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THE EDUCATION OF THE POOR IN HYGIENE AND SANITATION.

BY J. H. KELLOGG, M. D.

THE education of all classes of society, especially of the poor, in matters relating to health and sanitation, is one of the most imperative needs of the time. No one who has studied, even in the most superficial manner, the conditions of the poor of our great cities will deny that there is a most crying demand for instruction with reference to every subject relating to individual hygiene and home sanitation. One unmistakable evidence of this is the fact that the slum district, the tenement-house district, that section of the city in which the poor huddle together, attracted by a common sympathy with one another's miseries, is also the section in which disease most abounds, where the average death-rate is highest, the average life-rate shortest, the number of defectives greatest. The slum is a plague spot; it is not only an evil to the people who dwell within its precincts, but a menace to the city, to the commonwealth, to civilization itself. It is a veritable Pandora's box, out of which continually arise evils innumerable, social, moral, political, physical; the ranks of lunatics, idiots, imbeciles, drunkards, epileptics, thieves, prostitutes, criminals of all sorts, and defectives of all classes are continually recruiting from the slums. In New York City one fourth of all the people who die in the tenement-house district die of consumption; in other portions of the city the proportion of deaths from consumption is one in seven. But the consumptives who live in the slums do not remain there. They go about the city on the sidewalks, in the street-cars and other conveyances; they expectorate everywhere, and thus spread abroad the seeds of a malady which is more speedily fatal than leprosy, which it in many respects closely resembles, and which is scarcely more tenacious in its hold or more difficult to cure.

It may perhaps be truthfully said that the chief characteristic of the slum, that in which it differs more than in any other respect from other portions of the city, is the universal presence of filth of every description. The streets are dirty, the gutters reeking, the garbage boxes overflowing, because no one is public spirited enough to see that the proper officials do their duty. A general air of hopelessness, neglect, and despair broods over the slum, and the homes of those who dwell in this region present internally as well as externally an aspect of the most utter hopelessness, neglect, and unconcern.

It is evident that the reformation of the slum can never be accomplished by law. It must be done by education. The peo-

ple must be taught to reverence their bodies, to recognize and respect the laws of health; they must be made intelligent in relation to the significance of dirt, the advantages of cleanliness, the nature and qualities of food and its relation to strength and health,—in fact, the entire science of wholesome living.

Nearly one half of all the children born among the poor die before they reach the age of seven years. Among the Jews, whose religious customs and laws require some knowledge and observance of the principles of health, especially in relation to diet and cleanliness, the death-rate among children is scarcely more than one half that among the general population, and the same superiority in relation to health and longevity appears at every period of life. The causes of these premature deaths can not to any extent be reached by quarantine or by those sanitary agencies generally called by the term "public sanitation." The reformation of the slum must be by such means as will reach the individual man, the individual woman, the individual home.

Among the agencies which seem especially likely to accomplish this we would mention cottage schools of health, in which mothers may be taught how to prepare wholesome food from such materials as their means enable them to purchase, and by the aid of such appliances as the ordinary kitchen affords. In these schools special attention should be given to the proper cooking of grains, which are rarely ever more than half cooked in the homes of either rich or poor; also to the preparation of the principal legumes,—peas, beans, lentils,—and the use of fruits and nuts. The ordinary cooking-school, which gives special attention to pies, cakes, and complicated and dyspepsia-producing mixtures of various sorts, is not likely to be of any particular service in the humble homes of the poor.

In connection with the practical cooking-school, valuable lessons in dietetics may be given. The housewife may be shown how to make up a bill of fare from such materials as will provide, with the least expense, the largest amount of energy, the greatest number of food units, and how to make these simple preparations so attractive and inviting to the eye and the palate as to satisfy the appetite, and secure sound digestion.

A model cottage school of health will also give instruction in the principles of healthful dress, for the benefit not only of the mother, but of all the members of the family. Unquestionably, women suffer more from improper dress than from almost any other one cause. Many a poor mother goes through life discouraged, disheartened, and despairing because of weakness directly resulting from an unwholesome mode of dress. Children are neglected, the home is in disorder, the husband is perhaps driven to drink, and her life and that of those about her is made miserable, simply on account of ill health, the cause of which she does not suspect, and which continually waxes worse in spite of any effort that may be made to ameliorate her condition.

The use of the bath, and the simple use of water as a means of relieving pains and sundry other ailments ought to be taught in such a school, also the general care of children, the care of the clothing, the sanitary care of the premises, the virtues of sunlight, the dangers of dust. These and numerous kindred topics naturally find their place upon the program of the school of health.

The district nurse may accomplish a world of good by means of fireside teaching, pointing out in a homely, practical way the death-dealing agencies which lurk unseen, unheeded, and unsuspected in so large a proportion of the homes of the poor.

FROM MADAM NATURE'S SPRING FASHION BOOK.

IN THE FOREST OF FONTAINEBLEAU, FRANCE.

Every city ought to provide a sufficient number of public baths and laundries which shall be open to all upon the payment of a few cents, as an efficient means of aiding in the formation of correct hygienic habits.

Gymnastics, lavatories, and when possible, swimming baths, should be connected with our public schools. The children should be taught to sit, stand, and walk correctly, and should be taught swimming as well as other forms of gymnastics.

Every public school should be visited weekly by a trained nurse, and monthly or more frequently by a competent physician for the purpose of inspecting the physical condition of the children, and the sanitary conditions of the school. The education of the children is one of the most effective means of educating the parents and renovating the home.

Small leaflets presenting helpful hints for mothers may be circulated from door to door. Popular lectures on leading health topics may be given by physicians, preferably by those residing in the neighborhood, and who are thus personally known to the people.

The government should provide food inspectors for the benefit of the poor as well as the rich, and sanitary inspectors whose duty it should be to visit every home—not once a year, but once a month if possible, or at least quarterly — for the purpose of inspecting, not alone the general condition of the premises, the condition and size of sleeping-rooms, the sewerage, etc., but the general health of the inmates, the air supply, methods of heating, condition of the basements, and so on.

Both rich and poor need to be trained to the point of recognizing the body as the noblest and most precious of man's possessions, and worthy of the highest respect and the most conscientious care. Society needs to organize and recognize a new aristocracy, — an aristocracy of health, the membership in which shall be open to the poor as well as to the rich, the only necessary qualifications being sound physical health and correct habits of life. An aristocracy of wealth has no just foundation. It is indeed an artificial and illegitimate classification. An aristocracy of health would be truly a royal fraternity, one characterized not by blue blood, but by red blood. Health means energy, either active or latent. In every branch of human activity it is power that rules at last. Let society discover that health, not wealth, is the dominating factor, that energy of mind and body, not high pedigree, not titles, or government bonds, is the ruling interest, and there will be among men and women a wholesome emulation to reach the highest standard of health, vigor, and endurance, and there will arise an earnest inquiry into the ways and means whereby health of mind and body may be most certainly promoted.

What the world needs is not so much legislation as education ; not charity, but enlightenment ; not the hand of power, but the hand of brotherly kindness reached out to help it up to that higher and happier life which is the legitimate result of obedience to all those divine principles of life and conduct which are implanted in man's constitution, and which are the natural outgrowth of his relations to his God, to his brother man, to himself, to his environment.

THAT man may last, but never lives,
Who much receives, but never gives,
Whom none can love, whom none can thank,
Creation's blot, creation's blank.

— *Thomas Gibbons.*

THE FASHIONS OF NATURE.

BY MARY HENRY ROSSITER.

NATURE, the tailor, makes all her clothes to order. She is never guilty of a misfit. Her measurements are accurate, her taste and judgment perfect. The trees come to her in spring to receive their beautiful garments of leaves. The coats of bark she made them many years ago are freshened and repaired for the summer season. Attired by her, the oaks, the elms, the maples,— all the trees of grove and forest fling their branches to the sunshine, and thrill with joy. Their movements are free and unrestricted. Their dresses are not loose in one place and tight in another. No bands or stays restrain the graceful tossing of their boughs. No stiff and heavy interlining drags them down. No narrow shoes crowd and cripple their spreading roots. Every part of their clothing is adjusted to the delicate mechanism of a living form.

Suppose that when the trees were fifteen years old, Nature should tighten the bark about their trunks so that the sap could scarcely squeeze through. Their leaves and branches would soon wither and die. But that is not the fashion of Nature.

The animals and the birds are also clothed by Nature; but she does not demand that they change the shape God gave them so that her skins will fit. She carefully takes each measurement and allows for every motion. She gives the dog's muscles room so that he can run and jump and bark. The wings of the bird are left free and light, and the covering of his throat is made soft and flexible so that he can fly and sing with comfort, and add to the joy and beauty of the world. True, it is her fashion to adorn him with feathers, but they are his own, and not torn from some other sensitive body to make him gay.

The fashions of Nature change only with the seasons, and not with the years. In winter she covers the grass with snow, and takes away their green dresses from the trees and shrubs. She makes a warm coat for the horse, but the style of its cut is still the same. She gives all her customers rougher and hardier garments; otherwise there is little change. Her children wear their old clothes in the spring until the rubbish of winter has been swept away, and the heavy winds and rains have made the whole earth fresh and clean. Then she brings out their daintiest robes, and sends them forth to inaugurate her annual spring opening. If a connoisseur of Nature's fashions a hundred years ago, were to visit the earth again this May, he would find that the grass still wears a plain princess gown; that the style of the oak leaf has never been altered; that the robin perennially dons a red vest; that Nature still arrays the crow in black; that the leopard has not yet changed his spots. Nature evidently believes that, having once found the most suitable and becoming costume, it is a waste of both art and energy to change. The patrons of Nature do not demand it.

As a tailor, Nature is not only hygienic and sensible, but she also has exquisite taste and tenderness. She dresses the trunks of trees in dark and serviceable colors because they have to meet the wear and tear of street and forest life, the jostle of horns, the contact with wild beasts or people,— all the incidents of constant association with creatures of the lower atmosphere. She robes the violet, the rose, the lily, in beautiful and delicate colors, that their loveliness and helplessness may protect them, and win for them care and love. She gives the polar bear a shaggy coat, but a smooth hide to the elephant. She considers with infinite patience and judgment the need, the circumstances, the disposition, the work, of every plant and every animal.

Let us go back to Nature and learn of her, is the persistent cry of the times. If all the people who make

clothes would go to Nature for their fashions, what a transformation, instant and far-extending, would rejoice the earth! Clothes would then be fitted to the man, not the man to his clothes. Instead of wearing out their lives trying to find something new to wear with every change in the calendar, people would study this great artist until they found that particular fashion best adapted to their individual peculiarities and needs, and having found it, would make only those modifications from year to year that might be suggested by different seasons or advancing age. Could any woman have a higher ambition with regard to her dress than to be clothed with the beauty, simplicity, and healthfulness of the lily of the field or the wild rose by the wayside?

MEDICAL GYMNASTICS IN SWEDEN.

BY JAY W. SEAVER, A. M., M. D.

THE observant visitor to Sweden will be impressed, first of all, by the fine carriage and healthful appearance of the people whom he meets. A reason for this will be found when he visits the schools of the country, and finds there, ingrained in the school system, an appreciation of the fact that the school may be made to act as favorably on the physical growth of the child as it does upon his mental growth. As a result we find a system of exercises taught in all grades of the schools that have as their purpose not only a hygienic quickening of functional activities of the organism by exercise, but what we may call an orthopedic, or corrective, purpose, in that these exercises are devised with the intent to correct such abnormal poses and habitual postures as are likely to become characteristic of student life, such as the flattened chest, the flexed spine, etc. The children are not only taught these exercises, but there is a direct, constant, personal supervision of every child while taking the exercises to insure the correct execution of each movement; for it is firmly held as an article of the Swedish gymnastic creed that the value of a movement depends more on its correct execution than on the mere muscular exercises involved in it. With this primary idea of good form for the body, they add such exercises as shall tend to increase the respiratory movements and the strength of the circulatory organs; so that no program for a period of exercise would be complete without including such exercises as should notably increase the frequency and amplitude of respiration and the quickening of heart action. The idea of school gymnastics further includes a development of certain mental qualities through the physical work, attention being especially held in estimation, and being largely developed by their methods of giving the physical exercises, there being no such thing as a memorized drill or series of routine movements.

We would find, however, that what we may call the gymnastic idea is not confined to educational institutions, but that it permeates all society. They divide gymnastics into four great groups; the first division being the pedagogical, or educational, form just described; the second form, the military gymnastics, designed to give special aptitude to those young men who are training for military life, and devised to give quick reaction time in response to orders, and a hardiness and vigor of the body that shall be adequate to withstand the hardships found in military service. Many of these exer-

cises are pedagogical in form, but they all lead up to exercises in personal physical contests, as sword exercises, bayonet exercises, etc. A third class of gymnastics is the so-called artistic gymnastics, or esthetic gymnastics, which are in vogue only in special preparation for acting and in connection with elocutionary work, the intent of the exercises being to express by movements certain mental conditions and emotions. The fourth form is of high importance and utility, and is that which we shall now describe more completely. It is the so-called medical gymnastics, or, to translate the name literally, "sick gymnastics." The Germans have translated this somewhat freely but more happily by the term *heil gymnastik*, or health gymnastics.

This department of gymnastics has attained an approved standing among the medical profession in Sweden, so that we find in the city of Stockholm a number of clinics at which patients are treated as they would be in a medical clinic in one of our American cities, except that no medicine whatever is dispensed, and exercise alone is used as the therapeutic means. If, in the estimation of the physician in charge of one of these clinics, the patient needs medical care, he is transferred to another clinic for this treatment, and, drug medication having been completed, the case may again be referred to the gymnastic clinic.

The term "medical gymnastics" is a general one, and includes three subclasses: first, "active movements," which are made by the patient according to the directions given him; second, "passive movements," or those which are made by the operating gymnast on the quiescent body of the patient; and third, "resistive movements," which are accomplished by the union of the activity of the patient, either resisted or assisted by the operator.

The first class, or active movements, includes exercises without apparatus, usually called free exercises, those with movable apparatus, and those with fixed apparatus. The first one of these subdivisions is much the more common form, and movable apparatus is used least frequently.

If one were to visit a large clinic, like that held every morning in the Royal Central Gymnastic Institute, he would find that at eight o'clock a class of men, most of them past middle life, were present in one department for treatment for various disorders, largely those of impaired circulation or nutrition. In another department would be found a class of women of all ages, who are treated by women gymnasts for a similar set of disorders, although all classes of cases that are considered to be amenable to gymnastic treatment will be found among them. This clinic is in charge of Dr. Levin, who makes a diagnosis of each case as it comes to the clinic, writes a prescription for exercise, and assigns the patient to a particular gymnast for a period of a month, should the case need treatment for that length of time. The patient is then put under active treatment, following the prescription, and a director supervises the manipulations and sees that the operator understands fully the work indicated and the best methods of performing it. A record is kept of the progress of the case, and unfavorable or especially favorable changes are thereby called to the attention of the chief of the clinic. The room in which this clinic is held is large, well lighted, and well ventilated, with a number of small dressing-rooms at either end, where patients are prepared for the special exercises to be given. At eleven o'clock a free clinic is directed by Dr. Murray, in another suite of rooms.

The apparatus in this large room is principally a series of tables, or plints, that are rather lower than an ordinary

table in height, and are made with the top about fourteen inches wide and upholstered with a plush covering. The general form of these plints is seen in Fig. 1. Stall bars are also placed against the walls of the room, and boms are so distributed as to be readily available for the treatment of any case where their use is prescribed. Appliances for suspending patients by the hands and also by the head are found. (Fig. 2.) A small form of bom in a frame that can be moved about the room is also somewhat used in the treatment of cases of spinal curvature. A device that is of great value in giving support to a patient while being treated and in giving exercises of trunk-extension is seen in Fig. 3. The low plint, seen in Fig. 4, is in use for treating very feeble patients and those having special forms of digestive disability, but when the patient can be placed in any position favorable to the operator, the stool seen in Figs. 3 and 5 is ordinarily employed.

FIG. 1.

These pictures were taken in the orthopedic institute of Dr. Andreas Wide, which is the largest in Stockholm, and receives patrons from all over the world. Several Americans were in this institute last year.

The exercises used depend largely upon the condition of the patient. Many of the cases are treated at first only by passive movements, or massage, and when the circulation and the general tone of the tissues have been sufficiently improved, resistive exercises and mild forms of active exercises are employed. The work is so carefully graded that the patient progresses from work requiring no effort up to the greatest exertion which it is desirable for him to undertake.

As the patients are usually more or less deviated from a normal form, many of the exercises are corrective in tendency; that is, they are devised with the idea of replacing tissues until they bear a normal relation to one another, and often considerable force is exerted in these movements of replacement. At times the work requires two gymnasts working in unison on the case, one acting for the support of the patient while the other executes passive or assistive movements, and sometimes the gymnasts work in directions opposed to each other, the patient being thereby stretched or forcibly placed with the organs in better relative position.

But whatever stress may be laid upon passive movements, I think I found no practitioner of medical gymnastics who did not constantly strive to arouse activity on the part of the patient toward volitional movements as the crowning feature of the curative process. In the advanced treatment of scoliosis,

FIG. 2.

FIG. 3.

for instance, they constantly speak of the "education of the muscles" to hold the body in correct form, and our most successful method has been along this line.

I have referred to only two institutions where gymnastic treatment is given in Stockholm, but there are at least three other large clinics where patients are received under various conditions. Among these, the Zander Mechano-Therapeutic Institute has the largest patronage, but here one finds the mechanical genius of Dr. Zander following anatomical rather than physiological laws, and the institute can hardly be called gymnastic, although working along coordinate lines. It cultivates the field of passive movements in a masterly but novel way, and more than two hundred pieces of apparatus bear witness to the indefatigable energy and ability of the man whose name the institute bears. As all of these clinics are open to the inspection of visitors, one may see as many cases each day as his time will permit. There being from three hundred to four hundred cases a day under treatment, the variety of material for study is excellent, and the demonstration of results is clear.

FIG. 5.

The influence of the various forms of exercise on the circulation seems to be the most marked feature of the treatment. The beneficial effect of the exercise on the more remote organs, like the digestive tract, is believed to be secured largely through an improved circulation established by these active or passive exercises; or the mild stimulation of the nervous system produces nutritive changes that may not be wholly due to improved circulation. The rousing of the blood-making function is accomplished in a highly satisfactory way in many of these cases, profound anemia and chlorosis responding after a few treatments more readily than they ordinarily respond to medication by drugs.

FIG. 4.

In this country we look upon gymnastics as being especially valuable in the treatment of certain cases of organic deformity, as in spinal

curvatures. In Sweden the range of the work is very much broader, and the success of gymnastic treatment in general systemic disorders, not zymotic in form, leads me to believe that we have in this country only partially utilized the possibilities of gymnastics, and have much to learn from our neighbors in this respect.

I can not close without a word in testimony and praise of the unfailing politeness and courtesy that our Scandinavian brethren extend to all Americans. They may be dogmatic teachers, but they are a warm-hearted, liberty-loving people, and to all such we are proud to claim kinship.

THE HYGIENIC MANAGEMENT OF INSOMNIA.

BY W. H. RILEY, M. D.,

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(Continued.)

3. *The Causes of Insomnia.*—As we have already mentioned, insomnia is not strictly a disease, but rather a symptom of some abnormal condition of the body or of one or more of its organs. It is frequently a troublesome symptom in organic diseases of the brain, heart, and kidneys. It may also be caused by other distressing symptoms, such as pain in any part of the body, or a persistent cough which may be present in diseases of the lungs. It is also frequently an annoying symptom in continuous fevers, such as typhoid. In these fevers insomnia is undoubtedly produced by poisons which are present in the tissues of the body, and which are really the cause of the fever.

The present paper, however, is intended to deal more particularly with the insomnia that is produced by other causes than those already referred to, and causes which can be readily removed, as a rule, if the person afflicted will take the necessary pains.

Among these more common causes of insomnia are the following: Irregularity in the hour of retiring, indigestion of various forms, the use of tea and coffee, a lack of sufficient physical exercise, unfavorable surroundings for sleep, a neurasthenic state, or nervous exhaustion, and worry. The habit many people have, especially in fashionable circles, of retiring late and irregularly, is very pernicious, and one of the most prolific causes of insomnia.

We have already noticed that the body in performing its functions passes through certain cycles. These periods of activity and rest are fundamental and physiological. It is one of nature's laws relating to the functions of the body that all of its organs should have certain periods for work followed by certain periods for rest. Anything that breaks up this rhythm in the function of any organ is detrimental to it. When a person does not retire at the proper time to give the nervous system and the body a sufficient amount of rest, the nerve cells, which make up the nervous system, do not have time to build themselves up, and so are unfitted for doing the best and the proper amount of work the day following. More than this, these irregularities break up the habit of sleeping, and lead to insomnia. In order to maintain the best degree of health, one should have plenty of sleep; and this can best be attained by regularity in the sleeping hours.

Indigestion in its various forms is another common cause of insomnia. One who is troubled with insomnia should look well after the stomach and digestive

apparatus. Food should be simple, plain, and well cooked. All articles of diet that are difficult of digestion, such as coarse vegetables like cabbage, turnips, beets, carrots, should be avoided, also all irritating substances, such as spices, pepper, pepper-sauce, and other irritating sauces and condiments. He will find it greatly to his advantage to adopt a vegetarian diet. Plenty of ripe fruit, with well-prepared grains, and a moderate use of vegetables will be found to be the best diet for such a person. Two meals a day are better than three, as a rule, for those suffering with insomnia. The stomach does not carry on its work so well during sleep as when one is awake.

We have already noticed that all the functions of the body are greatly diminished during the sleeping hours. Many who eat late suppers lie awake, toss about restlessly in bed, and arise the next morning unrefreshed, and wonder why they have not slept better. The trouble is that they have had undigested, irritating food in the stomach that has acted as an irritant to the nervous system during sleep, and if it has not kept the person entirely awake, it has made him restless, and his sleep on account of this has not been restful and refreshing. In the morning he awakes with a bad taste in his mouth, he feels nervous and tired, and unfit for the duties of the day. A person so afflicted will find it greatly to his advantage to take but two meals a day, and to take the last meal of the day at least six hours before retiring.

Occasionally one finds a person troubled with insomnia who seems to sleep better if he has a small amount of food in the stomach when he retires. In my own experience as a physician, I have occasionally met with such individuals, and have sometimes prescribed light food in a fluid condition to be taken just before retiring. But food thus taken should be predigested; such food, for instance, as malted milk, malted nut meal, or some other predigested food that is readily dissolved in water, that does not in the least tax the stomach to digest it, and that is quickly absorbed from the stomach into the blood. Food at bedtime is best taken in a fluid condition, and warm.

Under this head we may also mention constipation as being a cause of insomnia. The bowels should be kept regular, and should move at least once a day. The most natural time for evacuation is in the morning. If the bowels are constipated, this can usually be relieved by regulating the diet, and by proper and sufficient exercise. The use of fruit, such as stewed prunes, stewed figs, also pears, grapes, and apples, with granose biscuit and granose flakes, is excellent to relieve constipation, and in many cases it is all that is necessary. In addition to this, however, massage, and the application of electricity to the bowels, and other manipulations are valuable adjuncts. The use of tea and coffee is a potent cause of insomnia, and should be discontinued entirely.

Many individuals do not sleep well because they do not take a sufficient amount of exercise. This is particularly so with professional men and women, whose occupation does not call for much muscular exertion. Individuals of this class who suffer with insomnia will find great relief if they will arrange so as to do the most of their mental work in the earlier part of the day, and take the latter part for work that is not so arduous, devoting certain hours of the afternoon and evening to a systematic course of exercise. It is preferable to take the exercise out of doors — at least part of it. Walking is very good, but it does not bring into play all the muscles of the body. In the mountainous districts where one can climb, there is perhaps no single form of

exercise that is better than walking; but in walking on a level one does not have to do nearly so much muscular work.

The value of exercise in the treatment of insomnia can not be overestimated. Besides walking, the use of Indian clubs, pulley weights, etc., in a gymnasium, to bring into play the muscles of the arms and chest, is important, and should be taken in connection with outdoor exercise. Exercise increases the circulation, increases the action of the heart, strengthens the muscles of the heart, increases lung capacity by requiring the individual to breathe more deeply, increases the supply of oxygen in the blood and tissues, increases oxidation, in this way burning up the waste material in the body (which often acts as an irritant to the tissues and may be a cause of insomnia), improves digestion,— in fact, there is not an organ in the body the function of which may not be improved by proper exercise. The difficulty with the majority of people is that they do not appreciate the value of exercise, and even though they may start out with good intentions, in a short time they are either irregular or drop their exercise altogether. Exercise, to accomplish the most good, should be taken regularly, and every day; and it should be adapted to the needs of the individual by some one who is able to direct it. One who is weak should not, of course, take so much as one who is stronger, and yet the weak individual should gradually increase his exercise until he is taking the amount necessary to maintain good health in the average person. For some individuals troubled with insomnia, it is better to exercise in the afternoon or early evening, and to have an hour or two of quiet before retiring; while with others, exercise taken a little before retiring seems to be more effectual.

We have already shown that for the nervous system to be completely at rest there must be no stimulus acting upon it. It is therefore important that one's sleeping-room be the most favorable place for complete and sound rest. It is also important that the sleeping-room be well ventilated. Many people go to bed and shut themselves up in a tight room, where they must breathe over and over again the poisons thrown out by the lungs, and consequently their sleep is not sound and refreshing. The room should be thoroughly ventilated in such a way that no drafts will blow across the body.

The temperature of the room is also an item of importance; in summer the room should be kept as cool as possible. During the colder months the temperature for a healthy person should be about 50° F., while for an invalid or a person in feeble health it should be about 60° F. The habit that many people have of sleeping in warm rooms or covering the body with heavy bed clothing is pernicious. It weakens the body, and is frequently a cause of insomnia and of taking cold.

The sleeping-room should also be the most quiet place of the house. Those whose homes are near railroads, street-car lines, or public highways in the city are in unfavorable locations for the best and most restful sleep. Although these people may become so accustomed to sleeping in these places as to be unconscious of any annoyance, yet the noise does produce its effect on the nervous system, and prevents complete rest.

The most natural time of the twenty-four hours for sleep is during the night. If for any reason one's sleeping hours extend into the day, the room should be darkened, as light acts as a stimulus to the nervous system, and tends to keep one awake.

In the disease known as neurasthenia, or nerve exhaustion, insomnia is a very troublesome symptom. In this disease the underlying morbid condition is the

exhaustion of the nerve cells. In an individual who suffers from neurasthenia, the nerve cells which make up the nervous system have lost to a large degree their ability to build themselves up, to take in new material and new energy and to transform it into nerve energy. The nerve cells of such an individual are shrunken, irregular in outline, and much smaller than those in a healthy condition. This disease is a frequent cause of insomnia. In addition to the treatment, which should be directed to the removal of the underlying morbid condition, other valuable remedies that may be successfully used in treating insomnia as a symptom will be given in our next article.

Worry is also a cause of insomnia. The best way to relieve insomnia produced by worry is to remove the cause of worry. This is not always an easy thing to do. Individuals have to train themselves into proper methods of thought. There is no better safeguard against diseases of the nervous system than the proper education and training of the child. One who is at all observant can see the difference between an individual who has had the benefits of education and proper training in early life, and another individual whose training and education have been defective. In the one case, where the education has been proper, the nervous system is stable, has more backing, so to speak, and does not respond to every unpleasant wave of experience; while in the other case many unpleasant experiences that may come, cause a reaction, so to speak, on the part of the nervous system, and lead to mental unrest.

By proper training and education the harmful results that come from worry can be banished, avoided entirely, or greatly reduced. Cheerfulness and contentment are always conducive of sound physical health.

(To be concluded.)

APRIL.

BY MARY ALICIA STEWARD.

A WEALTH of bloom on cherry boughs,
A blush of red on peach-blow tips,
A thrill of life in fresh oak leaves,—
For spring has come.

The ripple of a sunny brook,
A dash of sudden water-fall,
A bit of rain, a bit of sun,
Now spring has come.

A glad song trilled from robin's throat,
A soft, sweet murmur of content,
That steals from new-made swallow's nest,
For spring has come.

All nature voices hallowed praise
To Him whose will all things obey,
And God looks down again and smiles,
That spring has come.

CRIMINAL EDUCATION IN EARLY LIFE.

BY KATE LINDSAY, M. D.

AS civilization advances, crime advances with equal pace. Nothing yet devised by society, church, or state has served to diminish the number of human parasites who live, like other parasites, at the expense of, and to the detriment of, beings farther advanced in the scale of development.

Of late years medical science has concerned itself greatly with criminal anthropology; minute descriptions of the physical characteristics of the felon have been prepared. His eyes, ears, hands, head, face, have been measured, their form studied, and all deviations from the normal noticed and recorded with scientific precision.

But in the study of criminals, as in many other lines of research, the investigation has usually begun at the wrong end; that is, with the felon after he is in the toils of the law and has been guilty of some outbreaking crime. Of the successive steps by which the criminal mind and body came to be in the first place, very little notice has been taken. When were the seeds of this perverted product planted? What caused them to spring up so vigorously, and to yield so bountiful and so baneful a harvest?

It will not be so hard to answer these inquiries if we remember that body, mind, and morals are largely the result of heredity and environment. The story of Ishmael is the history of the life of Hagar. Before the son was born, the mother was at war with all her kind. The wild Bedouin of the desert after more than three thousand years still shows in his character the effect of that far-off prenatal influence.

It needs but a glance at the history of men like Byron, Bismarck, Nero, Napoleon, Guiteau, the Pomroy boy of Boston, to impress the fact that mothers to-day, no less than Hagar of old, are determining the character of their children by the life they live while nature is building the body and mind of the coming man or woman. By her every-day actions, feelings, and thoughts both before and after its birth, the mother fashions her child's character and disposition more surely and truly than does painter or sculptor copy a living model.

Criminal traits are too often inherited from the father, because by vice and intemperance he has damaged the delicate machinery of his own body, and can give to his sons and daughters only this inheritance of faulty structure, unbalanced intellect, and imperfect brain organization. A blot on the brain of the father or the mother, intensified in the child, has given to history volumes of blood-stained records.

Next to heredity in the production of a criminal race is the influence of home education. As the body must build its structures out of the food material given it, so must the character and mind of the child be made out of the every-day influences of its life. It speaks the language, thinks the thoughts, copies the acts, of those by whom it is surrounded. If it hears nothing but expressions of kindness, and never listens to impure, profane, or angry words, it will be kind. If it is not taught slang phrases by hearing them used, it will tax no one's care and patience to break it of a bad habit in after-life. If it sees rights of property and person respected and sacredly regarded by those with whom it comes in contact in the daily life, it, too, will grow up with a conscientious regard for other

people's rights, and clearly defined ideas of the meaning of the terms "mine" and "thine." But let the little one live in an atmosphere of strife and selfishness, where might makes right, where the weak must, however unjustly, yield to the brute force of the stronger, where the father of the family ruthlessly disregards the wants of mother and children, while the mother goes about as a thief in her own house, stealing what is her own to clothe and feed herself and her children, and very soon the child will grow to feel that what it desires can be gotten either by force or by strategy. It begins by a covetous longing for what it can not get, and soon learns to steal from its parents on the sly, and to take what it wants from younger, weaker brothers and sisters. Do not father and mother do what they will with the child's individual property? Had it not been given the colt, the calf, the lamb, as its own, and then seen it sold without any question as to whether it wished to part with it or not? If might makes right with the father and the mother, why does it not make the same right so far as the child is concerned?

Every one knows that poisons damage the structures of the brain and nerves of the adult, and that the brain of the man injured by the poison of alcohol, tobacco, or opium may be driven to do all kinds of criminal deeds. The growing brain is much more easily injured by poisonous substances than the more mature brain of the adult. Not long ago the writer was talking with a mother who was nursing her eight-months-old baby. All at once the mother uttered a cry of pain; the baby had suddenly bitten and sharply pinched her. The irritated mother slapped it. Soon after it fell asleep, but awoke in a short time very ill, and vomited freely. The contents of the stomach were sour, and the little one was really feverish and sick. The mother casually remarked, "Oh, baby has such a sour stomach from eating so much candy this morning. He is always cross and hard to get along with when his stomach is sour and out of order." But notwithstanding that in a measure she understood the relation between the baby's temper and the intoxication due to the poisons generated from the sour, spoiling food in the stomach, yet this did not deter her from permitting the little growing body and mind to suffer from this intoxication. And when the maddened brain of the baby manifested its abnormal activity in a desire to hurt whatever was near it, in other words, manifested the same madness that the adult drunkard exhibits, the mother retaliated by a passionate outburst of words and cruel blows. It is the damage the brain of the drunkard suffers from its repeated efforts to overcome and throw off the poison, strong drink, that finally changes its structure, and causes the acute madness of delirium tremens or the failing mental powers of dementia to appear.

Intoxication, from whatever cause, always damages the structures of the body, especially the brain and the nervous system. The younger the intoxicated subject, the more damage is done to the tissues. Witness the injury done to young boys by the early habit of cigarette smoking.

Often the young are obliged by their elders to do cruel, bloody deeds, and sacrifice their better feelings of pity for helpless animals. A child in the impulsive period of life is full of pity for the young and weak; but it is convenient to send the eight- or ten-year-old boy to drown the superfluous kitten or puppy. Soon under such training all the more tender, humane feelings are educated out of the character, and the boy surprises his parents by becoming a hard and cruel

tyrant who enjoys inflicting pain on his younger brothers and sisters simply for the pleasure of seeing them suffer and of showing his brute force. A bad habit is only an action oft repeated, until it changes the bodily organization so that when the brain prompts the hand to deeds of violence, it readily obeys.

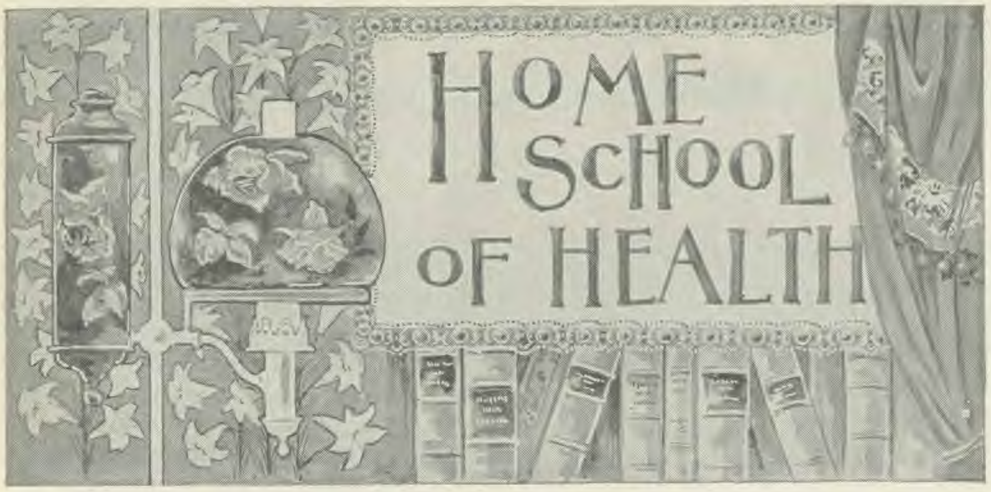
Society trys to check crime on the same principle that the mother beat and scolded her sick child because it hurt her when demented from the poison in its stomach. By doing this she hoped to teach a lesson for the future. She intended the pain she made it suffer to lead it to control its inclination to inflict physical pain upon her person. She did not consider that this physical suffering did not improve her self-control or her temper. She did not reason that it would have been wise to seek the cause of the sour stomach, and then give attention to the feeding of the little one so that it would not become mad from the poisons generated in its body.

If anything is to be accomplished in checking or lessening crime and reducing the number of criminals who now overrun and terrorize society, the first step must be to remove the causes that breed criminals. The individual career of the thief may be stopped by putting him into State's prison for a term of years. The individual murderer's power to take the life of his fellow men may be destroyed by taking his own life. But little will be accomplished in diminishing either murder or theft, if while one thief or murderer is arrested, many others are being educated in the school of vice.

As a first and most powerful cause of a criminal population lies in bad inherited tendencies, every effort should be made to lead parents to give to their children unselfishly the best of themselves. They should cultivate all the best qualities of both body and mind in themselves, because their children will inherit good, or else evil in the form of diseased bodies or perverted minds or morals. Every parent should know that the education of a life begins with the dawn of its existence, and that the prenatal education of the infant, which is the most powerful of any in its life history, is all received second-hand from its mother. It should also be remembered that the bodily organization depends upon the building material and its arrangements; that intoxication damages the brain, whether the poison comes from alcohol or decaying food; that a brain damaged by intoxication is liable to become the generating center of all kinds of insane and criminal impulses, and to impel the hands to deeds of crime. Therefore it should be the aim of every one having the care of infants and the young to feed them so as to avoid intoxicating them.

The next most powerful element in the education of the young is the words and actions of those with whom they come in contact in every-day life.

If these elementary causes of crime were studied, and criminal education in early life stopped, then the later symptoms and the crimes need never be developed, and no cure would be required for the many moral disorders which at present afflict mankind.



HOW TO BREATHE.

It is no more necessary to teach a child or a savage how to breathe than it is to give such instruction to a dog or a horse. The child breathes instinctively and naturally. But the majority of civilized adults have lost the art of breathing. By wrong habits of dress and by incorrect attitudes, they have so crippled their organs of respiration that the most important and vital function of the entire body is rarely, if ever, correctly and fully performed.

The majority of people, when asked to fill the lungs, make an unnatural and strained effort of some kind. Many, especially women, elevate the shoulders, raise the collar-bone, and expand the upper part of the chest a little, exhibiting the type of erroneous breathing known as collar-bone respiration.

Others, having learned something of the evils of clavicular, or collar-bone, respiration, have cultivated the opposite error, represented in abdominal breathing, in which the respiration is carried on almost wholly by means of the diaphragm. There is a movement out and in of the abdominal wall, but scarcely any chest movement. We sometimes find people who breathe chiefly with one side of the chest, perhaps as the result of an obstruction of the side of the nostril corresponding to the inactive part of the chest. This may be due to the loss of the physiological reflex action which takes place between the nostril and the breathing apparatus.

In children and savages, however, and in long-distance runners and men who have been accustomed to fast walking, also in cows, dogs, and horses, as well as in various other species of the lower animals, we find an entirely different kind of breathing,—waist breathing, or lower chest respiration. This is the natural mode of breathing. Watch the respiration of a child, and you will see that the chest expands most at the lower part of the waist. Remembering the construction of the skeleton, you will readily see the reason for this. You will remember that the first seven ribs are attached directly to the breast-bone, while the lower five are not so attached, but leave an open triangular space in front of the lower half of the chest. In other words, in the upper part of the chest the circle formed by the ribs and the spinal column is completed by the sternum, while in the lower part the anterior wall is left incomplete, affording an inverted V-shaped opening between the ribs. This is evidently for

the purpose of giving greater mobility to the lower portion of the chest. We find further evidence of this purpose in the attachment to the ribs along the sides, of large, strong muscles, so divided into separate parts attached to each rib that the muscles take hold of the ribs individually in the most vigorous manner.

In natural breathing we have precisely the same action as that of a pair of bellows. By the muscles we seize the handles of the bellows, or the ribs, and force them apart, thus drawing in the air, or inflating the bellows; then we force them together again, expelling the air. The chest corresponds to the bellows, the trachea to the nozzle, the ribs to the handles, and the muscles to the personal force applied to the handles.

How absurd it would be in the effort to expand the bellows to seize it by the nozzle or near the nozzle, and to try to work the handles in and out! Yet that is precisely what we do when we undertake to breathe with the upper part of the chest alone. Such breathing, or collar-bone respiration, is like tying up the handles of the bellows and then attempting to blow the fire by seizing the bellows by the sides and trying to wrench it out and in. Unfortunately, the majority of civilized women are compelling themselves to breathe in just this way, with the handles of the bellows tied up.

One-sided breathing is frequently practised by people suffering from nasal catarrh. The air which enters one nostril brings into play only one side of the chest. Each side of the lungs is controlled by one of the pneumogastric nerves, one going to one side, the other to the other side. The nose is so connected with these nerves that the air entering one nostril excites and brings into play the muscles which control the opposite side of the chest. I am inclined to think that many people afflicted with catarrh breathe through the mouth, not because they can not get air enough through one nostril, but because the air entering through one nostril affects only one side of the chest, and the breathing through the mouth is an unconscious natural effort to breathe with the whole chest.

In abdominal respiration, the respiratory movement is confined to the diaphragm, and lateral action of the chest is suppressed so far as possible. The diaphragm is forced downward to the utmost extent, the lower abdomen being forced outward to a corresponding degree. The effect of this is to cause downward displacement of the liver, stomach, kidneys, colon, and, in women, of the pelvic organs also. Strictly abdominal respiration, then, is no more natural and normal than exclusively costal respiration.

Observations upon animals, young children, and normal adults show that natural and full respiration involves the expansion of the entire trunk, and is a waist expansion rather than expansion at either end of the trunk. In normal breathing, any great degree of downward movement of the stomach, liver, kidneys, and other viscera is prevented by expansion of the trunk at the waist.

To take a full deep breath, expand, first the chest, breathing in until the entire waist swells out, the sides expand, and the anterior wall expands; then breathe in a little more until the whole abdomen expands; now try to inhale still a little more by lifting the chest and drawing in slightly the lower part of the abdominal wall. This gives a full and complete respiration. The whole lower chest is filled. The diaphragm is brought well up and the upper part of the chest is strongly lifted.

This strong lifting of the chest at the end of inhalation is one of the very best means of aiding the restoration of pro-

lapsed viscera to their normal place, and has the double effect of increasing the negative pressure within the chest and the positive pressure within the abdomen, thus not only helping to lift the viscera into position, but also materially aiding the portal circulation.

J. H. KELLOGG, M. D.

CULTIVATED DEFORMITIES.

"'CULTIVATED deformities!' Do you mean to imply that people would deliberately cultivate a deformity of any sort? Surely no rational person would ever think of such a thing."

That people have thought of such things and practised them diligently from the remotest antiquity even down to the year 1899 is conspicuously evident upon a moment's reflection. It is unnecessary to mention the savage customs of putting rings through the nose, pieces of wood and fish bones through the under lip, or of flattening the head. We are horrified at these barbarities, though we look with complacency upon diamond earrings. We of civilized nations are horrified at the Chinese foot binding and at many other Oriental fashions; a great many of us doubtless are horrified at some of the earlier practises of civilized women,—tight lacing, squeezing the feet into French-heeled shoes, weighing down the hips with heavy skirts and long trains. But we try to comfort ourselves by saying that these extremes have passed away, that women nowadays are more sensible and enlightened.

THE CRUEL HAND.

It is only necessary, however, to read almost any newspaper or magazine article upon the spring fashions for 1899 to be shocked into a realization that the world of society is even yet not very civilized and enlightened, at least in matters pertaining to health and beauty.

So we do not deliberately cultivate deformities? Listen to this from a well-known writer on current styles,—it is the dictum for 1899:—

"The first and the most stringent commandment of the modistes now is, you must be well corseted. If you are not, and if you have principles against reducing your waist measure by means of a long, steady pull on your stay strings, then don't for good looks' sake attempt to have your spring gowns cut on the new mode. A large waist is not to be tolerated with the shape of skirt and basque we are now wearing, and every woman who still nourishes the ancient belief of her sex that comfort and health ought to be invariably sacrificed to beauty is banting and lacing with the vigor of fifty years ago.

"This is woful, but we are all panting after a small round zone, a sweeping hip arch, and a perfectly flat abdomen, which are only to be got by means of the new canvas, silk, and linen stays, with their tough silk laces.

"The truly well-cut corsets are made very short in the back, curved out under the shoulder-blade, and on the hip proper they are short and boneless, while the steel and whalebone is brought to the front. By this simple device it is won-

derful the way useful curves are thrown out and humpish superfluity crushed in, and a woman whose stays are very tight moves about with the apparent elasticity of a skirt dancer."

Think what this means to the body and brain of the woman who is "moving about with the apparent elasticity of a skirt dancer." It is not only her "humpish superfluity" that is "crushed in," but the most vital organs of her body as well. Her lungs and heart are crushed in and crippled in the performance of their work. She can not breathe properly, hence her whole system is being clogged with poisons that can not be destroyed because there is not enough oxygen to burn them. Her mind is clouded and irritated because the nerves that go to the brain are starved and poisoned. The blood can not circulate as it should, so every muscle and nerve and cell is being hindered. Her stomach, liver, kidneys, and other organs are crowded out of

place to make that "small round zone" that is as truly a deformity as would be a hump on her back. The natural shape of the waist horizontally is an ellipse. Imagine the suffering state of that stout woman laced into the "small round zone" and "flat abdomen"—underneath her corset. It is not a pleasant thought. Flesh and fat on the body must go somewhere even while the woman dances. The flat abdomen, in the case of this stout woman, seems an impossibility. Still there is no knowing what pride and fashion can do.

The flat abdomen certainly is not common. Could there be a worse looking cultivated deformity than the abdomen usually seen on corseted and corpulent women? If this deformity was as rare as a Bergerac nose, it would be considered monstrous and would attract more attention than a man without legs, but since we see it every day, and since we know that it is a cultivated characteristic of the modern woman, we accept it without question, as a necessary evil

But it is not a necessary evil; it is a very great evil, and a very unnecessary one. It always indicates a dangerous state of affairs inside that marvelous and delicately constructed temple of the human soul—the body. No woman possessed of ordinary intelligence, who knows the most essential facts of physiology and anatomy, can fail to understand the criminal and irreparable injury she is doing herself every time she puts into operation such principles as are suggested in the paragraphs quoted at the beginning of this article. There are few who can sin ignorantly in this respect, in these days. The world is full of light on the subject of healthful dress. It is no longer possible to say, "I would do better if I knew how;" for it is the simplest thing and the easiest to learn how to reorganize the entire wardrobe upon a perfectly hygienic and artistic basis. And this must be done thoroughly and conscientiously before we can hope to be rid of our cultivated deformities.

MARY HENRY ROSSITER.

THE BABY'S FIRST WARDROBE.

How to dress the infant has always been a very perplexing question to the young and inexperienced mother, and many, from lack of understanding of the true principles upon which the whole subject is based, are led to follow in the footsteps of their mothers and grandmothers, with little thought as to the real purpose or economy of the wardrobe.

The object of clothing the body is principally for protection, and because custom demands a certain amount of clothing.

It should be the aim of every mother so to clothe her child as to encourage the highest development of the physical, mental, and moral nature. Childhood is the time to lay the foundation for future health and strength of both body and mind.

The body of the young child is more intricate and fragile than the most delicate piece of machinery fashioned by human hands. It is made up of soft, pliable, yielding tissues, which may be compressed or molded into almost any shape or form.

How very important, then, that the mother understand how to prepare and adjust the clothing in such a way that the child may, from the very beginning of its life, have the best opportunity for proper development. The same principles hold true in clothing the child as in clothing the adult. There must be perfect freedom of every muscle and organ of the body. Not only must there be sufficient space for expansion, but consideration must be taken of the fact that the child is growing, and that there is constant demand for more space for expansion.

Having now studied briefly the purpose of the clothing, the next question that naturally arises is that of expense. It is very discouraging to many young mothers to find, on investigating, that almost every outfit is marked thirty or forty dollars. Not understanding the matter, they do not know that many articles not absolutely necessary are added to these outfits that they may be as elaborate as possible. A much less expensive and just as satisfactory wardrobe may be prepared by purchasing the material and making the garments in a simple way. There is also the advantage of having the garments made so as to be most practical for ordinary purposes. Few articles are required to dress the infant,—five or six for one dressing are all that are necessary,—the bandage, the diaper, a vest, one or two skirts, and the outer slip. A very neat and convenient outfit may be prepared for ten dollars, if proper care be used in cutting and making.

The bandage should be of yielding material, either stockinet or flannel. If of stockinet, it should be made in the form of a wristlet that can be slipped on and off as desired, and requiring no pins. There should be two small straps to go over the shoulders and button in front. This is sufficient to support the dressing, and does not in any way compress or interfere with the breathing. This may be knitted, if desired, from some soft wool. If the stockinet can not be obtained, the bands may be made of flannel.

The following articles may be included in the outfit for ten dollars:—

Three shirts, three pinning blankets, three flannel skirts, four bands, three

dozen diapers, three cambric skirts with waists, three nightgowns, four lawn slips, two white slips, one fine dress, one shawl, one pillow, three pillow-cases, one pair bootees, and five dozen safety-pins.

Trained Motherhood gives the following estimate of quantities and prices for a ten-dollar outfit: —

Flannel, 36 in., 4 yds., at 50c.	$2.00
Flannel, 27 in., 5¼ yds., at 20c.	1.05
Diaper, 20 in., 10 yds., at 6c.	.60
Diaper, 27 in., 14 yds., at 9c.	1.26
Cambric, 36 in., 5½ yds., at 10c.	.55
Outing flannel, 6 yds., at 8⅓c.	.50
Lawn or print, 9 yds., at 7c.	.63
Nainsook, 27 in., 2¼ yds., at 12½c.	.28
Nainsook, 36 in., 2 yds., at 15c.	.30
India linen, 2½ yds., at 20c.	.50
Albatross, 36 in., 1 yd.	.40
Pillow ticking, 36 in., ½ yd., at 50c.	.25
Platte Val. lace, ½ in., 5 yds at 5c.	.25
Val. insertion, 1 in., 2 yds., at 10c.	.20
Linen thread, No. 100, 2 spools, at 10c.	.20
White thread, Nos. 70, 70, 50, 3 spools	.10
Embroidery, 3 in., 2 yds., at 15c.	.30
Finishing braid, 5c.; fine rick-rack, 5c.; 1 doz. spools white embroidery silk, 5c.; skein white Saxony, 10c.	.25
Safety-pins, 2 sizes, 5 doz., at 5c.	.25
Buttons, 2 sizes, 2 doz., at 10c.	.20
Total	$10.07

Cut off twenty inches from the narrow flannel, and divide this lengthwise into four parts for the bands. These may be finished either by hemming or feather-stitching. Divide the remainder of the flannel into six equal lengths for the skirts, putting two widths into a skirt. Finish the bottom with a two-inch plain or feather-stitched hem, gather at the top, and sew to small cambric waists.

Make the shirts from the all-wool flannel, using one and a half yards for this purpose. These may be finished with scallops worked in Saxony.

From the remainder of the flannel make the three pinning blankets, — making them so that they will be twenty-four inches long after hemming. Turn a narrow hem at each side, gather at the top, and attach to a cambric waist.

The diapers should be made eighteen inches square. The pillow-slips should be made of cambric, and should be fifteen by eighteen inches in size when finished.

The skirts are to be made from cambric, using three widths of the cambric, twenty-seven inches long. This makes each skirt one and a half yards wide. The skirts should be finished with the hemstitch, and, if desired, embroidery or lace may be used. These also should be attached to a waist.

The waists may be made after an ordinary yoke pattern and finished with narrow lace or finishing braid.

The lawn or print slips should be made thirty inches long from the neck and finished in some simple way.

The two white slips are similarly made, being thirty inches long from the neck and finished with simple trimming or hemstitched.

The best dress may be made with a round or pointed yoke, and should be thirty inches long from the neck. All the hems on this should be hemstitched, and the garment may be trimmed with lace, if desired.

Albatross cloth is used for making the blanket.

The night-dresses should be made as plain wrappers, open in front. Outing flannel should be used for these.

The bootees are crocheted from Saxony wool in any desired color.

The garments should all be supported from the shoulders, and the length should not be such as to drag on the feet and limbs. With care this simple wardrobe may be kept neat and clean, and the child be always comfortable and have every opportunity for proper growth and development.

There is another mode of dressing the new baby that has proved eminently satisfactory to those who have ventured to try it. The suit consists of five articles, — the band made of stockinet, the diaper, and three slips, one made to fit into the other, so that the baby can be slipped into and out of its entire suit without being turned over more than once. The inside slip, or under garment, is made of Jaeger gauze or flannel or of Canton flannel, and is about twenty-five inches long, with long sleeves and high neck. The seams are all finished outside, leaving the right side of the goods and the smooth side of the hem next to the skin. The seams are very pretty feather-stitched. Over this first slip or gown is worn a second, made on a yoke, with the skirt pleated and sewed on. This skirt should be a trifle longer than the slip, and the yoke and sleeves are made enough larger to fit smoothly over the inside garment. For a winter baby, sleeves are indispensable to the second gown or petticoat, but for a summer baby this yoke may be made without sleeves, and a sack worn when needed. Over this second slip comes the dress of lawn or muslin or any material desired. It is made a trifle longer and larger than the petticoat, but should not be more than thirty inches long from the neck. There are no buttons or buttonholes on any of these garments; instead, they are tied in the back by tiny strings of baby ribbon or tape of silk or cotton.

The convenience of this suit is evident at a glance. It is easily made and very easily put on or taken off. All three garments are put together first, and then the baby is slipped into the combination. There are no buttons to press into its flesh. We can heartily recommend this method of clothing the infant as being both healthful and convenient.

ABBIE M. WINEGAR, M. D.

BREAD MAKING.

THE aim in bread making should be to produce an article rich in nutritive elements, palatable, and easy of digestion. The essential requisites for the production of good bread are good materials, properly combined, together with careful management during the processes by which they are converted into the well-baked loaf.

Bread is generally made of wheat flour and liquid formed into a dough and charged with some gas to distend it, or, as we say, to make it light, after which it is baked. Wheat flour is ordinarily used in preference to that of other grains, because, aside from the fact that wheat contains the most correct proportion of food elements, its gluten is in character different from and in quantity greater than that found in most other grains, and is, for these reasons, better adapted to the preparation of light bread. It is the gluten of the flour which, because of its tenacious properties, makes it possible to stretch and distend the dough by the aid of some gas into a porous loaf. Even flours from different kinds of wheat vary in the amount and quality of gluten they contain. The table here shown of wheat flours, giving the average composition,

KIND OF FLOUR.

	Spring Wheat	Winter Wheat	Graham	Entire Wheat.
Water	12.1	10.7	13.1	12.0
Nitrogen	12.0	10.3	11.7	14.0
Fat	.9	.9	1.7	69.0
Starch and Non-Nitrogenous Elements	74.5	77.5	69.9	1.6
Fiber			1.8	1.1
Ash	.5	.6	1.8	2.5
Gluten (Moist	36.1	29.6		
Gluten (Dry	10.9	9.1		

according to Professor Woods, may be interesting in this connection.

Graham flour, which is unbolted-wheat meal, is generally made from winter wheat. Entire wheat, whole wheat, and wheat berry are names used to designate flours made by grinding the decorticated wheat kernel. These flours are more commonly made from spring wheat. Both graham and entire-wheat flours are likely to be darker in color than "patent" and family flours. The darker color must not, however, be made the criterion by which to judge the quality of the flour, for a dark color may be occasioned by dirt and impurities. Unscrupulous dealers, cognizant of the fact that flour of the entire grain is of darker color, often mingle flours and make up combinations that have all the appearance of the entire-wheat flours, but which are really nothing but low-grade flours mixed with bran or dirt. The genuineness of entire-wheat flour may be tested by chewing a small quantity for a few moments. Raw flour made from the entire grain has a sweet taste and a rich, nutty flavor, the same as that experienced in chewing a whole grain of wheat, and produces a goodly quantity of insoluble gluten; while a spurious article tastes flat and insipid, like starch, or has a bitter taste consequent upon the presence of impurities.

Whatever flour is used for bread making should be good of its kind. Good flour will be sweet, dry, free from any musty smell or taste, and when made into a dough will be elastic, and will retain its shape. Poor flour works soft and sticky when kneaded.

Water and milk are the liquids generally used for bread making, and the usual method of charging the dough with gas is by fermentation through the use of yeast. The characteristics of good yeast were studied in a previous lesson.

Given good material, or, as we might term it, good seed and good soil, the first step to be taken in bread making is to plant this seed so that it will grow. This is accomplished by different housekeepers in various ways. As fermentation begins more readily and proceeds more rapidly in a thin batter of liquid and flour, some housekeepers plant the yeast in a thin batter called a ferment, or sponge, to which, when light, a sufficient quantity of flour is added to make a dough. Other cooks dispense altogether with the sponge, adding to the liquid at first the entire amount of flour needed to make a dough, allowing it to ferment once in mass and again when molded into loaves. As to the advantage of one method over the other, much depends upon the time and convenience of the cook. Good, light bread may be produced by either method. Less yeast and more time will be required by the first method.

In our study of yeast we learned that the dryer the substance in which the yeast is planted, the less rapid the growth; hence in order to yield the necessary quantity of carbonic acid gas to distend the flour already kneaded into a dough, a double portion of yeast will be required, each yeast cell developing about one half as many other cells in the same time as it would in thinner material.

Before beginning to put together the materials for bread by any method, it is wisest to measure out and sift all the flours to be needed. Many housekeepers fail in making good bread because they guess at the quantity of material to be used, particularly of the flour, so that with the same quantity of liquid, much more flour is made use of at one time than another, thus making the results exceedingly variable.

The difference in the absorptive properties of flours makes the quantity needed subject to some slight variations with different brands and different grades of

flour, but with the same brands the same quantity should always be used to produce a given amount of bread. Approximately, three heaping measures of flour to one scant measure of liquid, including the yeast, will be found in general a good proportion. Just enough flour should be used, and no more, since too much, even a tablespoonful to a loaf, often renders the bread too dry.

To the liquid, which should be lukewarm, add the yeast; if compressed yeast is used, dissolve it first in a little lukewarm milk or water; mingle the yeast thoroughly with the liquid, then add the flour slowly, beating very thoroughly in order to diffuse the yeast well throughout the whole. If left in a thin batter, this thorough beating will be all that is necessary; if to be made into a dough, it must also be thoroughly kneaded. Kneading and working the dough has the effect to disseminate the yeast throughout the mass, and it should be done so completely that each little atom of flour will have its corresponding cell of yeast. It is desirable to use as small a proportion of yeast as possible to do well the work intended, as it is evident that the result of fermentation is a greater or less deterioration of the substance of the flour. There are sufficient yeast cells in one cake of compressed yeast to propagate new cells enough to furnish carbonic acid gas to raise dough for a number of loaves of bread. For an ordinary baking of three or four loaves, one fourth or one half a cake of compressed yeast or one-fourth cup of liquid yeast is ample. The bread is less fine in texture and has less of the natural flavor of the grain when an excess of yeast is used, besides being more likely to become overfermented from the large number of yeast cells making use of its food material. When the yeast-seed has been carefully planted, it must be carefully tended. To this end, the batter or dough must in all stages be kept at a uniform temperature,— 70° to 85°. Too much importance can not be attached to this point, as upon it the success of the bread often depends. Many ingenious devices are resorted to for securing this desideratum, but the only sure method is the use of a thermometer. A common dairy thermometer, which can be purchased of almost any hardware dealer for a few cents, kept immersed in the dough during the processes of fermentation is an infallible test of temperature.

The length of time for bread in its different stages to grow light will vary according to the quantity and strength of the yeast and the temperature employed. A thin batter is sufficiently light when it is effervescent like yeast throughout; a thicker batter, when risen to double its first bulk and cracked over the top. It is sufficiently light in the loaf when it has doubled its first proportions, and when, lifted in the hand, it feels light and aerated. In general, from one to one and one-half hours' time will be sufficient.

Much bread that would otherwise be good is spoiled in kneading by the addition of too much flour. After the requisite amount has been added to make a smooth dough, care should be taken to use as little as possible in addition, as too much flour makes a stiff bread. Bread will not stick to the board if kept in constant motion. The object of kneading is to diffuse the yeast cells evenly throughout the dough. It is sufficiently kneaded when it will rebound under pressure like a rubber ball.

The lightness of bread after baking depends upon the number and perfection of the little cells made by the carbonic acid gas during the process of fermentation. The effect of the oven heat at first will be to increase the fermentation; but if of a sufficiently high temperature, it will very soon destroy the yeast plant,

dry and stiffen the walls of the air cells, so that they will be permanent, while the continued heat will cook the starch of the flour and evaporate a portion of the moisture from the bread. The sooner fermentation ceases after the bread is ready for the oven, the more light and porous will be the loaf. If the heat of the oven is not sufficient to check fermentation in a very short time, the action of the yeast will be accelerated by the warmer temperature, and fermentation will continue until the bread becomes sour; or if the yeast is not thoroughly diffused, there will be more yeast cells in one portion of the loaf than in another, so that in that part of the loaf more carbon dioxide will be manufactured than in other portions, and the gluten walls, because of the greater pressure of the gas, will be shattered, and there will appear holes of larger and smaller size in the bread.

The size of the loaf is also a matter of importance affecting the lightness of the bread, as the heat will penetrate and fix the cells of a small loaf much sooner than those of a large one.

For baking, the oven should be at a temperature of from 400° to 500° F. The heat should be uniform in all parts of the oven, increasing for the first fifteen minutes, remaining steady for the next twenty minutes, then gradually decreasing. A common test for oven heat, and aside from a thermometer, probably the most accurate, is to place a teaspoonful of dry flour in the oven. If it browns thoroughly in five minutes, the oven is ready for the introduction of the loaf. If by any mischance the oven is so hot as to brown the bread too soon, cover the loaf with a clean paper for a few minutes. Be careful that no drafts reach the bread while baking, open the oven door very seldom, and not at all for the first ten minutes.

From three fourths of an hour to an hour is usually a sufficient length of time to bake an ordinary loaf. The crust of bread when done should be equally browned all over. The common test for a well-baked loaf is to tap it on the bottom with the finger; if it is light and well done, it will sound hollow. A thoroughly baked loaf will not burn the hand when lifted upon it from the pan.

The bread, on being taken from the oven, should be cooled as rapidly as possible. Sour bread is often the result of careless cooling. While warm and moist, the interior of the loaf is excellent soil for mold and bacteria. It has been stated on authority that a loaf just from the oven put to cool in a poorly ventilated room crowded with people will, in a few hours, become sour.

A well-raised, well-baked loaf will be aerated and sponge-like. If taken in the hand and compressed between the fingers, it will rebound to its first size at once when the pressure is removed. It will also, when cold, crumble easily when a piece is rubbed between the fingers.

Good bread from graham and entire-wheat flours is more difficult to produce than perfect bread from "patent" flour. The germ of the wheat, which is included in whole-wheat flours, is largely composed of soluble albuminoids, and under the conditions of warmth and moisture necessary for the growth of the yeast plant, begins to act upon the starch of the flour, setting up a peculiar fermentation productive of lactic acid. For this reason, breads made from these flours should be subjected to as short a course of fermentation as possible. On this account whole-wheat breads to be made with a sponge are better if for the first fermentation only white flour be used. A flour containing an excess of gluten produces better bread by a short, vigorous course of fermentation.

Breads made from entire-wheat flours need longer kneading, require more liquid to the quantity of flour, and should be baked longer and in a hotter oven than white-flour bread.

The use of butter or other fats in bread is undesirable. Used in any considerable proportion, fat retards the action of yeast, and dough containing it is more liable to sour. It is likewise more wholesome to use the fat with the bread after baking than to add it to the dough before baking.

Good bread is a staff upon which all the functions of life may with safety depend. If bread is poor, it is generally the result of poor flour or unhealthy yeast, a lack of cleanliness of the utensils used, too variable or too high temperature during fermentation, too long fermentation, or insufficient baking. The dough, not being sufficiently cooked, remains in just the condition which most lends itself to sourness, and sourness develops after the bread is taken from the oven.

ELLA EATON KELLOGG.

Seasonable Bills of Fare

Breakfast No. 1.

Fruit
Graham Bread with Coconut Cream
Apple Sandwiches
Macaroni with Egg Sauce
Fruit-Coco

Dinner No. 1.

Bean and Tomato Soup
Granola and Nut Loaf
Lettuce Salad
Beet Hash
Whole-wheat Bread with Nuttolene
Stewed Dried Fruit

Breakfast No. 2.

Fresh Fruit
Oatmeal with Baked Sweet Apples and Cream or Coconut Cream
Browned Granose Biscuit
Whole-wheat Bread
Poached Eggs on Toast
Caramel-Cereal

Dinner No. 2.

Plain Rice Soup
Stewed Peanuts
Corn and Tomato Potato Cakes
Graham Bread
Nuttola with Stewed Apple
Barley Fruit Pudding

Graham Bread.— Take two tablespoonfuls of lively liquid yeast or a little less than one-fourth cake of compressed yeast, dissolved in a little milk or water, and add enough new milk, scalded and cooled to luke-warm, or tepid water to make one pint. Add one pint of flour, beat very thoroughly, and set to rise. When very light, add three and one-half cups of sifted graham flour, or enough to make a dough that can be molded. Knead well for half an hour. Place in a clean, slightly oiled bread bowl, cover, and allow it to rise. When light, shape into a loaf; allow it to rise again, and bake.

Graham Bread No. 2.— Mix three pounds each of graham and Minnesota spring-wheat flour. Make a sponge of one and a half pints of warm water, one-half cake of compressed yeast, well dissolved in the water, and flour to form a batter. Let this rise. When well risen, add one and one-half pints more of warm water, one-half cup of New Orleans molasses, and sufficient flour to knead. Work the bread thoroughly, allow it to rise in mass; then mold, place in pans, and let it rise again. The amount of material given is sufficient for four loaves of bread.

Coconut Cream.— Grate or grind (through a meat-chopper) a fresh cocoanut. Add to it twice its bulk of hot water, let it stand for a few minutes, and then press out all the juice possible. A second quantity of hot water may then be added, and after standing a few minutes, strain off the liquid through a fine wire strainer.

Apple Sandwich.— Prepare and stew some apples as for sauce, allowing them to become quite dry; flavor with lemon, pineapple, quince, or any desired flavor. Moisten slices of zwieback in hot cream or hot malted nuts as for toast. Spread a slice with the apple mixture, cover with a second slice of the moistened zwieback, then cut in squares and serve, with or without a dressing of nut cream. If desired to have the sandwiches particularly dainty, cut the bread from which the zwieback is prepared in rounds, triangles, or stars before toasting.

Whole-Wheat Bread.— One pint of lukewarm water, one teaspoonful of sugar, one quart (level) of entire-wheat flour, one and one-fourth pints (level) of good spring-wheat flour, three teaspoonfuls of soft yeast or one-half cake of compressed yeast (Fleischman's) dissolved in three tablespoonfuls of cold water.

Put the yeast and sugar into the lukewarm water, add the white flour slowly, beating very thoroughly, and set the batter in a place of warm, equable temperature. When light, add one-half teaspoonful of salt, if desired, and the entire-wheat flour, which should be warm. The resultant dough should be very stiff. Knead very thoroughly for twenty minutes, and return to the bowl (which has been washed and oiled). Allow it to rise in a warm, equable temperature, and when double its first proportion, form into two loaves, place in brick-shaped pans, and let rise again. When well risen, put into a very hot oven, the temperature of which should be lowered after ten or fifteen minutes. Bake from three-fourths to one and one-fourth hours according to the heat of the oven.

One-Rising Bread.— Sift and measure three and three-fourths cups of wheatberry flour. Scald and cool a pint of unskimmed milk. When lukewarm, add one tablespoonful of lively liquid yeast. By slow degrees add the flour, beating vigorously until too stiff to use a spoon, then knead thoroughly for half an hour, shape into a loaf, place in a bread pan, cover with a napkin in warm weather, wrap well with blankets in cold weather, and let rise overnight. In the morning, when perfectly light, put in a well-heated oven, and bake.

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

Granola and Nut Loaf.— Take two cups of granola, one cup of nut meal, one cup of walnut meats, one teaspoonful of sage, the same of minced onion, and

salt as desired. Mingle together well, then pour over the whole sufficient hot water to moisten well. Let it stand for a few minutes until the granola swells, then add enough more hot water to make the whole quite wet, and bake for an hour in a moderate oven. Serve hot or cold. Ground zwieback may be used in place of the granola, if preferred.

Beet Hash.— Chop quite fine an equal quantity of cold boiled or baked beets and boiled or baked potatoes. Put into a shallow saucepan, add salt and sufficient hot cream to moisten. Toss frequently, and cook until well heated throughout. Serve hot.

Plain Rice Soup. — Wash and pick over four tablespoonfuls of rice, put it into an earthen dish with a quart of water, and place in a moderate oven. When the water is all absorbed, add a quart of rich milk, and salt if desired; turn into a granite kettle, and boil ten minutes or till the rice is done. Add a half cup of sweet cream, and serve. A slice of onion or a stalk of celery can be boiled with the soup after putting in the kettle, and removed before serving, if desired to flavor.

Stewed Peanuts.— Shell the raw nuts, and blanch by pouring boiling water over them. After they have stood a few minutes, the skins can be easily rubbed off. Add to a pint of the blanched nuts about two quarts of water, put them into a bean pot; heat to boiling; then place in a slow oven, and cook for nine or ten hours. When done, they should be soft, mealy, and rich with juice. No seasoning except a little salt will be required.

Barley Fruit Pudding.— Mix together a pint of cold, well-steamed pearled barley, a cup of finely minced tart apples, three fourths of a cup of chopped and seeded raisins, a third of a cup of sugar, and a cup of boiling water, and turn into a pudding-dish; cover, and place the dish in the oven in a pan of hot water, and bake slowly an hour and a half or until the water has become quite absorbed and the fruit tender. Serve warm with a sauce made by dissolving a tablespoonful of apple jelly in a cup of hot water, adding sugar to taste, and thickening with a half teaspoonful of corn-starch. Any tart fruit jelly may be used, or the pudding may be served with cream and sugar flavored with a little grated lemon rind.

THE USE OF COLD WATER IN CHRONIC DISEASE.

In the employment of water as a therapeutic means, it is first of all important to keep in mind the principle that it is the patient, not his disease, that is to be treated. The fundamental idea of hydrotherapy, as of all rational measures of treatment, is that the curative force resides in the body, and that the office of the physician, aided by intelligent and trained assistants and nurses, and by the co-operation of the patient, is to supply such conditions as will aid the natural forces of the body in combating the disease. It is hence of the utmost importance that the general plan of treatment adopted for the relief of any particular case shall first of all take into account the causes by which the patient's maladies may have been induced. These will usually be found to exist in some wrong habits of life, of which the patient himself may have been wholly ignorant,

at least as regards their deleterious character.

All cases of chronic disease may be roughly divided into two general classes:—

1. Those in which the seat of the disease is a local irritation of mechanical or other origin, such as eye-strain, catarrh of the nose, stomach, liver, or bladder; or in which there is a local, mechanical, or tissue injury, as in dilatation of the stomach, prolapse of the stomach, floating kidney, displacement of the pelvic organs, ulceration of the stomach.

2. Those due to a constitutional condition, as in cases of diabetes, obesity, chronic uric-acid poisoning, migraine, neurasthenia, Bright's disease, and the various degenerations.

In order, then, to form an intelligent idea of the proper course to pursue in the treatment of any given case, there must be a careful scrutiny of the causes which have led up to it and of the exact pathological conditions which exist. For example, in indigestion we must ascertain with accuracy, in order to employ the proper measures, whether or not a patient is suffering from apepsia, hypopepsia, hyperpepsia, or simple dyspepsia, and whether or not there exists so-called chronic or subacute gastritis or a condition of increased or diminished sensory or motor irritability. Insomnia may be due to local irritation of some sort, to chronic toxemia, or to cerebral anemia or congestion. An anemia found present may be the result of a recent hemorrhage from a wound, the result of gastric ulcer, of a surgical operation, a fever, tuberculosis, malaria, etc.

Before beginning a course of general applications of cold water, careful investigation should be made respecting the condition of the heart, the nervous system, the liver, the kidneys, and other viscera, so that all contraindications may be at once discovered and the proper allowance made therefor. It is also important to ascertain in each case a patient's power of reaction by means of a partial cold bath of some sort. We have found the following method very satisfactory in practise: —

By means of two surface thermometers which register exactly alike, the temperature of the two arms is taken in the usual way. In the absence of a surface thermometer, an ordinary fever thermometer capable of registering in one minute may be used, placing the thermometer in the bend of the elbow, with the forearm flexed. The right arm is then placed in water at a temperature of about 50° F. for thirty seconds. The whole forearm, and as much as possible of the arm, should be placed in the bath. Care should be taken to note the degree of the lowering of the temperature and the exact length of time required before the arm returns to its normal temperature. Goose-flesh appearance and other indications of chill should be carefully looked for.

Observe the time required for the disappearance of the goose-flesh, for the reappearance of the natural color, and for the recovery of the normal surface temperature, taking observations every fifteen minutes. If the normal condition of the skin is restored within fifteen minutes, the patient may be regarded as having normal power of reaction. It must be remembered, however, that in very feeble patients there may be sufficient nervous energy to react well when an application of cold is very limited in extent, but not sufficient to secure prompt and vigorous reaction when the application extends to the entire surface of the body; in such cases, the effects produced by the first bath should be carefully noted, and the prescription should be arranged in accordance with the indication thus obtained.

If any of the symptoms of imperfect

reaction occur, those measures necessary to encourage reaction should be adopted. If reaction is excessive, employ less strongly stimulating measures; that is, (*a*) raise the temperature a few degrees, (*b*) substitute a non-percutient form of bath for the douche, as a cold sponge bath, a wet sheet or towel rub, a sitz, immersion, or affusion, (*c*) have the patient exercise less violently before or after the bath, or (*d*) cover less warmly in bed, or otherwise modify the measures which promote reaction.

After short, very cold applications, watch carefully for the appearance of the bright red color which indicates normal reaction. If this does not, under vigorous friction, appear within one minute or less, it will usually be found wise to precede the cold application by the hot rain or jet douche, the hot bath, steam bath, or some other general hot application. The hot application should be continued for from three to five minutes, then the cold application may be made, and a good reaction will be assured, even in patients whose power of reaction may be very limited. The application of heat in this manner greatly diminishes the unpleasant impression of cold applications, while at the same time it promotes to a high degree the circulatory reaction.

The lower the temperature of the water, the shorter the application should be. In very cold applications the time should not be more than from one to three seconds.

Cool applications in the form of the douche may be continued from five to fifteen seconds.

Tepid, warm, and hot douches may be much more prolonged, especially when moderate pressure is employed. The duration may be from one or two minutes to ten or fifteen minutes.

Very hot applications must be of moderate length, rarely more than from two to four minutes. When employed to reduce temperature in fever or to reduce inflammation, non-percutient, cool applications may be prolonged to fifteen or twenty minutes, or may be made almost continuous if but a few degrees below the body temperature.

The neutral bath may be continued as long as circumstances require. It may be made practically continuous for several months, if care is taken to regulate the temperature so carefully that thermic reaction is wholly suppressed.

In general, it should be the constant aim progressively to train the patient to react to water at as low a temperature as possible, the temperature of the water being steadily lowered.

The best and most durable effects are produced by short applications, frequently repeated.

Long applications may be too exciting by producing too strong a reaction, or the effect may prove to be sedative or exhausting instead of tonic. This is especially true of emaciated and anemic persons, and persons suffering from chlorosis. In emaciated persons, the amount of fuel for heat production is diminished and the amount of oxygen taken into the blood is also below the normal standard; hence the heat-making powers are deficient and are easily exhausted, so that a too prolonged cold application may result in an excessive loss of heat, as indicated by delayed reaction, prolonged chill, or the frequent recurrence of chill or chilliness after the application.

In persons suffering from nervous exhaustion, especially, the ability of the nerve centers to react is speedily exhausted; hence the importance of making very cold applications very short in character.

J. H. KELLOGG, M. D.

THE GASTRIC JUICE AND ITS FUNCTIONS.

GASTRIC juice, as the name implies, is a product of the stomach. It is formed from the numerous glands which are in the mucous membrane of this organ.

Until a comparatively recent date very little was known about this important digestive fluid. The reason was the fact that convenient methods for obtaining and analyzing the fluid were not known.

Attempts made by many of the early investigators to obtain some of the secretion of the glands of the stomach are interesting, and demonstrate the earnestness and enthusiasm with which these men worked under difficulties. Spallanzani, one of these early investigators, fed fowls with small bits of sponge to which a string was attached, and after the sponge had remained in the stomach for some time, tension was made on the string and the sponge removed. The substance which the sponge had absorbed was expressed and examined. Other investigators used perforated metallic balls which were filled with food; these were swallowed, after a time removed, and the food examined to ascertain to what extent digestion had proceeded. Crude as these experiments were, they disproved some of the theories held at that time concerning the process of the digestion of food in the stomach. One theory was that the food was wholly digested by a grinding process which took place in the stomach. The digestion of food in the perforated metallic balls overthrew this false theory. Another was that the process was one of putrefaction; the experiments proved this also to be false, as no putrefactive odor was present in the sponges or the partially digested food. Spallanzani's ingenuity led him to try other experiments to prove that the putrefactive theory was wrong. He caused snakes to swallow small animals, and after varying periods of time he killed and opened the snakes, and found the animals which had been swallowed partly digested, and the remaining portions wholly free from any evidence of putrefaction.

While these investigations constantly brought out new discoveries relating to this subject, they were only as a drop in the bucket compared to the many facts now very generally known.

We are indebted to Dr. Beaumont for the first satisfactory information concerning the nature of the action of the gastric juice in man. In 1822 a young man by the name of Alexis St. Martin received a

FIG. 4.—THE STOMACH.

gunshot wound in the abdomen which tore away part of the abdominal wall and stomach. The young man came under the care of Dr. Beaumont, who treated him successfully. His recovery, however, was not complete, as there was a permanent opening into the stomach established, with an aperture of two and one-half inches which was closed by a flap of mucous membrane.

Dr. Beaumont improved this opportunity for making a study of the process of digestion in the stomach. He employed St. Martin in order that he might

make observations. By pushing back the flap of mucous membrane the various changes taking place could readily be observed. Through this opening he was also able to obtain some of the secretion, and to make a chemical analysis of it so far as his limited facilities would permit. From these experiments it was learned that the gastric juice is a digestive fluid, and that it is a true secretion of the glands of the stomach. It was also observed that the secretion is poured out intermittently and only when the glands are excited by some stimulant. When food was swallowed or placed in the stomach through the artificial opening, it was noticed that little drops of fluid would ooze out from the mouth of each gland and trickle down the mucous membrane. The lining of the stomach at this time had much the same appearance that the skin has when it is sweating freely.

FIG. 5.— PEPTIC GLAND.

That the action of the gastric juice is facilitated by warmth and motions of the stomach was also noticed. This fact is worthy of careful consideration, for many cases of disordered digestion arise from the fact that the warmth of the stomach is destroyed to a large extent, and that frequently, too, at a time when the organ is loaded with food, by the swallowing of large quantities of ice-water, iced tea, ice-cream, and other cold substances. A chemical examination of the gastric fluid obtained showed that it contained free hydrochloric acid. The other active principles, pepsin and rennin, were not discovered by Beaumont.

Dr. Beaumont found that the gastric juice can be kept for months without its undergoing putrefaction. He also proved it to be an antiseptic by observing that when it was applied to ulcers and wounds, the putrefaction ceased, and the tissues soon became healthy.

Since the investigations of Beaumont, the advent of the stomach-tube has made it possible to obtain the stomach contents during any stage of digestion, and at the present time the ability of the stomach to digest food is readily ascertained. By careful chemical analysis the stomach fluid has been found to consist of water, hydrochloric acid, various organic and inorganic salts, pepsin, and rennin.

Like the saliva the gastric juice digests only one of the food elements. The saliva digests the starch, and the gastric juice the proteids, or nitrogenous elements. In the process of the digestion of proteids the pepsin acts upon them, changing them to what is called peptone; this peptone, while being absorbed, is changed back to proteid again, and we find it in the blood as serum-albumen. The hydrochloric acid, when present in normal amount (0.2 per cent.), acts as a germicide; it guards the body against infection from disease germs passing in through the alimentary canal. When this important constituent of the fluid is absent, as it is in some diseased conditions, an examination of the stomach contents reveals myriads of germs. This is a condition which is usually present in cases of sick-headache, and until the stomach is cleansed and the normal secretion established by following a carefully regulated diet and proper treatment, the sick-headaches will continue. Drugs may relieve the pains, but they do not cure; the germs are still present, working night and day, producing poisons which are continually being absorbed and carried to all parts of the body with deadly effect.

The hydrochloric acid also dissolves off the material which surrounds the particles of proteid so that the pepsin can readily act upon it. The rennin coagu-

lates the casein of milk, and then the pepsin converts it into peptone.

Dr. Beaumont also noted in his experiments on St. Martin that the gastric juice would digest a certain amount of food, and that when more food was added, it would not digest it; that as a result there was disturbance of the digestive function, and resulting indigestion.

CHARLES E. STEWART, M. D.

BACK YARD HYGIENE.

DURING the winter, when nature kindly gives us a frozen carpet that so thoroughly imprisons and subdues for the time being the various germs, both those which produce disease and those less dangerous, the condition of the premises seems of small consequence from a sanitary standpoint, but it is well to bear in mind that the same warmth of the sun which restores luxuriant life to all vegetation, also hatches out, as it were, countless millions of germs in places where the soil is allowed to remain in an unsanitary condition.

The difference between many a brownstone front and the back dooryard of that same city mansion is almost as great as the distance from the boiling-point to the freezing-point on the Fahrenheit scale. The front furnishes material for the art supplements of the magazines, but the latter is seldom photographed to illustrate journals of hygiene and sanitation.

Unfortunately, when we go into the country, this same general distinction is still maintained. The front yard bears evidence of having received artistic care. The shade-trees are placed the proper distance apart; the shrubbery is trimmed to a nicety, and flower-beds are laid out in symmetrical forms, but from the back yard is carried away to make room for more, only a part of the excess of rubbish which has been accumulating during the winter. Visitors are not expected to inspect this portion of the grounds. Those who occupy the house, however, must breathe the air which has become loaded with poisonous gases from the back yard, as well as that which has been perfumed by the odor from the beautiful flowers of the front yard.

Children young enough to secure as much joy in playing with broken crockery as they could derive from gilt-edged toys, often find the back yard a source of fascinating amusement. If our eyes could be opened so that we could see the pestilence which lurks in every neglected gutter, cesspool, and heap of garbage, we would shudder when we see the innocent children staking off imaginary cities in the midst of all this, or perhaps making mud pies from some of the contaminated earth in the same vicinity. When these children sicken and perhaps die, the grief-stricken parents and sympathizing neighbors are wont to attribute their loss to the dispensations of a mysterious Providence, and attempt to become reconciled to the sad bereavement.

What a pity it is that human lives must thus be sacrificed to ignorance and indifference! All should recognize that every unsanitary condition about the premises is a constant menace to health and life, and that a thorough effort should be made to clear away every decaying and offensive substance.

The cesspool and the well are likely to flourish in altogether too close proximity to each other. The idea that contaminated fluids purify themselves by passing through the earth is a delusion and a snare when applied to such short distances as generally exist between these two important openings in the earth.

The following incident will serve to illustrate the indifference that many manifest in reference to this subject: —

"A physician informed a mother who

had recently lost two of her children by fever, that he suspected that the cesspool was leaking through the earth into the well. The mother did not believe it was possible, but in order to be sure he determined to test the matter, and suggested to her to pour five gallons of kerosene into her kitchen sink, promising that if the well water did not taste of the oil in thirty-six hours, he would pay the necessary expense in procuring it. Within twenty-four hours the water became so thoroughly impregnated with oil that it was impossible to drink it. The woman, instead of being thankful for this important information, became indignant, and declared that he had ruined her well, and inasmuch as she would have to go to the necessary outlay to have another one dug, she refused to pay the expense of his well-earned doctor's bill."

The intelligent and well-informed physician of these times needs great courage and fearlessness in order to live up to his convictions in the face of popular prejudice.

When urging hygienic considerations upon the attention of parents, we are often met with the statement, "Well, why do not more people die if these things are so important?" And those who raise the question do not realize that nearly half of the children born in this world die before the age of five. What a slaughter of innocents! Yet it is some of these very conditions which can so readily be controlled, coupled with dietetic errors and improper ventilation, that are responsible for the majority of these sad funerals.

When the care of the back yard, sanitary housekeeping, and hygienic cookery are considered as indispensable to a good education as a knowledge of dead languages and music and painting, then we can hope for a general reformation in these directions, and not until then.

DAVID PAULSON, M. D.

HOME CLUB QUESTIONS.

PHYSICAL DEVELOPMENT.

1. WHAT are the purposes of breathing?
2. If the lungs are deprived of sufficient air, what is the first effect on the body?
3. How much air is taken into the lungs in each ordinary inspiration?
4. What is the average expansion of the chest in taking a deep breath?
5. How often should one take breathing exercises?

HEALTHFUL DRESS.

1. What are the most conspicuous cultivated deformities caused by improper dress?
2. What evils, worse than corns, come from wearing tight shoes?
3. Is it more than a fad that would discard long skirts for the baby?
4. Why is it better not to trim the baby's skirts with ruffles and embroidery?
5. What is the hygienic objection to low neck and short sleeves for the infant's clothes?

SCIENTIFIC COOKERY.

1. How is bread made light?
2. What are the essential requisites for the production of good fermented bread?
3. What are the requisites of bread for digestibility?
4. What points need special observation in the making of whole-wheat and graham breads?
5. What are the general causes of sour bread?

HYDROTHERAPY.

1. What are migraine, diabetes, chlorosis?
2. What is the difference between apepsia, hypopepsia, and hyperpepsia?
3. What is a non-percutient bath?
4. What is chronic toxemia?
5. What is the fundamental idea in all water treatments?

PHYSIOLOGY AND HYGIENE.

1. How long after a meal should one wait before drinking?
2. Is it better to drink cold or hot water?
3. How may one avoid being thirsty at meals?

4. What are the best disinfectants for the back yard in the spring?

5. How long should water be boiled for drinking purposes?

For Answer by Subscribers.

1. What is the best argument against abdominal breathing?

2. How long can the breath be held?

3. Since the baby lives chiefly in bed, why not dress it in a nightgown all the time?

4. What are the objections to high-heeled shoes?

5. Why are hard breads in general to be preferred to soft?

6. Why is the crust of bread more wholesome than the inside?

7. Is chronic disease an inevitable accompaniment of old age?

8. Of what use is cold water in the prevention of chronic disease?

9. If one has a sick-headache, why is the use of the stomach-tube prescribed?

10. What is "spring fever," and how may it be avoided?

ANSWERS TO HOME CLUB QUESTIONS FOR MARCH.

PHYSICAL DEVELOPMENT.

1. LITERALLY "to measure with" or "together," from two Greek words, hence a due proportion of the several parts of a body to one another, or the adaptation of the dimensions and form of the several parts of a thing to one another.

2. Beauty, grace, and strength.

3. He says: "Walking is a perpetual falling with a perpetual self-recovery. It is a most complex, violent, and perilous operation, which we divest of its extreme danger only by continual practise from a very early period of life."

4. Shorter. This may be shown by placing a rod or yardstick horizontally so as to touch the top of the head forcibly as one stands under it. In walking rapidly beneath it, even if the eyes are shut to avoid involuntary stooping, the top of the head will not even graze the rod.

5. The decree that it is bad form to swing the arms. Nature intended that in walking the arms should swing gently, in harmony with the motion of the rest of the body.

HEALTHFUL DRESS.

1. Yes, if taken in time. The organ must be replaced daily by careful manipulations, and supported in place by an abdominal girdle. Applications of massage and electricity are most useful in these cases.

2. The injury from corset wearing comes not alone from the tightness, but the stiffness also interferes with the free movements of the body. If the corset simply fits snugly, the muscles are prevented from developing, and hence become weak and lose their power to support the viscera.

3. It does not. There is usually a difference of ten inches between the bust and the waist size.

4. Above the navel, between the ribs, to the left, as shown in the first figure on page 90, February number.

5. By no means. Every garment worn must be adapted, not to the corset, but to the natural form of the body, and must be so made as to allow free play of all the muscles and organs.

SCIENTIFIC COOKERY.

1. Good flour, good yeast, and good care.

2. The yeast in growing decomposes the sugar, separating it into various elements, one of which is a gas that causes expansion.

3. Deterioration of food value.

4. The same laws that govern all other representatives of the vegetable kingdom.

5. Because it necessarily contains germs and because it can not be baked as thoroughly and as dry as is desirable.

HYDROTHERAPY.

1. Because applications of water reduce temperature without adding other poisons to those already in the system.

2. An application of heat.

3. A depressant effect due to a continuous application of therapeutic measures.

4. The region immediately below the sternum and above the navel.

5. Because nature is attempting to diminish the supply of fuel to the vital fires. It is a protective measure.

PHYSIOLOGY AND HYGIENE.

1. Amylaceous dyspepsia, or the inability to digest starch.

2. In order to break up the capsule that surrounds each granule of starch and to bring the starchy constituents to the point where they can be acted upon by the saliva.

3. The fact that it stops absolutely the digestion of starch.

4. Every day in the year.

5. Feeding the family irregularly and on cold scraps, odds and ends, or indigestible pastry.

WHEN THE BIRDS GO NORTH AGAIN.

O, every year hath its winter
And every year hath its rain —
But a day is always coming
When the birds go North again.

When new leaves swell in the forest,
And grass springs green on the plain,
And the alder's veins turn crimson —
And the birds go North again.

O, every heart hath its sorrows,
And every heart hath its pain —
But a day is always coming
When the birds go North again.

'T is the sweetest thing to remember
If courage be on the wane,
When the cold, dark days are over —
Why, the birds go North again.

— *Ella Higgins.*

FOOD REFORM.[1]

BY H. FRANCES PARMELEE,
Superintendent of Food Reform Department Foreign Auxiliary, Japan W. C. T. U.

OUR neighbor's little mite of a daughter, aged only about three or four, precocious and old for her years, was watching my mother preparing asparagus for cooking. After a little silence she said, "I like sparrow grass." Mother corrected her, saying, "It is not *sparrow grass*, but asparagus." Again later she called it sparrow grass, again was she corrected, when she broke out in broad Yankee dialect, "Well, I always *have* called it sparrow grass, and I s'pose I always shall."

If only three or four years of life on this earth are sufficient to establish an incorrigible bent, to fix one in ruts, it is not my hopeful expectation that a few words of mine will oust my hearers from the ruts and prejudices of generations, so I would ask those who are complacently satisfied in the possession of perfect health, those who have no desire for the improvement of the race, those who are "dead sure" that the way of their

[1] From a paper read before the W. C. T. U. Convention at Karuizawa, Aug. 3, 1898.

fathers and grandfathers was all right, and that there is no better way than their own, who have a horror of stepping out of the beaten paths,— please to pay no attention to this paper.

The exhortation to temperance is a wide one, and if strictly obeyed, might reach further into our lives, and extend in more directions, than careless persons or those half in earnest have any idea of or might be willing to admit.

The drink and tobacco habits are but forms of intemperance. They who would be temperate must study all forms and causes of intemperance. Improper, innutritious, and exciting foods make a craving for stimulants.

Most of my hearers have probably no question as to the value of food reform to the man addicted to alcoholics and narcotics, who through ignorance and poverty lives on poor food poorly cooked, but you may not see the need of it for the rich man with no noticeably bad habits.

We are well aware that the moment one says a word about "hygiene," "wholesome food," or varies the accepted routine or regimen of eating and living, the corners of mouths begin to pucker, eyebrows are lifted, heads are turned, while that awful damning word, which some of us have learned to hear with the greatest imperturbability, "Oh, a crank!" is ejaculated; and remarks and criticisms, sometimes little short of the brutal, are made. For, from the time of Isaac and Esau down, if a person is approached from the side of gastronomics or spoken to of his stomach, a sensitive subject is broached, for the stomach is the very life of the biped, and time-honored customs and habits can no more be lightly trampled on now than in the time of Hypatia or Galileo or William Lloyd Garrison.

Seriously, is it not an insult to the Almighty who created man in his own image, to suppose for an instant that the strength, power, and glory, physical as well as spiritual and intellectual, with which he is ready to endow human beings as the very sons of God, are satisfactorily represented at the present time by men and women in the average state of health of those we see about us?

If we obeyed the laws of health, would climate have so much effect on us? How many of us can take a walk of five miles, or sit for two hours listening in a public gathering, without weariness? Who of us yet in the prime of life are not wearied even to the extent of losing sleep by a day or two of close, steady mental application, or even by a smaller cause?

Are we, men or women with more or less dyspepsia,— and hundreds have it who do not recognize it,— with bad breath, with nerves that are easily upset, perhaps by the crying of a child, the steady blowing of the wind, the buzzing of a fly, or an exasperating, unkind remark, we with coughing, catarrhal throats and bronchial tubes, people who break down in the prime of life,— are we honoring the Lord with our bodies, which should be the temple of God? Is there any reason in nature why people should not live to a healthy, happy, useful old age of even one hundred years? Where is the man or the woman, or even the trained surgeon, with nerves and muscles steady enough to hold two pinpoints steadily together for five minutes, or three minutes, or even one minute? How many of us nerve-strung missionaries, five or ten years in the field, can endure even a little unusual excitement, and that perhaps the simplest, before retiring, without losing possibly the most of a night's sleep, while the loss of a night's sleep finds us with little reserve strength, so that a day is also wholly or partially lost?

To how many men or women is work, steady and long continued, the simple putting forth of power either physical or

mental, the using of all one's faculties, a clear joy and pleasure as it ought to be, and that aside from the result attained by that work? How many of our acquaintances — not yet old people — have unsteady, shaking, or nervous hands? how many have frequent or occasional pain in the back of the head or neck, headaches, backaches, or sideaches, rheumatism, or neuralgia? How many of us have settled down to it to make the best of it as the natural order of things, actually believing it to be the Lord's plan for us all, not realizing that laws have been violated, while perhaps had we and our parents known the laws of a healthy life, all or much might have been avoided? I do not believe that this sort of thing is the Lord's will concerning mankind. Proper food, proper air, and proper exercise with proper cleanliness ought to make and keep a healthy, sound, happy body without need of anything abnormal or unnatural in the line of drugs, medicines, or surgical operations.

As has been said, any remedy which undertakes to cure a malady without a change in the habits which produced it is a false remedy. The doctor who claims that one can be cured of a disease while still violating the laws of health is "maligning nature." It is a mystery how intelligent people can go on year after year letting custom and tradition and appetite dictate what their food and drink shall be, without even once inquiring why or considering the relation of food to all these common ills or without realizing that the body is a unit, that the stomach is the head center of life and vigor, that a pain or discomfort in any part of the body ought to be looked after at the fountain-head. A good stomach and fresh air and exercise make good blood, and good blood makes good health. There can be no disease or pain or discomfort (except in case of accident) without impure or improper blood. As the blood penetrates every fiber of the being, rheumatism or neuralgia, an ache or a pain in the most distant part of the body or anywhere, is simply the stomach's warning that the laws by which it furnishes proper blood and nutrition have been violated. Yet intelligent people will say, "Oh, the trouble is all in my head, or my heart, or my back; my stomach is all right."

I had expected to end my paper here, to say nothing of ways or methods of food reform, nothing about vegetarianism or flesh eating, but fresh study has brought fresh conviction, and conviction begets courage to say what I believe, on at least one point among the many reforms needed in regard to food. Having for assurance such good names as Linnæus, Humboldt, Cuvier, Owen, Sir Benjamin Richardson, and plenty of others, one can feel that to be peculiar in this case is honorable.

There can be no very thorough food reform while feeding on decomposing animal matter, and all animal life begins to decompose the instant life is extinct.

Vegetarianism is not the "cult of the cabbage," or the "gospel of the potato and finger-bowls." Many a vegetarian while living on luxurious food does not eat vegetables at all, and indeed, there is an abundance without or with them at one's discretion. For when God said in the beginning, "Behold, I have given you every herb bearing seed, which is upon the face of the earth, and every tree in the which is the fruit of the tree yielding seed: to you it shall be for meat," he gave us an infinite variety of good things which make it in nowise necessary that man should disregard the command, "Thou shalt not kill," and so kill something that he may eat.

We are told that all things were created for the pleasure of the Lord (Rom. 4:11). If that is true, our sentient fellow creatures have as much right to life as we.

But it is not my plan to take up the argument from the moral standpoint, but simply from the selfish side,— the good of the human,—and that as briefly as possible, for I am aware that to most of my hearers, who are probably intrenched and immovable in the opinion that they must "arise, slay, and eat" something (though they mostly object to doing their own slaying), this paper will be a weariness, and for those who really care to study this subject there is plenty of first-class literature.

When one is just swallowing a pink and juicy mouthful of what we are pleased to call steak or meat, but what is really part of one of our dead fellow creatures, he fails to remember that "when an animal is killed, the poisons that were on their way out of its body are stopped in their progress, and retained in the tissues, so that by eating meat one simply adds the poisons produced in another animal body to those of his own." To quote further, "All animals, however healthy, are every moment of their lives throwing off a large per cent. of worn-out effete matter, many times larger than that which is expelled from the surfaces of fruits and vegetables."

"It is the waste, or soluble, portion of the animal which gives the flavor to the meat." "Meat has more for stimulation than for nutrition, and the nitrogens it contains are obtainable in many other foods." This is all said of healthy meat. I will not speak of diseased meat, only to say that Professor Gamgee, in the Fifth Report to the Privy Council for the Society of Medical Officers of Health in Manchester, England, said that "one fifth of the total amount of meat consumed is derived from animals killed in a state of malignant or chronic disease." In the course of my study I have discovered the testimony of many doctors who believe that a large proportion of consumption, tuberculosis, cancers, and other diseases is due to the use of flesh-food.

"The principle of vegetarianism is that man, as a physical, intellectual, and moral being, becomes best developed in all his faculties when subsisting upon the direct productions of the vegetable kingdom."

The reasons for entertaining that principle vary with different persons. They are chiefly based,—

1. On the anatomy of man as described by Linnæus, Cuvier, Owen, and other eminent scientists, who express their conviction that man was designed to live on the fruits of the earth.

2. On physiology, which shows that the healthiest and least laborious action of the digestive organs, the purest blood, and the most substantial muscle and bone are produced upon this diet.

3. On chemistry, it being an undisputed fact that flesh-food contains no nutriment which can not be obtained in its purest form from grains, pulse, fruits, and vegetables.

4. On economy, which is in every way promoted by a system providing more sustenance for a cent from farinaceous food than for a dime from the flesh of animals.

5. On agriculture, which shows that the cultivation of land provides healthy employment for a much greater number of persons than land devoted to pasture, and that a cultivated acre will yield from three to four times as much food as an acre used for grazing purposes. On psychology, which shows that this system is favorable to the subjection of the passions to the higher moral and intellectual faculties.

7. On esthetics, which seeks to cherish and promote all that is sublime and beautiful on the earth, to dispense with the slaughter-houses, and to liberate from degrading occupations the butcher, the drover, and the cook.

8. On humaneness, which is founded upon the irrefragable principles of justice and compassion,— universal justice and universal compassion,— the two principles most essential in any system of ethics worthy of the name.

9. On the appointment of man's food at the Creation. "And God said, Behold, I have given you every herb bearing seed, which is upon the face of all the earth, and every tree in the which is the fruit of a tree yielding seed; to you it shall be for meat." Gen. 1:29.

10. On history, which shows that wherever it has been adopted, it has proved beneficial to the human race.

11. On the experience and testimony of great and good men in ancient, modern, and present times.

12. On the individual conviction of its truth, which becomes more powerful in proportion as it is adhered to in practise.

13. On biology, as the most practical and successful teachers of this science insist on abstinence from flesh and subsistence on fruits as promotive of clearness of perception and that development of the mental faculties which increases the power of one mind to direct and control the will of another.

14. On moral purity, as flesh eating tends to stimulate human passion and diminishes the power of the highest faculties to control the current of thought.

15. On the senses of taste, smell, touch, sight, and hearing, as all these are offended by the flavor, odor, feeling, and sight of a dead body, and the piteous cries of creatures before and during the process of slaughter.

16. On common sense, as it is well known that nearly all animals are in a state of disease when slaughtered, in consequence of the cruel and unnatural conditions in which they are placed previous to being slaughtered.

17. On the post-mortem examination of animals, which frequently shows the existence of tubercles in the lungs and liver, and a large preponderance of uric acid in the fluids of even healthy animals, this being the chief cause of rheumatism so prevalent among flesh eaters.

18. On temperance, as it has been clearly proved by experience that flesh and the condiments used to disguise its flavor tend to create a thirst for other stimulants and a resort to intoxicating liquors.

There are other reasons that might well be urged. Surely man before the fall ate no flesh. If we are working for the redemption of mankind to something of the happy state before the fall, for the redemption of the creatures groaning and travailing in pain together, we are working for the time when love toward the Creator and all created things shall be supreme, and when "none shall hurt or destroy." When that time comes, the thought of shedding blood or taking life selfishly for food will be unknown.

Some may argue that races which have produced the greatest achievements have been flesh eating, but that remains to be proved. Certainly ancient races of great achievements, like the Egyptian and Grecian, were not meat eaters, or to a very limited extent. The question of what people in the polar regions would do without flesh-foods has been asked as an argument against vegetarianism, but it looks to me as if I would as lief stew into a "blanc-mange" the moss on which the reindeer thrive, as to eat blubber.

THE BEST DIET FOR CONSUMPTIVES.

BY W. H. RILEY, M. D.,

Superintendent of the Colorado Sanitarium, Boulder, Colo.

THE selection of proper articles of diet is always an important matter to the sick ; and in no disease is this more true than in tuberculosis of the lungs, or consumption. While it is true that this disease begins in the lungs, and is most active in these organs, yet it is equally true that on account of the disease nearly every other organ of the body is either directly or indirectly affected. As a matter of fact, most people who have tuberculosis of the lungs usually have some serious disturbance of their digestion and nutrition before the tubercular trouble shows itself. So important are these functions, that it has become a fact well recognized by physicians of experience that disturbance of the digestion and nutrition is one of the most common and prolific causes of tuberculosis.

To put it briefly, we may say that the causes of consumption are, first, a lowering of the vital resistance, with serious trouble of the digestive and nutritive processes of the body, and secondly, the presence of the germ of tuberculosis. When the germ enters the lungs of a person whose vitality is lowered, it finds a very favorable soil for growth, and consequently multiplies, and produces organic changes in the lungs. In the incipiency of the disease, there are, as a rule, serious disturbances of the stomach and digestive system, the patient loses flesh, and shows other signs of impaired nutrition.

At this time, that is, in the early stages of the disease, and in fact I may say before the disease begins, as well as throughout its entire course, it is of the greatest importance that the patient have such food as is easily digested, and at the same time supplies all the nutritive elements necessary properly to nourish the body. If a person suffering from tuberculosis eats food that is difficult of digestion, it is only imperfectly, and perhaps not at all digested, undergoes fermentation, and does not properly nourish the patient.

One finds in his experience with these cases that consumptives not only have difficulty in digesting proteid, or albuminous food, but also have much difficulty in digesting starch. Consequently they are troubled with sour stomach, flatulency, and other symptoms of starch indigestion. Starchy foods should therefore be predigested, or at least partially so, for this class of invalids. Granose flakes, granose cakes, granola, whole-wheat zwieback, graham zwieback, toasted wheat wafers, are foods in which the starch is for the most part partially digested in the process of manufacture, and the proteid matter of the food is also made easy of digestion. These foods contain all the elements necessary to nourish the body properly, and in a condition to be easily digested by the weakest stomach.

Consumptives, however, need a large amount of proteid food. And while the foods referred to contain a large percentage of proteid matter, yet in my experience I have found it valuable to combine with them one or more of the nut preparations, such as bromose, ambrosia, malted nuts, almond nut butter, nuttose, nuttena, and maltol. These foods may be properly styled tissue-builders. It is impossible to make muscle out of purely starchy food, from the fact that there are some elements in muscle not present in starchy food, and it is impossible to make muscle out of food that does not contain all the elements that

muscle contains. Nut foods, on the other hand, contain a large amount of nitrogen, the essential element that is wanting in starchy food.

It is important for the consumptive to eat food that builds up tissue. And as the nut foods, combined with the cereal foods before mentioned, supply a large amount of the proteid, or albuminous matter, it can readily be seen that they are foods particularly adapted to this disease. There should be added to the foregoing list, ripe fruits, such as apples, peaches, pears, grapes, and plums. This provides for these invalids three classes of foods; viz., grains, fruits, and nuts, and in such variety that they may choose and change their diet from time to time and still have the foods best adapted to their condition in abundant quantity.

More than this, the nut foods contain considerable vegetable oil, which is also essential as an element of diet in the proper feeding of consumptives. These classes of foods are all easily digested, supply all the nutritive elements necessary to the body, do not contain any deleterious or poisonous substances such as are found in meat, and not only are less objectionable, but are foods particularly adapted to this class of invalids. In my own experience in regulating the diet of hundreds of consumptives, I have found that when they are placed on the diet indicated above, it is invariably the rule that they gain in flesh and strength; and under favorable climatic conditions and with proper treatment, the disagreeable symptoms of the disease gradually fade away, and in the great majority of cases every vestige of the disorder disappears entirely. The records of the cases I have treated show a gain of all the way from ten to forty pounds in weight from the use of these articles of diet.

The best way to test any article of food is to use it in a large number of cases. This I have done with the various foods mentioned; and the results have been most gratifying to my patients as well as to myself.

I can say from a large experience in treating pulmonary tuberculosis, that the idea so prevalent, both with the laity and to some extent in the medical profession, that a meat diet is essential to the proper nourishment of these cases, is a fallacy. The only kind of food present in meat is a proteid, or albuminous element, with the possible exception of a small amount of fat. There is a much larger per cent. of proteid matter in nuts than in meat. More than this, the proteid in the nut is pure and clean, free from the débris and deleterious substances that are always present in meat, and that act as a source of irritation to the tissues of the body generally.

RATIONAL EXERCISE IN JAPAN.

THE Japanese are constantly surprising their Western neighbors by the enlightenment and perspicacity of their laws and customs. The same clear-sightedness and good sense which characterize them in the conduct of other affairs are noted as distinguishing features of their school administration.

For instance, in that part of the annual report which refers to gymnastics in the public schools, the minister of state quaintly remarks: "Pupils should not be allowed to spend play hours in inactivity and idle conversation, but all of them, whether male or female, should be induced to exercise in the open air, in as free and unrestrained a manner as possible. It is not fair to mark their shouting and

running and indulging in merry sports generally as bad behavior, and to give good marks to those who keep calm and quiet."

In another place it is suggested that in order to give greater freedom, the garments worn by pupils should, except under unavoidable circumstances, be furnished with tight sleeves. "This," says *Mind and Body*, "will occur to the American mind as contradictory to the usual ideas of comfortable gymnasium dress until it is remembered that the Japanese idea of a tight sleeve would still call for a great deal more goods than ours. Special attention is paid to physical education in the elementary schools. Until within very recent times such military arts as archery, horsemanship, fencing, and spear exercises prevailed among the people, and nothing essential in the training of the body was neglected. But after the restoration of the imperial government, some of these arts fell into disuse on account of the complete revolution in the military system. For, as the late unpleasantness between Japan and the 'Flowery Kingdom' conclusively showed, the former are well versed in the use of modern implements of warfare and the power of gunpowder over an enemy.

"For this reason careful instructions were issued concerning the gymnastic drill for children, and the teaching of hygienic principles in order that 'teachers and pupils might not devote themselves too exclusively to the cultivation of the intellectual faculties.' Instructors are warned 'not to adhere too strictly to mere routine, and spend valuable time in adjusting the postures of pupils, or in arranging them in rows, thus arousing an aversion in the minds of pupils to drill of this nature.'

"In a list of recommendations which the minister makes to teachers and school boards, is the following: 'Luxury and ease naturally tend to imbecility; in cities and towns pupils are sometimes found to ride in *jinrikishas* or other conveyances in going to and returning from schools, and though such practise is beyond the reach of school discipline, directors and teachers should be very attentive in this matter, and induce the pupils to walk as much as possible.'

"In all the city schools of Japan modern apparatus for gymnastics is provided, but the idea most favored is for such exercises as can be had in natural and enjoyable sports. Apparently the Oriental mind is struck with the ludicrousness of adopting a patent mainspring for the healthful impulses which nature has provided.

"Pupils in elementary schools are forbidden to smoke or to keep tobacco pipes. Any plan of examinations tending toward a system of rewards and punishments is condemned by the minister of state in unmeasured terms. He remarks that in this way the pupils are subjected to undue mental excitement, and that 'it is not only a misapplication of the general principles of education, but also injures the physical development of children.'

WHO knows the joy a bird knows
When it goes fleetly?
Who knows the joy a flower knows
When it blows sweetly?
Bird wing and flower stem,
Break them who would?
Bird wing and flower stem,
Make them who could?

— *Selected.*

A PROGRESSIVE NEWSPAPER.

THE *Baltimore American* published recently an article on vegetarianism, with the following head-lines conspicuously displayed: —

MAN NATURALLY A VEGETARIAN.

Has Become an Omnivorous Animal Artificially.

HIS LIKENESS TO A PIG.

Complicated Study in Economics of the Future—Some Alarming Theories.

The article presents the following concise and forcible argument in behalf of a pure diet: —

"Looking at vegetarianism in the light of comparative anatomy, it is self-evident that man was designed to be a vegetarian. Animals are divided into classes according to their foods, and with the single exception of man, no animal as a class has ever varied from the design of nature.

"These classes are the carnivorous, or flesh eating, the fruit eating, the grass eating, and the omnivorous. Each of these classes has distinctive organs adaptable to the digestion of the kind of food it eats and to no other kinds.

"Man has artificially become an omnivorous animal in spite of the fact that anatomically he is a fruit-eating animal. It is amusing and significant that the only typical omnivorous animal is the pig. Man is trying hard to be a pig, says Professor Leo Weiner, of Harvard, in *Home and Garden*.

"The carnivorous animals all have short intestines, adapted only to the digestion of meat. They have only one stomach, and can not digest grass as a cow does. Their teeth are all long and sharp, so that they can tear meat, but they have no flat-topped teeth to grind vegetable foods, as man has.

"It has been said that the so-called 'canine' teeth of man are like those of the carnivorous animal, and that this is an indication that man is an omnivorous animal. This is not correct. These are not canine teeth, strictly speaking. To be sure, they are somewhat pointed, but they are flat also — flat and pointed, and not round and pointed like those of the carnivorous animals.

"The grass-eating animals have several stomachs — from two to five — and long intestines, especially adapted to the digestion of grass. They have also flat-topped teeth for grinding.

"The fruit-eating animals are the only ones that resemble man. They have only one stomach, and a medium-length alimentary canal, half-way between that of the carnivorous and the grass-eating classes. The nearest animals to man are the monkey and the ape. They are fruit eaters.

"No meat-eating animal in the world has the horizontal movement of the lower jaw in eating, as man has. This is proof positive that man is not a meat eater, according to the design of nature. These arguments on the physical side of the question prove primarily that man is not physically adapted to the eating of meat.

"From an economic standpoint it can easily be seen that man must sooner or later become a vegetarian. This is merely a question of time and a matter of room. The increase of civilization and the population must gradually do away with cattle raising because of the absolute demand for land for cultivation. In time, the demand for room will kill the industry entirely.

"When we eat meat, we are eating the product of the earth at second-hand. The vegetation has been eaten by the animal, and a large part of it converted into bone

and tendon, and wasted, and we eat only what is left and made into flesh.

"To reduce the economic problem to figures: One acre of land which would furnish enough flesh to support one man would furnish enough grain to support ten men. Thus you see when the increased population causes an increased demand for food and for lands on which to raise foods, it will become necessary to raise that which is the most economic — in other words, that which will produce the most per acre.

"The hygienic argument you can obtain from any reputable physician, who will tell you that meat eating is heating to the blood, that it is especially a stimulant rather than a food, and that there is great danger of the transmission of various serious diseases from animal to man.

"Meat eating in the ideal stage is bad enough. If the animals that we eat were in all the health with which nature endows them, roaming wild and free over the open fields, with plenty of exercise, and permitted to choose of their own free will from the best of the various vegetable growths for their food, that would be one thing. But as civilization has advanced, cattle are raised for the sole purpose of slaughter. They get little or no exercise.

"Any veterinary surgeon will tell you that animals kept without exercise will contract and propagate various diseases which are practically unknown to them in their wild state. They are artificially fattened, and this kind of fat is not the sort of material which we should put into our bodies.

"But it is the appalling character of the disease in meat which frightens us. Tuberculosis, one of the most common and fatal of diseases among cattle, causes great destruction of human life by consumption. A recent alarming spread of leprosy in Norway, Hawaii, and the other fish-eating countries is traced directly by scientists to the eating of fish. In this case, to be sure, it is thought that the eating of the fish raw, instead of cooked, is what brings on leprosy, but the simple fact that the germs are there at all is sufficient."

Food for School Children.

The hot Frankfurts, pies, fried-cakes, and other indigestibles sold as foods to the pupils in the Detroit high schools, not long ago called forth a protest from Mrs. Ellen H. Richards, of Boston, who was visiting the schools of that city. In the course of the discussions aroused by her interest, a hygienic luncheon was served by an enthusiastic vegetarian to a distinguished company of Detroit ladies. According to the newspaper reports, the Sanitarium foods manufactured at Battle Creek, "with their unorthodox names and unusual flavors," were the subject of eager investigation and much merriment. The value of nature's foods— cereals, fruits, and nuts — was thoroughly discussed, and "the unholy results of eating meats, pies, peppers, and sauces were vividly portrayed." It is certain that more than one mother experienced an "arrest of thought" as to the right kind of food for her growing children.

Protection for the Boys.

According to the *Medical Record*, a law was recently passed in Norway prohibiting the sale of tobacco to any boy under sixteen years of age without a signed order from an adult relative or employer. Even tourists who offer cigarettes to boys render themselves liable to prosecution. The police are instructed to confiscate the pipes, cigars, and cigarettes of lads who smoke in the public

streets. A fine for the offense is also imposed, which may be anywhere between fifty cents and twenty-five dollars.

One Man's Reason for not Drinking Beer.

"A man past eighty-five years old, but hale and hearty as one of fifty," says the *Union Signal*, "gives his observations in regard to the effects of beer on hogs as the reason for never drinking it himself. He is an intelligent attorney of Michigan. His father was a butcher, and did his own killing. The work of his son was to riddle, or remove the fat from the intestines of the hogs. Many of the hogs were fattened on the refuse of a brewery, and were purchased from the brewer. He says he found it very difficult to handle his work, as the intestines and stomach of the brewery-fed swine were as tender as brown paper soaked in water; the fat would hardly hold together, and seemed to be more of an oily nature than otherwise; there was as much difference between the fat of brewery-fed and that of corn- and grass-fed hogs as there is between pressed lard and oil, and in killing such, they succumbed to the knife much sooner than those fed on corn. The boy always contended that the meat was unwholesome, and would not eat it. Neither would he use beer himself, taking the ground that if beer would rot the inwards of swine, it would also destroy them in a human being."

Rudyard Kipling's Illness.

The famous staff correspondent of the *Chicago Record*, William E. Curtis, brings to light the fact that Kipling's illness was caused by ignorance or defiance of one of the simplest natural laws. He says:—

"Mutual friends told me in New York the other day that the illness of Rudyard Kipling was due to his habit of wearing a heavy fur-lined overcoat in all sorts of weather and his imprudence in taking it off when he became heated. He was repeatedly warned that he was unnecessarily exposing himself, and advised to get a lighter garment to wear as the weather became milder, but he would start out in the morning with his fur coat, wear it until he was thoroughly heated and perspiring, when he would take it off, and carry it on his arm until he was chilled. Then he would put it on again, and say unpleasant things about our climate. The last time he was out was at a little dinner given him by Mr. Burlingame, editor of *Scribner's Magazine*, and after wearing his fur-lined overcoat part way home and finding it too heavy for comfort, he imprudently took it off and carried it on his arm, although his evening dress was of much lighter material than he wore in the daytime."

The Question of the Future.

Physical culture is the question of the future for Americans. All true progress is built upon physical lines. Crude and modern as our bodies are to-day, they shall be as beautiful to-morrow as those of Diana and Hebe, of Mercury and Apollo. Once let the girls and young women of the great public school system be taught regularly and systematically the delights of the modern style of gymnastics, its grace, its healthfulness, its happiness, and they will not endure the constricting process so long shared by us with the women of barbaric tribes. Only ours has been more harmful to the race, because involving more vital interests and organs and visiting a sadder retribution upon posterity.—*Frances E. Willard.*

EDITORIAL.

A Sensible Surgeon-General.

We are glad to note in the report of a recent interview with the Surgeon-General, George M. Sternberg, that this experienced army officer and profound scientist takes a strong stand against the sale of intoxicating liquors in the army canteen.

Dr. Sternberg says: "The theory that the soldier needs a beer-canteen to keep him from going to outside saloons for something stronger, is all wrong. There is nothing in it. On the contrary, a great many young soldiers who are not accustomed to drink, contract drinking habits at these canteens, and are ruined. There is no need whatever for intoxicating drinks at these canteens, and it will be a good thing for the army if they are abolished."

What Shall Be Done with Them if You Do Not Eat Them?

The other day a gentleman remarked, "But if we do not eat sheep and cattle, what shall we do with them? They would soon overrun us, would they not?"

We replied, "What do we do with horses when they outlive their usefulness? To be sure, we eat some of them, at least some people do, in Bologna sausage and tinned meats, but the number is comparatively small in proportion to the whole number of horses. Then there are dogs — certainly we do not eat them, or cats either. Must we swallow everything we do not know what else to do with, just to get it out of the way?"

Apropos of this question comes a good story from North Borneo. A missionary writes to the *Gospel in All Lands* that the natives of Borneo often bathe in the river upon which their houses are built, but never use soap because, as they say, *Apa guna, taboleh mokan?* (What good is it? You can't eat it.) Is it true that civilized Americans are one with the benighted natives of Borneo in the thought that the one great need of human life is something to eat?

A noted physiologist defines an animal as a stomach with various organs appended. This definition may apply well enough to dogs, cattle, even monkeys, and perhaps to the wild men of the forest, but certainly the intelligent, civilized man must be something more than a digesting and perambulating machine. Can not human ingenuity find some more appropriate method of disposing of the dead carcasses of disease-stricken and slaughtered beasts than to convert the stomach into a potter's field or a rendering establishment?

American Girls and American Thoroughbreds.

Dr. Gill Wilie, an eminent New York surgeon, in a recent paper asserts that "the American horse receives, on the average, better treatment than the young woman of America." Dr. Wilie believes that the normal school and the boarding-school are two of the most potent deteriorating influences to which girls are subjected. He calls attention to the fact that the New England woman, while intellectually above the average, is deteriorating physically to an alarming extent. He notes that women teachers are, for the most part, poorly developed physically. He has observed, also, that the normal-school girls are stunted physically.

He thus describes the New England woman: "Look at her thin face and undeveloped physique! She is bright, but if she marries, she has no children, or very few; and instead of motherhood's being a blessing to her, it sometimes proves a curse. The worst of it is that the New England woman is becoming more sterile every year; there can be but one result,— her type must disappear."

Dr. Wilie deplores the great neglect of physical development in the training of the girls, and says: "It seems as if the girls of each succeeding generation are less and less capable of performing the duties of motherhood, and the lessening number of children

in those families points to the result that, without a decided change, must come,—the extinction of the old names."

The Banana in Typhoid Fever.

There is no better diet for the typhoid fever patient than the banana. It may be taken in the form of a gruel made from banana flour or from baked bananas. For baking, the banana should be firm and not quite ripe enough for eating; it should be raw, and should be selected.

Stirpiculture.

"Why," said a gentleman the other day in discussing the question of race development and decline, "why is it that nearly all the horses one sees on the street are plugs, and most of the men likewise show evidence of inferiority? Why are not the horses all fine specimens of the equine race, and men all equally good representatives of the human race?"

The question under discussion in the conversation during which the foregoing remark was made, was whether heredity or environment is the chief factor in determining the status of individual horses and individual men. This question is also one which admits of many profound and lengthy arguments upon either side, and we shall not attempt to discuss it here, since it is universally acknowledged that whichever factor is of the greater importance, environment or heredity, it can not be denied that every individual animal receives from its parents a constitutional bias that has much to do with the shaping of its destiny.

This fact is constantly taken advantage of in the breeding of horses, cattle, and even pigs, fowls, and other domestic animals; but there is ample room for doubt as to whether among human beings the question of the influence of heredity upon possible offspring is taken under consideration in the case of one out of every one hundred children born into the human family. A vastly greater amount of attention is given to horticulture, floriculture, pisciculture,—even to the breeding and cultivation of oysters,—than to stirpiculture.

To the great majority, "to be well born," as a well-known philosopher once remarked, "is the greatest of all human felicities." But it is very rare indeed that the birth of any child is the result of carefully considered and controlled circumstances and conditions. Most men and women are mere accidents as regards the conditions which are of fundamental importance in laying the foundation of mental and physical character, and come into the world under circumstances which handicap them at the outset with a tremendous incubus of hereditary weaknesses or unfortunate predispositions, to overcome which requires the earnest labor of half a lifetime.

This question is one of the gravest which confronts society for solution at the present time, yet its very nature renders it so delicate and difficult of discussion that it is not easy to see how any helpful solution, likely to influence any considerable number of people, can very soon be reached. The neglect to study this subject is largely responsible for the rapid deterioration which is taking place, the visible signs of which are apparent all about us. A few men and women are ready to give consideration to matters of this sort, but the great majority rush madly on, thinking only of the moment, taking no thought of the future, either as regards their own welfare or that of those who are to follow them.

Race Deterioration in the British Islands.

Attention has frequently been called to the fact that race deterioration is taking place in the United States at a rapid rate. It seems that a similar deterioration is taking place elsewhere as well as in this country. A friend sends us the following clipping from an old Irish paper, which we publish as an evidence of the fact above noted:—

"The public were not long ago disturbed by the unpleasant information that the boys received at our great public schools are showing a decided and increasing deterioration in health and physique. Weak chests, stunted growth, deficient sight and hearing, feeble intellects, and bad teeth,—these are some of

the more prominent signs of degeneracy detected in the youthful representatives of what are sometimes called the better classes. It now appears that deterioration is not less observable among the children of poorer people. Bad teeth are an especial indication of a poor constitution, and Mr. Sidney Spokes, dental surgeon to University College Hospital, reports that less than fifteen per cent. of the children in our elementary schools, averaging twelve years of age, are absolutely sound in the masticating apparatus."

The writer recently called upon an audience consisting of two or three hundred people, asking every person whose teeth were all present and sound, to raise his hand. Three hands were raised, representing a boy of ten and a girl of twelve years of age, and an adult Armenian.

The civilized portion of the human race seems to have been rapidly going to pieces during the last fifty years, a fact to which attention ought frequently to be called, as a warning to those who have not yet so far advanced in deterioration as to be unable to appreciate the need of reform and the measures necessary to check this downward tendency.

Poisoned Dogs.

Nencki, Massen, and other investigators some two or three years ago performed a number of interesting experiments upon dogs for the purpose of ascertaining the effect of abolishing the functions of the liver. It was found possible both to remove the liver and to isolate it by ligatures in such a way that its functions were entirely suspended. The animals survived for some time, notwithstanding the grave character of the operation, but in every case finally died with symptoms of poisoning.

The fact to which we especially wish to call attention is this: "It was found that the symptoms of poisoning in these animals could be brought on before they developed spontaneously, by feeding the dogs upon a rich meat diet." This fact is exceedingly interesting, and has a very practical bearing. The conclusion is easily reached at once that the only reason that these dogs did not suffer symptoms of poisoning when fed upon meat is because their livers were intact, and consequently able to remove the poisons that are associated with flesh and that result from its entrance into the alimentary canal.

That dogs are more or less poisoned by the use of meat, notwithstanding that they are naturally carnivorous animals, is shown by the fact well known to hunters, that a dog's sense of smell, his endurance, and his general intelligence and efficiency are much lessened by a meat diet. Dogs and even cats fed upon meat soon become rheumatic, and die with symptoms of old age, while dogs fed upon corn-meal crackers remain lively and vigorous to their full complement of years. Bats fed upon meat frequently become epileptic in consequence.

It is clear, then, that if a flesh diet taxes the liver to destroy the poisons that it contains, which are derived from the body of the animal eaten, it would be far better to substitute products of vegetable origin for flesh. Proteids are found in great abundance in such cereals as wheat, oats, corn, and especially in legumes, peas, beans, and lentils, in which the proteid element is found in larger abundance than in the best beef or mutton, a pound of beans, in fact, containing nearly as large an amount of proteids as one and a half pounds of the best beef. It is in nuts, however, that we find the best substitutes for meats, for in nuts, with the exception of the chestnut, proteids are found in their natural association with fats, but without starch. Nuts are thus the best adapted of all food substances to take the place of meat. They are especially useful for that large class of persons who find themselves unable to eat starchy foods, and who have, in consequence, adopted a flesh dietary, unaware of the fact that the temporary relief experienced is at the expense of future damage, for the ultimate result will certainly be premature decay and the early development of degenerative processes, such as Bright's disease of the kidney, sclerosis of the liver, hardening of the arteries, and the great variety of distressing symptoms and ailments which grow out of so-called neurasthenia, or nervous prostration.

Drunkenness in a Horse.

The fact that there is apparently, among all nationalities and all races, a readiness to acquire a liking for narcotic or so-called stimulant drugs, has led some short-sighted physiologists to argue that these substances meet an important and necessary demand in the body. This demand is supposed to be an outgrowth of man's superior mental and nervous development, making it necessary, as argued, that he should have recourse to some drug whereby nerve-tension, worry, annoyance, irritability, and other inconveniences growing out of the strain of business and social life may be mitigated.

Until quite recently inebriety has been supposed to be a disease confined exclusively to human beings, but experiments have shown that pigs, fowls, and some other animals may readily become addicted to the use of alcohol, and now the *Gazette Médicale de Paris*, in a recent number, tells us that the horse easily acquires the drink habit. A case is related in which "a Paris wine-merchant was for a long time annoyed by persistent thefts of wine from his cellar. What surprised him was that nothing was taken away, but bottles were broken and the wine drunk on the place. About the same time the merchant noticed that his horse appeared to be in failing health. He had vertigo at times, staggered on his feet, and fell down suddenly without any evident cause.

"One morning about five o'clock the wine-merchant, entering his stable earlier than usual, was surprised to find it empty. He thought that some one had stolen his horse, when an infernal noise coming from the cellar attracted his attention. Calling his men, he descended, armed with a revolver, expecting to find himself face to face with thieves. To his intense astonishment there was no one in the cellar except the horse, which was lying in the middle of a heap of broken bottles, kicking violently at the casks within his reach. It was in vain that the merchant tried to get the animal on his feet, and to make him remount the stairs. It was necessary to summon aid to have him hoisted back to the stable, where he fell down immediately, showing all the signs of a violent seasickness.

"The veterinary surgeon who was summoned declared that the animal was simply dead drunk; and maintained, moreover, that he displayed all the signs of chronic alcoholism. Here was the key to the wine-merchant's mystery. He remembered that some months previously Pompon, the horse, having been somewhat out of sorts, had been ordered oats steeped in wine as a refresher. The lazy stable boy had found it a simpler matter to give him a drink out of a bottle, as trainers are wont to give champagne to race horses. This was a revelation to Pompon. From that time the intelligent animal, detaching his halter by night, when every one was asleep, had been in the habit of opening the latch of the cellar with his teeth and descending therein for a clandestine debauch. Unfortunately for him, he had on this occasion overdone it, which proved his undoing."

Gentlemen Smokers Again.

In the February number of GOOD HEALTH, we replied to the criticism of a gentleman who thought us unreasonable in expressing a doubt as to whether a smoker could be considered a gentleman. We have not entertained a doubt on this question for a great many years, and are glad to know that thousands of others are becoming so far liberated from the thraldom of custom that they do not hesitate to speak out upon this question.

Every man has a right to smoke if he chooses, but no man has the right to make others participate in the filthy practise whether they wish to or not. It not infrequently falls to the writer's lot to be compelled to occupy a hack which three or four smokers have previously occupied, and which they have succeeded in so completely saturating with nicotine, condensed upon window-panes, cushions, and everything inside the vehicle, that it is impossible to ride in it, even with the windows wide open, without becoming nauseated. In crowded street-cars one not infrequently finds himself sandwiched between two tobacco devotees whose breaths and bodies and clothing are redolent with a "bouquet" not of violets and roses, but of an entirely different article of vegetation. Under

such circumstances, one can do nothing but hold his breath, breathe as infrequently as possible, turning his face, when he must inhale, as far away as possible from the source of infection, curb his indignation as best he can, and escape into the fresh air at the earliest possible moment.

No smoker can be so ignorant as to be oblivious of the fact that he can not travel in a public conveyance without running the risk of subjecting somebody to the distressing ordeal of breathing his poison-polluted breath and inhaling the tobacco-scented atmosphere which has been polluted by contact with his smoke-saturated clothing.

But the world moves a little. Men and women here and there are raising their voices in protest against this smoking nuisance, and our readers may be sure that GOOD HEALTH, after having been engaged in the campaign against tobacco, alcohol, and all the other poisons which enslave humanity, for more than a third of a century, will continue to make itself heard in behalf of the inalienable right of men, women, and children to breathe the pure air of heaven, unpolluted by the breath of those devotees of the filthy weed who are content to spend the best part of their lives and the greater part of their energies in burning incense to the image of a North American Indian. Tobacco using has no redeeming feature whatever. It is simply filthy, detestable, disgusting, destructive.

As we published last month the entire letter from the protesting gentleman, we take pleasure in publishing this time, as a sort of antidote to our wounded feelings, the following from the Hon. Cornelius Jansen, president of the Free Public Library of Beatrice, Neb., the letter bearing date of February 8, 1899: —

"MY DEAR DOCTOR: Will you permit me to thank you *most heartily* for your answer to 'Do Gentlemen Smoke?' in this month's GOOD HEALTH? It has been my own personal experience that nothing so blunts a man's senses and makes him so indifferent to other people's rights and privileges as the use of tobacco. May God bless you and GOOD HEALTH.

"Very sincerely yours,

"CORNELIUS JANSEN."

THE SCAVENGER INSTINCT.

THE turkey-buzzard, the carrion-crow, the hyena, and the hog seem to be endowed by nature with an instinct which leads them to delight in things that are putrescent. The buzzard readily scents the decaying head of a fish or a dead rat at the distance of a mile or more. The smell of decay in these scavengers seems to have the effect of stimulating the flow of digestive fluids just as the odor of well-cooked food exercises the same effect upon the salivary and other glands in human beings. This love of putrescence is undoubtedly a divinely implanted instinct, the purpose of which is to maintain a sort of sanitary police in the forest, just as officials are maintained in the great cities for clearing away and destroying the carcasses of dead animals that may be found in the street. It is safe for the turkey-buzzard, the pig, or the hyena to follow its instincts: its tastes and its sense of smell lead it aright. So likewise it is safe for men to follow their dietetic instincts, provided their conditions are normal. As Dr. Youmans remarks in a recent number of the *Popular Science Monthly*: —

"Animals and savages rarely poison themselves. But civilization has so modified us and our surroundings that it is not now always safe to depend on taste alone. The manifold disguises that the modern cook has, so to speak, up his sleeve, in the shape of highly spiced meat sauces and curries, are the cloaks under which many partially decomposed messes gain entrance into us. . . . Among the strangest manifestations of hunger are those leading to the eating of decaying cheese, mice, and similar outré dishes. . . .

"Probably the most curious and unaccountable dish is *schnepfendreck*, reported as a North German delicacy; it consists princi-

pally of the excreta of the common woodcock. Another is partially hatched boiled eggs, which are reported from China; as well as small, raw crabs, eaten alive, shell and all. The disgust which even the mention of these things produces in us is no doubt, to some extent, due to a lack of familiarity with them. Many of our common foods are little more attractive in origin. Tripe, calves' brains, sweetbreads, and the compositions known as Frankfurts and Bologna would probably be eaten by few who could see them in their natural condition.

"The appetite and tolerance which some individuals get up for such drugs as opium, tobacco, and alcohol, while perhaps abnormal manifestations, are sufficiently common to deserve mention. All drugs of this class have a direct stimulating or sedative effect on the nervous system. Their excessive use means, as a rule, some weak spot in the mechanism, which is for the time supported so as to do its work, but which eventually gives way sooner than if not artificially stimulated. The hashish eaters of India and the coca-leaf chewers of South America are in the same class as the opium eaters and cocain injectors of our civilization. . . .

"Perhaps nothing will so much hasten the time when body and mind will both be adequately cared for as a diffusion of the belief that the preservation of health is a duty. Few seem conscious that there is such a thing as physical morality. Men's habitual words and acts might imply that they are at liberty to treat their bodies as they please. The fact is, all breaches of the laws of health are physical sins. When this is generally seen, then, and perhaps not till then, will the physical training of the young receive all the attention it deserves."

We can heartily commend the foregoing sensible remarks to our readers, coming from so learned and weighty an authority, and agreeing so admirably with the principles of physical righteousness of which this magazine has so long been an advocate. We feel like adding a hearty Amen to Dr. Youmans's exhortation, and ask our readers to give these words careful consideration.

SO-CALLED "VEGETARIAN DYSPEPSIA."

In a letter recently received from a gentleman, a former patient, the writer remarked, "I am taking treatment for vegetarian dyspepsia. Although I have been on a meat diet for four weeks, I am no better."

"Vegetarian dyspepsia" is a new phrase. If not a new disease, it is, at any rate, a new name for a disease, or a supposed malady. We have treated tea-drinkers' dyspepsia, meat-eaters' disorder, gin liver, and various other diseases which are the evident outgrowth of errors in eating and drinking, and now we are told that there is a vegetarian disorder. The intimation is that vegetarians are particularly subject to a certain form of dyspepsia, or that the abstinence from flesh-foods may be recognized as a cause of disease. The absurdity of this position must be recognized at once in the face of such authoritative statements as the following from Sir Henry Thompson, the great English authority on foods and dietetics:—

"All [the elements of food] are found in the vegetable kingdom, and may be obtained directly therefrom by man in feeding on vegetables alone. . . . The vegetable eater, pure and simple, can therefore extract from his food all the principles necessary for the growth and support of the body, as well as for the production of heat and force, provided that he selects vegetables which contain all the essentials named."

The late eminent Dujardin-Beaumetz, of Paris, justly regarded as one of the leading medical authorities of the world, for years employed a vegetarian diet as a cure for dyspepsia and various other maladies, having himself been greatly benefited by the disuse of flesh-foods. It is, of course, possible for a person to become dyspeptic from the use of vegetable foods as well as by the use of meats

or other foods. Quantity, combination, mode of taking food, and various other questions are as important in relation to the hygiene of the stomach as the mere quality of foods, or the question of a flesh or a non-flesh dietary. The symptoms arising from the indigestion of vegetables are, moreover, more prominent, more conspicuous, and more readily recognized by the patient than those which result from the indigestion of flesh-foods.

Vegetables are composed largely of starch. Starch, when it ferments, is converted into gases and acids. Gases distend the stomach, producing pain and other distress; acids irritate the mucous membrane, and cause bloating and other annoying symptoms. Flesh-meats do not sour, do not cause bloating of the stomach, do not often, in fact, produce painful or distressing symptoms connected with the stomach, but nevertheless they cause disturbances far more serious in character than those resulting from the indigestion of vegetable foods. These symptoms seldom relate to the stomach, however. They involve the body as a whole. Animal substitutes undergoing decomposition in the stomach and intestines give rise to ptomains and other extremely poisonous substances which are taken into the blood, scattered throughout the body, and bring the whole nervous system under their pernicious influence. These effects are so insidious that a person who has suffered from indigestion from the use of half-cooked starchy food or coarse vegetables with wrong combinations of vegetable foods, such as the commingling of vegetable foods with fruits, after taking to a meat diet, excluding starchy foods, often finds himself "cured" in having "found out" what to eat; but it is a question well worth considering whether his last condition is not worse than the first.

The writer has often seen the condition commonly known as amylaceous dyspepsia — the incapability of digesting starch; but biliousness through meat-eating is much worse, and sooner or later will give rise to most serious and distressing results.

Still it is not necessary that a person should suffer from indigestion as the result of living upon an exclusive non-flesh dietary. As an illustration of the difficulties sometimes encountered in changing a dietary, we quote as follows from a letter recently received from a prominent Western lady:—

"Some years ago I went without 'flesh, fish, and fowl' for a year and a half, but, the rest of the family eating meat, the diet I was able to have apart from these was so monotonous and restricted that I became ill with glandular swellings from lack of nourishment. I was ordered to eat meat, and reluctantly obeyed, but have never been well since. A year ago I took my diet into my own hands, cut off all meats again, and also pastry, and as I am not able to eat anything with much starch in it, I live almost entirely on whole-wheat bread, with sometimes tomatoes, or asparagus in its season. For a time I seemed to improve, but now the old trouble is increasing at an alarming rate, and I am forced to believe that I am not sufficiently nourished. I have so strong a feeling against returning to a meat diet that it is a fact that, if myself alone were to be considered, I should rather allow myself to die. But of course I can not think it right to yield to that feeling. I have nothing from which I may get hints as to the most nourishing of the vegetarian foods, and I have hoped that you might be able and willing to indicate to me where I could find such hints. You see the necessity for cutting off all starchy foods, as well as meats and pastry, leaves me very limited; and I am still further limited because of the necessity of preparing my own meals, if I am to live in this way, which makes it impossible for me to prepare anything elaborate. I am obliged, also, to rule out eggs almost entirely.

"You will see by the above that only those dishes can be of help to me that fulfil three conditions: (1) Nourishing; (2) simple in preparation; (3) free, or comparatively free, from starch.

"I firmly believe that under right conditions I could not only live on a vegetable diet, but that I could recover my health. If you can refer me to any book or can suggest anything that will help solve this, at present, most vital problem for me, I shall be more grateful than I can say."

This lady is evidently suffering from farinaceous dyspepsia. She requires simply a dietary which is free from starch, or one in which the starch is so thoroughly predigested that it can be quickly converted in the stomach and absorbed into the blood. The impoverished diet referred to by the writer of the letter was doubtless responsible for the unhappy condition in which she found herself after discarding meat. For any person to discard meat from his bill of fare, and undertake to subsist upon the remnants of the ordinary dietary, is a hazardous proceeding. From a dietetic standpoint, it would be far better to continue the use of meat in combination with the cereal and vegetable substances with which it is usually associated.

Meat furnishes proteids and albumins in a form easily assimilable, which are essential for blood and nerve building, but these same elements are not to be found in meat alone. They are to be found in vegetable foods as well, especially in nuts and legumes. The ordinary vegetarian dietary is likely to be deficient in fats and proteids. These can be found in abundance without resorting to the animal kingdom, and in a most wholesome and acceptable form.

For several years the Sanitas Nut Food Company has been conducting extensive experiments for the purpose of producing food substances which may readily be accepted by the palate as well as by the stomach and the system in place of flesh-foods of various sorts. A considerable list of such foods can now be furnished, from which starch is either entirely absent or in which the farinaceous elements are so completely digested that they may be eaten without inconvenience even by those who are subject to so-called farinaceous dyspepsia.

We object to the term "vegetarian dyspepsia." No such disease exists. Vegetarians need be no more liable than others to indigestion, but unfortunately many persons who adopt vegetarian ideas do so with the thought that if flesh-meats are discarded, one may eat anything else in almost any quantity and at almost any time. This is, of course, a grave error.

Any one who is interested in this question should possess himself of the literature in relation to cereal foods and nut foods, published by the Battle Creek Sanitarium Health Food Co. and the Sanitas Nut Food Co., Battle Creek, Mich.

By making a few experiments, the foregoing statements may be wholly verified.

ANSWERS TO CORRESPONDENTS.

Catarrh of the Stomach — Nuts.— Mrs. B. F. E., Utah: "1. What food and how much at a meal should one take who has catarrh of the stomach and bowels, and a prolapsed stomach? I think I have hypopepsia. I am very hungry all the time. My blood seems to bubble. 2. Is it a good plan to mix different kinds of nuts, and cook them in a double boiler? 3. How long should they be cooked? 4. If some stomachs can not digest roasted peanut butter, would they digest raw peanuts ground? 5. Is it better to empty the stomach when great quantities of mucus are brought up every morning, or eat breakfast with that in one's stomach? 6. What is the food value of English walnuts? 7. How long should they be cooked?"

Ans.— 1. Browned rice, granola, sweet fruits, such nut preparations as malted nuts, nutta, nuttola, with granose, crystal wheat, and manno. The amount of food should be moderate. Send a dime to the Good Health Pub. Co., for two booklets, "The Daily Ration," and "How to Live on a Dime a Day or Less."

2. There is no harm in mixing the nuts.

3. Nuts usually require long cooking, sometimes from eight to ten hours, and sometimes longer.

4. Yes, if cooked. We do not recommend roasted peanuts.

5. It is better to cleanse the stomach by washing with a stomach-tube.

6. The food value of the walnut is a little more than 88 per cent., of which 57 per cent. is free fat, 13 per cent. starch, and nearly 16 per cent. proteids.

7. They should be cooked two or three hours at least. They do not require so long cooking as peanuts.

Diet for Baby — Berries — Tart Fruit.— J. C. M., Minn.: "1. What diet would you recommend for an eighteen-months-old baby who is afflicted alternately with constipation and diarrhea?

2. Are berries healthful? 3. Do you recommend lemons, oranges, cranberries, and such tart fruit for food?'

Ans.— 1. Battle Creek Sanitarium Infant Food. Relieve the child with an enema every other day.

2. Yes.

3. Yes.

Rheumatism — Charcoal Tablets. — Mrs. L. A. W., Ind.: "1. What treatment would you recommend for a person seventy-seven years old who has had rheumatism for fifteen years, and whose joints are all very much enlarged? 2. Will antiseptic charcoal tablets prevent burning in the mouth and stomach? 3. What diet would you advise? 4. Would wild cherry phosphate be beneficial? 5. Would it be injurious for one to sleep with such a person?"

Ans. — 1. General constitutional treatment to eliminate uric acid and other poisons from the system, and special massage, electricity, fomentations, and compresses.

2. Yes, if it is caused by fermentation.

3. A dry diet of grains and nuts with fruits.

4. We should think not.

5. We believe that every person should have his own bed.

Nasal Catarrh.— W. A. C., California, has had nasal catarrh for twenty years, and six or eight years ago entirely lost the sense of smell. In some climates he suffered from pain above his left eye, which was very severe about noon, but disappeared entirely at sunset. At the seashore he was entirely free from the pain. For the catarrh, he used chlorate of potash. He asks: "1. Do you think the sense of smell will ever return? 2. Was it destroyed by the chlorate of potash solution? 3. Is there any connection between the catarrh and the supraorbital pain?"

Ans.— 1. Probably not.

2. Probably not altogether.

3. The varying conditions of the catarrhal disease are possibly also disturbances of the digestion.

Fits.— J. C. B., New Jersey, asks what to do for a person who has fits. The patient does not eat meat.

Ans.— The case should be carefully investigated, and a prescription given after examination by a skilled physician. There is no panacea for cases of this sort.

Palpitation of the Heart — Cramps. — M. E. W., Illinois, is troubled with cramps in her limbs, especially at night, and at times large red itching spots appear on her hands and feet. She has walked and worked hard for the last ten years, so thinks it can not be caused by the lack of exercise. Salt, soda, or borax do not allay the itching. She has also palpitation of the heart, so severe that an unpleasant thought will start it to throbbing violently. With the exception of insomnia, her general health seems very good. Do you think the palpitation is due to a diseased condition of the heart? What treatment is advisable for the cramps and itching spots?

Ans. — The itching is probably due to eczema and so-called salt-rheum. The insomnia is doubtless the result of indigestion. We recommend a neutral bath at bedtime; that is, a bath at the temperature of 95° F., to be continued for half an hour or more. The palpitation of the heart is probably due to a sympathetic irritation. The tepid bath will relieve the cramps. For the itching, paint the affected parts with ichthyol.

Stomach.— F. F., Florida, fifty-one years old, and a lifelong total abstainer, gives his symptoms as follows: "Extreme flatulence, gas in stomach whether food be present or not; stomach very tender; have for three months had hemorrhage of the stomach from ulcers; emaciation, saliva frequently running from the mouth in streams. The difficulty is of twenty years' standing, but is growing worse, and I can not take acids. What can be done for me?"

Ans. — You doubtless have chronic gastritis, and very likely ulceration of the stomach. Apply a fomentation over the stomach, followed by a moist abdominal bandage at night. You ought to adopt a simple dietary consisting of granose, granola, nuttola, Sanitarium gluten, browned rice, buttermilk, kumyss, and other bland and unirritating foods. You ought to spend a few weeks at a sanitarium for thoroughgoing treatment.

Bean Pods — Teeth — Peptonoids. — W. C. W., Illinois: "1. Are bean pods fit for food? 2. Is the 'ship stuff' enclosed starch, gluten, or what? 3. Is it healthful? 4. What is a toothless person to do when he can not eat raisins, figs, crackers, or nuts? 5. What do you think of peptonoids? 6. Are papaws healthful? 7. What do you think of the list of 'pure foods' enclosed?"

Ans.— 1. No. In the case of green beans, however, the pods contain a small amount of nutriment, and if young and tender, they are not indigestible.

2. The quantity of "ship stuff" sent was not sufficient for a thorough examination, but seemed to be chiefly starch. The tests showed that it contained a large amount of starch, at any rate. A large amount of the substance is necessary to make analysis for gluten. The amount required would be so great as to make the experiment too expensive to be practically useful.

3. We could not recommend it without more accurate knowledge of its constituents.

4. We should recommend malted nuts, fig meal, fruit chocolate, granose, nuttola, and similar products. Buttermilk may ordinarily be taken with the meal, but in case it is used as a food remedy, it is generally best taken as an exclusive diet, or at least without being mixed with other foods at the same meal.

5. We consider them worthless.

6. Yes.

7. In looking over the list of so-called pure foods enclosed we find various brands of whisky, ham, bacon, baking-powder, and other abominations, which, although they may be pure, are purely pernicious and absolutely unfit for food.

Bleeding from Head to Cure Insanity — Drugs.— B. J. C., Tahiti, writes: "A young lady whose mind has been deranged for several months jumped from the second story of a building to the ground, after which she bled quite freely from a wound in the head. After a few days her mind improved very much, and seemed almost if not quite natural again. Was it the loss of blood that brought about the improvement? If so, how was it effected? A certain native doctor has treated several such cases by piercing small holes in the head to cause bleeding, after which the patient has recovered. He has also treated in the same way small children ill with convulsions, with apparent success. Is there any virtue in this method of treatment, or is there any method of treatment that would be more efficacious? 2. A certain small spot in the abdomen a little to the left and just below the waist line sometimes feels very tender. The soreness does not last long at a time, and disappears very suddenly. Do you think it is due to the stomach? The patient has a weak stomach, probably dyspepsia. 3. Is it ever advisable to use any drug to lower the temperature in fever? If so, what drug or drugs would be the most effective and at the same time the least harmful?"

Ans.— 1. This case is certainly very interesting and curious. It is difficult to say what was the cause of the improvement in these cases. Possibly the improvement would have been the same in each of these cases if nothing had been done. There are many cases on record in which a severe shock seemed to be the means of restoring an insane person to soundness of mind.

2. The cause of the pain is irritation of the lumbar ganglia of the abdominal sympathetic nerve. This is probably due to disordered digestion or a prolapsed stomach, or both.

3. No; the use of antipyretic drugs for lowering the temperature in fever is almost altogether abandoned. Water is the great febrifuge, and accomplishes the object sought in a much safer and more efficient manner than any common drug.

Peroxide of Hydrogen as a Water Purifier.— N. A. W., Washington, would like very much to know our opinion of the effectiveness and wholesomeness of peroxide of hydrogen when used in the purification of impure water.

Ans.— Peroxide of hydrogen is doubtless efficient as a means of purifying water. We have made no experiments to ascertain with certainty the exact amount required, but should expect that the quantity would certainly depend upon the amount of impurities contained in the water. Ten or fifteen drops to a glassful of water might effect the purification of slightly contaminated water, if the water is allowed to stand from fifteen to twenty minutes before drinking.

Vegetarianism — Vegetables.— O. T., a teacher in Washington, has given up the use of flesh-foods through reading GOOD HEALTH, and wishes to know if there is any book giving rules for every-day healthful living, and asks why Dr. Kellogg does not believe in vegetables.

Ans.— We are glad to note that this correspondent has abandoned the use of flesh-foods. A number of the books referred to are published by the Modern Medicine Publishing Co., Battle Creek, Mich. The editor of this magazine regards vegetables as an inferior kind of food, believing that fruits, grains, and nuts are the natural diet of the human family. Vegetables can be used only by the aid of cookery.

Baby's Diet — Stomach Trouble.— H. G. D., Ontario, asks: "1. What food would you recommend for a baby thirteen months old, weighing seventeen pounds? She has been fed on sterilized milk, granose flakes, and granola since she was four months old, and appeared to be doing well until some time ago, when vomiting and summer complaint set in. The vomiting stopped, but the latter continues. 2. I have been subject to severe sick days irregularly for five years. There is sharp pain back of the eyes and a feeling of nausea, but vomiting can be produced only by a strong emetic. A clear sour acid is eructed. I am troubled more with constipation in winter than in summer. I have a nervous twitching of the shoulders at times, and an extra good appetite at all times. I have been lately pursuing a healthful diet. What is my trouble? 3. Is the liquor taken from boiled bran a good nerve tonic?"

Ans.— 1. Sanitarium Infant Food would be excellent for a case of this sort. Zwieback with a little fruit-juice added would also be useful. Also try bromose.

2. You doubtless have dilatation of the stomach and infection with germs capable of producing fermentation. Possibly there may also be catarrh of the stomach. A fomentation across the stomach at night, followed by the moist abdominal bandage to be worn during the night and a cool sponge bath in the morning, will be found beneficial. A diet

consisting of fruits, grains, and nuts, as granose, malted nuts, zwieback, boiled rice, nuttolene, and nuttola, is especially to be commended.

3. No; good food is the only reliable nerve tonic.

Queer Sensations in the Abdomen after Singing.—I. D., British Guiana, experiences a peculiar tightening or "drawing in" sensation in the abdomen after singing or speaking for any length of time. It is as if something were holding back the breath, and is followed by a sense of weariness, as if the effort were made in the abdomen instead of by the lungs. Nothing tight is worn about the waist. What can be done to overcome the evil? Will it develop into anything serious?

Ans.—The difficulty is doubtless due to an irritation of the sympathetic nerves. Fomentation at night, followed by a moist abdominal bandage during the night, will prove helpful. The diet should be unirritating, consisting of fruits, grains, and nuts.

Oily Skin.—W. H. M., Ohio, is anxious to know what diet and what treatment are best for one troubled with an oily skin. He has been living on health foods for a year, and takes no oily food except milk and nut butter, often foregoing the latter, but with no benefit.

Ans.—The diet is probably right at the present time. The skin should be thoroughly washed with soap and water two or three times a day. Care should be taken to avoid rubbing the skin vigorously, however, as it stimulates the glands to increased activity. It would be well to apply a powder of some sort at night, such as carbon and bismuth or boric acid.

Salt-Rheum and Tea.—B. C. M. asks if one having salt-rheum should drink tea.

Ans.—No.

Nervous Dyspepsia.—C. R. A., Kansas: "1. What is the condition of the stomach when the tongue is continually coated? 2. What kinds of health foods would you recommend for nervous exhaustion? 3. What will guide one in their preparation?"

Ans.—1. The stomach is foul, and doubtless contains multitudes of germs.

2. Nut foods, granose, crystal wheat, and granola.

3. Mrs. Kellogg's cook-books, "Every-day Dishes" and "Science in the Kitchen."

Perspiring Hands.—H. C. B., Michigan, would like a remedy for sweaty hands.

Ans.—Bathe the hands in hot and cold water several times a day, for fifteen minutes. Hold them in the hot water for fifteen seconds, then place in the cold water for an equal length of time. The hot water should be as hot as can be borne, and the cold water as cold as can readily be obtained.

Nut Preparations — Tomatoes — Fruit.—E. N. S., Michigan, asks: "1. Is almond butter as nutritious as the peanut preparations? 2. Why do nut preparations disagree with a "hypo"? 3. How can one furnish the body with the necessary elements when butter, milk, and cream are denied and when nuts disagree? 4. Is granola cooked or moistened subject to the same objections as other mushes for one observing a dry diet? 5. Are tomatoes classed as fruits or as vegetables? 6. Does green corn on the cob agree well with fruits? 7. Does cooked fruit combine as well with vegetables as raw fruit? 8. Does cooked fruit digest more readily than raw?"

Ans.—1. Yes.

2. All nut preparations do not disagree with persons suffering from hypopepsia, but only those in the preparation of which the nuts have been roasted, as in the case of roasted nut butter, nuttose A and C. Nuttose B and D do not disagree with such cases, neither does malted nuts or ambrosia. The nuts employed in the preparation of these products are not roasted.

3. We have yet to find the person with whom nut preparations of some sort can not be made to agree. Almond preparations agree with the most delicate stomachs. Nuttola, a recently perfected product, agrees with all stomachs which can receive any kind of food.

4. No, for the reason that the starch which it contains is very nearly predigested.

5. From a dietetic standpoint the tomato should be classed as a vegetable.

6. Yes.

7. There is probably no difference.

8. There is little or no difference.

Foods — Grape-nuts — Protonuclein — Constipation.—W. L., Michigan: "1. If mushes are masticated as long as dry foods, will they not digest as well? 2. What advantage has zwieback over good bread thoroughly toasted in a stove oven? 3. Is granola any better than bread made from the same grain and then toasted and granulated? 4. What is the nutrient value of grape-nuts made in Battle Creek? 5. What do you think of protonuclein, made by Reed & Carnick, New York? 6. I have been troubled with constipation for years, and have used a pint or less of warm water every morning as an effective enema, but this is always followed by weakness necessitating an hour's rest. What causes the weakness, and what remedies can you suggest?"

Ans.— 1. No, for the reason that the moisture prevents the flow of saliva.

2. None at all. Bread thus cooked is zwieback.

3. The preparation made in the manner suggested would not be granola, but would be a very wholesome food.

4. We have made no analysis of this food, but from what we have learned of its composition we should not feel free to recommend it.

5. We have no faith in it.

6. Use cold water instead of warm. The weakness is probably due to a disturbed condition of the abdominal sympathetic.

Ventilation — Massage — Weakness in Changing from a Meat to a Vegetable Diet — Fruit for Nursing Mother — Germs in Meat. — One perplexed asks: "1. How would you ventilate the room of an old lady seventy-two years of age who has severe bronchitis, and who feels cold when the temperature of the room is 75°? 2. She is very weak; would you recommend massage or rubbing? 3. What oil is best for rubbing? or do you consider alcohol as beneficial? 4. Is rubbing as good as massage for debility? 5. Should one feel weak in changing from a meat to a vegetable diet so long as he is perfectly well and made the change from choice? 6. Should a nursing mother, whose baby is twenty-four days old, eat fruit? 7. Are not all the germs in meat killed when it is cooked?"

Ans.— 1. The temperature of the room should be reduced to 70°, and the patient should be dressed very warmly so as to avoid chilling. Care must be taken that a current of cold air does not fall upon the patient. The air should be heated before entering the room, so as to prevent this.

2. Yes.

3. Very fine vaseline or coco butter. Alcohol is not needed.

4. No, massage is better, but it must be administered with great care.

5. No, not if the proper substitutes for meat are employed. Nut products of various sorts are perfect substitutes for meats.

6. Yes, stewed fruits and well-ripened fresh fruits are entirely wholesome.

7. The ordinary broiling and roasting of meats does not kill the germs contained in the center.

Cancer of the Stomach — Constipation and Piles. — Mrs. L. R. M., Wisconsin, wishes answers to the following: "1. How many kinds of cancers are there? 2. What are they? 3. What are the symptoms of cancer of the stomach? 4. What can be done to relieve one having this difficulty? 5. When a person's stomach secretes too much hydrochloric acid, what should be the diet? 6. What causes gas in the stomach when the contents do not seem to be sour? There is no pain in the center of the stomach. The individual has been trying hydrozone and glycozone. 7. Can one who has had constipation for twenty-five years be cured? 8. If so, how? 9. Will the continuous use of enemas cause piles? 10. Can piles ever be cured without the knife? 11. Does the stomach fluid always show bloody particles in cancer of the stomach?"

Ans.— 1. There is only one kind of true cancer, but there are many kinds of malignant disease.

2. The most common forms of malignant disease are carcinoma, or true cancer, epithelioma, and sarcoma.

3. Pain, vomiting of blood, the presence of a lump or tumor in the region of the stomach.

4. A permanent cure can not be effected. Careful regulation of the diet is helpful in many cases. Hot applications will usually relieve the pain. An ice bag placed over the stomach sometimes gives more relief than hot applications.

5. A dry diet; granose, and other thoroughly cooked cereal preparations, combined with nut preparations, sweet fruits, and in some cases kumyss or buttermilk, are helpful.

6. Fermentation of starch or sugar in the stomach. Sourness is the result of the formation of acetic acid; carbonic acid gas is produced in connection with alcohol by the action of yeast, or alcohol formed by the action of germs in the stomach.

7. Yes.

8. By the regulation of the diet and the application of proper remedial measures. A thorough course of treatment, including massage, Swedish gymnastics, baths, electricity, and other means, is generally necessary.

9. No.

10. Yes.

11. Not always in the early stages, but almost certainly in the later stages of the disease.

Abscess on Liver — Nursing Sore Mouth. — Mrs. F. E. C., Illinois: "1. What are the earliest symptoms of abscess on the liver? 2. What causes this abscess? 3. Is there any cure? 4. What is the cause of nursing sore mouth?"

Ans.— 1. Pain in the region of the liver, and jaundice.

2. Germs.

3. Yes; sometimes absorption takes place; occasionally an abscess is discharged into the intestine. In some cases it is necessary to make an incision in the side, and drain the abscess through the incision.

4. This is a class of infections of the mouth which is due to lowered vital resistance.

LITERARY NOTICES.

When the Birds Go North Again is the poetical title of a book of poems by Mrs. Ella R. Higginson, published by the Macmillan Company. The book takes its name from the exquisite little poem of that title.

Mrs. Higginson is a writer of recent fame, but her pen sketches in both prose and poetry place her in the front rank of literary lights. Mr. F. M. Hopkins, speaking of her poems in a late **Current Literature**, says: "The dominant note in Mrs. Higginson's poetry is a true, fresh love of nature. Outdoor life, scenes, colors, sounds, the sea, the mountains, and animate life all have an irresistible charm for her. She is as fond of singing of the Rocky Mountains and the waters of the Pacific as ever Whittier was of the region he has made immortal. There are several poems of a distinctly religious or devotional character, but even here the poet's love of nature makes them charmingly natural and clear." Another critic remarks, "At times her poems irresistibly suggest the accompaniment of an instrument."

By kind permission of the publishers we are enabled to reproduce two poems, one of which appears in this number.

Intestinal Tuberculosis is a reprint from the *Journal of the American Medical Association* of two papers written by N. Senn, M. D., Ph. D., LL. D., of Chicago, and delivered before the Ohio State Medical Society and the Illinois State Medical Society. The large experience which the author has had in dealing with cases of tuberculosis qualifies him to treat this subject in an able manner. He considers the subject under two heads: (1) Etiology, pathology, and diagnosis; (2) surgical treatment. The facts relating to the causes of tuberculosis, no matter in what part of the body the disease may be found, show clearly that it is a disease which can be stamped out by the observance of strict hygienic laws. Of the etiology of primary intestinal tuberculosis Dr. Senn writes as follows:—

"Primary tuberculosis of the intestinal canal is the result of infection from without by the ingestion of food contaminated with the essential cause of the disease, the bacillus tuberculosis, usually in the form of tubercular milk and meat. . . . The secondary form is caused by autoinfection by the entrance of tubercular sputa into the intestinal canal."

These papers contain many valuable facts with which every one should be familiar. Any facts which will lead to a better knowledge of this malady, and make us better able to prevent and cure it, are always of the greatest service.

The **Adult Diet List**, compiled by C. S. Millet, M. D., of Brockton, Mass., is a small pamphlet on each leaf of which is arranged a large variety of foods classified under the headings of "What to eat," "What to try cautiously," and "What to avoid," with the excellent advice, "Eat regularly, slowly, and leave off hungry," at the bottom of the page. The leaves are so arranged that they can be detached, one at a time, marked, and handed to the patient. The large variety of foods enumerated gives the physician a good opportunity to make proper selections for his patients. (Price, 25 cents.)

White Dandy, or Master and I, is the title of a new horse story, a companion book to "Black Beauty," written by Velma Caldwell Melville. It is one more powerful plea for humanity in the treatment of lower animals, and makes a scathing arraignment of some of the more recent customs of fashion, notably the docking of horses' tails and the overdraw check. Did all men but realize the "brotherhood of being" advocated so earnestly by this magazine, there would be no need for such books as this; but alas! man's inhumanity to beasts as well as to man is in daily evidence, and there seems to be slight hope of reformation. (J. S. Ogilvie Pub. Co., 57 Rose street, New York. Price, 25 cents, paper, handsome lithograph cover printed in eight colors.)

The **Inland Printer** is the finest and most practical journal for printers there is published. It is gotten out in the most elegant style known to the printer's art, and besides being a thing of beauty, is full of practical suggestions and instruction in all phases of the publishing work, from type and drawing to the finished product, not excepting the preparation of manuscript. One feature of the magazine that is obviously appreciated by the subscribers, from the good use they make of it, is the questions and answers in the several departments of printing work. The magazine is high-toned, clean, and helpful, and handsome enough to adorn the parlor table in any home. (The Inland Printer Company, Chicago, Ill. Price, $2.00 a year.)

Houghton, Mifflin & Company, of Boston, Mass., the publishers of the **Atlantic Monthly**, announce a special rate to new subscribers, of fifty cents for a trial subscription to that magazine for three issues. The *Atlantic* never was stronger or better than it is to-day, and this offer affords an excellent opportunity for new readers to become acquainted with it.

The Michigan State Board of Health is indefatigable in its efforts to help arouse an interest in health subjects among the people, and is furnishing valuable information in many lines of both public and private sanitation. Last year it began the publication of a **Teachers' Sanitary Bulletin**, which it desires to send to all the teachers in the State, thus supplying them with the data and statements which the State Board of Health is required to furnish in order to make it possible for the teachers to comply with "Act 146, Laws of 1895." The name and address of any teacher who does not receive these *Bulletins* will be thankfully received by Mr. Henry B. Baker, Secretary of the Board, Lansing, Mich.

John W. Alexander, the portrait-painter, whose best work is illustrated in the March **Scribner's**, is the son-in-law of James W. Alexander, the vice-president of the Equitable, whose portrait is one of the artist's best achievements. Two of Mr. Alexander's pictures have been purchased by the French government, and are in the Luxembourg; another has recently been bought by Vienna; still another is owned in St. Petersburg. No American portrait-painter except Sargent has received more recognition abroad than Mr. Alexander.

Joseph A. Nunez, in a short article packed full of information about Cuba, in March **Lippincott's**, gives the official report as it was made in October:—

"The health of the United States troops now in the province of Santiago has considerably improved, not more than ten per cent, being on the sick-list. Most of the cases of indisposition are merely light malarial fevers. Yellow fever has been practically stamped out of the city by the systematic cleaning process put into operation. For several weeks Major Barber, who is at the head of the Street Cleaning Department has had six hundred men engaged in carting away the filth of generations, and burning it at one or other of the crematories. General Wood has shown great executive ability in bringing order out of the chaos that ensued after the departure of the Spaniards."

The author adds: "This purifying process, carried through the length and breadth of the island, will make its entirety as salubrious as the English island of New Providence or any other health resort; and when the natives become infiltrated with our humanitarian process and familiarized with the highest achievements of progressive enlightenment, there will be no home more desirable than Cuba, no spot where the ultimate problems of civilization can be more successfully solved."

An account of the marvelous new substance, liquid air, based on conversations with the discoverer, Charles E. Tripler, appeared in **McClure's Magazine** for March, with numerous pictures illustrating interesting experiments and the whole process of manufacture. If liquid air proves to be all that it now gives promise of being, Mr. Tripler has found a universal motive power that is inexhaustible and practically costless.

The **New Crusade** begins its ninth volume with the March number, and appears in an enlarged form. The leading article is from the pen of Dr. Eliza M. Mosher, Dean of the Woman's Department of the University of Michigan, on "Wrong Postures as a Cause of Physical Defects." Other articles are "Hygiene of the Skin, Hair, and Teeth," "Sleep," "Emotional Prodigality." (The Wood-Allen Pub. Co., Ann Arbor, Mich. Price, $1.00 a year.)

Pamphlets Received.

"The Right of Property in an Idea." Allen Ripley Foote, member of the American Economic Association, and of the American Academy of Political and Social Science, Philadelphia.

"Mechanical and Surgical Treatment of Fractures of the Neck of the Femur." Arthur J. Gillette, M. D., St. Paul, Minn.

"Conservative, yet Effectual Treatment of Hypertrophied Prostate by Electro-Incision, Done through the Urethra; Presentation of the Specimens of Hypertrophied Prostate; Demonstration of Bottini-Freudenberg Electro-Incisor." Bransford Lewis, M. D., St. Louis, Mo.

"The Serum Treatment of Diphtheria." William Cheatham, M. D., Louisville, Ky.

"Diseases of the Ear as a Specialty." Emil Amberg, M. D., Detroit, Mich.

"Powers of Municipalities—a Discussion." Allen Ripley Foote, Takoma Park, D. C.

PUBLISHERS' DEPARTMENT.

THE faculty of the Battle Creek Sanitarium have recently opened a School of Health for the benefit of the patients. The course will consist of four lectures weekly, besides daily practise classes in cookery, instruction in the uses of water, what to do in emergencies, and various other interesting subjects. The following is a partial list of the subjects considered: —

The house we live in; what it is, and what it does. — What is health? — What is disease? — Rational treatment of disease — Rational remedies — How to use heat and cold — Some methods of using water.

How we digest — The digestion of a mouthful of bread — Common errors in diet — The natural diet of man.

The lungs and heart; their structure and functions — How to develop the heart and lungs — Common causes of heart and lung disease not generally recognized — How to cure a cold on the lungs — Consumption, the great white plague; preventives.

The brain and nerves; how we feel and think — Sleep — Memory — Some common nerve maladies; their cause — The insane heredity; can it be obliterated? — Mental development and education — Our American nervousness.

Eyesight; what and how we see — Care of the eyes, glasses — Eye-strain and headache — Some common acute maladies of the eye.

Ears; what and how we hear — Care of the ears — The significance of ear symptoms; deafness — Some common acute maladies of the ear — Chronic ear disease; aids to hearing.

Smell and taste — Hygiene of the nose and mouth — Care of the teeth; natural and artificial — Acute nasal catarrh; its causes and treatment — Chronic nasal catarrh.

Touch — Temperature — Muscular sense — General sensation.

Significance of appetite and other general sensations — Pain; its significance and beneficence.

Foods, their composition and value — What to cook — Adulterations of foods — Principles of scientific cooking — Methods of cooking — How to cook — Hygiene of the kitchen — Kitchen system and economy — Medical dietetics — Food for invalids and diabetics — Diet to reduce fat — The daily

ration — How to live well on a dime a day — How to construct a bill of fare.

The skin.

The kidneys, and their remarkable functions.

Physical basis of beauty — How to have a healthy skin — Facial massage to remove wrinkles — Cosmetics; hair dyes, etc.

The liver; its wonderful versatility — The business of the bile — Biliousness; what it is, and what it signifies — The liver of dyspeptics — The rheumatic constitution; how acquired, how cured — Exercise for rheumatics — Strains, sprains, and muscular rheumatism — Uric acid; its mischiefs — Our five hundred muscles; their uses and capabilities.

How to be strong — What to eat for strength — Effect of stimulants and narcotics — Evils of conventional dress — Rational dress reform — Disinfection — Accidents and emergencies — Philosophy of recreation and pursuits — The weather and health — The hygienic value of sunshine.

The school is free to all patrons of the Sanitarium, and will hereafter be maintained as a feature of the institution.

MUCH interest is manifested in the Schools of Health. The cultivation of health is coming to be almost a fad in many places. This is a good symptom, and ought to be encouraged. The world has so long neglected giving attention to the needs of the body that it is high time the public should wake up to a recognition of the importance of a study of how to be well, how to be strong, how to live above disease, how to drink, breathe, sleep, exercise, and otherwise properly relate one's self to health.

THE St. Helena Sanitarium has recently opened a vegetarian restaurant in San Francisco, and reports that it has been a great success from the start. A vegetarian restaurant is needed in every large city. London, England, supports a large number of such institutions, which are patronized by thousands of people daily. Many vegetarian restaurants are found in English cities, also in Berlin, and other cities on the continent of Europe.

THE publishers of GOOD HEALTH have recently issued a neat little booklet of 176 pages, entitled "Shall We Slay to Eat?" This booklet discusses in a concise and comprehensive manner all the various phases of the vegetarian question. A great number of the questions discussed are treated in a very vigorous manner, and it is hoped that the work will prove the means of leading not a few intelligent men and women from the error of their ways in the matter of diet, at least as regards flesh eating. "Shall We Slay to Eat?" will be sent to any address post-paid on receipt of twenty-five cents.

THE June number of GOOD HEALTH will contain the first of a series of interesting illustrated articles on "American Indian Life," by G. Wharton James, formerly a fellow in the Royal Historical, Royal Microscopical, Royal Astronomical, and Geological societies of Great Britain, and a member of the Victorian Institute and the Pacific Astronomical Association.

Mr. James has just completed a special course of lectures at Cooper Institute on the Indians of the Southwest, under the direction of Columbia University, New York.

The illustrations for the articles will be reproductions from photographs from his own camera, made especially for GOOD HEALTH.

Among the subjects to be treated are "The Industries of the Navajos and Mokis," "The Domestic and Social Life of the Mokis," "The Harvest Festivals of the Mokis."

Mr. James has had exceptional facilities for studying Indian life from the closest viewpoint, and has been able to take some rare photographs.

"DOCTOR, what do you think is the matter with my boy?"

"Why, it is only a corrustificated exegesis antispasmodically emanating from the source of the animal refrigerator, producing a prolific source of irritability in the pericranium, blunting his mental profundity."

"That's about what I told Betsey, but she 'lowed it was wurrums."— *N. A. Medical Review.*

IT BEATS THE BAND.— The newest and most inspiring piece of sheet music, arranged for piano, is "The Pioneer Limited March," composed by Capt. Frederick Phinney, bandmaster United States Band, published by S. Brainard's Sons Co., Chicago, Ill.; distributed only by the Chicago, Milwaukee & St. Paul Railway. Enclose fifty (50) cents, and address Geo. H. Heafford, General Passenger Agent, 555 Old Colony Building, Chicago, Ill.

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