of the greatest importance, as expressed in the following resolution, which ought to be adopted by every State Board of Health, and pressed upon the attention of law-makers everywhere: —

"*Resolved*, That it is the opinion of the Section on Hygiene, etc., that, in view of the fact that tuberculosis causes more deaths than any other disease, and that it is known to be communicable, especially to persons living in houses and shops with consumptives, the attention of national, State, and municipal authorities should be directed to the necessity for controlling the dissemination of the disease, —

"1. By notification by physicians and householders.

"2. By regulation of the residences of the tuberculized.

"3. By controlling their movements so far as possible.

"4. By the establishment of hospitals and homes for the infected poor."

The *British Medical Journal* recently published the following incident, which speaks for itself respecting the need of the adoption of the measures recommended in the above resolution: —

"A family of nine occupied a house inhabited ten years previously by two tuberculous patients. A short time after, although the whole family had been in splendid health, three among them showed symptoms of tuberculosis. They used the same bedroom as the former tenants. Dr. Ducor had pieces of the wall paper examined, and dust from the ceiling and walls was also examined. In both cases the tubercle bacillus was found. The former occupants had been uncleanly in their habits; the sputa had dried on the walls, and the bacillus, as M. Vignal has shown, retained its vitality, and was not destroyed by disinfection."

A recent number of the *Journal des Connaissances Medicales* reports some cases of tuberculosis in which the disease was contracted by the new occupants of an apartment which had been contaminated by the expectorated matters of a tuberculous patient who had died in the apartments two years before.

It is apparent that too great importance cannot be attached to the disinfection of the sputa of consumptive patients and the complete disinfection of apartments which have been occupied by such a patient. The Health Officer of Manchester, England, holds himself in readiness to disinfect any room or house which has been infected by a consumptive patient, on receiving notice from a competent physician.

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Microbes in Mineral Water. — The general diffusion of knowledge respecting the dangers which lurk in ordinary drinking water, especially that furnished at some of our great metropolitan centers, as New York, Chicago, and Boston, not to mention many smaller centers which are no better provided for in this respect, has led thousands of people to discard the use of hydrant water for drinking purposes, and has created an enormous demand for mineral waters of every description. The idea seems to be generally prevalent that bottled mineral waters are always safe, but an examination on this subject recently made by eminent English authorities has shown that mineral waters are by no means so free from germs as is generally supposed. In some specimens of mineral water as many as from three to ten thousand microbes were found in each drop of water examined. This was found to be true of carbonated as well as other mineral waters, which proves conclusively that carbonic acid gas, while destructive of some microbes, does not by any means destroy them all; and that it does not destroy all dangerous germs we may see proven by the fact that some of the waters examined contained the bacillus coli communis, a microbe which finds its original habitat in the colon of human beings and other mammals. This fact also proves conclusively that the water was contaminated with fæcal matter either from vaults, sewers, or barnyards. It is scarcely safe nowadays to make use of any other water for drinking purposes than distilled water, or water which has been thoroughly boiled and filtered.


## THE CAUSE OF OLD AGE.

PHYSIOLOGISTS have long been familiar with the fact that a characteristic change in the tissues takes place in advanced age, which, provided an individual dies a natural rather than a violent death, is the real cause of the termination of life. This change in the tissues is the result of a gradual shrinking of the arteries, which marks the beginning of old age, and which occasions, as it progresses, a gradual starvation and shrinking of the tissues. The organs of a man of advanced years are all smaller than in the same individual when in his prime. The cause of this degenerative change in the arteries is a question which has been made the subject of much study and speculation. A few years ago an Italian bacteriologist proclaimed that he had discovered the "germ of old age." The idea was scouted by all scientific men, but there may be something in it, after all. At any rate there seems to be good ground for believing that germs, if not a specific germ, are at least one of the most important influences which bring on old age.

It has long been known that the ptomaines or toxic substances produced by microbes, are capable of setting up various degenerative processes. Degenerative changes in the joints, the liver, the kidneys, and other organs, have been directly traced to this cause. Dr. Dana, an excellent authority in nervous diseases, has recently called attention to the fact that sclerosis and other degenerative changes in the brain and spinal cord are doubtless due to the influence of ptomaines absorbed from the alimentary canal. The writer has for some time held the opinion that the degenerative changes incident to advancing age are due to the same cause; namely, the toxines absorbed from the alimentary canal. These toxines are constantly present in greater or less quantity according to the extent to which fermentative and putrefactive processes prevail in the stomach and intestines. These processes depend, first, upon the integrity of the digestive process in the individual, and, secondly, upon the character of the substances introduced into the alimentary canal as food.

The strong and offensive odor of the flesh of the dog and other carnivorous animals, places them in wide contrast with herbivorous animals in this respect. The source of this strong odor is to be found in the characteristic difference in the contents of the alimentary canals of the two classes. The fæcal matter of the dog and other carnivorous animals is in the highest degree putrescent and repulsive, while that of the herbivorous or vegetarian animal is very much less offensive. The same is true with reference to the urine of the two classes. The strong odors connected with the body of the dog and other carnivorous animals, evidently find their origin in the decomposition of flesh taking place in the alimentary canal. The decomposition of vegetable substances is rarely accompanied by the formation of extremely offensive or toxic substances, whereas the decomposition of flesh gives rise to poisonous substances of most extraordinarily loathsome and deadly properties.

These considerations suggest at once the thought that while all human beings must necessarily be constantly subject to the influence of toxic substances generated in their own alimentary canal, and consequently must grow old and succumb sooner or later to the degenerative processes of old age, these processes may be greatly accelerated by subsisting upon a diet which favors the production of toxic substances in the alimentary canal.

If this theory is correct, we should expect to find the greatest longevity among those animals and those men who subsist upon the simplest and purest diet, other conditions being equal. It would be impossible to find a sharper contrast than that which exists in this respect between carnivorous and vegetarian animals. Contrast, for example, the dog,

which grows old, becomes rheumatic and infirm in eight or ten years, with the donkey, which lives a useful life to forty or fifty years, and the elephant, which is still active and useful at a hundred years. The same is true among men. The greatest number of persons now alive above one hundred years of age, is to be found among Russian peasants who rarely taste meat. These people have been practical vegetarians for so many centuries — perhaps from the earliest ages — that anatomists have noted a distinct difference in the length of their alimentary canals as compared with those of the flesh-eating Germans, whose ancestors were cannibals.—*J. H. K., in Modern Medicine.*

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THE INCANDESCENT ELECTRIC-LIGHT OR RADIANT-HEAT BATH.— The *Electrical Review* publishes the following abstract of a paper read by the editor of this journal upon the subject named, before the American Electro-Therapeutic Association, at its late meeting in New York City :—

"Another paper of consequence was on 'The Incandescent Electric-Light or Radiant-Heat Bath,' by Dr. Kellogg, of Battle Creek, Michigan, who claims to have first constructed a bath of this kind, several of which he has had in use for the last three years. The bath is made in the form of a cabinet with fifty or sixty incandescent lamps arranged in rows inside, the spaces between the lamps being covered with glass mirrors. Other forms have been constructed for local application. Siemens showed in 1880 that the electric light promotes growth in plants, encourages development of chlorophyl, and the setting and ripening of fruits. Similar experiments with like results were previously made by Hervé-Mangon and Prillieux, and have been more recently repeated (1889–90) with identical results at the Cornell University Agricultural Station. Dr. Kellogg draws from these experiments the following general conclusions: 1. That the electric light is, qualitatively, fairly comparable to sunlight in its power to promote protoplasmic activity; 2. That it acts as a true vital stimulus, converting night into day for the plant, and counteracting the deleterious effects of artificial conditions, such as stove heat."

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A TURKISH DOCTOR'S PRESCRIPTION.— According to Mr. Oscanyan, who has written an interesting book entitled, "The Sultan and His People," Turkish physicians have a very peculiar method of adapting remedies to the cases which come under their care. The author relates the following incident of a Turkish physician who was called to see a patient suffering from typhus fever :—

"The doctor considered the case hopeless, but prescribed for the patient, and took his leave. The next day, in passing, he inquired of a servant at the door if his master was dead.

"'Dead!' was the reply; 'no, he is much better.'

"The doctor hastened upstairs to obtain the solution of the miracle.

"'Why,' said the convalescent, 'I was consumed with thirst, and I drank a pailful of the juice of pickled cabbage.'

"'Wonderful!' quoth the doctor; and out came his tablets, upon which he made this inscription: 'Cured of typhus fever, Mehemed Agha, an upholsterer, by drinking a pailful of pickled cabbage juice.'

"Soon after, the doctor was called to see another patient, a *yaghlikgee*, or dealer in embroidered handkerchiefs, who was suffering from the same malady. He forthwith prescribed 'a pailful of pickled cabbage juice.' On calling the next day to congratulate his patient on his recovery, he was astonished to be told that the man was dead. In his bewilderment at these phenomena, he came to this safe conclusion, and duly noted it in his memoranda: 'Although in cases of typhus fever, pickled cabbage juice is an efficient remedy, it is not to be used unless the patient be by profession an upholsterer.'"

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ONE CAUSE OF SORE THROAT.— If any part of the body is heated more than the rest by overdressing it, or from any other cause, an undue flow of blood sets in toward that part, often resulting in chronic inflammation. I once knew of a fatal case of kidney disease developed by working at a desk with the back near a heated stove. Similar effects are produced by having one part of the body more warmly clothed than the rest. Many a sore throat arises from the tippet worn by children, harm resulting both from over-heating the throat when on, and from the sudden cooling when it is taken off.

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SNEEZING is averted by pressing the upper lip, which deadens the impression made on one of the branches of the fifth nerve, sneezing being a reflex action excited by a slight impression on that nerve. Sneezing does not take place when the fifth nerve is paralyzed, even though the sense of smell is retained.

## ANSWERS TO CORRESPONDENTS.

EPILEPSY.— Mrs. S. E. W., Cal., writes: "1. I have a sister who has been afflicted with epilepsy since early childhood. She is now past fifty. Do you think there is any help for her? 2. What is your opinion in regard to the treatment of this disease by the removal of a portion of the brain, and as to the permanency of such cures?"

*Ans.*— 1. She may be helped, but cannot be cured.

2. Surgical operations are justifiable only in a certain form of epilepsy,— that which is known as the Jacksonian epilepsy, a form of the disease in which the seizure begins first in some definite portion of the body, as a hand or a foot, extending thence to the entire body. We have secured excellent results from operations in such cases; but they are not always permanent.

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RHEUMATISM.— J. H. S., Minn., wishes to know in relation to celery as a medicinal agent, and if it is a cure for rheumatism.

*Ans.*— No.

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CATARRH — QUINSY.— W. E. C., Wis., asks: "1. Is catarrh prevalent in Oregon? 2. Would it be beneficial to me, having that disease, to go there? 3. Is Oregon a healthier State than Wisconsin?"

*Ans.*— 1. Yes.

2. The disease is less prevalent in eastern Oregon than near the coast.

3. The climate of either Wisconsin or Oregon is good enough for a person who obeys the laws of health. The diseases which prevail in those States are not due to bad climate, but to bad diet, and other infractions of hygienic laws.

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BAD DIGESTION — VOMITING OF FOOD.— Mrs. L. G. H., Ill., asks: "1. Please indicate the line of treatment for a person suffering from such bad digestion that he continually vomits his food. 2. Will a hygienic diet cure him?"

*Ans.*— 1. The patient probably requires a washing of the stomach by means of the stomach tube.

2. Yes; but it probably would be necessary to give the patient a test breakfast and make an analysis of the stomach fluid in order to ascertain what would be a "hygienic diet" in his case.

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COLD FEET — CHAPPED HANDS — TOMATOES, ETC.— This correspondent, H. E. R., is thirty-five years of age and of temperate and hygienic habits. He asks: "1. What is the cause of cold feet? and is there any remedy? 2. Is there any treatment which will tend to render the hands less liable to chap in cold weather? 3. Why is it that the skin of some persons chaps upon exposure, while that of others does not? 4. Do tomatoes cause cancer? 5. Are yellow tomatoes more healthful food than red ones? 6. Why are some individuals poisoned by contact with ivy, sumach, hemlock, etc., while others are not affected by it? 7. In what manner do these poisons act upon the system? 8. Is it injurious to the health to blow the horn in a brass band?"

*Ans.*— 1. Tight shoes, thin stockings, insufficient exercise, and indigestion are the most common causes of cold feet.

2. Keep the hands perfectly clean and carefully dry them after washing. Take great care also to remove every particle of soap used in washing.

3. The skin of some persons is much more sensitive than that of others.

4. No.

. No.

6. This is an illustration of personal susceptibility or idiosyncracy.

7. Probably both by contact of the poison with the surface of the skin, and by inhalation of a volatile poison.

8. No.

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FOOD SUBSTITUTES FOR MEAT — DIET FOR CHILDREN.— E. H., Ill., inquires: "1. If one gives up the use of meat, what is there to take its place that will sustain the strength? 2. What sort of food will best keep children in health?"

*Ans.*— 1. Beans, peas, lentils, eggs, milk, and other highly nitrogenous foods.

2. A natural diet; for very young children, milk; for older children, a diet consisting of fruits, grains, milk, and easily digested vegetables.

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CARAMEL COFFEE.— L. E. S., Oklahoma, inquires: "What is caramel coffee? and how is it prepared?"

*Ans.*— See "Science in the Kitchen," published by Modern Medicine Pub. Co., Battle Creek, Mich.

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PAINTING BEDROOM WALLS — DYSPEPSIA, ETC.— Mrs. E. R. asks: "1. Are there any sanitary objections to painting the walls of bedrooms? 2. What form of dyspepsia causes an offensive breath? 3. What causes dark circles under the eyes?"

*Ans.*— 1. Porous walls are probably in some respects more healthful than painted walls, but painted walls can be kept more thoroughly clean than unpainted walls. The advantages on the two sides of this question are about evenly balanced.

2. Septic indigestion.

3. This symptom often accompanies an exhausted state of the system.

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HICCOUGH.— Mrs. L. A. B., N. Y., inquires: "1. What causes hiccough? 2. Why should it come on at the close of a meal, as well as in the morning before eating?"

*Ans.*— 1. Irritation of the abdominal sympathetic nerve from some derangement of the stomach.

2. A very frequent cause is the distension of the stomach with gas, which is most likely to occur after eating.

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DIETETIC REGIMEN— EXERCISE, ETC.— J. B. S., Iowa, asks: "1. What kind of regimen, including diet, exercise, baths, sleeping, etc., would you prescribe for a brain worker,

to enable him to put in eight to ten hours of good, solid work, with two or three hours left for recreation, without interfering with the operation of hygienic laws? 2. Is there any work relating to this subject which you could recommend? 3. Please indicate some brand of soap that you consider pure. 4. Is Pears' soap pure?"

*Ans.*—1. Eat sparingly of vegetables, chiefly of fruits and grains and a moderate allowance of milk; milk often disagrees with brain workers. Avoid meats altogether. Easily digested vegetables are allowable. Peas, beans, and lentils, properly prepared, are of special value. Take two or three hours of vigorous exercise in the open air daily. Take a cold sponge bath every morning, and a warm sweating bath at least twice a week, with a thorough shampoo. Sleep eight or nine hours in each twenty-four.

2. "The Home Hand-Book of Domestic Hygiene and Rational Medicine," and "Man, the Masterpiece," published by the Modern Medicine Pub. Co.

3. Castile soap.

4. Have made no examination of this soap. There is nothing better than pure castile soap; the mottled is preferable to the white, as the white is sometimes adulterated.

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PIMPLES AND BLACKHEADS.—S. L. B., Penn., asks for a remedy for pimples and blackheads.

*Ans.*—This disease usually accompanies some disorder of the stomach or pelvic organs. Local treatment is of little value. Bathing the face with hot water for five or ten minutes two or three times a day is beneficial in many cases.

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PLANTS IN A SLEEPING ROOM.—F. A. V., Neb., asks: "Are plants injurious in a sleeping room?"

*Ans.*—No, unless they give off strong odors.

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CARE OF THE EYES IN READING—BEST POSITION FOR STUDY, ETC.—"Student" inquires: "1. What is the best method to avoid or relieve the weariness, pain, heat, and dimness of sight that come upon the eyes after hours of reading or study? 2. Which is the most healthful position to adopt for continuous reading or study? 3. To prevent an attack of piles, is it not best to have a feather pillow on the chair seat? 4. Is reading while lying on the back, with head raised, injurious to the eyes?"

*Ans.*—1. Probably glasses are required for some optical defect or weakness of some of the muscles of the eyes. Bathing the eyes with hot water will afford a temporary relief.

2. Sitting in such a position that the light falls over the shoulder.

3. No; this would be a good way in which to encourage the disease. A proper preventive measure is to secure regular and complete evacuation of the bowels by proper diet and sufficient exercise.

4. The position named is more or less taxing to the eyes.

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THE COOL MORNING BATH.—Mrs. J. C. K. writes as follows: "1. The cool morning bath causes, in my case, an almost unendurable prickling and itching of the skin. Why is this? 2. Would you advise the continuation of the morning bath during the menstrual period?"

*Ans.*—1. Probably because of too intense reaction. Use water at a higher temperature.

2. Yes; if regularly accustomed to it at other times.

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WRITER'S AND TELEGRAPHER'S PARALYSIS.—B. J. C., California, asks: "1. Is writer's or telegrapher's paralysis curable? It is said that Mrs. Humphrey Ward was afflicted with this disease, and tried everything to no avail until she was sent to a specialist in Germany, and underwent a painful ordeal. 2. Can it not be cured in this country?"

*Ans.*—1. Yes.

2. Yes; we are constantly treating such cases successfully at the Battle Creek Sanitarium.

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FALLING OF THE HAIR—CHILLY SENSATIONS.—A correspondent asks: "1. What is the cause of the falling of the hair? 2. What is a remedy? 3. What is the cause of frequent chilly sensations which occur alike in winter and summer? 4. Are these symptoms of any disease in particular? 5. What treatment, if any, is indicated in the case?"

*Ans.*—1. Disease of the scalp.

2. The disease, whatever it be, must be remedied. It is sometimes parasitic, sometimes failure of nutrition of the scalp. A competent physician should be consulted.

3. Probably a nervous symptom.

4. It is very likely an anæmic state of the blood, and a disturbed digestion resulting in a hypersensitive state of the abdominal sympathetic.

5. Improved tone of the skin will probably afford relief; this may be obtained by taking a cool sponge bath every morning. Wearing a moist abdominal bandage at night will be likely to prove a serviceable measure.

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COCOA, COFFEE, TEA, ETC.—A. S. B., Penn., inquires: "1. What is cocoa? 2. What relation do its effects sustain to the effects of tea or coffee? 3. What is the cause of, and what the remedy for, the disease familiarly known as 'scaldfoot'?"

*Ans.*—1. A preparation made from a bean produced by a tropical plant.

2. The effects are similar to those of tea and coffee.

3. Please send a more precise description of the disease.

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OLIVE OIL—LARD.—T. H. B., Washington, asks the following questions: "1. Is olive oil a healthful article to be used in cooking, such as the shortening of pie crust, and in the frying of various foods? 2. Is lard used in the manufacture of what is called pilot bread, hard tack, or sailor's biscuit?"

*Ans.*—1. No. There is no article which could be considered healthful used in the manner suggested. Pie crust shortened with fat, and fried foods are unwholesome articles of diet.

2. Probably not, as they would not keep well.

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A RED NOSE.—H. N. B., Mich., wishes to know what will cure a red nose.

*Ans.*—See answer to "a reader" in November number.

# RELIEF DEPARTMENT.

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

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

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

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

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

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

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

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

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No. 241.— A half-orphan baby boy living in Michigan needs the care of some kind-hearted mother. He is but four months old, with blue eyes and dark hair. He will need kind attention, and the love which only a true mother can bestow. We doubt not that the friends who will take this little one into their home will be fully rewarded for the time spent in caring for him.

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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.

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

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

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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?

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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.

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

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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?

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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.

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THE little four-year-old (No. 218) has been placed in a home in Minnesota. His new mother says concerning him: —

"He is bright and very winning, quite small for his age, and not very strong, but he is so loving. We both love him dearly, and praise God for sending us a precious little jewel. We know there is missionary work in training this little one for the Master. Johnny says he loves his papa and mama 'oh, so dearly.' He is learning to love the blessed Saviour also. The other day he came in from his play and stood by my side a minute, then looking up in my face said, 'Mama, does God know when I am naughty, and does he know all I say or do?' Then when I told him he did, he said, 'Mama, I am going to be real good so he won't see me naughty or hear me say naughty words.' And he has been real good. He is well and seems to be healthy."

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THE ten-year-old boy (No. 178) has been placed in a home in Nebraska.

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THE father of the two children has found a good home for his little boy and girl. He writes: —

"I was very fortunate in finding a family, who five years ago, had lost a little boy and girl, and the lady said my little girl looked so much like the little girl she had lost that she could love her as her own. In fact they thought the children would fill a vacant place in their home."

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Nos. 240 and 250 have both found homes in Michigan.

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WHAT we want is mothers and fathers who will take children into their homes and love them as their own. Children may live at a boarding place, but besides their being provided with the necessities of life, they need the refining influence of a home that is ruled by the power of love. If there are homes that are lonely on account of having lost a child, we trust that they will not remain in that sad condition, but remember that there are some little hearts that call for care and kind attention from some one, as they are deprived of the love of parents and the influences of a home. Do we recognize the opportunities of doing for "the least of these," knowing that it is more blessed to work for others than to be ministered unto?

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 reference. If possible, these should be known, either personally or by reputation, to some member of the Board of Trustees.

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## VISITING DAYS AT THE HASKELL HOME.

PERSONS intending to visit the Haskell Home will please note that the visiting days are Sunday, 4 to 6 P. M., and Wednesday, 2 to 6 P. M. It is necessary to make this announcement, as so large a number of visitors have been calling at the Home 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.

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## CHOTHING 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 500-pound rates. *We are obliged to ask that freight should be prepaid as a means of preventing loss to the work in the payment of freight upon useless packages.*

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

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

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

# LITERARY NOTICES.

"ISABELLA OF CASTILE."—By Major-General O. O. Howard, U. S. Army. Illustrated. Price, $1.50. Funk & Wagnalls Co., Publishers, New York City.

This Queen of Spain had a great soul. She came on the stage in a transition period—she consolidated provinces—she conquered in every civil strife, and triumphed in two great foreign wars. She broke the power of numerous petty sovereigns, and made Spain possible as a first-class kingdom. Her errors, as the writer has noted them, are now plain to the civilized world, such as are always found in earth's dignitaries; while her great virtues, purity of life and manners under most trying ordeals and environments, and other graces are set forth in this study, made by General Howard, with such clearness that only good can result from the perusal.

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HARPER'S MAGAZINE during the past year has printed two novels, "Trilby" and "The Golden House," which, in book form, will sell for the subscription price of the magazine, or a little less. Add to these, sixty short stories (enough for five books) by the best American and English writers, as many illustrated articles descriptive of travel, or of scientific interest, the comments on current events in the "Editor's Study," and the humorous anecdotes of the "Editor's Drawer," and the reader has every year two volumes of nearly a thousand pages each, filled with the best literature and the best illustrative art, in a variety that a large library could hardly surpass.

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THE *Arena* with its big Christmas number of over two hundred pages, opens the eleventh volume, and its increasing bulk, as well as the repute of its contributors and the standard and character of its literature, indicate its extending influence and prosperity. In the December issue there are contributions from some of the greatest writers of our day, and some of the most delightful and entertaining of the younger American essayists and fictionists. In the former class are Professor Max Muller, the great Oriental scholar and authority on language and comparative religion, of Oxford University, and Count Leo Tolstoi, the famous Russian novelist and social reformer. In the latter are Hamlin Garland, the author of "Main Travelled Roads;" Will Allen Dromgoole, the Southern story writer; Rev. Minot J. Savage, the famous Boston preacher; B. O. Flower, the editor of the *Arena*; Walter Blackburn Harte, the author of "Meditations in Motley;" Henry Latchford, and Helen H. Gardener, the popular novelist.

HARPER'S WEEKLY for November 3 has four pages of text and illustrations devoted to the exhibition of portraits of women at the Academy of Design. These illustrations are from photographs taken for the *Weekly* by James L. Breese. The "Judgment Books," a forceful story by E. F. Benson, is concluded. There is an interesting article on the capital flight in Montana, with views of the rival cities. "Potato Day" in Kansas, a festival of rejoicing that takes the place of our Eastern "Harvest Home," is described and illustrated. There are some interesting notes upon affairs in the East, where Japan still advances. There is a sketch of the late James Anthony Froude, with a portrait, also a portrait of Senator Faulkner, and an interesting sketch of the great meeting of the Salvation Army in New York.

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"THE BOY CAPTAIN."—By Captain Nautilus. Published by C. Eldridge, 611 Medinah Temple, Chicago, Ill. 268 pp. Paper, 25 cents.

A sea tale of lively adventure, whose mission seems to be at once to amuse and interest. That the author himself is an "old salt" is plainly *en evidence*. The scene is laid in the good old days of sailing ships, when fine seamanship was at a premium, and the young hero of the "yarn" is the ideal sea captain. Brave, impulsive, magnanimous, frank, cordial, and generous, he has yet an admixture of boyish fun and frolic such as would keep him, metaphorically speaking, "in hot water," alike with friend and foe, were it not that his genuinely noble character wins him forgiveness and immunity even in his worst pranks. The book throughout is refreshingly optimistic, and its healthy moral tone will commend it to those selecting pure and wholesome reading for the young.

---

"EGYPT IN HISTORY AND PROPHECY."—By Robert Patterson. H. L. Hastings, Boston.

This book is "No. 2." of the "Anti-Infidel" literature, published by the same house, and, like all other publications of this house, its aim is to increase faith in a divine and governing Intelligence, and to antagonize the skeptical tendencies of the age. In this little work the author has gathered together a wonderful mass of facts in demonstration of the fulfillment of prophecy in the history of Egypt. No one can read the book without feeling convinced that "there is a Providence that shapes our ends, rough hew them as we will." The work ought to have a wide circulation.

# PUBLISHERS' DEPARTMENT.

GRADUATION OF MISSIONARY NURSES.—The annual graduating exercises of the Sanitarium Training School for Missionary Nurses were held on the evening of the 3d inst., in the Sanitarium gymnasium. Upon this occasion twenty-four intelligent, capable young men and women were newly enrolled in the ranks of the Sanitarium corps of fully-equipped missionaries, a force which already numbers several hundred persons, many of whom, including the Sanitarium medical students graduated from the best medical schools in the country, are now pursuing their life work in various parts of the world. Members of the 1st, 2d, and 3d year classes, and also of the special classes of the Course, together with medical students to the number of several hundred, were present at the exercises. The platform was prodigally decorated for the occasion, palms and potted plants being dispersed here and there, while a beautiful bank of chrysanthemums was massed at the rear, with clusters of palms and flowers at the sides.

The program for the evening was introduced by a prayer by Elder Olsen, which was followed by an address by Dr. Kellogg. Dr. Kate Lindsay next gave an able address on "Conscientiousness in Little Things." Mrs. S. M. Baker of the class of '88 furnished an able and interesting paper on "Missionary Nurses' Opportunities," while Miss Worthie Harris contributed an appropriate poem, "Earth's Beacon Light." Miss Eliza Burleigh, in a paper, "A Year's Retrospect," gave an interesting account of the medical missionary work done within the year in this as well as in other countries by graduates from the school. Elder Olsen spoke comprehensively of the growth of the work, and of our present representation in different lands. He was followed by Elder Fargo, who in a few brief remarks expressed his cordial sympathy and interest, and his hearty concurrence in what had already been said. Dr. Kellogg, then, in a few well-chosen remarks made the presentation of certificates to the graduates. Looking over the program, he said he had been struck by the number of different nationalities represented in the various classes, and naming each country in turn, he called upon the individuals from each to rise. It was found that twenty-nine different States were represented, and twenty foreign countries; namely, Australia, Asia Minor, British Guiana, British Columbia, Canada, Denmark, England, France, Germany, Ireland, Japan, Norway, Nova Scotia, New Zealand, Palestine, Spain, Switzerland, Sweden, South Africa, and Tasmania.

The exercises were most agreeably interspersed with music, both instrumental and vocal, rendered by Mrs. William Arnold and members of the class. At the close a chorus was sung by the entire school,—"Hark! the voice of Jesus calling."

* * *

A GREAT musical treat was recently afforded the patients of the Sanitarium in a piano recital given by Miss Marie Louise Bailey. The spacious parlors were crowded to their utmost capacity with a thoroughly appreciative audience.

Miss Bailey is an American-born girl, but has received her musical education in Germany, under such eminent teachers as Reinecke and Leschetizky, the latter of whom

was instructor to Paderewski. She is barely twenty years of age, but has reached a degree of proficiency rarely attained, even by mature artists. Her performance at the Sanitarium justified the opinion expressed by a correspondent of the *New York Musical Courier:* "Her technique is marvelous, clear, distinct, and powerful; her touch is excellent; her phrasing is brilliant; and her musical conception and temperament are beyond criticism." Her selections were from Chopin, Mendelssohn, Rubenstein, and others, and one number was her own composition. It showed her to be a gifted composer as well as interpreter, and was received with warm applause.

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The Medical Mission recently established at Guadalajara, Mexico, is reported by D. T. Jones, the superintendent, and Dr. Wood, the physician, as being in a most flourishing condition. Two teachers, three nurses, a superintendent, a physician, and several native assistants are constantly employed in caring for the sick who throng the Mission, seeking relief from chronic maladies of every description, which have for years defied the best skill of native physicians. There is no more beneficent kind of work on earth than this, and it is gratifying indeed to see the high degree of appreciation accorded this missionary effort by the Mexican people. The work seems to be in favor with all classes, since the wealthy as well as the poor come seeking relief, and freely offer liberal compensation for what is done for them. Through this means the work of the Mission is coming to be nearly self-supporting, and it is hoped that it will soon be entirely so. A department was recently added for the accommodation of patients who are able to pay for their treatment. An electrical bath, shipped from this country, has been installed, together with various other appliances, so that fairly efficient treatment can be given.

In fact the Mission has not only proved a success as a medical mission, but has also developed into a sanitarium. Applications from patients have been so numerous that it has been found necessary to lease additional buildings to accommodate them. Patrons who are able to pay for whatever is done for them include not only Americans resident in Mexico and Mexicans of the better class, but also persons from the States, who find it necessary to visit a salubrious locality for the winter for the benefit of climatic change. Guadalajara is one of the most favored spots on earth. From December to June the days are always sunny. Rain falls during the summer time, but only for an hour or two in the afternoon or evening, the sun shining the rest of the time. Abundance of tropical fruits, beautiful surrounding scenery, and interesting people furnish a constant fund for entertainment to invalids or travelers. A few boarders, as well as patients, are received.

For a certain class of invalids there is probably no better place in the world than Guadalajara, and perhaps none equal to it. This is especially true of invalids suffering from pulmonary ailments, particularly tuberculosis. The objections which have been raised to Colorado and other similar climates are the severity of the winters, the numerous and rapid temperature changes, and the fierce winds of spring, accompanied always by disagreeable dust storms. Guadalajara is free from these objections. The altitude is exactly the same as that of Denver— 5200 feet. It has perpetual summer— a few frosts in December, but sunshine every day in the year. For six months no rain falls, but there is dew sufficient to keep the flowers flourishing.

Those who are interested in Guadalajara as a winter resort should write to D. T. Jones, No. 109 Calle del Carmen, Guadalajara, Jalisco, Mexico.

***

THE work of the Chicago Mission is as prosperous as ever. There has not been a dull day in the Mission since its opening, one year ago last June. The Branch Sanitarium, 28 College Place, is being enlarged by a two-story addition on the east side, the lower part of which will be used for a store for health foods, the demand for which is rapidly increasing, and the upper part will be used for offices.

Drs. Place, Johnson, and Hubbard are constantly employed in connection with the Sanitarium and the Medical Mission at 40 Custom House Place. Dr. Kellogg visits the Sanitarium and Mission once a week.

***

THE Haskell Home, the gift of Mrs. C. E. Haskell, is constantly receiving additions to its already numerous family, and the work of developing this beneficent enterprise is rapidly progressing. The children greatly enjoy the nature studies conducted by their teacher, Mrs. Whitman, and one would have to travel far to find a happier sight than that of the little ones busily engaged in kindergarten work under Miss Rumery. The whole life of the child is organized and under the influence of disciplined training, and yet everything is made so interesting that the thought of drudgery never enters the mind of the child. Somebody has defined work as that which we do n't like to do, and play as that which we like to do, so to make the child enjoy his occupation, whatever it may be, is to make it play for him. Systematic training in calisthenics gives the children an opportunity for all-round development. There is no separate institution in the world where a child has so good an opportunity for growing up into well-rounded manhood or womanhood, or a useful life, as here.

***

WINTER TOURS VIA THE MICHIGAN CENTRAL.—November 1, the Michigan Central placed on sale round-trip tickets to all the principal winter resorts in Florida, Georgia, South Carolina, Alabama, Louisiana, Mississippi, Texas, and New Mexico. Tickets will be on sale until April 30, 1895, and limited for return until June 1, 1895. For full particulars, rates, etc., call on or write to Geo. J. Sadler, ticket agent, Battle Creek, Mich.

# GOOD HEALTH

EDITED BY J. H. KELLOGG, M. D.

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VOLUME XXIX

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GOOD HEALTH PUBLISHING COMPANY
LONDON, ENGLAND; NEW YORK CITY; BATTLE CREEK, MICH.
1894

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### HOME CULTURE.



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## LITERARY NOTICES.

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The following are the titles of the principal sections of the work:—

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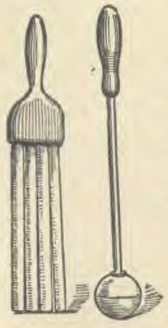
# Muscle-Beaters



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# Cannon-Ball Massage

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

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

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# 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.

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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.

**Send for Catalogue.**

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

# THE SANITARIAN

**1873.—Twenty-Second Year.—1894.**

THE SANITARIAN is a monthly magazine devoted to the promotion of the art and science of sanitation, mentally and physically, in all their relations; by the investigation, presentation, and discussion of all subjects in this large domain, as related to personal and household hygiene, domicile, soil and climate, food and drink, mental and physical culture, habit and exercise, occupation, vital statistics, sanitary organizations and laws,—in short, everything promotive of, or in conflict with, health, with the purpose of rendering sanitation a popular theme of study and universally practical.

THE SANITARIAN is filled with articles of scientific interest and practical value. It would be difficult to plan a better professional magazine than this, which is to the medical world what the *Scientific American* is to the artisan world. It deserves a greatly increased circulation. —*Baltimore Methodist.*

THE SANITARIAN is not only an interesting magazine to the specialist and the medical man, but it is of high value to thickly settled communities, to homes, to general readers, to city authorities—indeed, we would place the journal, for public good, in the hands of every adult, believing that misery and suffering would thereby be lessened and human happiness augmented by the knowledge the journal disseminates. —*Sacramento Record-Union.*

### TERMS:

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

The SANITARIAN is published as hitherto, in New York. **THE AMERICAN NEWS COMPANY, General Agents.** Newsdealers will get their supplies from them.

☞ All correspondence and exchanges with the SANITARIAN, and all publications for review, should be addressed to the editor,—

**Dr. A. N. BELL, Brooklyn, N. Y.**

# NON-ALCOHOLIC KUMYSS

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

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

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

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

## Sanitarium Health Food Co.,

**BATTLE CREEK, MICH.**

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## 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 B. C. Pass. | 5 P'fic Ex. |
| a m | p m | p m | | | | p m | p m | pm | | a m |
| 9.00 | 3.10 | 8.15 | a m | ..... | .....D.Chicago A..... | 6.45 | 1.50 | 9.10 | ..... | 7.50 |
| 11.25 | 5.05 | 10.30 | 6.00 | ..... | .....Valparaiso..... | 5.05 | 11.35 | 7.10 | ..... | 5.45 |
| p m | | | | | | | | | | |
| 1.05 | 6.30 | 12.00 | 10.05 | ..... | .....South Bend..... | 3.10 | 10.15 | 5.44 | ..... | 4.10 |
| 1.46 | 7.12 | 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.*

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## 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 | 6.28 | | 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. | *NY.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.

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With positive Hygienic, Prophylactic, and Therapeutic properties.

GOOD IN ALL AFFECTIONS OF THE SKIN.

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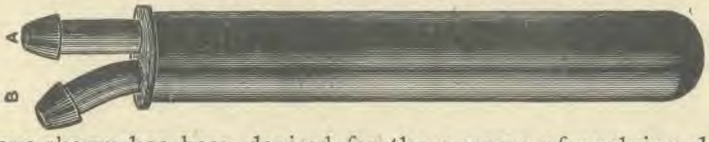
These bags are designed for making applications of ice to the head, throat, or spine. Where ice cannot be obtained, very cold water may be used. It avoids the necessity for wet cloths, which wet the patient's clothing, soil the bedding, and require constant renewal. The mode of fastening renders the bags water-tight.

## HEAD BAGS.

Beneficial results may often be obtained by the use of one of these bags in cases of headache. They are very light, and can be filled with either hot or cold water. They are easily carried and readily applied.

## Instrument for the Application of Heat to the Rectum.




HALF-SIZE

The instrument above shown has been devised for the purpose of applying dry heat to the rectum and other passages. It may also be used for cold applications, or alternate hot and cold applications. It is used in connection with a fountain syringe, a current being passed through it either hot, cold, or alternately hot and cold. Different sizes are employed, according to the use for which the instrument is desired.

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| | Cts. per lb. |
|---|---|
| Oatmeal Biscuit | 12 |
| Medium Oatmeal Crackers | 10 |
| Plain Oatmeal Crackers | 10 |
| No. 1 Graham Crackers | 10 |
| No. 2 Graham Crackers | 10 |
| Plain Graham Crackers, Dyspeptic | 10 |

| | Cts. per lb. |
|---|---|
| Water Crackers | 10 |
| White Crackers | 10 |
| Whole-Wheat Wafers | 10 |
| Gluten Wafers | 30 |
| Rye Wafers | 12 |
| Fruit Crackers | 15 |
| Carbon Crackers | 15 |

| | Cts. per lb. |
|---|---|
| Wheat Granola (bulk 10) | 12 |
| Avenola (bulk 10) | 12 |
| Granola (bulk 10) | 12 |
| Gluten Food No. 1 | 50 |
| Gluten Food No. 2 | 40 |
| Gluten Food No. 3 | 20 |
| Infant's Food | 50 |

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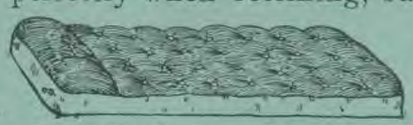

**MADE IN ALL SIZES.**

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

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**BATTLE CREEK, MICHIGAN.**

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