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THE PHYSIOLOGY OF MEMORY.

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ONE of the most interesting of all nervous phenomena is what we term "memory." What is memory? and how do we remember? For a long time physiologists have made very careful studies of this subject, but have failed, even in the smallest degree, to unravel it; and it can hardly be said at the present time that anybody understands, fully and completely, the phenomenon of memory. Still, we know something about it.

I know of no better illustration of what memory is than a simple, natural phenomenon, with which every one is familiar. In going through a forest or along the road near a group of trees or a piece of woods in a dark night, you have sometimes noticed by the wayside something shining amid the darkness, which proved on a nearer approach to be a rotten stump or a half-decayed log; or, walking by the seashore after night, you have seen something bright and shining on the sand, which upon inspection you found to be a decaying fish or a mass of oyster-shells. This phenomenon is sometimes called phosphorescence. It has not until recently been known why these decomposing substances have the power under certain conditions to throw off this peculiar light, but it is now understood that this phosphorescence is due to a peculiar capacity which certain substances possess for storing up the sunlight. If

you were to burn these same oyster-shells and grind them into a fine powder, and mixing it with a little mucilage, coat over the surface of a piece of board, expose it for four or five hours to the sunshine during the day, and then bring it out on a dark night, it would shine brightly, furnishing enough light to read by, if the surface were quite a large one. Experiments have been tried,—and with success, I believe,—to utilize this property of certain substances for illuminating the faces of watches and clocks; and probably a phosphorescent watch-face will soon become a very common possession.

Now what is the property which enables these substances which have no illuminating power in themselves, to throw off light in the darkness? How did these substances become possessed of this power? And in what does it consist?

It is generally understood that light consists of undulations of ether, producing minute vibrations. Now the rays of light striking upon any object, no matter what it is, have the effect to change that object. Every surface upon which the sunlight falls is chemically changed by the action of the sunlight. We have an illustration in photography. The photographer has a plate covered with albumin and a little nitrate of silver or similar chemical substance to render it sensitive; and when a picture is thrown upon it, the

rays of light produce a chemical change in the substance which is diffused over the glass plate, and makes lines corresponding to those of the picture thrown upon it. This is called the negative. Then by allowing the negative to lie over a piece of paper made sensitive in the same manner as the plate, the light shines through and reproduces the lines which make up the picture, the dark places in the negative making light places in the picture, and the reverse.

Now the sunlight also makes changes in phosphorescent substances, which set their molecules in vibration,—it causes the same changes to take place in these phosphorescent substances as are produced by the light upon the negative. The rays of light produce in phosphorescent substances vibratory movements like the light itself, and these phosphorescent substances give off, in the night-time, the same sort of vibrations as have been produced in them in the rays of sunlight. These molecular movements set up in the phosphorescent substances are produced in the daytime as well as in the night, but the sunlight is so much more intense than the dim light from the phosphorescent substances that the latter is not seen. To sum it up in a few words, those substances which give off light in the darkness are capable of reproducing the same sort of vibratory movement that is the foundation of the sunlight; so they reproduce the sunlight.

Now, what is memory? The piece of rotten wood in the forest, or the oyster-shell by the seashore, remembers the sunlight that has shone upon it during the daytime, and reproduces it in the darkness. The power to remember consists in the power which all these substances possess of storing up the vibratory movements by which a change takes place in their structure. Perhaps we remember in much the same way. The impressions

which come into our brains are simply vibrations. When we hear, it is simply because the sound-waves have communicated movements to the ear-drum, and the ear-drum has communicated the vibratory movement to the bones of the ear, and thence on into the brain; and there we have a vibratory motion produced in the brain cells,—the cells which have charge of the sense of hearing. These cells store up the vibrations in just the same way that a piece of rotten wood or an oyster-shell stores up vibrations of light.

So when rays of light shine upon the eye, a picture is formed in the retina, this picture being produced by the vibrations of light. The nerves which are spread out there to receive these impressions from the rays of light transform the object upon which the light falls so that they form a picture in the eye. These changes are communicated back into the brain,—to the nerve-cells at the base of the brain that have charge of the sense of sight, and the impression produces a change entirely akin to that which takes place in the oyster-shell when the sun shines upon it.

Thus we have a change in the structure of these cells whenever we look upon a picture or a landscape, no matter what it is; and whenever we hear a sound, be it sweet or discordant, we are physically changed,—we are not the same as before. When we see a lovely picture or landscape or any beautiful sight or object, a similar picture is formed and laid away for our contemplation in days to come. And, in the same way, when we look at a thing that is impure or ugly, we are transformed in the opposite way. This is the physiological interpretation of the divine statement, "By beholding, we become changed." It is indeed a fact, a scientific fact, that by looking at a thing we are actually changed. We are more sensi-



MEXICAN WOMEN WEAVING.

tive than any photographer's plate; all the objects about us are being pictured in our being; all the impressions which come to us through our various senses, — sight, touch, taste, hearing, temperature, — all are making pictures upon us. These impressions are transforming our brains and nerves; they are modifying, more or less directly or indirectly, every structure in our bodies.

Thus a child that grows up in sweetness and beauty, with an atmosphere of harmony around it, with the charm of music, beautiful pictures, and lovely and pleasant things, is a higher being than a child that grows up in the slums, amid wrangling and disharmony. The child is full of the kind of pictures with which he has been surrounded; he himself may have been constituted on a different plan, but being modified by different impressions, he has actually grown into a different mold, as he has had a different experience in life. Thus with us all, our circumstances and environments are a mold into which we grow because of the power of our bodies to remember everything.

Now how shall we apply this principle to what is called memory? Let us consider for a moment how we remember — how facts are stored in the memory. When we see, feel, hear, or think a thing, that thing is stored in the mind. As before suggested, this storage consists in an actual change in the brain. Now what is that change? We must first consider briefly the structure of the brain. The brain, like every other part of the body, is made up of little cells which have the power to think and feel. The reason we are able to concentrate our energies and carry out our various purposes is because all the different individual cells of our bodies work together in harmony. Every cell in the body has a certain kind of work to do which has been designated it by the Creator. There are ten billion of these

cells in the brain, and each one has its particular function, and is as much an individual as we ourselves.

Now these cells of the brain have arms, or poles as they are termed. Some of them have two or three poles, and some have a great many. Some of them are very long, but most of them are short; every cell has at least one long arm. These poles run out and then branch off, the branches running in various directions until they end, or one of them at least, in what might be called a brush. These brushes seem to be possessed of the power of contraction and protraction. When a cell receives an impression through one of the senses, that impression is transmitted along the pole to the little brush, which sends the message along to other cells. In this way the cells of the brain are brought into communication. The stronger the impression, the greater the number of cells affected. Every cell is modified more or less; it is made to act in a different way than it did before, by the impression made upon it, — just as the oyster-shell is made to act in a different way by the sunlight's falling upon it.

When we see a very striking object, the impulse is so strong as to affect a great number of cells, causing each to send out a large number of impressions to the cells of the outlying provinces of the brain; so that when we want to recall that picture, we do not have to look far to find it. Thus we remember by setting into activity again the cells which were modified when the circumstance we wish to remember occurred. The way in which we ordinarily get these cells into activity is by simply setting the brain to work to look up a circumstance. We think, "Now what was it that happened yesterday? — let me see." When we begin to think in this way, we are trying to exercise the faculty of memory; we are trying to trace a circumstance. Per-

haps we do not succeed at the time; but, frequently, after we have stopped all effort to recall it, and have been thinking and talking of something else, all at once the circumstance comes clearly to mind. How does that happen?—It is because we have started some of these cells that were modified yesterday in connection with this circumstance, and they have set up a vibratory movement, which has kept searching till successful.

It is like setting up a thousand bricks a little distance apart, and tipping the first brick over; it knocks the next one over, and the next tips another one over, and another, and another, until they all fall down.

If we wish to find a thing easily in the brain, we must be sure that a sufficiently large number of cells have been brought into action in connection with its being taken into the mind. By dwelling upon a subject long enough, we may get the whole brain so thoroughly occupied and enlisted in thinking about it that we shall never forget it. It thus becomes very important that we should store away carefully the thing which we wish to recall; that we should make a strong impression upon the brain; that we should enlist just as large a number of brain cells as possible in remembering it.

If some one is speaking to you, and you try to hear him, while some one else speaks to you, and perhaps some one else, and so on,—you have the pictures all in your mind, but they are confused, one picture overlapping another. When you try to recall what was said, all these

things that you have heard are in your brain, but you only find a fragment of one and a bit of another; they have been mixed together in such a way as to make a sort of a composite picture, instead of a clear, definite, and sharply defined image in the brain. Thus, to remember a thing well, one should fix the mind and attention upon it so thoroughly as to make a clear, well-defined impression on his brain,—in other words, he must give his whole attention to it.

Another important help to remembering, is to put the thing to be remembered with other things of the same sort,—to store things away in order. When you take a thing into your mind, think of other things that are like it. They will then go into the same parcel, and these related things will be glued fast together, so to speak. This is very important, especially to the student. Many people store up everything in their brains in such a haphazard way that their memories are like a miscellaneous collection of things in a garret. If you want to put something where you can find it in the brain, attach a string to it, by correlating it with something that you always remember,—something that is so familiar to you that you cannot forget it.

The only way to be able to remember well is by exercising the memory and by concentrating its energies on the subject which you wish to remember. Thus it will become more and more strong and active, and able to retain the things which have been placed in its keeping until they are needed.

BE true, O thinker! to thy nature's law,
 And borrow not another's style, but speak
 Thine own brave thoughts in thine own spirit's
 tongue;
 Call things, by their right names; right minds will
 hear. — *Sel.*

THE LAND OF THE AZTECS.

Its Customs and Industries.

MEXICO is a country full of interest to the traveler and the student of history. It is filled with the ruins of pyramids, temples, and palaces belonging to a prehistoric age, but which show that hundreds of years in the past, Mexico was inhabited by a people who possessed a knowledge of the arts and sciences similar to that of the ancient Egyptians and Syrians. But like the Oriental nations, Mexico has failed to keep pace with the rapid improvements of the nineteenth century.

One no sooner crosses the Rio Grande than he observes a marked change in the

and of transportation; and in their manner of doing all kinds of business. The methods of agriculture are the same as



MEXICAN OX CART.

those in common use in Palestine three thousand years ago. The plow is simply a round piece of wood pointed with iron, and having one handle. Wheat is harvested with reaping-hooks, and the threshing is done with flails, or by treading with cattle; while the chaff is separated from the grain by throwing it into the air with shovels and letting the wind blow it out. All sowing of small grain is done by hand. In some places modern machinery has been introduced, but as yet the old methods



PLOWING WITH MULES.

habits and customs of the people; in their plans of building houses, churches, and cities; in their methods of agriculture

largely prevail. Fences are usually made by digging ditches or planting hedges of cactus.

The transportation of agricultural products and merchandise of all kinds is carried on by means of two-wheeled carts or on the backs of mules and burros. These carts are very clumsy affairs. The wheels are often hewn out of the trunks of large trees. They will carry from two to four tons, and are usually drawn, when loaded, by four yokes of oxen or nine mules. Many of the roads are not passable even for these rude carts, and here the freighting is done by means of pack-mules and donkeys, or burros. This latter means of transportation is so common that the *carga*, or load for a mule (350 pounds), is a standard weight used in buying and selling. A load for a burro is about two hundred pounds.

Dairymen use mules instead of wagons for marketing their milk. They often



MILK VENDERS.

come into the cities from a distance of ten or twelve miles, carrying their milk in this way. Nearly all the fuel that is used in the cities is brought in on the backs of burros. Men and women often walk long distances, carrying heavy loads on their backs. It is not uncommon to meet whole families on the road traveling on foot and carrying all their possessions with them. Before the conquest, burdens of all sorts were carried on the backs

of men. Horses were entirely unknown until introduced by the Spaniards, when such interest was excited in them that the inhabitants of one city actually made a silver horse and set it up as a deity. It is only a little more than a hundred years since donkeys were imported by the Spanish priests from Spain. And even now, no small part of the work of transporting freight of all kinds from one part of the country to another is performed by porters, or carriers.

Indeed, the natives are so accustomed to carrying burdens upon their heads or shoulders, from their earliest childhood, that they seem really to prefer this mode of transporting even quite heavy objects. It is not an uncommon thing for a Mexican porter to carry a weight of two or three hundred pounds upon his shoulders, and it is an ordinary task for him to carry a burden of one hundred and fifty pounds a distance of twenty miles.

During the construction of the railroad from Vera Cruz to the City of Mexico, — the first railroad built in the republic, — the contractor, a foreigner, imported a large number of wheelbarrows for the use of the men in making excavations. His surprise and disappointment may be imagined when he saw the native Mexicans fill their wheelbarrows with dirt, hoist them upon their heads, and thus transport dirt and wheelbarrow together to the place of deposit. This preference for carrying burdens upon the shoulders or heads compelled the contractor to allow them to return to their old method, — that of carrying the earth in sacks. The great quantities of ore produced in Mexico and shipped to various parts of the country are largely transported in this way.

The houses of Mexico vary greatly

according to the altitude and the wealth of the builders. In the hot country, the habitations of the Indians are built of

around a square court called a *patio*; and through the one door opening into the street the people, sheep, cattle, and dogs enter. The houses contain several rooms opening into the patio. Entire families often live in one of these rooms.



MEXICAN HUT, JACAL.

bamboo and light poles, a thatched roof and sides, usually open to sun and wind; for a light shelter is sufficient for this tropical climate. In higher altitudes,

heavier materials are used,—stronger wood, brick, stone, or more commonly adobe. Timber is scarce on the highlands, and houses are built altogether of stone and sun-dried bricks, with tile floors and roofs of tile or cement. Most of them have but one story, with no window opening upon the street. So, as one passes along a street which is lined with such

houses, he sees only doorways closed by thick oaken doors, and bare walls, suggesting prisons rather than homes. The tenement-houses in the cities are built

The maguey does not blossom until it is about ten years old. Then it sends up a single stalk from the center to a height of twenty-five or thirty feet, which is



A STREET IN MEXICO.

crowned with yellowish green blossoms. A single effort of this kind is all the plant seems to be capable of, for it dies soon afterward. The stem develops with such

astonishing rapidity that one can almost see it grow. The maguey is the same plant which is commonly known in the North as the century-plant. From the fact that when transplanted to these colder climes it takes a great many years to gather strength for sending up the central shaft, has arisen the idea that it blossoms but once in a hundred years.

The Mexican pulque-gatherer, or *tlachiquero*, watches the plant, and as soon as the great bud appears, he cuts it out, leaving a hollow in the center of the plant as large as an ordinary wash-bowl, and considerably deeper. The sap intended



LOAD OF PULQUE IN BARRELS AND HOGSKINS.

for the flower-stalk collects in this cavity, and the gatherer empties it as often as it fills by sucking up the juice into a gourd, and emptying it into a pigskin on his own or his donkey's back. The plant continues to pour out the sap so rapidly that it must be gathered every few hours. A good maguey yields from eight to fifteen pints of aguamiel (honey water) daily, and continues to do so for three to six months.

The fermented liquor, the real pulque, is a vile smelling liquid, which tastes like stale buttermilk. Some eighty thousand gallons of it are consumed in the City of Mexico daily. There are daily trains loaded with pulque running into the city,

and great wagon-loads of it are seen rolling along the streets. It is carried in barrels and in pigskins. Pulque is also distilled, making a liquor much stronger than alcohol, called *aguardiente* (burning water), a sort of brandy.

But the production of pulque is not the only way in which the maguey plant serves the Mexicans. It has almost as many uses among them as has the palm to the South Sea Islanders. Paper is made from the pulp of the maguey leaves, and twine, thread, and rope from their fiber. It also furnishes needles. The leaves are tipped with sharp thorns, and by breaking off the thorn and stripping the fibers attached to it away from the pulp, rolling and twisting the fibers together, the native has a serviceable needle ready threaded with the strongest of thread. The leaves of the maguey are also often used by the poorer people in thatching the roofs of their houses, one leaf being placed over the other like shingles;

and from the hollowed leaf is made a trough to carry away the water falling from the eaves.

Through American and English enterprise some modern cotton-mills have been introduced into Mexico, but throughout the country in general the same primitive methods of weaving that were in use hundreds of years ago still prevail.

The manufacture of the pottery for which Mexico has become so famed is another important industry among the native population. It is displayed in great quantities in the city markets, where its inspection forms one of the interesting diversions for the sight-seeing visitor.



Making and Vending
Mexican Pottery.



There are two classes recognized in Mexico, the rich and the poor, and social lines are strictly maintained. The rich live in luxury, while the condition of the poor is very distressing; and the latter constitute an overwhelming majority of the population. There are in Mexico something like ten million people, and of these six million are half-breeds and peons, as they are called. The peon is really a slave, although legal slavery was abolished fifty years ago. The indigent Mexicans would populate any three of our largest American cities.

However, the average Mexican seems to be almost perennially happy. His subjugation by Cortez seems to have been so complete that he has never recovered much worldly ambition. With a food supply for his next simple meal, rags sufficient to cover half his body, and a blanket to wrap around his shoulders, head, and ears when the north wind blows, and to answer for bed and bedding at night, he seems to be very well content. He literally "takes no thought for the morrow," and seems to be remarkably indifferent to the woes of to-day.

The National Museum of Hygiene.—

At the foot of Twenty-third street in the city of Washington, D. C., there stands an old building, amidst a fine grove of trees, overlooking the Potomac River, above the door of which the date of erection is given as 1842, during the administration of President John Tyler. This was formerly the United States Naval Observatory, where wise men explored the heavens with great and small instruments, seeking knowledge of the spheres, gauging the flight of time, and otherwise garnering the secrets of earth and skies for the benefit of mankind in general, and especially for those who go down to the sea in ships. Upon the removal of the observatory to Georgetown Heights, a few years since, the building was transformed into the National Museum of Hygiene. The old structure has lost its telescopic communication with the heavens, and now comprehends the paraphernalia requisite to the study of humanity, from incipency to dust.

The museum is a veritable curiosity shop; and a more interesting and suggestive place could scarcely be found. The progress of hygienic science on land and water is well illustrated, showing all manner of sanitary apparatus, models of

hospitals, hospital ships, and the various ways of disposing of the dead, besides interesting object-lessons on food, drugs, and other things for the welfare of mankind.

Iceland as a Health Resort.—It is said that Iceland offers such exceptional advantages and opportunities to the sportsman, the tourist, the naturalist, the mountaineer, and the seeker of health, that at no distant day it is destined to become the tourist field of Europe. The glaciers of Switzerland, the fjords, the salmon rivers, and the midnight sun of Norway, are all there, and, moreover, the volcanoes, grottoes, and salfataras of Italy, on a grander scale; the pure and clear atmosphere of Italy, the mineral springs of Germany, and the geysers, or hot springs, of the Yellow Stone Park. Nowhere has nature been so spendthrift in assembling wonderful phenomena on one spot.

THE people of Chicago have been warned by the city chemist that all the water coming from the pumping stations is impure, and unfit for use without boiling.

PRACTICAL, HYDROTHERAPY.

The Wet-Sheet Pack and the Hot Blanket Pack.

BY J. H. KELLOGG, M. D.

WHEN properly administered, the wet-sheet pack is one of the most powerful of all water applications. Skill is needed, however, to apply it with a uniform degree of success.

Two or three comfortables or heavy blankets, one woolen blanket, and a large linen or cotton sheet are the articles necessary. More blankets are required in cool weather and by weak patients. It is important to be certain that the sheet

sheet, and extending the limbs near together.

The sheet will now be about 90° F., and the process of wrapping should be done rapidly. The patient should raise his arms while the attendant draws over him one side of the wet sheet, taking care to bring it in contact with as much of the body as possible. Tuck the edge tightly under the patient on the opposite side. Now let the patient clasp his hands across

the chest, and bring up the other side of the sheet. Grasp it by its upper corner with one hand, and draw it down over the shoulder, lengthwise of the body; then, placing the other hand upon the covered shoulder and holding the sheet firmly in place, carry the corner upward upon the opposite side and tuck it under the shoulder, thus drawing the edge of the sheet well up under the

chin. Tuck the edge of the sheet well under the body along the side, carefully enveloping the feet.

Now bring up the blanket, tucking in one side at a time, and also the comfortables, being careful to exclude all air at the neck, and allowing the blankets to extend below the feet so that they can be folded under.

It is not desirable that the patient be bound very tightly; all that is necessary is the exclusion of air, and as the neck and feet are the points at which it is most likely to enter, these parts should receive particular attention, as directed. If too tightly bound, the patient will be more



FIG. 1.—WRINGING THE HOT BLANKET.

is large enough to extend twice around the patient's body. Spread the comfortables upon a bed or straight lounge, making them even at the top. Over them spread the woolen blanket, allowing its upper edge to fall an inch or two below that of the comfortables.

With the bed and the patient all ready, gather one end of the sheet in the hand and dip it in water at 100° F. Wring so that it will not drip much, place its upper edge even with the woolen blanket, and spread it out quickly each side of the middle sufficiently to let the patient lie down upon his back, letting the ears come just above the upper border of the

likely to be nervous than if allowed some freedom.

If the feet are not warm, a hot foot bath should be taken before the pack.



FIG. 2.—PATIENT PARTIALLY FOLDED IN THE HOT BLANKET PACK.

If they become cool in the pack, hot water-bags, jugs, bricks or stones should be applied to them. If the patient does not become comfortably warm in a few minutes,—ten or fifteen at most,—more blankets should be added, and if necessary dry heat applied to the sides. If he still remains chilly, he should be promptly removed, and placed in a warm bath, or vigorously rubbed with a dry sheet and placed in a dry blanket pack until warmth returns.

The head should be kept cool by frequent wetting while the patient is in the pack. If a compress is applied, it should be often renewed.

The duration of the pack is usually twenty minutes, but the length of time varies with the condition of the patient, the effects desired, and the immediate effects produced. If the patient becomes

very nervous, or sweats excessively, or becomes faint, or has other seriously unpleasant or dangerous symptoms, he should be removed from the pack at once if he has not been more than ten minutes in it; but if he sleeps naturally, he may remain in the pack a full hour, if strong, or even longer in many cases. In fevers, short packs, frequently repeated, are more beneficial than long ones fewer in number.

The hot blanket pack is administered in the same way as the wet-sheet pack, except that a blanket is used instead of

the sheet, and it is wrung as dry as possible from boiling water. The patient is wrapped in the blanket as soon as it will not burn him. The manner of wringing the hot blanket is shown in Fig. 1.



FIG. 3.—PATIENT IN PACK, SHOWING MANNER OF TUCKING BLANKET IN AT NECK AND FEET.

This pack is usually administered for the purpose of inducing perspiration, and for this it is a most powerful application. The position of the hot water-bags is shown in Fig. 2. This pack is especially

useful in chronic rheumatism, obesity, jaundice, etc., and is one of the best means of curing a cold.

The pack should be followed by the spray, the sponge bath, the *douche*, or the wet-sheet rub. It is a powerful remedy, and should not be used to excess in chronic diseases. Its depurating effects are really wonderful. The increased action of the skin, together with determination of blood to the surface, is so great that poisons long hidden in the system are brought out and eliminated. The odor of a sheet used in packing a gross person is often intolerable. If the patient be a tobacco-user, the sheet will be reeking with the odor of nicotine. Many

times the sheet will be actually discolored with the impurities withdrawn from the body.

The applications of the pack in treating disease are very numerous. In almost all acute diseases accompanied by general febrile disturbance, and in nearly all chronic diseases, it is a most helpful remedy if rightly managed. It is an admirable measure for nervousness, skin diseases accompanied by thickening of the skin and scaling of the epidermis, and irritations of the mucous membrane. The warm pack is an invaluable remedy in the treatment of children's diseases, and is a most successful application in convulsions.

A HYGIENIC OBSERVATORY.

THE *New York Times* not long since gave a somewhat extended description of the *Observatoire de Montsouris*, or Municipal Hygienic Observatory of Paris, the mission of which is of such a practical character that a brief account of it cannot fail to interest every one.

The *Montsouris Observatory* was intended primarily for the study of the relations between the atmospheric conditions and hygiene, and in carrying out these relations to their fullest extent many different topics are included. The scope of the observatory work can be best shown by a brief mention of the duties devolving upon the three principal sections or departments to which the staff of scientists are assigned.

"First, there is the purely meteorological department, in which the usual elements of observation are carefully recorded and studied. These include air pressure, temperature, moisture, and movement, and the precipitation which descends from the air. The electrical condition of the air and the forces of ter-

restrial magnetism are also carefully observed. These observations are made and the results worked up with the special end in view of their application to the hygienic and climatological conditions of Paris. Tributary stations of minor importance and equipment are also in active operation in other quarters of the city.

"Second, there is the chemical division, which takes up the chemical analysis of the free air in various parts of Paris, and also of the air confined in the public buildings—such as hospitals, prisons, and legislative buildings. This department also investigates the subject of the composition of the water in and around Paris, including the water distributed by the water companies, the sewer water, the river (*Seine*) water, and subterranean water, which is to be found in the various earth strata near the surface; also the questions connected with the filtration of the public supply of water are carefully studied and new processes of filtration are officially tested.

“Third, the micrographical division is devoted to the microscopical study of the air, the water, and the soil. Microbes and bacteria which are observed are carefully studied, and their presence and development compared with the meteorological and chemical conditions observed in the other departments of the observatory.”

It is thus seen that a physical, chemical, and microscopical survey is made of the hygienic conditions of Paris. The approach of conditions of the weather, air, or water which are favorable for the development of certain diseases can be recognized, and precautionary measures taken for the prevention of the full maturing of them, where it lies within the power of man to alter the conditions.

The appearance of disease in any special section of the city can be connected with some special conditions occurring there, and the board of health can take active measures for the suppression of the disease and the prevention of its spreading. Indeed, its importance in studying the health conditions of the city as a whole and of its various sections cannot be overestimated.

A resumé of the year's work is published in an annual volume for general distribution, and the specialist or any one else who desires more definite information may find it in the records at the observatory, made by a competent corps of scientists whose business it is to note the various phenomena as they actually occur.

ART AS A CURE FOR INSANITY.

THE care and cure of the insane is one of the most difficult and perplexing problems of the age, whether viewed from the aspect of medical science or from that of sociology. Hence, all effort in the direction of the curative treatment of the insane is deserving of careful and earnest investigation. Attention has hitherto been largely directed toward the immediate or secondary causes which result in mental alienation, with a view to its prevention, and a vast amount of information bearing upon this side of the subject has been formulated. The conditions conducive to the cure of mental derangement are much more difficult to tabulate, owing to the comparatively rare instances of success in bringing into harmony those minds which, from some innate defect, suffer through inability to adapt themselves to their environment.

Considerable interest, therefore, was naturally evinced when it became known that the Budget of the General Council

of the Department of the Seine contained an item of 400 francs spent on artistic materials for use in the patients' studio of the Departmental Asylum at Ville-Evrard, one of the most progressively managed lunatic asylums in France.

The studio, like so many human improvements, originated accidentally. It happened one day that one of the patients, an epileptic, mentioned to the doctor his regret that his right hand was losing its cunning from lack of brushes and paints. It transpired that this patient had formerly been a theatrical scene-painter. M. Marandon de Montyèle, like a true scientist, recognized this as the suggestion of a brilliant idea. He accordingly acted upon it, and for the last twelve months he has furnished pastils and paints for the use of the patients under his care. The results in this short space of time have been extraordinary. From the alienists' point of view the immediate benefit of the novel method of

“artistic treatment” has been far in excess of the most optimistic expectations. A soothing influence has made itself manifest upon the excited and violent; the melancholics have been roused to interest; a vent has been found for the energy of the deluded, and a resource for the suicidally inclined! The very action of production as a substitute for destruction has been of immense gain as an element conducive to recovery. The patients are deeply interested in their own artistic work, and a spirit of comradeship is thereby engendered when all else has failed to establish a human relationship between some antisocial patients.

The artistic productions themselves display merit of no mean order, the decorative designs having some excellent qualities; and the artistic colony at Ville-

Evrard may some day compete against Barbizon, Newlyn, or Bushey, if not in achievement, at least in fame.

The following interesting statistics are furnished relative to the mental derangement of the patients who are capable of joining in the art classes of the studio at Ville-Evrard:—

Alcoholics.....	10
Melancholics.....	7
Epileptics.....	4
Persecution Maniacs.....	3
Paralytics.....	2
Dementia (Intelligence Destroyed).....	2
Intermittent Maniac.....	1
	—
Total.....	29

Such excellent results should induce the authorities of our own county and metropolitan asylums to follow the example of the Ville-Evrard Asylum.

SMILE A LITTLE.

SMILE a little, smile a little,
 As you go along,
 Not alone when life is pleasant,
 But when things go wrong.
 Care delights to see you frowning,
 Loves to hear you sigh;
 Turn a smiling face upon her—
 Quick the dame will fly.

Smile a little, smile a little,
 All along the road,
 Every life must have its burden,
 Every heart its load.
 Why sit down in gloom and darkness,
 With your grief to sup?
 As you drink fate's bitter tonic,
 Smile across the cup.

Smile upon your undone labor;
 Not for one who grieves
 O'er his task waits wealth or glory.
 He who smiles achieves.
 Though you meet with loss and sorrow
 In the passing years,
 Smile a little, smile a little,
 Even through your tears.

—Ella Wheeler Wilcox.

Insomnia Not Always Disastrous.— Sir James Crichton Browne, the expert on brain diseases, holds that insomnia is not attended with such disastrous consequences as is commonly supposed. It is not in itself so dangerous as the solicitude of the sufferer. He suggests that the brains of literary men, who are the

most frequent victims, acquire the trick of the heart, which takes a doze of a fraction of a second after each beat, and so manages to get six hours' rest in twenty-four; and that some brains, in cases of persistent insomnia, sleep in sections, different brain-centers going off duty in turn.

RUSKIN ON IMPURE WATER.

THE thoughtlessness and indifference of the majority of the people in regard to pure water was thus strongly and picturesquely expressed by Ruskin twenty-five years ago:—

“Twenty years ago there was no lovelier piece of lowland scenery in South England, nor any more pathetic in the world, by its expression of sweet human character and life, than that immediately bordering on the source of the Wandle, and including the low moors of Addington, and villages of Beddington and Carshalton, with all their pools and streams. No clearer or diviner waters ever sang with constant lips of the Hand which ‘giveth rain from heaven;’ no pasture ever lightened in springtime with more passionate blossoming; no sweeter homes ever hallowed the heart of the passer-by with their pride of peaceful gladness,—fain hidden, yet full confessed.

“The place remains (1872) nearly unchanged in its larger features; but with deliberate mind I say that I have never seen anything so ghastly in its inner tragic meaning . . . as the slow stealing of aspects of reckless, indolent, animal neglect over the delicate sweetness of that English scene. . . . Just where the welling of stainless water, trembling and pure, like a body of light, enters the pool of Carshalton, cutting itself a radiant channel down to the gravel, through ways of feathery reeds, all waving, which it traverses with its deep threads of clearness,

like the chalcedony in moss-agate, starred here and there with the white grenoulette; just in the very rush and murmur of the first spreading currents, the ignorant dwellers of the place cast their street and house foulness; heaps of dust and slime and broken shreds of old metal, and rags of putrid clothes, which, having neither energy to cart away, nor decency enough to dig into the ground, they thus shed into the stream, to diffuse what venom of it will float and melt, far away, in all places where God meant those waters to bring joy and health.

“And in a little pool behind some houses farther in the village, where another spring rises, the shattered stones of the well, and of the little fretted channel which was long ago built and traced for it, lie scattered, each from each, under a rugged bank of mortar and scoria, and bricklayers’ refuse, on one side, which the clean water, nevertheless, chastises to purity; but it cannot conquer the dead earth beyond; and then circled and coiled under festering scum, the stagnant edge of the pool effaces itself into a slope of black slime, the accumulation of indolent years. Half a dozen men, with one day’s work, could cleanse these pools and trim the flowers about their banks, and make every breath of summer air above them rich with cool balm, and every glittering wave medicinal, as if it ran, troubled only by angels, from the porch of Bethesda—but that day’s work is never given.”

Damp Houses.—Two brothers in Vermont, of strong and vigorous stock, and giving equal promise of a long and active life, married wives corresponding in promise of future activity. Both had chosen the healthiest of all callings—farming. One of the brothers built his

house in an open and sunny spot, where the soil and subsoil were dry; shade trees and embowering plants had a hard time of it, but the cellar was dry enough for a powder magazine; the house in all its parts was free from every trace of dampness and mold; there was a crisp and

elastic feeling in the air of the dwelling. The farmer and all his family had that vigorous elasticity that reminds one of the spring and strength of steel. Health and sprightly vigor was the rule, sickness the exception. The farmer and his wife, though past three-score, have yet the look and vigor of middle life.

The other brother built his house in a beautiful shady nook, where the trees seemed to stretch their protecting arms in benediction over the modest home. Springs fed by the neighboring hills burst forth near his house, and others by his barns; his yard was always green, even in the driest time. But the ground was always wet, the cellar never dry; the walls of the room had a clammy feel, the clothes mildewed in the closets, and the bread molded in the pantry. For a time their native vigor enabled them to bear up against these depressing influences. Children were born of apparent vigor and promise, but these one by one sank into the arms of death under the touch of diphtheria, croup, and pneumonia. The mother went into a decline and died of consumption before her fiftieth birthday, and the father, tortured and crippled by rheumatism, childless and solitary, still suffers on in that beautiful home which elicits the praises of every passer-by.—*Journal of Hygiene.*

Effects of the Famine.—The physical disaster and distress caused by a famine in India are not indicated in full by the starvation and mortality directly due to want of food. The lowering of the vital resistance exposes the population of famine tracts to the ravages of whatever epidemic happens to be prevailing at the time. In the Madras famine, cholera and smallpox raged with exceptional severity, and caused a large mortality. The ordinary diseases of the country—malarial

fever, diarrhea, and dysentery—present an enhanced incidence and aggravated forms. Cachetic conditions—dropsy, ulcers, parasites, and skin diseases—become very common and very severe. Under prolonged inanition, the tissues waste and degenerate, more especially those of the stomach and intestines; recovery becomes impossible, and death by marasmus and exhaustion is inevitable. Added to this, the cattle also starve and die, and epizootics, which are always prevalent in India, acquire extensive prevalence and deadly force.

It is to minimize this suffering as much as to limit mortality that the offerings of the charitable are solicited in supplement of the efforts of government.—*British Medical Journal.*

Opera-Glasses.—A hint to be careful about the use of the opera-glasses which are supplied in most of our leading theatres, on a payment of a small fee, is worthy of attention, as it has been proved beyond doubt by oculists that these opera-glasses frequently become the medium for spreading contagious diseases of the eye.

Biting the Nails.—A discerning Frenchman says that this habit is far more wide-spread and pernicious than is generally understood. He concludes that, if not a disease itself, it is an un-failing mark of incipient degeneration of the nervous system, which may be productive of the most evil results.

New Uses for Aluminum.—In Paris there is a cab made of aluminum, and in many of the races at Longchamps the horses are shod with aluminum. There are also several racing sulkies made of aluminum, and it is only a short time ago that an Ohio firm built several duckboats of this material.

CARE OF THE BODY.

THE following bits of advice as to the care of the body have come from various sources:—

It is supreme wisdom to begin life's education with a refining care of the body. This not only lays a good foundation for health in maturer years, but opens up the avenues to learning itself. Everything we know comes to us through the medium of our senses. These senses are perfect or imperfect in the degree in which the organism and especially the condition of nerves and muscles which subserve the senses are perfect or imperfect.

The normal temperature of the body is 98.4° F. The temperature varies in different parts of the body, and also slightly with the time of day. It reaches its maximum between five and eight in the evening, and is lowest between two and six in the morning.

The Morning Bath.—Dr. A. Wilson says: "There is one point I should like to emphasize, and that is, the good a tepid sponge bath every morning, taken on getting out of bed, may do a man out of sorts. If a person can take a cold sponge bath, so much the better; but a tepid sponge bath acts on the nervous system in a very decided manner, and I know of many persons who find it a very admirable means of preserving their health and tone. Of course, the tepid bath can be taken all through the winter, even by those who are not accustomed to baths at all: but personally I prefer the cold sponge bath every morning, which is a capital tonic for those who have a good reaction after it. I do not think we value cold and tepid sponging as highly as we ought."

There are few who deny the importance of the morning face bath, but the daily foot bath is just as important. It insures neatness, rest, and comfort. If the tired shop-girl or saleswoman who has been standing for ten hours, would dip her feet into a basin of cold water, instead of curling or doing up her back hair, she would have a lighter step, and feel more like walking home.

Unhygienic Footwear.—It is the special development of the great toe that enables man to stand erect and balance himself with greater ease. The farther the great toe is spread from the little one, the greater prestige is given to the individual, because more leverage is gained. The construction of the pointed-toe shoe is calculated to destroy the God-given leverage of the foot, converging the little and the great toes to a point. In the natural foot the great toe should continue in a straight line from the heel. The insane vanity of the wearers of shoes combined with the ignorance of the shoemaker have caused to be made a style of shoe that must result in great and lasting damage to our race. The so-called elegant shoes have produced a painful picture of misery, inducing alteration and paralysis of the small muscles of the foot, which has resulted in the loss of the proper elastic step in the walk of many individuals. Compression of the blood-vessels of the foot retards the circulation, and prevents the full development of the bones and muscles of the foot, ankle, leg, thigh, and pelvis.

Perspiration of the Feet.—In case of offensive perspiration of the feet, great care and cleanliness are necessary. The feet should be washed and the socks

changed twice or even thrice daily. After washing, some fine powder should be dusted into the socks and on the feet and between the toes, to act as a disinfectant. A solution of boracic acid in water often proves curative, and has the merit of being easily and safely applied.

The German army surgeons recommend two parts of pure salicylic acid to be mixed with one hundred parts of the best mutton suet, and to be used as an application for sore feet and for excessive or disagreeable perspiration. One ounce of vaseline, one ounce spirits of turpentine, and ten drops of carbolic acid, mixed, has been also recommended for the cure of disagreeable odors of the feet. Absolute cleanliness, however, is the first and principal condition of cure; and if the nauseous odor still persists, the general health should be carefully looked after.

Bunions.—Bunions are more difficult to cure than corns, because they involve the joints. They are usually caused by pressure of badly fitting boots and shoes, and the remedy is to rest the part and to

relieve it of all undue pressure. If the bunion is very painful, try a lotion (to be used on lint covered with oiled silk) made by mixing two drams of tincture of arnica with eight ounces of water.

A much-praised corn salve is made as follows: Salicylic acid, half a dram; extract of Indian hemp, ten grains; and collodion, one ounce. Apply by means of a brush twice or thrice a day.

It is said that chilblains, if rubbed with a piece of lemon sprinkled with salt, will disappear; and corns will do the same if lemon-juice is applied. Drop it on stale bread, and bind it on the corn.

Salt and water used on the hair is said to prevent its falling out; and used occasionally on the teeth, prevents the accumulation of tartar.

A lotion of half glycerine and half lemon-juice is said to be a perfect cosmetic for taking off tan and keeping the skin white and smooth.

Sunstroke — What Is It?—The time of year for sunstroke is here, and a few words of suggestion may save some one from its danger. What is a sunstroke? *Coup de Soleil* is the scientific phrase. It means literally, "blow of the sun," or a supposed effect of exposing the head to the hot sunshine. One who dies of sunstroke does not show any evidences of inflammation or congestion of the brain, as is generally supposed. More recent studies show something quite different. They indicate that when a man has a sunstroke, he is self-poisoned.

The human system is continually generating poisons and throwing them off by

means of the lungs, the skin, the kidneys, and the bowels. More than enough is formed in the body daily to kill the man or woman. Now if the operation of the organs of excretion be interfered with and the poison retained, the person soon dies. This is what the sunstroke does. It stops the work of eliminating the poison. Physiologists have experimented upon rabbits with the urine of a person under the effects of sunstroke. Quantities of urine containing enough poison normally to kill a rabbit were injected into the animal's veins without fatal result, showing that the normal amount of poison was not being excreted by the kidneys. Then

injections of the blood and cerebro-spinal fluids of persons prostrated by the heat were tried upon the rabbits, and it was found that the rabbits were soon thrown into convulsions, in which they died. Experiments are still going on to ascertain, if possible, the nature of the poison retained in the blood and the best antidotes for it.—*Journal of Hygiene.*

EX-PRESIDENT HARRISON, in speaking of the appurtenances of the White House, says: "President Van Buren was charged by a political adversary and scathing critic, as being the first of our presidents to discover that the pleasures of the warm or tepid bath are the proper accompaniments of a palace life. For it appears that our former presidents were content with the application, when necessary, of the simple shower bath. Mr. Van Buren's critic then refers with high approval to the salutary side of Mr. Adams's heroic habit of bathing in the Potomac 'between day-break and sunrise.'"

M. MEGUIN, a French physician, has so closely demonstrated the effects of different bacteria on dead bodies that, the *British Medical Journal* asserts, "it is now possible to determine in the most accurate manner the time of death of an individual by an examination of the cadaver and of the successive generations of insects which are found inhabiting it. M. Meguin has established the important fact that these successive inhabitants always arrive in the same order from the time of death to that of complete disintegration of the body."

ONE of the popular writers of the day wisely says, "We need quiet. What is the matter with most of us, in this tearing and worrying age, is that we cannot be quiet. It is a lost art. Let us not only mourn for it, but try to restore it in some measure to our hearts and lives. So shall we become strong, and be able to give of our strength to others."

THE LAND OF "PRETTY SOON."

I know of a land where the streets are paved
With the things we meant to achieve;
It is walled with the money we meant to have
saved,
And the pleasures for which we grieve.
The kind words unspoken, the promises broken,
And many a coveted boon
Are stored away in that land somewhere —
The land of "Pretty Soon."

There are uncut jewels of possible fame
Lying about in the dust,
And many a noble and lofty aim
Covered with mold and rust.
And O! this place, while it seems so near,
Is farther away than the moon;
Though our purpose is fair, yet we never get
there —
The land of "Pretty Soon."

The road that leads to that mystic land
Is strewn with pitiful wrecks,
And the ships that have sailed for its shining
strand
Bear skeletons on their decks;
It is farther at noon than it was at dawn,
And farther at night than at noon;
O, let us beware of that land down there —
The land of "Pretty Soon."

— *Ella Wheeler Wilcox.*

The Medicinal Value of Fruits.—

The *Weekly Review* gives the following practical points in regard to the medicinal uses of fruits:—

It should not be understood that edible fruits exert direct medicinal effects. They simply encourage the natural processes by which the acids are produced.

Under the category of laxatives are oranges, figs, tamarinds, prunes, mulberries, dates, and nectarines.

As astringents, we have pomegranates, cranberries, blackberries, sumach-berries, dewberries, raspberries, barberries, quinces, pears, wild cherries, and medlars.

The diuretics are grapes, peaches, whortleberries, prickly pears, black currants, and melon seeds.

The refrigerants are gooseberries, red and white currants, pumpkins, and melons.

Lemons, limes, and apples are refrigerants and stomach sedatives.

Taken in the morning before breakfast, an orange acts very decidedly as a laxative.

Pomegranates are very astringent, and relieve relaxed throat and uvula.

Figs, split open, make excellent poultices for boils and small abscesses.

Apples are correctives, useful in nausea, and even in seasickness and the vomiting of pregnancy.

Bitter almonds contain hydrocyanic acid, and are useful in simple cough; but they frequently produce a sort of urticaria or nettle-rash.

The persimmon, or diospyros, is palatable when ripe, but the green fruit is highly astringent, containing much tannin, and is used in diarrhea and incipient dysentery.

The oil of the cocoanut has been recommended as a substitute for cod-liver oil, and is much used in Germany for phthisis.

Dutch medlars are astringent, and not very palatable.

Grapes and raisins are nutritive and demulcent, and very grateful in the sick chamber. A so-called "grape-cure" has been much lauded for congestion of the liver and stomach, enlarged spleen, scrofula, tuberculosis, etc. Nothing is allowed but water, bread, and several pounds of grapes per diem.

Grape Seeds and Appendicitis.—

There has arisen in many localities such an absurd idea that the seeds of grapes will produce appendicitis that the sale of grapes has been greatly restricted. As an article of food no fruit is equal to grapes, and they can be eaten with absolute freedom by all persons. When converted into raisins, they have a food value second to none among the dried fruits. The percentage of sugar is so great that as an article of diet they should find a place on every table. One is not obliged to swallow the seeds unless he so desires. Stewed with prunes or figs, raisins impart a delicate flavor which is greatly admired by those who have tried it. There are many ways to prepare raisins which, if generally known, would greatly increase the demand for them. Containing, as they do, upwards of thirty per cent. of sugar, we have, bulk for bulk, a greater concentration of nutrition in raisins than in any other food. They are so cheap that every family can use them almost as freely as bread.—*Public Health Journal*.

Sad End of English Horses.—The judge of the police court of the Thames has recently rendered a judgment in a case insignificant in itself, but furnishing valuable information to consumers of canned goods. A certain driver was charged with having inflicted cruel treatment on horses, an offense which is severely punished by the English law. The

charges having been proved, he was rather heavily fined. The interest centered on the employer of the brute, who of course appeared in behalf of his man, and testified to the kind disposition of the latter. As he was explaining that the man was daily intrusted with the care of driving to the docks and putting on board horses bound for Rotterdam, the magistrate remarked that the ill-treated horses were so old they could hardly stand up, and asked the employer to what use the Dutch put such animals. In reply, the employer explained, in the most unconcerned manner, that there existed in Rotterdam and Antwerp large and important factories where the invalid omnibus horses of London were converted into excellent canned beef, and retailed throughout Europe in sealed boxes with American labels. This industry it is said absorbs more than twenty-six thousand horses every year.—*The Sanitarian*.

An Electric Bush.—A plant which shows decided electro-magnetic properties, the *Phytolacca electrica*, was recently found in Nicaragua. If one of the branches of this plant is touched with the naked hand, a shock is felt similar to that produced by the discharge of a Ruhmkorff coil. The influence upon a magnetic needle becomes plainly evident at a distance of seven or eight steps from the plant, the needle deviating from its proper direction. This influence increases as one gets nearer to the plant, and if the magnetic needle is brought into the midst of a phytolacca bush, it will assume a steady circular movement.

The ground upon which this plant thrives does not show even a trace of iron or any other metallic substance which would be likely to influence a magnetic needle; therefore there is no room for doubt that the curious plant really pos-

sesses that peculiar property. The intensity of the phenomenon seems to depend entirely upon the time of day; during the night it ceases altogether, while the maximum of the electrical influence occurs about two o'clock of the afternoon. If the weather is stormy, the magnetic-electrical properties of the phytolacca are considerably increased.—*Philadelphia Record*.

IF my next-door neighbor chooses to have his drains in such a state as to create a poisonous atmosphere, which I breathe at the risk of typhus and diphtheria, he restricts my just freedom to live just as much as if he went about with a pistol threatening my life. If he is allowed to let his children go unvaccinated, he might as well be allowed to leave strychnine lozenges about in the way of mine; and if he leaves them untaught and untrained to earn their living, he is doing his best to restrict my freedom, by increasing the burden of taxation for the support of fools and worthlessness, which I have to pay.—*Professor Huxley*.

Causes of Death.—Professor Snellison says that only 900 persons in 1,000,000, according to medical authority, die from old age; while 1200 succumb to gout, 18,400 to measles, 2700 to apoplexy, 7000 to erysipelas, 7500 to consumption, 48,000 to scarlet fever, 25,000 to whooping-cough, 30,000 to typhoid and typhus, and 7000 to rheumatism. The averages vary according to locality, but these are considered accurate as regards the population of the globe as a whole.

THE cases of death from trichinosis have not ceased. Reports from a village in Ohio state that three members of one family have died from eating raw pork infected with trichinæ.

The Perspiration Poisonous.—From a report made to the Paris Biological Society, by M. Arlong, it appears that animal perspiration, when injected under the skin, is poisonous. In experiments made by him, death occurred when the injection was strong enough, generally within three days, but sometimes not for some weeks. The perspiration secreted during arduous muscular toil contains more poison than that secreted during the ordinary circumstances of life.

Is not this proof positive of the necessity of frequent bathing of the body? for one's perspiration is as poisonous to his own body as to another's.

HAMBURG drank unfiltered, polluted river water until the city became paralyzed by the plague. With superhuman effort immense improvements have been effected since then, and now the inhabitants drink only filtered water. For many communities only the severest visitations are demonstrative of danger, and not until hundreds and thousands of victims have paid the penalty demanded by filth is the stimulus sufficient to create a salutary change.—*The Sanitary Inspector.*

ONE of the first conditions of health is a healthy view of things. If it be true that the sick body makes the sick mind, it is equally true that the sick mind makes the sick body. A sickly view of the world will go far to make the world sickly. It has been the fashion to exaggerate the conscious and the unconscious wretchedness of mankind. This disposition to take a morbid and depressing view of mortal experience has been exaggerated by the natural craving for human sympathy. It is pleasant to share the fellow feeling of our kind, and the condition on which that fellow feeling is obtained is almost always suffering.

Suffering, more than anything else, excites interest and compassion. Our word "sympathy" expresses fellowship in suffering. We have no similar word to express fellowship of joy.—*Science Siftings.*

M. PASTEUR, whose discoveries in the generation of disease have been of such incalculable value to the public, was offered, by a French capitalist, two hundred thousand dollars for his discovery of the method of preventing disease in cattle, the man in business knowing that the profits in an agricultural country would be enormous. M. Pasteur refused the offer, saying that, as he was already in receipt of a government annuity which sufficed for his wants, he thought it right to give his discoveries gratuitously to the public.

AN eminent New York physician, when his friends endeavored to dissuade him from giving up home, family, and life to go to Memphis while the yellow fever was raging there, saying, "You will die alone, amid indescribable horrors, for a people who can neither know nor thank you," replied, "It is not the manner of a man's death which should concern him, but the manner of his life." He went, and never returned.

THE exploration of the pyramids in Egypt shows that those Egyptian tombs were ventilated in the most scientific manner.

A Vulgar Habit.—"If men were compelled to wear skirts for a period, I think they would insist more than they now do that their fellow men should stop the nasty habit of spitting in public," writes Edward W. Bok in the *Ladies' Home Journal*. "There is no practise of man which is more distressing to women than this disgusting habit. Women constantly

complain of it, especially in our larger cities, where sometimes the sidewalks are scarcely fit for them to walk upon. They revolt at the practise, and they are right in so doing. Yet year in and year out the habit not only continues, but increases, and the protection of cleanliness, to which every woman walking upon our streets has a perfect right, is denied her.

"In New York City the board of health has taken the matter up on the grounds of public health, and the police department is lending its co-operation in the enforcement of an ordinance directed against the evil. No action taken in New York for years is so highly to be commended, and the ordinance should quickly extend to other cities and be put into force. It is an undertaking which public opinion will sustain in whatever part of the country it is attempted. Every community should be urged to try the experiment. . . .

"The time is ripe when every decent man should take some steps to see to it that the nastiest and most vulgar of all American habits is entirely stopped. New York City has started the reform. Let the boards of health of a few of our other large cities take up the question, and the reform, which appeals to every clean-minded man and woman, will soon spread. It is a work in every way calling for the attention and action of boards of health and all bodies and citizens interested in the health of communities. The spitting habit is an absolute menace to the public health."

DR. PAUL GIBIER, a scientific authority, says: "If this habit of expectoration in public could be stopped, I am sure that in time tuberculosis would die out altogether. This seems a very sweeping statement, but it is not an ill-considered one. There is no question in my mind that the spread of tuberculosis is due largely to the habit of spitting. A great

many people have tuberculosis without being aware of the fact. They do not know of the danger that comes from ejecting their sputum where it becomes dry and pulverized and then flies about in minute particles, to be inhaled by healthy persons, who are thus inoculated with the disease. This random expectoration is a crime."

NOTICE.

Expectoration is forbidden in this place. Offenders are liable to a fine of \$5 or a term of imprisonment.

Yet they *must* spit—those who are affected with tuberculosis. As convenient as practicable to all such notices, cuspidors containing a dampened disinfecting powder of some kind should be placed. But in street-cars particularly the cuspidors are often inaccessible. To swallow sputum that has been raised, loaded with tubercle bacilli, is revolting, besides being promotive of the disease. Against this necessity every person so affected should be provided. Bottles and other devices to hold disinfectants have been invented, but all such devices that have fallen under our observation are inconvenient, and more or less repulsive.

Japanese paper handkerchiefs are inexpensive, and thoroughly adaptable to the purpose. There is no danger whatever from carrying the sputum in its damp state. Every person subject to cough and expectoration, while temporarily absent from a cuspidor charged with a disinfectant, or from a fire, should carry such handkerchiefs to spit in, but they should always be burned at the first opportunity.—*The Sanitarian*.

"If I were a physician, I would wheel my patients to the window, and let nature feel their pulses.—*Thoreau*.

THE EFFECTS OF CIGARETTE SMOKING.

BY F. MAGEE ROSSITER, M. D.

THIS great evil has swept over this land like a tidal wave, during the last few years, casting its blighting influence upon the minds and bodies of the young manhood of the present generation. Its devotees may be counted by the hundreds of thousands, the number being daily augmented by scores from every walk of life, until it seems as though it were a virulent plague, ponderous in its influence, fastening upon its victims with a death-like grip, filling thousands of premature graves, and leaving an almost innumerable host of physical and mental wrecks, incapacitated for the duties of life.

It is indeed gratifying to see here and there champions of reform raising a warning note against this and other pernicious habits.

Tobacco, from which cigars and cigarettes are made, contains a narcotic drug as poisonous as strychnine, one thirtieth of a grain being sufficient to produce toxic symptoms. This poison is present in amounts varying from three to nine per cent. in the tobacco plant. Dr. J. W. Seaver, of Yale College, speaking of the effects of nicotine in a late number of the *Quarterly Journal of Inebriety*, says: "The amount of nicotine derived from a cigar in smoking is somewhere in the neighborhood of one per cent., if we presume that one half is destroyed by the process of combustion and the other half drawn in with the smoke; and this is especially true in the use of the pipe, where the tobacco is completely burned out." Continuing, Dr. Seaver says: "As to absorption, it is a very volatile oil-like material, soluble in water, glycerine, oils, alcohols, etc., so that that part which touches upon the mucous surfaces passes

into solution and is pretty largely picked up."

One cigar contains enough nicotine to kill two men if it were taken as a drug; hence one "need absorb only a small proportion of the amount actually taken in during the process of smoking a cigar or a pipeful of tobacco to reach the limit of easy toleration by the system."

This shows why the "first cigar" makes its victim so deathly sick. The system has not formed a tolerance for the poison, and nature in her effort to rid the body of the poisonous intruder inflicts upon the smoker a severe penalty. Unfortunately for the youth, the first cigarette does not produce this deathly nausea. If it were the case, there possibly would be only one cigarette smoker where there are a hundred to-day. While one cigarette is not as harmful as one cigar, yet the habit is much worse for several reasons:—

1. The cigarette smoker inhales the smoke, from which he derives the greatest pleasure, while the cigar smoker only takes the smoke into the mouth.

2. The amount of nicotine absorbed in smoking a cigar varies with the extent of the absorbent surface and the column of smoke, while in cigarette smoking the smoke comes in contact with the mucous surface of the mouth, pharynx, larynx, trachea, and large bronchi.

3. The cigarette smoker consumes several cigarettes while the cigar smoker consumes one cigar. Furthermore, any one familiar with the action of drugs knows that medicine given in divided doses has a much more decided action than if given in a single dose. This is another reason for the more harmful influence of cigarette smoking.

A recent article in the *Chicago Tribune* shows that the cigarette habit among school boys is making gigantic strides, "several thousand having become addicted to the habit, while the majority are so affected mentally and physically that they are unable to make further progress in their studies." Of 125 boys addicted to the habit, only ten were able to keep pace with their classes. "Twenty-five stated they could not learn their lessons because most of the time they were 'too sleepy';" thirty were dizzy, twenty-two were unable to write because of trembling hands. They "felt shaky" when they walked. "A large number were unable to run any distance, some not more than a block." Nearly all had headache. "Ten of these boys were four or five years too old for their grades."

Dr. Seaver says: "A tabulation of the records of the students who entered Yale in nine years, when all the young men were examined and measured, shows that the smokers averaged fifteen months older than the non-smokers, but that their size, — except in weight, which was one and four tenths kilograms more, — was inferior in height to the extent of seven millimeters, and in lung capacity to the extent of eighty cubic centimeters."

Dr. J. C. Mulhall, in writing on the "Cigarette Habit," says: "At several of our great universities it has been found by exact and scientific investigation that the percentage of winners in intellectual and athletic contests is considerably higher in total abstainers from tobacco."

Dr. E. Hitchcock, of Amherst college, says: "In separating the smokers from the non-smokers, it appears that in the item of weight, the non-smokers have increased twenty-four per cent. more than the smokers; in growth in height they have surpassed them thirty-nine per cent.; and in chest girth, forty-two per cent., while in lung capacity there is a difference of 8.36

cubic inches [this is about seventy-five per cent.] in favor of the non-smokers, which is three per cent. of the total average lung capacity of the class."

The Maoris of New Zealand, who were once a powerful race, and noted for their physical beauty, have been almost exterminated, tobacco being one of the most active causes.

The dominant action of nicotine is that of a paralyzant to the nervous system, its influence being much more deleterious if the habit is formed for it during the developing period of youth. Its action is particularly noticed on the vagi,—the large nerves controlling the heart, lungs, and abdominal organs. It produces marked disturbance of the circulation. The vagi to the heart are partially paralyzed, thus removing the controlling influence over the action of the heart, and the organ is allowed to wear itself out by its rapid action, in this way giving rise to the "tobacco heart."

The drug has also a paralyzing action on the respiratory center, giving rise to superficial inspiration, which accounts for the diminished lung capacity of the cigarette smoker. In some recently reported cases, it is shown to give rise to a succession of twenty to thirty rapid irregular inspirations, followed by a deep gasping one. According to Dr. Foster, nicotine affects the pupil of the eye, causing temporary dilation, followed by prolonged contraction of the pupil. This gives rise to straining and undue muscular effort on the part of the observer, in order to see distinctly, which in time markedly affects the acuteness of vision.

Nicotine is a stimulant to glandular secretions, producing an increased flow of saliva and gastric and intestinal fluids. Like any other cause that produces increased glandular activity other than in the normal way and at the proper time, these secretions which nature has fur-

nished for a most important purpose are vitiated, squandered, and diverted from their natural functions, thus paving the way for numerous digestive disorders. The mucous glands of the mouth, pharynx, and nasal cavity are over-stimulated, reducing the resisting power of these surfaces against changes of temperature and the invasion of bacteria, and thus naturally producing catarrhal affections.

In three cases of tuberculosis of the tonsils recently reported by M. Tusseau, he shows that alcohol and tobacco are predisposing causes to this malady. One case, cured by cauterization, returned when the patient resumed the habit again. Of all pathogenic bacteria that attack the body, those of tuberculosis are most easily

destroyed; and certainly if tobacco had, as some claim it has, any value as a germicide or as an antiseptic, its merits ought to be demonstrated in these cases; but when used even in excess, it has no influence in preventing the development of germs in the mouth.

The mental influence of nicotine is to produce stupor, loss of memory, lack of mental concentration, and a lower mental standard generally. Associated with this is the moral influence. The will power is weakened, and self-control is sadly lacking; the sensibilities become so obtuse that the power to discriminate between right and wrong is greatly diminished, making the victim susceptible to every feeling and impulse.

The Treatment of Disease without Alcohol.—From a paper by C. R. Drysdale, M. D., read before the English Society for the Study of Inebriety last April, we abstract the following points in regard to the medical use of alcohol:—

It was not until the sixteenth century that alcohol seems to have enjoyed any great reputation as a remedy; it then received much praise, and was called *aqua vitæ* (the water of life).

Alcohol is not a food.

Alcohol irritates all the organs of the body, and narcotizes the brain.

The presence of alcohol in the blood renders the patient more liable to attacks of bronchitis, cholera, phthisis, etc.

The hypothesis of Liebig, that alcohol was an important respiratory food, is now known to be untenable.

Alcohol does not give strength to the muscular tissues. Experiments show that less work is done under alcohol than without it.

Alcohol is most dangerous in hot climates like India, and those who use it are

far more prone to sunstroke and cholera than are total abstainers.

The effect of alcohol in the brain is to cause apoplexy, paralysis, vertigo, softening, delirium tremens, and insanity; in the lungs, it leads to congestion, bronchitis, and favors the attacks of the bacillus of tuberculosis; in the heart, it causes irregularity, dilatation, fatty degeneration, and sometimes valvular disease; in the stomach, it favors dyspepsia, flatulence, irritation, and inflammation and dilatation of the veins; in the liver, it causes congestion, hardening, and dropsy; in the kidneys, fatty or waxy degeneration and dropsy; and in the muscles it tends to paralysis and fatty degeneration.

Alcohol is an anesthetic and a sedative.

The more alcohol there is used in the treatment of fevers, the higher the mortality.

The routine use of alcohol in diseases is doubtless one of the chief causes of drunkenness.

Lunatic asylums are beginning to learn that the treatment of insanity entirely

without alcohol is much more satisfactory than with it.

Alcoholic drinks have been removed from the dietary at all the London (Eng.) county asylums, and the result shows more recoveries, easier management, better discipline, and no inconvenience.

Intemperance and Idiocy in Children.—The relation of alcoholism to inherited defects of mind, with predisposition to idiocy and insanity, is becoming better understood with our modern methods of studying causes. In France authorities have been slow to perceive the baneful effects of liquor-drinking, but now certain of the leading experts are giving valuable testimony. M. Bourneville, chief editor of *Progres Medical*, reported at a meeting of hygienists that physicians in the department of idiotic and epileptic infants, in the hospital Bicetre, are careful to detect, if possible, the existence of alcoholism in the mother and father, or in the other ancestors of the infants admitted. Inquiry is made as to the probable epoch of conception; *i. e.*, if it be possible that the conception occurred at a time when either parent was drunk; or if the mother drank much strong liquor during her pregnancy; or if the parents or guardian have been accustomed to administer wine or other alcoholic liquors to the children.

The following statistics are based upon the examination of one thousand children admitted to the hospital: Alcoholism was found in the father in 471 cases; in the mother in 84; in both parents in 65; no alcoholism in the ancestry of 209; no information possible in 171. Such data prove the important influence of alcoholism in the production of children that are idiotic, or epileptic, or degenerate. And hence is seen the imperious necessity of adopting energetic measures for preventing the increase of alcoholism.

Effect of Tobacco on the Eyesight.—

Professor Craddock says that tobacco has a bad effect upon the sight, and a distinct disease of the eye is attributed to its immoderate use. Many cases in which complete loss of sight has occurred, and which were formerly regarded as hopeless, are now known to be curable by making the patient abstain from tobacco. These patients almost invariably at first have color-blindness, taking red to be brown or black, and green to be light blue or orange. In nearly every case, the pupils are much contracted, in some cases to such an extent that the patient is unable to move about without assistance. One such man admitted that he had usually smoked from twenty to thirty cigars a day. He consented to give up smoking altogether, and his sight was fully restored in three and a half months. It has been found that chewing is much worse than smoking in its effects upon the eyesight, probably for the simple reason that more of the poison is thereby absorbed. The condition found in the eye in the early stages is that of extreme congestion only; but this, unless remedied at once, leads to gradually increasing disease of the optic nerve, and then, of course, blindness is absolute and beyond remedy.—*Popular Science Monthly*.

Alcohol and Cold.—In 1786, Prince Potemkin, prime minister of Russia under the Empress Catherine, gave the largest state dinner ever given. Over twenty-two thousand persons were feasted in vast halls in St. Petersburg. Brandy, the favorite intoxicant at that time, flowed as freely as water; and when the half-drunken guests departed, the intense cold night air did not sober them, but, as is always the case, locked the senses in a stupidity that ushered in the sleep of death. More than sixteen thousand of

the guests perished of the cold that night, and those who survived were those who had not drunk so deeply, and were thus able to resist the numbing effect of the extreme cold. The official reports of the death-rates in Russia show that a majority of fatal cases in winter are those who are intoxicated.—*Sel.*

The Effect of Alcoholic Liquors and Tobacco on Muscular Activity.—

The main object of physical exercise is to keep our bodies in a condition where the average amount of working power can be utilized at any time without harm to the bodily health. To keep up this amount of physical power and endurance we must be obedient to certain great laws of health. One of these laws, which can never be violated with impunity, is that which forbids the use of alcoholic liquors and tobacco. Strong drink and tobacco will put to naught the most elaborate system of physical training.

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

A SCHOOLBOY died in Brooklyn only a little while ago from smoking cigarettes. His whole body was sick; the poison in the tobacco had gone all through him. His skin was yellow, his nerves were

weak, and he was so sick he had to be sent to a hospital; but the doctors could not help him. He said just before he died: "O, if all the boys could see me now, and see how I suffer, they would never smoke."

SIR MORELL MAC KENZIE, of England, says that the white spots on the tongue and inside the cheeks, called "smoker's patches," are more common with users of cigarettes than with other smokers. He names heart trouble, blindness, and cancer, as well as epilepsy and insanity, among the diseases directly caused by cigarette-smoking.

A PREACHER called at a house and asked to stay all night. The good woman told him that they could not take him in. He insisted, but in vain. At length he said: "Well, of course, if I must go on, I will; but I remind you of that passage in the Bible which says, 'We ought to entertain strangers, for thereby some have entertained angels unawares.'" "I am not afraid of your being an angel," replied the woman; "an angel does n't smoke or chew and spit tobacco, as you do."—*Dr. Steel.*

IN a book of travels written by a Mr. Barrow we find this interesting bit of information: A Hottentot was seen to apply the short end of his wooden tobacco-pipe to the mouth of a snake when the reptile was darting out its tongue. Death was instantaneous, the effect almost like an electric shock; with a convulsive motion that lasted only for a moment the snake half untwisted itself, and then became still. And upon examination the muscles were found to be so contracted that the snake felt as hard as if it had been dried in the sun.—*Harper's Round Table.*

JOHN B. GOUGH used to tell of an intimate friend of his who threw away his tobacco, saying, "That's the end of it." But it was only the beginning; he suffered intensely, the craving was so strong that he felt he must have it, and finally purchased another plug; but he resisted the temptation to put it in his mouth. Holding the plug in his hand, he said to it: "I love you, but are you my master, or am I yours? You are a weed, and I am a man. You are a thing, and I am a man. I'll master you if I die for it. It shall never be said of me again, 'There is a man mastered by a thing.'" Whenever the craving came on, he would take the tobacco out and talk to it. It was nearly two months before he achieved the victory, but he said the glory of the victory repaid him for the hard struggle.

A CHICAGO newspaper says: "When the old crusader, 'Michigan,' made her last yearly visit to Chicago to obtain recruits for the marine service, there was a great weeding out of applicants. Of nine who called on the medical officer in one morning, all but three were found lacking; and this ratio holds good, it is said, during the whole time of reeruiting. The surgeon, when asked the cause of the physical conditions which led to the rejection of so large a proportion of the boys, unhesitatingly said, 'The main cause is cigarette smoking.'"

WHILE the population of France remains nearly stationary, the consumption of tobacco increases by leaps and bounds. During 1896 the French consumed over twenty thousand tons of tobacco.

A PERSON accustomed to using tobacco becomes so saturated with it that no washing or fumigation will rid him of even the odor. This odor will prob-

ably not be perceptible to the tobacco victim himself, but other people will plainly perceive it.

Health versus Intellect.—The ill-effects of a sedentary life in childhood, though not so immediate, are much deeper and more lasting than in later years. Statistics show plainly that city families die out and are constantly replaced by hardier stock from the country. The secret is contained in two words—air and exercise. The problem of civilization is largely how to obtain these two God-given blessings, and at the same time the advantages of contact with their fellow men which accrue to those who live in cities. Sound and undegenerate bodies depend more on the conditions which obtain during school life than do well-trained minds. Not so much science as common sense is needed to determine whether the conditions in any school are adapted to maintain rather than vitiate the health of the pupils.—*Cleveland Journal of Medicine.*

THE children attending public schools in Brussels, Belgium, were requested some time since by their teachers to gather up, on their way to and from school, such apparently valueless objects as tin foil, tin cans, paint-tubes, bottle capsules, refuse metals, etc., and deliver their collections daily to their respective teachers. In eight months the following amounts were collected: old paint-tubes, 220 pounds; tin foil, 1925 pounds; scraps of metal, 1200 pounds; and bottle capsules, 4,400 pounds. This rubbish was disposed of for a sum so considerable that the proceeds clothed five hundred poor children completely, sent ninety invalid children to recuperation colonies, and there was still left a goodly balance to be distributed among the sick poor of the city.

PHYSICAL MEASUREMENTS.

WHAT are the proper proportions of the various members of our body? This is an interesting and important question which has been answered in a number of ways by physical culturists of all kinds, from the Delsarte professor to the pugilist. The dicta laid down is generally more or less arbitrary, each "expert" prescribing certain fixed dimensions, often regardless of differences in individuals. The following, which is a comparative, "adjustable" scale of measurements, and, therefore, of some real value, appears in a recent issue of that progressive little journal, *Men*:—

"The neck, the arms up, and the legs around the calves, should measure about the same.

"The upper arms down should measure from two to two and one-half inches more than the forearms.

"The circumference of a shoulder should be about four inches more than that of the neck.

"The circumference of the shoulders should be about four inches more than that of the muscular chest inflated.

"The difference between the expanded and unexpanded respiratory chest should be about four inches.

"The muscular chest expanded should be eight or ten inches larger than the smallest natural waist.

"The chest width should be about two and one-half inches more than the chest depth.

"The largest hip measurement should be four or five inches larger than the smallest natural waist measurement.

"The thigh should measure six or seven inches more than the calf.

"The neck, arm, and leg measurements are never found to fit save when the subject is good at gymnastics, athletics, acrobatics, ground-tumbling and wrestling, rowing, etc.

"The neck is always a little the largest, then the legs, and, lastly, the arms. The ground-tumbler has these measurements, the neck, legs, and arms being the nearest equal.

"The athlete's legs will tend to be larger, while in the gymnast the arms may be larger than the legs.

"Length of trunk is some equivalent for circumference; circumference and length seldom go together.

"Tall, thin men have a large lung capacity.

"Length of limb is also some equivalent for circumference.

"To get these measurements, thousands of men, nude, have been measured since 1870.

"The all-round man who exercises at all kinds of physical exercises and competes but little in any of them, who does his work daily for health and fun's sake, is sure in time to have the most shapely and enduring body. The person who aims to excel in some one thing rarely has a well-shaped body.

"The working toward the attainment of these measurements, even if they are not reached, will cause the blood to circulate through every part of the body, and thus benefit every muscle over which the brain has control."

DOUBTLESS there are few things more important to a community than the health of its women. The Sandwich Islanders have a proverb: "If strong is the frame of

the mother the son will give laws to the people." And in nations where all men give laws, all men need mothers of strong frame.— *T. W. Higginson.*

Oliver Wendell Holmes and Athletics.—For a poet, Holmes was a singularly healthy man—healthy in both mind and body—and, as a consequence, perhaps, had healthy views upon most subjects. A poet is more or less of a dreamer, and the state of cerebral stimulation that produces unusual flights of imagination is a more or less morbid one; hence a poet is seldom an athlete, and one so full of life and health as an athlete should be, seldom writes poetry. A mere writer of *verses* may be, or do, anything. Holmes, however, wrote with so much sympathy and enthusiasm about sports and exercise, and seemed so familiar with the practical details, that he must have been almost as good an athlete as a poet. The "Autocrat of the Breakfast Table" dwells lovingly for several pages on the delights and benefits of boating, and recurs from time to time to the same subject. He says:—

"I dare not publicly name the rare joys, the infinite delights, that intoxicate me on some sweet June morning, when the river and bay are smooth as a sheet of beryl-green silk, and I run along ripping it with my knife-edged shell of a boat, the rent closing after me like those wounds of angels which Milton tells of, but the seam still shining for many a long rood behind me."

And again: "When I have established a pair of well-pronounced feathering-caluses on my thumbs; when I am in training so that I can do my fifteen miles at a stretch without coming to grief in any way; when I can perform my mile in eight minutes or a little less,—then I feel as if I had old Time's head in chancery, and could give it to him at my leisure."

Neither does he despise less exciting forms of exercise: "I do not deny the

attraction of walking. I have bored this ancient city through and through in my daily travels, until I know it as an old inhabitant of Cheshire knows his cheese."

"Saddle-leather is even preferable to sole-leather. The principal objection to it is of a financial character. But you may be sure that Bacon and Sydenham did not recommend it for nothing. One's *hepar*, or, in vulgar language, liver—a ponderous organ, weighing some three or four pounds—goes up and down like the dasher of a churn in the midst of the other vital arrangements, at every step of a trotting horse. The brains also are shaken up like coppers in a money-box."

Holmes was a physician, and perhaps valued exercise as much for its health-preserving powers as for the physical pleasure to be derived therefrom.

Those who think, with the old woman, that "to talk about one's innards is nasty," might modify their opinions by reading "The Living Temple," and learn perhaps in time to tolerate, if not appreciate, talks about physiology. Here are two verses from this poem which beautifully describe the air and blood circulations:—

"The smooth, soft air with pulse-like waves
Flows murmuring through its hidden caves
Whose streams of brightening purple rush,
Fired with a new and livelier blush;
While all their burden of decay
The ebbing current steals away,
And red with nature's flame they start
From the warm fountains of the heart.

"No rest that throbbing slave may ask,
Forever quivering o'er his task,
While far and wide a crimson jet
Leaps forth to fill the woven net
Which in unnumbered crossing tides
The flood of burning life divides,
Then kindling each decaying part
Creeps back to find the throbbing heart."

— *The Gymnasium.*

ANY one who devotes himself to intellectual pursuits must allow the body to

have motion and practise gymnastics.—
Plato.

Physical Exercise for Students.—

The positive and decided benefit of physical exercise to growing students is strikingly shown by tables recently published by the Department of Physical Training in Wellesley College, giving the relative changes in physical development of three classes of girls in that college from November, 1892, to May, 1893.

The first class consisted of forty-three members of class crews; the second class was made up of twenty students who took five months of Swedish gymnastics in the gymnasium; the third comprised twenty students who had no physical training during this period.

In girth of chest, those who rowed gained 1.04 inches; those who took gymnastics gained 1.1 inches; those who took no training gained nothing. In capacity of lungs, those who rowed gained twenty cubic inches; those who took gymnastics gained fourteen cubic inches; those who took no training lost two cubic inches. In strength of back, those who rowed gained twenty pounds; those who took gymnastics gained twenty pounds; those who took no training lost sixteen pounds. In depth of chest the rowers gained four tenths of an inch, the gymnasts three tenths, and those who took no training lost one tenth. In breadth of shoulders the rowers and those who took gymnastics alike gained seven tenths of an inch, while those who took no training gained nothing.—*Canada Educational Monthly.*

What Physical Culture Does.—

In an address on "Physical Culture" before the Mothers' Congress in Washington, Miss Julia King, of Boston, a member of the faculty of the Emerson School of Oratory, said: "Health of body leads to equanimity of mind. . . . Proper physical culture gives a moral direction to the intellectual activities by interesting the

mind in nature's laws. All the exhibitions of nature everywhere are governed by law, absolute, universal, and intelligible. The most inspiring knowledge of nature's laws, and that which creates the impulse of obedience to them, is to be derived from a proper study of physical culture. . . .

"A proper system of physical culture calls for intellectual, moral, and spiritual development; for it does not recognize the body as a separate entity, but as the expressive agent of being. It fits man to be a worthy citizen; it educates him to be a member of a family."

Air and Athletics.—

What the man of to-day needs most is not athletics in a gymnasium, but plenty of fresh air in his lungs. Instead of a quantity of violent exercise that leaves him weak for several hours afterward, he needs to learn to breathe right, stand right, and sit right. And if the woman who spends so much time and strength getting out *into the air*, would dress loosely, and breathe deeply, and *so get the air into her*, she would have new strength and vigor, and soon be freed from many aches and pains and miseries.—*H. L. Hastings.*

M. QUAD, the humorist, several years ago fitted up a small platform in his residence and took regular exercise by dancing jigs to the accompaniment of a piano played by another member of the household. He said that dancing not only gave him the physical exercise he required, but also furnished much needed mental rest. "Walking would do equally as well," he said, "so far as exercise is concerned, but whenever I walk I am busily thinking about my work and making plans for the morrow. No one can do that while dancing vigorously."

A prominent Chicago lawyer several months ago hit upon a scheme for exercise that is equally unusual. He changed his office from the third floor of a skyscraper to the twelfth. "My friends use the elevator," he explains, "but I always walk, both coming up and going down. It beats any gymnasium in creation. I was led into this by my physician's reporting that my heart was weak, and advising hill-climbing to strengthen that organ. A Chicago office building is better than any hill I could find."—*Frank S. Pixley.*

Swimming-Pool for Women.—The swimming-pool connected with the new gymnasium at the Pratt Institute is the first to be opened to women in Brooklyn.

This swimming-tank is forty-four feet in length, fifteen feet wide, and is lined with white porcelain tiles. It is supplied with water from an artesian well, which fills the tank with fresh water daily. On the left of the main hall are the dressing-rooms, needle baths, measuring and massage rooms. Each girl has her own locker, where she keeps her "Gym" suits, etc.

The course of gymnastic exercises has been arranged with the aim to secure a symmetrical development of the body, to increase the strength of the muscles, the circulation and the respiratory powers, and to gain agility and grace. The exercises are designed to remove much of the embarrassment, nervousness, and faltering characteristics of those who have not a well-developed control of the body.

The work consists of Swedish educational gymnastics, including free standing exercises, running, jumping, vaulting, and the use of the horizontal ladder and of inclined and vertical ropes. Exercises with clubs, wands, dumb-bells, and foils are also given. A certificate is required from each student, signed by her physi-

cian, stating her physical condition at the time of entrance. Gymnasium costumes and shoes without heels are required for all classes. Corsets and close-fitting waists are not allowed in any of the exercises.—*The Sanitarian.*

How an Empress Reduced Her Weight.—Extreme plumpness would be avoided if the rocking-chair were given up. If women were less lazy, they would not grow so stout. No woman can reduce her flesh who lacks courage. The woman who is inclined to be stout can gain a pound quicker in a day than the slender woman can in a year. It is said that when the empress of Austria discovered that her waist was growing larger, and that her beautifully modeled chin was losing its curve, she, the finest horse-woman in the world, gave up riding, and took long walks every day and in all sorts of weather. To grow thin you must exercise. Walk if you can, but better still, work; keep mind and body busy. Above all, renounce everything that comes from the confectioner. Constant work will do more to reduce flesh than anything else.—*Ladies' Home Journal.*

THE bones and muscles of the human body are capable of over twelve hundred different movements; and when a nervous man gives himself his first lessons in learning to ride a bicycle, he goes through every one of those twelve hundred movements, with variations.—*The Wheel.*

THE camera and the bicycle, by calling people out into the open air, and giving them pleasant occupation and mental stimulus, is doing more to prevent disease than all the medicine in the land.—*Dr. C. H. Shepard.*

THE TREATMENT OF SCARLET FEVER.

BY KATE LINDSAY, M. D.

(Concluded.)

THE fever often rises very high in scarlet fever, the thermometer in some cases showing a temperature of 104° or 106° F. or even higher. Under these conditions there is always danger from the rapid tissue waste and the formation of the vast amount of poisons in the body. One of the most effective methods for reducing the high temperature is to avoid covering the patient too warmly in bed. The writer has frequently seen a poor child smothered underneath a load of bed-clothes in a badly ventilated room, with a hot fire raising the temperature up into the eighties and using up all the moisture and oxygen of the air. Placing the patient on a clean cool bed made on a cot, and opening the windows to let in the fresh air, has often brought down his temperature a degree and a half in an hour, and quieted his restlessness.

It is still supposed by many that it is necessary to fairly cook the patient in order to keep the rash out, but the truth is that over-heating the surface has just the opposite effect; the blood becomes stagnant in the paralyzed, over-congested vessels, and the internal organs are over-heated because the blood does not flow to the surface to be cooled. The dry air absorbs the moisture from the air-passages, and the breathing is so hindered that the blood is not properly oxidized. In such cases the surface often becomes dusky, and the respiration labored, and there are all the symptoms of profound blood-poisoning. In severe cases, where the heart's action is very feeble and the pulse weak and thready, the feet are often cold and the body very hot.

A tepid sponge bath to the body, cold to the head, and a hot leg pack, followed

by a quick light dry hand-rub to the body, will often not only reduce the fever several degrees, but bring the patient out of the stupor which occurs from the intensity of the blood poisoning. Care must, however, be taken not to chill the surface in any way, or do anything to increase internal congestion. Such cases do not bear the use of extremely cold water in the reduction of temperature, as there is frequently no reaction and the patient sinks into a fatal collapse.

A hot-sheet pack with a light brisk rubbing over the sheet to increase the flow of blood to the skin is another excellent measure for reducing the temperature in these cases. A stimulation of the surface blood-flow means improvement and change of the blood supply in every part of the body. The blood-vessels of the skin are capable of holding one fourth of the blood of the body. The changing of this large amount of blood from the surface to the internal organs means its replacement by an equal quantity of the internal warm blood. This is one very efficient means of not only cooling the fever but of improving the circulation in every organ of the body, as well as rendering the functional powers capable of performing their work more thoroughly.

Water may also be used by enema to cool the temperature. There is frequently not sufficient fluid taken into the body to supply the blood with water, as the fever so rapidly uses up the moisture of the body. If the patient cannot swallow the amount of fluid he needs, it should be injected into the bowels, — a half-pint of water at a time, at a temperature of 70° or 75° F. This will both cool the fever and furnish the needed water supply for

the tissues. If it is intended simply as a means of furnishing drink to the patient, the enema should be retained; but if for more rapid reduction of the fever, a larger quantity may be used, and allowed to pass off several times before the smaller enema to be retained is taken. If the patient is a very small child, smaller amounts of water should be used, an infant under a year old not being able to retain more than an ounce or two of water.

Some have recommended cold compresses in these cases, but it has been the experience of the writer that where the surface circulation is so very sluggish, it is safer, as well as more effective in reducing the fever, to combine friction with the water applications. A hot and cold spray to the spine every three or four hours, or rubbing the spine with hot and cold alternately, will often rouse the patient and improve the heart's action by quickening the circulation of the spinal cord and relieving the hypostatic congestion of the back part of the lungs and other depending organs.

If the treatment for the lowering of temperature is proving successful, the skin and lips will soon begin to show it, by losing their dusky hue and becoming a more ruddy color; the heart's action will become stronger, and the stupor less profound.

There are other cases of scarlet fever where the temperature is very high, but the symptoms are not so grave. The skin is bright red, the pulse quick, but strong and full; the stupor is not so profound; and the patient, though delirious, is more active and restless. In these cases the patient is much better able to react from the more vigorous water treatments, and the cold, tepid, or cool full bath may be used with good results, also cool sponging and spraying. The blood-flow being more active, there is not the danger from fatal

collapse which is so likely to occur where the heart's action is weak. In either case the surface rubbing increases the cooling and stimulating effects of the treatment.

In severe cases of scarlet fever the fever is often prolonged into the scaling stage, although it is more liable to fluctuate at this time. The skin is very sensitive at this time, because the epidermis, or scarf skin, is scaling off faster than it is reproduced, and the sensitive nerves and blood-vessels are more exposed to outside irritation. Thus extremes of either hot or cold are not well borne, and all treatment must be mild and very gently administered. The writer has seen a patient made delirious and the fever increased by wearing a coarse flannel shirt, or by the crumbs and wrinkles in a neglected bed. A clean night-dress, soft and free from wrinkles, does much to soothe the irritation of the sensitive skin. In this stage of the disease frequent sponging and oiling of the skin is needful to remove the dead skin and also to prevent the scales from filling the air of the room and infecting others. These scales are sometimes carried long distances by the wind, and infect other children.

The nurse should be careful to cleanse frequently all the orifices of the body and all the folds and creases of the skin. Children often suffer greatly from chafing in these cases, and the local parts will become very sore from lack of cleanliness. The axilla and also the folds of the neck need close attention. When the skin is very irritable and thin, it is well to add bran to the sponge bath, or to use thin starch or oatmeal water. This will often do much to lessen the itching and quiet the nervous system.

The water used for sponging may be made somewhat antiseptic by adding to it one part to twenty of boracic acid, or a small amount of carbolic acid (one part in a hundred); but as the latter is some-

times hard to mix with the water, and is less soothing than the boracic acid, the former is preferable. Borax or common carbonate of soda (a tablespoonful to a quart of water) will often prove useful in loosening and softening the dead skin. Vaseline is preferable as an unguent, as it does not become rancid. It may be medicated by adding five parts of the boracic acid to one hundred of the vaseline, or one part of carbolic acid to two hundred parts of the vaseline. Eucalyptus oil or menthol crystals in the same quan-

ties as the carbolic acid sometimes prove very soothing. The sponging and anointing should be repeated several times daily. The sponging should be done very gently, and the ointment should not be used so profusely as to cause the patient to feel sticky and uncomfortable. Just enough of the unguent to make the surface soft and pliable is sufficient. Everything which tends to make the body physically comfortable will serve as a sedative to the nervous system, and promote the patient's recovery.

HYGIENE OF THE NURSERY.

BY J. H. KELLOGG, M. D.

Precautions Relating to the Feeding of Infants.

(Concluded.)

Weaning.—Under this head it is important to call attention to the following points:—

1. The proper time for weaning a healthy infant is at about one year of age. Very weakly children sometimes require longer nursing. The custom practised by some women of prolonging the nursing period to two years or more is injurious to both mother and child.

2. As a rule, children should not be weaned in hot weather, as slight changes in diet are often sufficient to produce serious disturbances at this season of the year.

3. Weaning should be avoided when the child is cutting teeth.

Harmful Practises.—The long-continued use of lime-water or alkalis of any sort in the food of infants is detrimental, resulting ultimately in indigestion. The same is true with reference to the use of pepsin, pancreatin, and other digestive agents. A child fed upon predigested food ultimately loses its power to digest.

Food Formula for Infant Feeding.—Cow's milk mixture, a substitute for mother's milk:—

Milk,.....	1 oz.
Cream.....	2 oz.
Bicarbonate of soda.....	1 gr.
Milk-sugar.....	3 dr.
Water sufficient to make.....	8 oz.

The quantity of cream and milk should be gradually increased as the child's age advances.

Barley-Water.—Boil one tablespoonful of whole barley in an enameled saucepan or a double boiler for five minutes, and throw the water away; then add one and one-half pints of water, slowly simmer down to one pint, and strain. To be used for diluting milk, or as a substitute for it when cow's milk does not agree, and in cases of vomiting.

Barley-Water and Cream.—Five parts of barley-water made as directed in the foregoing recipe, one part of sterilized cream.

Barley-Water and Egg.—Barley-water ten ounces, white of an egg, milk-sugar three teaspoonfuls, cane-sugar one tablespoonful. Mix well; do not boil. The barley-water should be at blood heat when the egg is added.

Rice-Water.—One heaping tablespoonful of rice, washed well. Add a quart of warm water. After soaking for an hour in a warm place, boil until reduced to one pint; strain. Use the same as barley-water.

Toast-Water.—Pour one quart of boil-water over three slices of zwieback—bread toasted well until browned all the way through. Allow it to stand until cool; strain. Useful in cases of vomiting in feeble infants, when other foods are not retained.

Egg-Water.—Dissolve the whites of two eggs in a glass of cold water. Strain through a cloth. To use when other food does not agree.

Oatmeal-Water.—One tablespoonful of fine oatmeal, one pint of boiling water. Boil for one hour, keeping the quantity of water good; strain. To be used for diluting milk instead of plain water.

Flour Ball.—Make one pound of whole wheat or sifted graham flour into a thick dough, tie as tightly as possible in a cloth bag, shaping it into a round mass. Boil for ten hours. When cold, take it out of the bag, and dry for ten hours. Peel off the outside, grate off portions of the hard ball, and use in the proportion of one or two teaspoonfuls to eight ounces of boiled milk. Useful in cases in which milk alone does not agree.

Milk and the White of Egg.—Take the whites of three eggs, three teaspoonfuls of water, three grains of carbonate of soda, one pint of milk. Dissolve the soda in the water, add the whites of the eggs, shake together for three or four minutes, then slowly add the milk while shaking for five or ten minutes longer.

Night-Terrors.—In childhood the sleep is sometimes disturbed by what are called night-terrors. A child that has gone to bed apparently well, and for an hour or two has slept soundly, or perhaps been slightly restless, suddenly starts up with a piercing cry.

He is found, seemingly wide-awake, sitting up in bed or standing in the middle of the room, trembling, screaming, and looking intently at some imaginary object. His skin is moist, and his hands clutch each other or anything within reach; and when spoken to, he does not appear to understand. He calls for his mother or nurse, but does not know them when they come, and often alternately clings to and repulses them. After a time, lasting from a few minutes

to an hour, or even longer, the child recognizes those about him, and gradually falls into a sleep from which he does not awake until morning.

These attacks may vary in frequency; they may occur every night, every few nights, or at longer and somewhat irregular intervals. The conditions which cause them are sometimes easily discovered, but frequently no immediate cause can be found. As a rule, however, night-terrors occur in children who are delicate and excitable.

An attack is often caused by a disturbance of the digestive organs, resulting from weak digestion or improper food. Other frequent causes are a catarrhal condition of the nose or throat, enlarged tonsils, morbid excitement of

the mind during the day, fever, worms, teething, irritation of the skin, and ill-ventilated sleeping-rooms. Fright is one of the least common causes of this disturbance.

Night-terrors of themselves result in little, if any, serious harm; but as an indication of a nervous organization they are most important. They have been likened to the "slacken speed" signal of the engineer, — a signal which must always be heeded.

An essential part of the treatment of this disturbance is a strict attention to the child's surroundings and a careful supervision of his training, to prevent, as far as possible, any undue mental or nervous strain. Equally important is it that his food should be easily digested and nutritious, but not stimulating, and that an effort should be made to improve his general health by bathing, and exercise in the open air. Whenever indigestion, catarrh, enlarged tonsils, or any of the conditions which might cause this disturbance are present, they should receive their appropriate treatment. — *Youth's Companion*.

A Simple Method of Examining the Throat in Children.— It is well known that many children have a dread of the doctor's visit — especially if the visit be made because of throat disease. The fears are increased if a spoon or tongue depressor is thrust down into the throat without ceremony. All of this may be overcome by a method used by the writer for the past twenty years, which can be successfully practised in nearly every patient over three years of age. It consists in simply teaching the child to use the index finger of either hand, thrust back along the tongue as near the base as possible, with the injunction to open the mouth wide and press down the tongue. In this way can be secured, after one or

two attempts, a perfect view of the tonsils, and in many instances, even of the epiglottis and the adjacent folds.

The reason why this is preferred is, first, the fact that a child, or even an adult, does not fear any injury from his own finger; second, his own effort will not provoke emesis or straining, as a trial will convince the reader; third, there is no danger of contamination by a dirty spoon or depressor, and no possibility of auto-infection; and finally, the fingers are always at hand.

This plan, of course, is impracticable in the moribund and in infants, but at least ninety-five per cent. of all instances of acute and chronic disease of the throat can be more successfully examined by it than by any other method. — *Medical Record*.

Care of the Teeth of Children.—

Begin early with the deciduous teeth and aim to keep them constantly under care. Parents should be instructed to send their children to the dentist at least once every six months. Except in rare instances, deciduous teeth should not be extracted until absorption has been completed and nature has practically thrown them off, or, failing to do so, demands assistance; it is well known that in the alveolar ridge, as in a stone arch, the removal of one part allows the rest to fall in, and that when a tooth has been prematurely extracted, there is less room for the eruption of the permanent one; and the incoming tooth not only has to overcome this difficulty, but is also deprived of the nourishment it should receive in the decalcification going on about it. The deciduous teeth are not very sensitive until about the fourth year, when decalcification begins, after which the roots have jagged, sharp points, which may be a source of trouble. Mothers should be advised of these facts, so they may re-

strain their children from crushing hard substances in the mouth. Nuts and cheap candies are very injurious in this respect. — *Dental Digest*.

CHILDREN should be accustomed as soon as possible to sleep in a dark room. Unless they have learned to be afraid of it, the darkness is soothing to the nerves, and the rest is more profound and refreshing than when there is the unconscious stimulation of light. It is particularly desirable for children of a nervous temperament that light should be excluded, yet it is most often the nervous,

sensitive child whose imagination has been filled with fears of the shapes the dark may hide. — *Ladies' Home Journal*.

IF mothers would remember that until the first teeth are cut there are no secretions in the mouth to act upon and begin the digestion of such starchy foods as bread foods and gruels, they would often save the stomachs of very young children a great deal of trouble.

PRINCESS FREDERICK LEOPOLD, of Prussia, is undergoing a regular course of training as a hospital and field nurse.

AN OBSTACLE.

I WAS climbing up a mountain path
With many things to do,
Important business of my own
And other people's, too,
When I ran against a Prejudice
That quite cut off the view.

My work was such as could not wait,
My path quite clearly showed ;
My strength and time were limited,
I carried quite a load ;
And there that hulking Prejudice
Sat all across the road.

So I spoke to him politely,
For he was huge and high,
And begged that he would move a bit,
And let me travel by —
He smiled, but as for moving —
He didn't even try.

I took my hat, I took my stick,
My load I settled fair,
I approached that awful incubus
With an absent-minded air —
And I walked directly through him,
As if he was n't there !

— *Charlotte Perkins Stetson*.

And then I reasoned quietly
With that colossal mule ;
The time was short, no other path,
The mountain winds were cool —
I argued like a Solomon,
He sat there like a fool.

And then I begged him on my knees —
I might be kneeling still
If so I hoped to move that mass
Of obdurate ill will —
As well invite the monument
To vacate Bunker Hill !

So I sat before him helpless,
In an ecstasy of woe —
The mountain mists were rising fast,
The sun was sinking low —
When a sudden inspiration came,
As sudden winds do blow.

HOW GRANDPA BOILED THE EGGS.

"It is half-past eleven," said grandpa, "and the mason will not have the chimney fixed before three o'clock."

"Then I suppose we must get along with a cold lunch," said grandma.

"Well," said grandpa, after a moment, "perhaps I can boil some eggs. I will try it."

"But is n't it too windy to make a fire out of doors?" asked grandma.

"I shall not need a fire," said grandpa.

"That sounds like a joke," said Edith.

"No joke at all," said grandpa. "Come out and see. And bring the eggs," he added, "and a can with a tight cover."

When a few moments after, grandma and Edith went out in the back yard, grandpa was putting some fresh lime into an old pail.

He took the can of eggs they brought, and filled it nearly full of cold water. Then fitting the lid on carefully, he set it in a hollow place he made in the lime. Edith watched him curiously.

"Will the lime burn?" she asked. "Shall I bring the matches?"

"You forget," said grandpa, "I was not to use any fire. We'll start it with cold water."

"Now I know you're joking!" said Edith.

"Wait a moment," said grandpa, "and you'll see."

He poured in the water and put a board over the pail.

"Oh!" cried Edith, when in a very short time it began to bubble and steam as if a hot iron were burning under the pail—and "Oh!" she cried a great deal louder, when a white, creamy mass came pouring over the top and down the sides of the pail.

It did not last long. In six minutes the bubbling had almost stopped, so grandpa took a long iron dipper and gently lifted out the can, all coated with the lime.

He rinsed it off, then opened it and took out the nice white eggs; and when they broke them at lunch, they found them cooked just exactly right.—*Delia Hart Stone.*

A Bread Reform.—Herbert W. Hart, the well-known English advocate of dietetic reform, who has studied the food question in all its aspects, speaks as follows regarding the consumption of white bread:—

"The scourge of all civilized countries is white bread. I will go so far as to predict that unless there is a revolution in the bread-eating custom of this country, the physical and mental condition of the people will grow worse and worse, and the children that are brought into the world will be inferior in type, weight, and physique, by reason of the deficiency of lime and silicic acid in the food, both of which are absolutely essential to the normal

growth of the bones and teeth of the rising generation.

"If people are to be healthy, first of all they must eat bread made from the whole grain of wheat, the same as was eaten by the apostles,—the only kind that was capable of sustaining their bodies and brains. Bread made from the whole wheat was the kind used by the ancient Romans, Greeks, Gauls, and Britons. Without this kind of bread, the greatest men that have lived before or since the Christian era could not have accomplished what they did.

"The proper kind of bread should contain all the properties of the wheat, including the lime, iron, and silicic acid abso-

lutely necessary to make pure, healthy blood, and for want of which the American people employ thousands of dentists to supply imperfect teeth, which would grow to perfection if nature were not handicapped by ignorance of the natural laws of dietetics."

Dietetic Reform.—Dietetic reform lies at the heart of the temperance question. If the food which is spread upon the table is prepared with reference to the demands of every part of the human system,—brain, blood, nerve, and muscle,—it is easy of digestion, and calculated to quiet and subdue every clamoring appetite and passion, a long stride has been made toward fortifying the family against the desire so prevalent for stimulating drinks.

Highly seasoned meats and vegetables have played a larger part in creating a desire for drink than they are credited with. Peppers, spices, condiments, rich gravies, and pastry, all contribute to produce a feverish state of the system, which pure, cold water fails to allay; and there follows the habit of using soda-water, ginger-beer, lager-beer, mild wines, and finally the whole list of alcoholic drinks. The boy who has been furnished with a liberal supply of fruits at all his meals, which are composed largely of the various preparations of grains, will seldom have a craving appetite for drinks of any kind. The demands of the system for fluids have been supplied by the rich juices of the fruit. Genuine dietetic reform does not consist simply in the negative plan of discarding objectionable articles from the table, and an effort to subsist on what remains; but it makes the most of the positive side, that of supplying the place of every objectionable article discarded with that which is known to be good. True health reformers advocate living upon the best that earth affords, and urge the impor-

tance of knowing what is the best, and devoting the necessary time to learning the scientific methods of preparing it in a healthful, attractive, and palatable manner as the best of food elements may be rendered unfit for food by improper cooking.—*White Ribbon Signal (Melbourne)*.

How to Keep Food.—Different kinds of food should be kept separate from each other.

Keep potatoes and all root vegetables in a box or bin in a dry cellar.

Cranberries may be kept for months in crocks or jars, and covered with water.

Sugar, rice, hominy, farina, oatmeal, and the like, are best kept in bags or boxes in a cool, dry closet.

Milk should be as far as possible separated from other food, and kept clean and cool.

A basket kept on a swinging shelf is the proper receptacle for eggs.

Dried fruits are best kept in bags and hung upon a dry wall, but they may also be well preserved, if properly dried, in boxes.

Apples and oranges keep longest by being wrapped separately in tissue paper and spread out so as not to touch each other, in a cool, dry place.

Cold cooked vegetables and the like must be covered if not kept in a wired cupboard.

All food that is not perfectly sound, that is unripe, that is allowed to decay or accumulate the particles floating in the air, is unwholesome.—*Home Maker*.

Chestnut Flour.—The chestnut is an important article of subsistence in the Apennines. The nuts are carefully dried and ground into flour and made into cakes, etc. This flour has been analyzed by Professor Church, with the following results:—

Moisture.....	14.0
Oil of fat.....	2.0
Proteids.....	8.5
Starch.....	29.2
Dextrin and soluble starch.....	22.9
Sugar.....	17.5
Cellulose, etc.....	3.3
Ash.....	2.6
	100

Professor Church has expressed the opinion that chestnut flour ought to be of easy digestibility and a suitable food. It contains over forty per cent. of nutritious matters soluble in pure water.

Grape Juice.—Pure grape juice, free from alcohol, salicylic acid, and other preservatives, is a good blood and flesh maker, with a greater percentage of the nitrogenous element than milk. It cleans the whole system, simplifies the tastes and appetites, gives tone to the stomach, thereby rendering it more natural and healthful in its chemical juices, and aids digestion.

For invalids who have no appetite and a repulsion to food, grape juice is always acceptable, and may for a long time take the place of food. It gives the stomach and all the digestive processes a chance to rest, at the same time furnishing all the nutrition and strength that may be required, and nature will then have a better opportunity to make the invalid well again.

As a nutritive, a blood and tissue builder, a diuretic, an alterative, a substitute for wines and liquors, and a curative of the whisky habit, grape juice holds a high place in nature's dietary. It is good for the young and the old, and for nearly all conditions in disease or health. It is both food and medicine.—*Health Culture.*

DEY ain't no use goin' ter mejiums an mind readers ter hev yer dreams interperated. Nit! wisit de cook.—*What to Eat.*

AN Englishman has estimated that while half an acre will support a man living on grain, twenty-two acres will be required for his maintenance on flesh meat.

HAPPY is that man who eats only for hunger, and drinks only for thirst; who provides for use and necessity, not for ostentation and pomp.—*Seneca.*

"GOOD food," declares Mrs. Hetty Green, "is the basis of good conduct, and, consequently, of happiness; more divorces are caused by hash than by infidelity."

VEGETARIANISM means something more than merely abstaining from fish, flesh, and fowl; it means putting ourselves at one with nature. When we are at one with nature, we are at one with God.—*Abel Andrew.*

A NEW COOKING-SCHOOL RECIPE.

Water Graham Puffs.—Into one cup of very cold water, in which are lumps of ice, if it can be obtained,—beat one egg, a pinch of salt, and two cups of sifted graham flour. Continue beating until the batter is full of air bubbles, then drop into warm, not hot, gem irons, and bake in a rather hot oven about forty-five

minutes, or until dry inside. These puffs make a very delicate breakfast food.

By varying the flour, whole-wheat and corn puffs may be made in the same way. For the corn puffs, however, about one half white flour will be found necessary, and a small amount of it may be used in the graham puffs.

HOW CAN CHILDREN BE TAUGHT TO PERSEVERE?

BY MRS. E. E. KELLOGG.

THE ability to persevere to the completion of one's undertakings, to stick to tasks until they are finished, is another of the desirable traits we should aim to cultivate in the characters of our children. The versatility of childhood often makes it difficult for the small child to concentrate his attention for a long time upon one object and "keep at it" until he has completed his task. These early years are, however, the formative period, the time for giving a bent to the child's character; and they must not be allowed by parents to slip by unheeded under the delusion that the child will outgrow his failing, with added years. The parents' golden opportunity for inculcating and developing all good traits is the early years of their child's existence, when his powers are in a plastic state, and easily molded in right directions. With later years comes an increasing power of resistance which makes the engrafting of good habits a far more difficult matter both for himself and his parents.

Some children are by nature endowed with more perseverance than others, but even those most lacking in this desirable quality may be aided toward its acquirement by judicious and careful training.

The chief requisite is to create and keep up an interest in the work in hand. This it will devolve upon parents to do. He would be a rare child who would willingly persevere in study or work in which he was not interested. It should not be inferred from this, however, that parents are consequently to select only pleasant, agreeable tasks for their children, but that by thought and tact they should make the most prosaic and homely ones which it is necessary for children to do, interesting to the little workers. This

will, it is true, take time and effort on the part of parents, but there is no good thing which we wish our children to possess which can be obtained for them without effort, and often much self-sacrifice, on our part.

Some parents have found a study of the processes by which natural and acquired results are reached, an inspiration to their children in the formation of a habit of perseverance. The child thus learns that it is step by step, a little today and a little to-morrow, by which the end is attained. He comes to see in a desired attainment not merely the isolated facts of a well-rendered selection or a completed model, but the succession of lessons and persevering labor which has led to these ends, and he is encouraged to persevere along similar paths. The success resulting from persevering effort serves as a stimulus to the child to future perseverance.

Parents should be sure that the lessons and tasks they give the child are apportioned to his strength, physical, mental, and moral. Let them make success possible, and then lead the child on to its attainment.

A smile of approval, a word of praise, judiciously given, will act as a powerful incentive toward perseverance with most children.

Parents often unwittingly train their children *not* to be persevering. One of the familiar ways in which this is done is well illustrated by a writer in the *Ladies' Home Companion*, who says:—

"Watch the little babe industriously engaged in transferring the pretty blocks from one box to another. If left to his own devices, he will not desist until he has completed his task. But the father

enters, and going up to the child picks him up and tosses him into the air, then plays with him a few minutes, after which he deposits him again upon the floor or in his cot, and expects him to continue his play as before, and more than likely becomes impatient if he does not. But the charm is broken; the little mind cannot again concentrate itself upon its task. He should not have been disturbed while so happily employed.

"Baby Grace is contentedly playing with her bright-colored kindergarten balls. Every faculty of her little being seems intent upon them. She moves them first in this way, then in that, forming one combination, then another. She has neither eyes nor ears for aught else. She is learning lessons which will be of infinite value to her in after life. But mama does not realize this, and her darling looks so fascinatingly beautiful that she cannot resist the temptation of stopping her work and 'stealing a kiss' from those rosebud lips. O, but now that Gracie's attention is arrested from her balls she is tired of them, and insists that mama shall take her up. Mama, who has much work to do, wonders why

she is so easily diverted from her play.

"New years are born, grow old, and pass into eternal mysteries. The babe becomes a boy; baby Grace grows to be a five-year-old girl. During each day of this time similar experiences are enacted, and yet the parents wonder why it is that their little ones are so lacking in stick-to-it-iveness."

Parents need most carefully to watch and train themselves, that, while desiring to bring their children up in all good ways, they do not by the blind following of impulse place such stumbling-blocks in the path of the little feet as to turn them entirely from the right course. It is the child's good, not the parents' pleasure, love of ease, or personal convenience that must actuate all true parents in all their dealings with their children.

As children grow in thought and years, stories emphasizing the value of perseverance, points and incidents from the lives of men and women noted for their steadfastness and persistence, will serve a most helpful purpose in cultivating perseverance. Give the children high ideals to work toward; make attractive the virtues you wish them to emulate.

OPEN THE DOOR.

OPEN the door, let in the air;
The winds are sweet, and the flowers are fair;
Joy is abroad in the world to-day,
If our door is open wide, he may come this way.
Open the door.

Open the door of the soul; let in
Strong, pure thoughts, which shall banish sin:
They will grow and bloom with a grace divine,
And their fruit shall be sweeter than that of the
vine.

Open the door.

Open the door of the heart; let in
Sympathy sweet for stranger and kin;
It will make the halls of the heart so fair
That angels may enter unaware.

Open the door.

— *Anonymous.*

THE SALVATION OF MR. CRANDON.

BY MRS. S. M. I. HENRY.

IV.

It would have been an interesting sight to the sick and suffering who had trusted their lives in the hands of these physicians, could they have witnessed what transpired during the moments which followed in that consulting-room. To have seen Dr. Green—stern, ungentle, uncompromising—and fun-loving Dr. Grant, filled with that sort of uncharity which the young man of progressive ideas invariably feels for a conservative of the old school, bowing together in reverent worship; the face of the one softened, and of the other ennobled; as they pleaded for counsel with the Great Physician—would have been to an unbeliever at least a wholesome stimulant to confidence in both the God before whom two such men would bow like this, and the men who were ready to seek the help which comes from such a God.

Each man voiced the prayer which seemed common to them both. Dr. Green's was the prayer of a busy man, who was not used to waste words—direct, explicit, fervent, with the urgency of a heart which realized a great responsibility, and the value of time; while Dr. Grant's breathed the intense desire to lay hold of the power to make the blind see and the deaf hear. To any listener it would have been evident that Dr. Green was praying for himself and his patient, while Dr. Grant prayed for the doctor who had that important case in his hands.

When they arose and sat down, it was a moment before they suffered their eyes to meet. The conscious soul would veil itself to human glance. The breast of Dr. Green was heaving with deeply suppressed feeling; but he was not a man to long sit silent and *feel*; so, even before

he could quite command his voice, he said:—

“Now, Dr. Grant, there must be some outcome;—I feel it.”

“You are right, Dr. Green, there must be. What is it to be? Do you know?”

“I think I do. I am moved to a strange thing for a doctor to do. I am not unaware that you and Mrs. Grant have had a training which I appreciate, although I know practically nothing about it. I have not been wholly unobservant to your methods, nor indifferent to the principles which they involve. I am a physician of the old school,—too old to adopt new things. I am not a nurse. You, I suspect, are quite as much nurse as physician. I mean no disparagement, doctor.”

“Don't mention it; you are right. We believe that the practical nurse is more necessary than the physician. I was a bad doctor before I became a nurse. I agree with you as to my own qualifications.”

“Thank' you. I fully believe that Brother Crandon needs you more than he does me. I am going to put him into your hands, under God. Save him if you can. It will be hard work. I do not believe that medicine will do it. If you can do it, you will have my lasting gratitude.”

“Dr. Green!”

“Wait a moment; just a word more. I had arrived at a conclusion something like this before you came in. I knew that he must have a competent nurse. Mrs. Crandon would never take him through. She must be entirely superseded, or he will die. I was not quite

ready, though, to ask you to nurse him for me. I was wondering whom I could find. You kept coming up before me, and were very much in my way; I felt that he ought to have you. First of all, your love for him was an insurmountable qualification in your favor. I could not disguise from myself the fact that he must have the most sympathetic care, and that you were the one to give it. Somehow I knew that you wished to give him this care—I wanted him to have it, but my pride was in the way. I am a proud man, Dr. Grant. I had to lay that all on the altar, as the phrase goes. I have done it; and now take him. Do as you would if he were your own patient. Let me drop in as usual, regularly, not to watch the case, but to see my—Brother Crandon—get well—for I feel our prayer has not been in vain. I will inform Mrs. Crandon of the situation, and of the gravity of the case."

"Dr. Green, I am humbled! You are the greatest man I ever knew!"

"O, nonsense!"

"I mean it. You do not know what you have done for me by this revelation of Christ in you. You have reproved and instructed me in the spirit of the gospel. I should be ashamed to have you see what was in my heart when I came to you. I came in here eager to ask, now I am reluctant to take, this charge which you have laid upon me."

"Well, never mind what has been. We have both learned something. Our mutual love for a good man has been a great eye-opener toward the things of God. But, Brother Grant—what about your own patients? I would—if I could—but you would not trust my methods as I do yours, I fear."

"Frankly, Dr. Green, no. I do not use drugs, you understand. They would upset everything for me. You have already done more than if you should

take all the rest of my work off my hands. Mrs. Grant will know just how to help me out. You must come and watch us. I do not say that I feel as confident of my—or of any—methods as I did an hour ago; but I have more confidence in God; and since I know that he brought this about, I must hope for the result. You will pray for me, doctor."

"I will,—in this very place. More praying will be done here after this, I am sure."

The two rivals clasped hands and held them, looking each other in the eye, reluctant to end the interview which had been so full of new and blessed experience,—a little foretaste of that which shall be in the days to come, when rivalry and competition shall be unknown. They had both tasted of the cup of Christ that morning; and both knew that life and its work could never be the same selfish struggle to them again.

Dr. Grant hastened home. His wife met him with a question in her face; but he said:—

"Get ready at once, Kate, to come to Brother Crandon's. I will explain on the way; I have to hurry, as I must go to the office, and make a few calls; must get you started first."

"Why, what, John—I—"

"Don't stop now, dear, that is a good girl; hurry, it's all right. We must take some things. I will run on if you are not ready when I am. We will need—"

"Now, John, you will save time if you will explain and tell me what you are going to do, and what you want of me."

"May be you are right. I am so full of it I did n't realize that you could not quite read my thoughts. It is just this way: I went out of here determined to offer my lecture tour, with all there was in it, to Dr. Green, if he would let me have the care of Brother Crandon, so that I might save his life. I was sure he

would be glad of the chance, too, for he likes to lecture, but has not a bit of push about getting engagements; so you see —”

“But John; he would not do such a thing — did he?”

“Your mixed grammar suits the case perfectly. He would n't, did he? — Yes: he did; but I could not. A better spirit than, I am afraid, I carried with me had been keeping company with Dr. Green. I did not find any chance to give him that dishonorable proposition to decline. Thank God for that. I am sorry, Kate, that you have to know how mean I could be, and am very thankful that Dr. Green does not dream of it. But we prayed; and he asked me to take Brother Crandon and nurse him in my own way,

just as though he were my own patient. I am not worthy, but you are, and that is what we are to begin to do at once. I will tell you the rest later.

“Where is that new spine bag, and some fomentation cloths? I'll take those and run. You must attend to the food, Kate. You'll know what to bring. I will get the treatment started, and write out orders for you; then I must leave you in charge, while I go to the office and back.

“Kate, this is God's business. I have seen a wonderful thing; I will tell you all by and by; but you'll stand by me, won't you, if it does seem strange, till I can explain?”

“Indeed, yes; that is what I am for, when you are in the right; and I am sure that this is right.”

(To be continued.)

COURTESY TO A CHILD.

EVERY child whose parents pretend to train him in the way he should go is taught to say “please” and “thank you,” and not to interrupt. But by what methods are they taught? The natural method is by example. It is several centuries since the race formulated its wisdom on the relative value of example and precept into proverbs, and it will probably be many centuries more before it lives up to its own wisdom.

It seems easy enough to insist that the young baby, not yet attempting speech, but already beginning to understand it, shall hear none but courteous remarks, and so from the beginning know only courteous forms of speech. But in reality such a rule is much harder to live up to than it is to lay down. The only things to be said in its favor are that it is the right rule, and that, difficult as it is, it is easier than the usual method.

What is the usual method? We all know it. “What do you say to the kind

lady who gave you the banana, Johnny? Why, I'm ashamed of you!” “Is that the way to ask for anything? You can't have it until you speak properly.” Then, in a mortified aside to the onlooking friend: “I'm sure I don't know what gets into that child, sometimes. I've been trying to teach him to say ‘please’ and ‘thank you’ for six years, and he forgets half of the time even now. Any one would think that he was a little heathen!”

The poor little heathen hangs his head and is properly ashamed of himself, and doesn't know any more than his mother does where the trouble lies.

But let us go home with him, invisible and silent, and see if we cannot discover the cause for his rudeness. On the street-car, a lady enters who has to stand. Johnny receives a fierce maternal yank, and is pulled out of his seat to the floor.

“Give the lady your seat at once. Can't you see she needs it?”

Presently the home corner is reached.

"Come on. Hurry up. Here's where we get off. Where are your eyes? Let me go first. Always ladies first; don't you know that yet? Gracious, I never saw such a boy!" (This last for the benefit of the passengers, to show that she is not responsible for his bad manners.)

Home at last.

"Ring the bell. No, not that way—harder! O dear me, you don't need to pull the house down. Haven't you any sense? I didn't ring the bell like that, Mary. It was this bad boy here. Hang up your coat and hat, sir. Don't leave your things about like that. How many times must I tell you? Take my bag upstairs—and here, come back! You can take my gloves, too. Put them in the top bureau drawer, and mind you don't muss up the things"—and so forth, and so forth.

From morning till night scarcely a "please" or a "thank you" does the little fellow hear. He is ordered to do this and that in the baldest and briefest language, and in a tone which would make the roughest servant girl give notice on the spot. Of course, there are families where the tone of command is modified by refinement, and there are even a few parents who make it a point to say "please" and "thank you," but even with these the spirit of request is usually absent, even when the form is present. The child has no option but to do as he is asked, and the threat which underlies the formal "if you please" is only too obvious. "If you please, you may do it; and if you don't please, you must anyhow" is what the tone of voice says. Is this the spirit of true courtesy? Is it the spirit which the parent wishes and expects the child to exhibit?

As for interruptions, does there exist a family where it is considered wrong to

interrupt a child? Does there exist a family that does not think it wrong for a child to interrupt its elders? Here and there may be an idolized only child who knows what it is to tell a story to one or two sympathetic listeners without interruption, but most children in fair-sized families grow accustomed to telling their stories to a half-interested audience who bid them "cut it short" and "hurry up," or possibly to keep still altogether. No one hesitates to leave the room at the most interesting point, or to interrupt in any manner that may seem convenient. And then the fathers of such children wonder why they cannot sit still and wait for something to eat while a column of the evening newspaper is read aloud at the supper table.

It may be entirely plain to the adult mind that there should be two laws of conduct, one for grown-up people and one for children, and that a well-regulated child should refuse to imitate his elders except in a few particulars where imitation may be thoroughly agreeable to the imitated party; but it is far from plain to the child. He tends with all the force of his nature to do unto others as they do unto him; and while it may be the part of the regenerated to do as he would like to have others do, still this is a good deal to expect of a young child, with probably no inherited aptitude in that direction. Moreover, if there be two laws of conduct for the child and the adult, it seems scarcely fair to require more of the child than of the adult. If there is to be any difference as to what constitutes right for the child and the man, surely the mature person ought to have the harder rule to follow. If, therefore, it is so hard for the grown-up individual to keep from interrupting the little one, he ought not to expect that weaker one to keep from interrupting him. If what the child says is of no importance to the grown man or

woman, it must be remembered that what they say is equally of no importance to the child. If they cannot possess their souls in patience until he says his little say, by what right do they expect him to be patient while they speak? Any child, unless unusually timid and brow-beaten, will continue to interrupt just as long as he is interrupted, without intending the least harm.

"What are you going to do about it?" I hear some one ask. "Supposing that the mother is convinced that it is right and fair to treat a child as she wishes him to treat her. She is not the only member of the household. There is the father and other relatives, including, perhaps, one or more old-fashioned grandparents, who cannot see any sense in such new-fangled notions. What are you going to do with them?"

Well, I should labor with them. Not that I should have the least hope of converting them, but that I should want to make my own position clear. And then I should rigidly refrain from interrupting my child myself, no matter what any one else might do, and I should treat him with careful courtesy as often as I could remember to do it, and apologize to him when I forgot. A child is the most loving little forgiver under the sun, and will never lay up against you, nor incline to imitate, a lapse for which you have expressed due contrition. And when I asked my child to do anything for me, I should really ask it, and leave him free to refuse me if he wanted to. If he did refuse, I don't think I would coax him much. I would go and do it myself, not with an injured air, but simply letting him feel his full freedom. It is only by being free to accede to a request or to

refuse it that a child enters into the joy of willing service.

I am going to be personal a bit. I have had so many letters either asking outright if I had any children or implying that I had n't, that I wish to announce that I have four children on whom all these theories have been tried with what seem to me uncommonly satisfactory results. Moreover, I know a number of other children belonging to my friends who have survived similar treatment. In this matter of courtesy, my eyes were opened by Helen Hunt Jackson's "Bits of Talk about Home Matters." Therein she describes a day with a courteous mother in a manner that convinced me that, with the best intentions in the world, I was not consistently courteous. I think most mothers would be brought under a conviction of sin upon reading it. Since then I have tried to mend my ways, and in trying have discovered how wide-spread and deep-rooted is the error.

The right way to teach courtesy is to treat a child courteously from the cradle up. If this has not been done, and the child is already rough and unmannerly, I think the only way is to take him into your confidence. Acknowledge your mistake with him, and ask him to help you overcome its evil effects. If there are those in the family who cannot be brought to do as you do, tell him frankly of the disagreement, and ask him to help you prove that you are right in treating him as if he were a young gentleman. A boy's sense of loyalty is strong,—so is a girl's,—and if you can once make a child see that you are on his side and trying to obtain for him fair and rational consideration, you are sure of the best possible results.—*Marion Foster Washburne.*

Who waits until the wind shall silent keep,
 Will never find the ready hour to sow.
 Who watcheth clouds will have no time to reap.
 —*Helen Hunt Jackson,*

Child-Study.—It is an evidence of the advance of knowledge that the wise parent to-day studies the child and measures his physical development by the physical standards that science has established. He keeps himself familiar with the best knowledge. Foods are no longer considered merely the natural provision to meet the demands of hunger, but as the remedies, the protection, the substitutes provided to meet the physical needs of each body. This is one of the results of child-study.

Precociousness and stupidity are regarded as symptoms, and no longer as the cause of pride or shame. The physical causes are studied. If the child is stupid, his sight, his hearing, may be at fault. If he does not spell, an effort is made to discover whether he is tone deaf. If he grows tired quickly, common sense seeks to discover whether his chair and his desk are suited to his height. If he is irritable, it becomes a question of food. If he does not develop physically, it becomes a question of exercise and nutrition. The temple of the Holy Ghost is considered worthy of the best care and intelligence that time and education have developed.—*The Outlook.*

DR. M. L. HOLBROOK gives the following excellent advice as to the education of children: "So far as possible, a love of nature should be early and continuously inculcated. Nature is, in a physical sense, the father and mother of us all, and a child that grows up to maturity with a genuine love of rocks and trees, flowers and insects, animals and plants, storms and sunshine, cold and heat, fresh air or the ocean wave; of every varying landscape and mood of nature and all the activities around us, stands not only a better chance of possessing a healthy nervous system, but of maintaining it during

life, than if the opposite has been the case. I am not at all in sympathy with any system of education which takes children far away from nature. Nature is a book, a great library of books, whose authorship is the infinite. Our little works, our libraries, vast and valuable as they are, cannot be compared with it. They are poor transcripts at best of the thoughts of half-developed human beings."

ALMOST three centuries ago, Margaret of Navarre wrote something very quaint, which until recent years was hidden among unpublished manuscript, and then found in a chest in the French National Library. It may prove to women of to-day what the queen then termed it, "A Recipe for a Happy Living."

"Three ounces are necessary, first of patience;
Then of repose and peace; of conscience
A pound entire is needful;
Of pastimes of all sorts, too,
Should be gathered as much as the hand can
hold;
Of pleasant memory and of hope, three good
drams
There must be at least. But they should moist-
ened be
With a liquor made from true pleasures which
rejoice the heart.
Then of love's magic drops a few —
But use them sparingly, for they may bring a
flame
Which naught but tears can drown.
Grind the whole and mix therewith of merriment
an ounce
To even. Yet all this may not bring happiness
Except in your orisons you lift your voice
To Him who holds the gift of health."

"As is the home," says Justice Brewer, "so is the life; out of the clean home comes the clean life, and out of the unclean home the unclean life. If we can reach the homes of the poor, cleanse them or substitute for them clean and better homes, we shall be doing a great thing to bring clean lives to the city."—*The Sanitarian.*

CLEANLINESS IN LITTLE THINGS.

SOME "noted" housekeepers have ways of managing that, in view of their neatness in other particulars, are indeed surprising. It seems to be the idea with many that if household articles are shiny, glossy, snowy, or orderly, as the case may be, the end sought has been reached; so what has absorbed one kind of dirt may be used for cleaning other things. I have known housekeepers to use soiled table-cloths—which had been put aside as not fit for further table use—to dry dishes, when the supply of dish-towels ran low. There are persons who wash stoves, and even convenient pieces of furniture, with the dish-cloth; and not at all unfrequently the cloth that has washed the kettles is hung away to be employed next time in cleansing the china and the glassware.

It will be readily seen, if thought of, that there ought to be provided separate cloths for milk-cans, dishes, the stove things, the washing of the kitchen table, and that each should be carefully washed after using. If health in the household is to be retained, the kitchen range utensils must be washed in water as clean as that used for the table service. One woman waged many a warfare with servant girls until she could be sure that the cooking-vessels were washed with clean water that had not been used for other dishes; and that they were afterwards rinsed, and dried by allowing them to remain for a while after rinsing on the back part of the warm stove.

Many, again, do not think of the fact that if shelf papers have become too much soiled for such service, they are not fit for other uses, and should be burned; or that soiled linen should be kept, for the weekly wash, in the most out-of-the-way place possible; and never, though these things have been done by those who outwardly appeared to be

good housekeepers, in bedroom, summer-kitchen, or pantry. One thrifty woman, in whose house a speck of dirt could not be seen, showed to a visitor, with housewifely pride, an embroidered bag for dirty clothing, which she had just put up at the end of a chest in her pantry. The top of the chest was covered with eatables.

Another woman of my acquaintance, in a time of a scarcity of water, related, as boasting of her economy, how she utilized the children's bath water in the mopping of the kitchen floor and porch. It would present itself to some minds as better to let floors go unscrubbed than to use water of doubtful cleanliness. Yet nothing would have so shocked this housekeeper as a supposition that she was not particularly neat.

In some families, meat infested with skippers is made into soap, wormy apples are made into cider for apple butter, and unwashed parings and cores are thrown into the jar for vinegar.

Beds should not be made early in the morning; and sheets and blankets, to be cleanly, must be shaken out-of-doors before airing. Fresh air should, of course, be admitted to bedroom and living-room through the day, and to the former as much as possible at night. One has but to consider to recognize that foul air is dirty as well as unhealthful. Yet one suffers sometimes in respectable houses, where the windows of the sleeping-rooms are shut tight, and have been kept so, while the rooms were in use day after day and night after night.

It is plain that the term "cleanliness" carries with it a different meaning to different individuals; in most instances, because family customs have been simply followed. A greater truth than that "what is one man's meat is another's

poison," is that the habits which seem cleanly enough to ourselves may be looked upon as the opposite by our neighbors.

It is often the things that are accounted most trivial which are of most importance in the hygienic welfare of the household.—*The Housekeeper.*

The Uses of Responsibility.—Every mother should remember that the making of her daughter is of far greater importance than the exact administration of things in her house. A beginning may be made with a small and comparatively unimportant responsibility; and it is to be remembered that responsibility, and not mere work, is the great thing. The very little girl may have the care of one plant, a hardy one to begin with, but system and neatness may be practised in its care to great advantage. If the plant should be a blooming one, a small vase for the breakfast table would give an additional bit of care and pleasure to both child and parents. Regularity, thoroughness, quietness in labor, may be practised under a wise mother's influence till they become a part of her daughter's character.—*Mrs. Lyman Abbott.*

there are classes and a library for the children; and the whole neighborhood has been elevated and improved.—*Woman's Journal.*

THE cramming of the contents of textbooks into the immature brains of children is of less value than the training of the soul and heart, the enlargement of the virtues and manners and moral intelligence, and the fostering of the instincts of justice and taste in all children. The higher culture is often accused of requiring the rarefaction of the brain to the detriment of the personality. On the contrary, while the mind may be refined without that refinement's ever completely altering the coarse brute nature of the man, the refinement of the heart and soul and the careful nurture of all the virtuous qualities and manners of the individual naturally produce mental associations with thought and life of the same high quality.—*The Home Journal.*

MRS. BOOKER T. WASHINGTON, the wife of the principal of the institution for colored youth at Tuskegee, Ala., is no less earnest in her work among the women of her race than is her husband among the negro farmers, whom he has taught and helped for years past. Inspired by the resolutions made at the first conference of these men in 1892, she determined to devote herself to giving their wives a new and broader idea of life. She began her labors in a shabby upper room, where she and six other women discussed ways and means. To-day there is a weekly conference of over four hundred women, some of them walking sixteen miles to be present. There are talks on useful subjects;

Go thy way, but let that way
Be ever worth the going;
Know thy way, and never stray
In ways not worth the knowing;
Leave the way that goes astray,
And seek a better path,
Straight and narrow all the way,
To realms unknown to sin and wrath;
Thus, "Go thy way." — *Sel.*

A BIRD sang a beautiful song, which was echoed again and again. "I would have had to listen to shrieks," said the bird, "had I first uttered them."

EDITORIAL.

FRUIT DIET IN SUMMER.

THERE is a public prejudice against the use of fruit as a summer diet, especially for children. There is some foundation for this prejudice, for fruits are without doubt responsible for a certain proportion of the stomach and bowel disturbances occurring in both children and adults during the summer season. The fruit, however, is not directly to blame for these disorders. Fruits are the most natural of all foods, and are most wholesome as a leading constituent of the dietary at all seasons. But they are also, of all natural foods, the most perishable, and consequently soon become stale, which means that they speedily become food for germs, and ready to set up fermentation in the stomach and intestines. This is especially true of such extremely perishable fruits as strawberries, peaches, whortleberries, and similar fruits.

A bacteriological examination of fruits gathered from the market, recently made in the Laboratory of Hygiene of the Battle Creek Sanitarium, showed that these fruits, especially soft fruits, were, when a few days old, swarming with bacteria of various sorts, which, when introduced into the stomach, are capable of setting up fermentative and putrefactive processes. When such fruit is eaten, indigestion is the natural result. In the investigation referred to, one particular microbe was discovered which produced carbonic acid gas in prodigious quantities. This explains why it is that so many persons cannot eat fruit without suffering from distention of the stomach from excessive gas production.

Another source of mischief from the eating of fruit, with which they are not justly chargeable, arises from using them in an immature state. A large portion of the fruit brought to the market in the early summer is picked in a green state, and is utterly unfit for food. The natural process of ripening, as it takes place in the fruit

when allowed to ripen on the tree or vine, is essential to its proper preparation as food. The ripening process is very similar to the digestive process, the starch, which is contained in abundance in the green fruit, being converted into sugar, dextrin, and various wholesome and valuable flavors and acids. When the fruit is picked while still green, this change does not take place, or at least very imperfectly, so that the hard, firm, indigestible tissues of the green fruit are only partially softened, and enter the stomach in chunks, which dissolve very slowly in the digestive juices, and readily undergo fermentation, causing gaseous distention of the stomach, irritation, and often acute inflammation of both the stomach and intestines, and giving rise to looseness of the bowels and other disorders.

Another frequent reason why fruit apparently disagrees with the stomach is its improper combination with other food substances. There are incompatibilities with foods as well as with medicines. Physicians well know that certain medicines taken into the stomach together will result in the formation of poisons which may cause fatal results; and the same principle applies to foods, especially in those suffering from weak or disordered digestion. Persons who have a sound stomach, capable of producing a sufficient quantity of gastric juice to disinfect everything that is received, may ignore the principle of the combination of food substances to an extent which in persons suffering from hypopepsia or gastric catarrh would be sufficient to cause indigestion and serious gastric disturbances, although the fruits eaten may have been entirely wholesome in themselves, and if eaten alone or with other combinations, might agree perfectly.

The principle which covers the proper combination of food is, that such foods should be eaten together as are digested together; that is, such as are digested in

the same portion of the alimentary canal and in about the same length of time. Stomach digestion of ripe fruits is completed in from one to two hours, whereas the stomach digestion of vegetables requires from three to five hours. When it is remembered that fruits not only digest quickly, but ferment quickly, it is apparent that a combination of fruits and vegetables must be conducive to indigestion in persons whose digestive powers have become weakened; since at least a portion of the fruit must be retained in the stomach until the vegetable substances taken with it have been digested and discharged from the stomach.

Fruits and nuts often form an unhappy combination for the same reason. Acid fruits, when taken with milk, probably give rise to the formation of unusually large and hard curds from the casein of the milk, which being long retained in the stomach, undergo fermentation, and later even putrefaction.

A very similar principle applies to the combination of fruits and meats. Meats re-

quire of the stomach more labor than any other class of foods, for they must be dissolved then by the action of the gastric juice before the digested mass can be passed along into the small intestines. Thus fruits taken with meats are very likely to give rise to fermentative processes, resulting in acidity, heartburn, and "biliousness," through the putrefaction of the elements of the meat.

The lower portion of the alimentary canal is constantly inhabited by microbes which are capable, when stimulated by the presence of fermentative or putrefactive processes, of producing inflammations of various and grave character. The bacillus known as the comma bacillus is one of the leading factors in typhoid fever and cholera morbus; hence an irritation of the alimentary canal created by the use of immature, stale, or fermenting fruits, or fruit in improper combinations, may be sufficient to precipitate a grave or even fatal condition, which is not, however, due to the use of fruit, but to inattention to the hygienic details mentioned.

PASTOR KNEIPP, THE WATER-CURE PRIEST.

A RECENT telegraphic despatch announces the death of Pastor Kneipp, of Woerishofen, Bavaria, who has for the last seven or eight years been widely known as the conductor of a water-cure establishment in the little country village where he had long officiated as parish priest.

Sebastian Kneipp was not an educated physician, but only a priest. He seems to have originated nothing in water-cure methods, but has succeeded in attracting a great deal of attention to the value of water as a remedial agent. He has been, in fact, a sort of second Priessnitz. Having become acquainted with the methods of Priessnitz in his boyhood, he tried them upon himself with benefit, and has for many years given the larger part of his attention to promoting those simple hydropathic methods in the treatment of various acute and chronic ailments. His theories as announced in his book are simple, though hardly in accord with well-established physiological principles; but

however erroneous his theories may have been, his practise has been, in the main, successful. Now and then, however, his lack of medical knowledge has led him into trouble, as on the occasion of his visit to the present pope, who, finding himself suffering from an attack of rheumatism, sent for the famous water-cure priest, who ordered a cold shower bath. The pope, unaccustomed to the use of cold water, was thrown into paroxysms of the most intense agony, whereupon poor Pastor Kneipp, who had been received with marks of great distinction and honor, was dismissed in disgrace and confusion.

The time has certainly come when the laity as well as the medical profession ought to know that water is a powerful agent for mischief, as well as for good, and that it should be used with discretion. It cannot be employed in an indiscriminate or reckless manner without running the risk of great harm.

THE NEW FAD.

THE New York papers have been commenting on a new fad in that city; namely, milk baths. A French lady has recently opened an establishment, the purpose of which is to afford New Yorkers facilities for tepid milk baths at five dollars apiece. So far as can be learned, no special advantages are offered by these baths, except the opportunity for the feminine aristocrats of New York to imitate the luxurious extravagance of Mrs. Nero, who indulged in a daily bath of asses' milk, which she imagined was a useful means of beautifying the complexion.

Common sense teaches a better way of beautifying the complexion than the application of cosmetics to the surface. True beauty comes from within instead of from without. A healthy skin is the outward sign and the natural result of inward health. A muddy or a dingy skin is evidence of the presence of organic dirt,—a dirt which is more than skin deep; it means the accumulation of tissue wastes and débris, particles of worn-out material lying about in the cells of the body, clogging the tissues, interfering with all its functions, clouding the brain, paralyzing the nerve centers, and enervating the bodily energies.

This condition of bodily defilement is not to be cured by means of milk baths or external applications of any other sort. Cosmetics may conceal the evidence of external griminess, but the griminess itself must be gotten rid of by a simple and pure diet, whereby the blood may be purified; by ex-

ercise, whereby the waste products are burned up by the purifying oxygen introduced through the quickened circulation and inspiration, and the sources of contamination thus cut off; by copious water-drinking and occasional hot baths, whereby the inactivity of the skin is increased; and by the daily cold morning bath, which acts as a tonic not only to the skin, improving its circulation and adding to its suppleness and beauty, but stimulates all the vital activities of the body.

There is no one thing which conduces more to a clear, bright, healthy and beautiful complexion, than a simple natural diet of fruits, nuts, and grains. Such gross foods as cheese, oysters, sausage, rich pastries, condiments, etc., are in the highest degree conducive to the production of hollow cheeks, dark-circled eyes, and a leathery skin, for which no milk baths nor baths of any other sort can prove an alterative. For a clean skin, one that is clean all the way through, and transparent enough to let the bright, pure blood coursing in the arteries beneath shine through, thus producing the bloom of health,—clean living is required. How remarkable it is that we should naturally be so willing to follow any way but the right way. Human depravity readily accepts any subterfuge, no matter how expensive or inconvenient, which seems to offer the opportunity of climbing up some other way than by the straight and narrow road that leads to all that is good and pure and truly beautiful.

DIETETIC NONSENSE.

WE are sorry to find that newspapers and some magazines which profess to teach health principles are so ready to propagate error by the publication of paragraphs professing to give scientific instruction in relation to diet and other matters pertaining to health, which are absolutely without foundation in fact. For example, in a recent publication we find the following statement:

“Bananas should never be eaten raw; they are full of animal germs; they are productive of tape-worm.” It is hardly possible to compress more error into so small a space. The three statements made are, each and all of them, absolutely without foundation. That bananas are wholesome is evidenced by the fact that some millions of people in South America practically live upon them.

There is no more wholesome or nourishing food than a well-matured and ripened banana. Bananas that are picked so green that they never properly ripen, becoming soft and mellow like a ripe peach, but instead are tough and indigestible, often give rise to disturbances of various sorts; but that is not the fault of the banana, but rather of the commercial greed that lessens the care in transportation.

The second assertion—that bananas are "full of animal germs"—is almost too ridiculous to be worthy of attention. In the first place, there are no animal germs; germs are vegetable organisms, exclusively. Animals are propagated by eggs, not by germs.

The third statement—that bananas are

"productive of tape-worm"—is most preposterous, and in the highest degree misleading. The tape-worm is almost exclusively derived from the use of beef. The ox drinks water that is contaminated with the excreta of human beings, which contain the ova of the tape-worm. These develop in the tissues of the animal, forming small cystic bodies, which, when its flesh is eaten, are set free, and the young tape-worm which they contain fasten upon the intestinal walls of the eater, and there develop. There is no method by which the banana can become infected with the embryo of the tape-worm; but even if they were thus infected, the worm could not possibly live in such surroundings.

FRUIT DIET A CURE FOR NERVOUS HEADACHE.

SCIENTIFIC investigation has shown that fruit is, of all foods, the most useful as a means of purifying the stomach and alimentary canal from germs. The idea formerly held by physiologists that germs were necessary as an aid to digestion has been proven to be groundless by the investigations of Nuttall and Thierfelder, who raised a guinea-pig in a glass house absolutely free from germs, and it proved to be stronger and healthier than others of the same litter raised under ordinary conditions.

These observations have been confirmed by bacteriological examinations of the stomach in several thousands of cases by the chemists and bacteriologists of the Laboratory of Hygiene of the Battle Creek Sanitarium, which have shown that a healthy stomach is capable of perfectly digesting foods which are wholly free from germs without the presence of germs in the stomach. In this investigation, a test-meal of granose, a perfectly sterile food, was taken, and at the end of an hour a portion of the stomach fluid was removed and examined bacteriologically. It has been found that in healthy persons the fluid thus obtained is wholly free from germs.

A study of the germs found in the stomach in cases of disease has shown that they are,

as a rule, incapable of growth in the juices of fruits. This led to the experiment of feeding patients whose stomachs were infected with germs upon a pure fruit diet. It was found that the thickly coated tongue quickly became clean, and other symptoms of stomach infection rapidly disappeared. The observations made by Bouchard and Meinert and verified by a very extensive study of the subject conducted by the Battle Creek Sanitarium have shown that migraine, nervous headache, sick-headache—and in fact most headaches—are due to the absorption of poisonous substances produced in the stomach and intestines by the fermentation and the putrefaction of the food substances. Hence it is clear that the best means of curing this condition is the disinfection of the alimentary canal, or the eradication of the germs from the stomach and intestines. The method of accomplishing this by the employment of an exclusive diet has now been in use at the Battle Creek Sanitarium for more than a year, and with most excellent results. Not infrequently persons whose tongues have been thickly coated, resulting in extreme nervous exhaustion and a variety of other symptoms, have been relieved almost immediately upon the employment of a fruit diet.

The writer, while on a visit to New York, a few days ago, met a prominent business man who complained of a constant headache which rendered his life almost unendurable. Three or four hours after every meal he found himself suffering from severe pain in the head, unfitting him for business, and producing great depression of mind. A fruit diet was suggested to him. The gentleman exclaimed, "Fruit is the worst thing that I can possibly eat." It was suggested that such simple fruits as watermelons, peaches, and grapes might be taken without difficulty; but the gentleman declared that the watermelon was, of all things, the worst for him. The suggestion was then made that possibly the difficulty arose from the combination of fruits with other foods that were incompatible,—especially with vegetables. The gentleman was quite incredulous, but nevertheless said that he might make the experiment of eating fruit alone for a meal or two now and then. A few hours later, as the writer was just about to take the cars at the station, a gentleman tapped his shoulder; and on looking around, there was the gentleman be-

fore referred to. Said he, "I ate a whole watermelon for dinner, and did not have the slightest discomfort afterward, but I have got a splendid appetite for supper."

A fruit diet for a few days is vastly to be preferred to a dose of salts, mercurial products, seltzer aperient, or any other of the popular remedies for so-called "biliousness." It is not the liver that is at fault, as is generally supposed, but the stomach. A person suffering from biliousness is in a state of general poisoning from the absorption of poisonous substances from the alimentary canal. The majority of persons would find it advantageous to take nothing at all but fruit for breakfast, making the dinner the hearty meal, and the supper, if supper is taken, also of fruit.

Periodical attacks of "biliousness" may be avoided by adopting a fruit diet for a day or two prior to the time of the expected attack. A fruit diet for one day out of each week, or for an occasional meal, will also prove helpful. In this country we suffer much more from over-feeding than from deficiency of food.

THE FOOD VALUE OF CANE-SUGAR.

WHETHER or not cane-sugar is a food is a question which is no longer debated or debatable, since the fact is recognized by physiologists that a sharp distinction must be drawn between a food element and a food. Cane-sugar is found in certain foods,—particularly fruits,—as the watermelon or the date. It is also found in various plants, as in the sap of the sugar-cane, sorghum, the maple, and other trees. Fat is also found in foods, so is starch, and so also is albumin and various other food substances; yet it is not possible for a person to live any length of time upon any one of these food elements. Food is a complex substance, consisting of an association of various elements bound together in an organic affinity, which is broken up by any process whereby a single element is separated from the rest.

A variety of substances may be separated from foods, which are not really to be found

in the foods themselves. There is some room for doubt as to whether cane-sugar, in the form in which it is found upon our tables, really exists in wholesome foods. It is an interesting fact that the sugar found in the foods most adapted to human consumption is not cane-sugar, but fruit-sugar. This form of sugar differs from cane-sugar in several respects; it does not form crystals, as does cane-sugar; it is very much sweeter; it more closely resembles the sugar resulting from the action of the digestive fluids.

The fact that the starch of cereals is, in the process of digestion, converted into sugar, has led many persons to suppose that by the eating of cane-sugar they afford an advantage to the digestive organs, by lightening their labor. This is, however, entirely a mistake, the facts being the very opposite. Cane-sugar, like starch, must be digested before it can be converted into the sugar

resulting from digestion in the stomach and intestines.

There are two serious objections to cane-sugar, which experience has shown to be valid. They are as follows:—

1. Cane-sugar, when eaten in a free state, is likely to be taken in so large quantities as to give rise to catarrh of the stomach. It is well known that the presence of a considerable quantity of sugar causes an excessive flow of mucus, and frequently repeated excesses of this sort must give rise to a chronic catarrh. Some of the worst cases of gastric catarrh which the writer has ever encountered were fairly attributable to the free use of candy. Multitudes are daily spoiling their digestion by the use of candies and sweets of various sorts which give rise to chronic gastritis or catarrh of the stomach and a host of accompanying evils.

2. When sugar is eaten in considerable quantities, it interferes with the proper digestion of starch.

As starch enters largely into nearly all foods, with the exception of those of animal origin, this objection, if valid, is a very serious one. Nothing can be more absurd than the practise so exceedingly common in this country, of heaping several spoonfuls of sugar upon a dish of oatmeal or other cereals as a preparation for eating. Sweet cakes, sweet sauces, and a great variety of other sweet dishes commonly placed upon our tables are a constant menace to the health of the stomach. It is true that a muscle derives its energy from the substance stored

up in its tissues, which is first converted into sugar and then oxidized, or burned, during muscle work; but it must not be supposed that this sugar is identical with cane-sugar. On the other hand, it is true, as has been stated, that cane-sugar must, like starch, undergo the process of digestion before it can be converted into the form of sugar which the muscle can utilize. The claim which has been recently made that this sugar encourages muscle development, is entirely a mistake. Muscle structure can be formed only from proteid substances. Such substances as are useful in blood-making and tissue-building are alone capable of building up the muscles.

Sugar can be assimilated as food, and so stored up in the body; and this gives rise to an increase in weight, but it cannot, by any possible metamorphosis, be converted into muscle structure. It may be granted also that sugar furnishes material out of which the muscles can manufacture energy. The same is true of starch. It has been shown that the addition of sugar to an ordinary meal increases the ability to work. This is also true of starch or of any other food. The increased energy is simply the result of the increased amount of energy-producing material taken into the body. There is absolutely no evidence whatever that sugar possesses any special virtue as an ordinary food, whereas there is abundant evidence that its free use is in the highest degree detrimental to health, and disturbing to the digestive processes.

Longevity in Roumania.—A recent report shows that the proportion of centenarians is larger in Roumania than in any other country. It is claimed that in this country one person in every thousand is able to celebrate his one hundredth birthday, and that there are numerous examples of persons living to the age of 125 years, and in several instances to the age of 150 years. This exceptional longevity is unquestionably the result of the simple habits of life which still prevail in Roumania.

Statistics have shown an enormous decrease in the number of centenarians in Germany, and the same is true in England and the United States, and others of the so-called highly civilized countries. While the average length of human life is increasing, cases of extreme longevity are decreasing, showing that the actual stamina of the race is lessened. This is the natural result of the operation of quarantine laws and public health measures, whereby epidemics are held at bay, so that the feeble and constitutionally

weak are kept alive. Thus while the average length of life is increased, the vitality of the race is weakened through the deteriorating influence of heredity. This evil can be met only by improvement in our habits of life, whereby inherited tendencies to disease may be extinguished.

Relation of Eggs and Milk to other Animal Foods.

The advocates of a vegetarian dietary are sometimes met by the argument that even vegetarians make use of eggs and milk, and in so doing are inconsistent with their theory regarding the impure and harmful character of animal foods. Those who offer this argument ignore the fact that the first and greatest consideration with vegetarians is the fact that to take the life of a thinking, sentient being, which, although a beast, is nevertheless related to man by many ties of physiological kinship, is, in itself, an act which ought to be repulsive to man's moral nature. With the majority of those who abstain from flesh food the moral argument is alone sufficient to establish the principle of total abstinence from flesh food under all circumstances. But there are those, of course, who look at this matter from a purely selfish standpoint, and may be influenced for or against the use of flesh food only by considerations which relate to the physical injury or benefit resulting from a flesh diet or the absence of flesh food. It may be of interest to such to know that the poisonous substances always present in greater or less quantity in flesh foods as the result of tissue activity,—the waste products which are removed from the body through the liver, the kidneys, the skin, the lungs, and other excretory organs,—are not to be found in either milk or eggs.

This is a most interesting fact, and indicates very clearly that nature has provided a protection against the poisonous products of the tissues by withholding them from eggs and milk, apparently so that these substances might be used as food without harmful results. The fact that these poisons are not

found in the milk of healthy animals, nor in eggs, unless they have been incubated, affords at least inferential ground for the belief that these products are not harmful; and that since flesh always contains them, its use should be discarded. When to this are added the facts developed in the physiological laboratory by actual experiments upon animals, which show most clearly the poisonous character of the waste products of the tissues, we have the strongest possible reason for condemning the use of flesh as food except under circumstances of necessity.

Errors in Diet.

—There is no room to doubt that errors in diet, in the manner of eating, or in quantity and quality of food, are by far the most active causes of indigestion. By asking a dyspeptic how he eats, what he eats, and when he eats, it is usually easy to discover the cause of his suffering; and by inducing him to form correct habits in these three particulars, a cure will be effected in nine cases out of ten. In many and perhaps most cases, however, other adverse influences of various sorts serve to some extent to complicate the digestive disorder, and to intensify the effects arising directly from the causes named; hence we shall not confine our investigation of the causes of indigestion to the class of causes mentioned, exclusively, but shall also notice those which more remotely operate in this direction, first, however, calling attention to dietetic errors as the most common and most powerful causes of disease of the stomach.

The Dogs Had a Pedigree.

—“I am surprised,” said a gentleman to a wealthy friend one day, “that you give such personal attention to your hounds, while you leave the care of your boys to a tutor.” “Ah,” said the gentleman, “but these dogs of mine have a pedigree.” The gentleman probably appreciated the fact that his sons had no pedigree to be proud of. Is this the proper explanation for the astonishing apathy of parents to the physical, mental, and moral well-being of their children?

ANSWERS TO CORRESPONDENTS.

WHY ONE SUFFERS FROM A CONTAGIOUS DISEASE BUT ONCE.—Why is it that certain contagious diseases do not occur the second time in the same individual?

Ans.—For the reason that when a person has the disease once, the body undergoes a change whereby it is able to resist succeeding attacks. The explanation is this: When a person is inoculated with a germ disease, the high fever and other symptoms which follow are the result of the presence of poisons generated by this germ. It has been discovered that when these poisons are produced, the body begins to manufacture substances capable of neutralizing the poisons and of killing the germs which produced them. If the resistant force thus developed is sufficient to antidote the disease and kill the germs which produced it, the patient gets well. This ability to resist the germ poison remains in the body for a certain length of time after recovery. The time varies with different diseases; in some cases it lasts a lifetime, in others, only a few months or weeks. There is also a difference in persons in this respect.

COCOANUT BUTTER.—Is not cocoanut butter, like other nut oils, more free from germs than animal butter or grease?

Ans.—Yes, when perfectly fresh; but vegetable oils, although less likely to become rancid than animal oils, generally acquire, in time, a strong flavor which is due to the presence and action of germs. These are not the germs of consumption, typhoid fever, or other infectious diseases, but germs derived from the air, which give rise to decomposition; and when taken into the stomach, they set up processes of fermentation and decomposition there, producing heartburn and other unpleasant symptoms. Free fats are also objectionable because of their interference with the digestion of other foods. We have never thought it advisable to recommend any substitute for butter, for the reason that butter is itself a bad thing on account of being a free fat. Emulsified fats, such as are found in cream, nuts, and other

natural foods, do not interfere with digestion in the stomach, except in the case of cream, which disagrees with some people because of the existence of dilatation of the stomach and the presence of germs, which find in cream a particularly favorable soil for growth. Fat is a very necessary element for perfect nutrition, but, like sugar, it should be taken in the natural state, and not in a free or concentrated form. The most wholesome fats are those found in nuts, as this element of nutrition is in them afforded in a state most favorable for assimilation.

A PRACTICAL METHOD OF STERILIZING MILK.—What is the best way to sterilize milk for private use?

Ans.—It should be cooked at a temperature of 220° F. to make it perfectly sterile; but as that is not possible, you must be satisfied with cooking it at a temperature of 210° to 212° F., unless you cook it in a saturated solution of salt; and then you must put it in bottles, cooking it at a temperature of 210° to 218°, which is sufficient to kill all germs. The germs of typhoid fever, cholera, and consumption will, however, be killed at a temperature of 160°; thus for practical purposes a temperature sufficient to produce a slight skin over the milk will kill all the most dangerous germs in the milk if it is cooked fifteen or twenty minutes. It should then be set away in a covered dish.

BEST TIME FOR BATHING.—What is the best time of day to take a bath?

Ans.—That depends upon what kind of bath one is to take. If it is a cold bath, the morning is the best time; if it is a warm bath, just before the noonday rest or immediately before going to bed are the best times. Much benefit may be derived from the practise of a daily bath at bedtime, especially if one has become heated up and has perspired freely during the day. A cold sponge bath is also an excellent thing in the morning; it will set the whole vital machinery in motion.

PUBLISHERS' DEPARTMENT.

THE circulation of GOOD HEALTH is increasing daily, thanks to our friends who supplement our efforts by loaning the magazine to their friends and neighbors.

PLANS have recently developed which afford opportunity for a number of young men and women to connect with the School of Health work being conducted under the auspices of the Battle Creek Sanitarium. Those desiring further information with reference to this work will please address the Good Health Pub. Co., Battle Creek, Mich.

WE would request all those interested in the organization of Good Health clubs to write us. We would also be pleased to hear from those who desire to take up this work. You will find it pleasant, profitable, and instructive. Any information or help which we can give will be cheerfully furnished.

YOU can have a School of Health in your own city if you desire it. Tuition free to all who are interested in GOOD HEALTH. Write the Good Health Publishing Co. for further particulars.

THE medical force of the Sanitarium and its branches has recently been augmented by a number of graduates from different medical schools. Of these, W. B. Holden, M. D., of Rush Medical College, has become connected with the Branch Sanitarium in Chicago; and Silas Rand, M. D., also of Rush College, has left to take charge of the branch in Honolulu. Dr. F. M. Rossiter, of the University of Pennsylvania, is connected with the Sanitarium here. Dr. Ida Shively Herr, of the Northwestern University of Chicago, has gone to the Sanitarium at Keene, Texas. Dr. C. N. Nicola and Dr. Mary Byington Nicola, of the University of Michigan, are stopping at the Sanitarium for the summer. Dr. Jeanne C. Whitney, also of the University of Michigan, who will be here later, is taking a vacation among the mountains of Vermont. Dr. Mary Hunter is spending the summer in the West.

DR. CHARLES STEWART, who has been a member of the Sanitarium force and a teacher in the Medical Missionary College for two years, recently left for an extensive trip through the Northwest, British Columbia, California, and the Southern States. Announcements of a few days ago show

that Dr. Stewart has decided to "share joys and halve sorrows" with Miss Lizzie Reith, formerly a nurse at the Sanitarium. We wish them a happy future, and believe their vacation will be time well spent.

DR. FULLER, of Grand Rapids, Mich., has been spending a week at the Sanitarium. Dr. Fuller, who has spent most of his professional life studying the anatomy of the nervous system, and making models and casts of the various parts of the brain, devoted his time while here to giving the medical students of the American Medical Missionary College a thorough course on the anatomy of the spinal cord and brain. Dr. Fuller has, by his careful study of this subject, reduced it to a simple science, instead of a complicated labyrinth of canals, ventricles, decussating tracts and fibers. A thorough knowledge of the anatomy of the spinal cord and brain lies at the very foundation of the study of nervous diseases, and one has poor chance of success in this branch of medicine who is not thoroughly familiar with the structure of these parts.

A SUMMER SCHOOL at the Sanitarium began July 6, designed especially for those who expect to engage in philanthropic work at home or in foreign fields, but who cannot pursue a protracted course of study from lack of time or means. This course will cover a period of ten weeks, and will include a rapid survey of the anatomy and physiology of the body, sanitary science and personal hygiene, gospel and Christian help work, Bible temperance and Bible hygiene, the Bible in education, healthful cookery, healthful dress, mothers' work, use of water, simple remedies and how to apply them, nursing and emergencies, germ diseases, physical culture, missionary work in foreign lands, consecration meetings, and gospel song services.

Four hours a day, six days in the week, are devoted to study, and the fundamental thought throughout the entire course is the sacredness of the human body, and that the gospel of health — how to care for this temple built by divine hands — goes hand in hand with the gospel of salvation. A competent corps of efficient instructors, those who have partaken liberally of the ideas of the Man of Galilee, and who have an experimental knowledge of the principles of health and practical missionary work, are devoting considerable of their time to make this summer course a success. Nearly two hundred men and women are already enrolled, and the number is daily increasing. All seem characterized by

a spirit of earnest inquiry. True principles of healthful living when presented in simplicity and with fervency always meet a hearty response in the minds of those who are desirous of improving.

THE Chicago Branch of the Battle Creek Sanitarium, located at 28 College Place, Chicago, has in the last six months made extensive improvements in its bath department. Among these are an elegant new spray, a new electric-light bath, and many other improvements. Within the past few weeks a chemical laboratory has been thoroughly fitted up with every scientific appliance necessary to carry on a thorough scientific chemical analysis of the stomach contents, analysis of foods, etc. The laboratory is in charge of a competent director and chemist, W. B. Holden, M. D., and the most precise work will be done, thus placing the work in Chicago on a more scientific basis than ever before. The institution is fully prepared to give the best of satisfaction to its patrons.

To the cool mountain resorts of Colorado the Northwestern Line (Chicago & Northwestern Ry.) is the direct route, also to the wonderful Black Hills of South Dakota and other Western resorts. Tourist tickets at low rates. Up-to-date trains superbly equipped with through palace sleeping-cars, free reclining-chair cars and dining-cars. Apply to agents of connecting lines or address W. H. Guern, M. P. A., 67 Woodward Ave., Detroit, Mich.; or W. B. Kuiskern, G. P. & T. A., Chicago, Ill.

THE Battle Creek Sanitarium Health Food Company report that the demand for their Caramel-Cereal has steadily increased during the past year, until at the present time more than a ton of this favorite beverage is shipped daily to different parts of the civilized world. Caramel-Cereal is pronounced by good judges to be the best of all the various substitutes for tea and coffee which have thus far been produced. Numerous imitations are being offered, but none are equal to the original and genuine caramel-cereal.

KNEW BETTER THAN THE DOCTOR. — Among the good stories told of Doctor Mack, an army surgeon in Australia, is one in "Here and There Memories," illustrating the confidence in him of the pitmen under his care.

An explosion occurred one day in the mine, and the doctor was hastily summoned. As the men were raised from the mine depths, he felt their pulse and sought for indications of life. As he rose from examining one poor fellow, saying,

"Dead," the supposed dead man said distinctly: —
"Nay, Oi baint dead."

One of the miners standing by gave the speaker a kick with his boot and said, "Haud th' tongue, Rob. Dost think th' knows better than th' doctor, mon?"

CONSULT THY PURSE, and buy your tickets from Chicago via the Chicago, Milwaukee & St. Paul Railway to the following-named points on June 29 and 30, and July 1, 2, and 3. Look at the figures.

San Francisco.....	\$25.00
Salt Lake City.....	20.00
Denver and Pueblo.....	12.50
Sioux City.....	9.75
Omaha and Council Bluffs.....	7.75
Kansas City.....	7.50

and other points in proportion. These are very cheap rates made for these special dates. Return tickets at approximately the same rates will be sold on various dates in July and August. For further information apply to the nearest coupon ticket agent or call on or address Harry Mercer, M. P. A., C., M. & St. P. Ry., Detroit, Mich.

KEEP COOL BY TAKING A LAKE TRIP. — Visit picturesque Mackinac, the island of cool breezes. Travel via the D. & C. Coast Line. Send two cents for illustrated pamphlet. Address A. A. Schantz, G. P. A., Detroit, Mich.

BETWEEN seed time and harvest is a good opportunity to inquire about farming lands in South Dakota, only one day's ride from Chicago. Bountiful crops of wheat, corn, barley and flax reward the tiller of the soil. As a stock and dairy country South Dakota leads all the world. First-class farm lands with near-by markets can now be bought for from \$10, \$12, \$15, and upwards, per acre, and this is the time to invest. For further particulars write to Geo. H. Heafford, General Passenger Agent, Chicago, Milwaukee & St. Paul Railway, Old Colony Building, Chicago, Ill.

\$8 from Cleveland to Mackinac and return; \$7 from Toledo to Mackinac and return; \$6 from Detroit to Mackinac and return.

The above special tourist rates were put into effect June 20, via Detroit & Cleveland Steam Navigation Co.'s new mammoth steel passenger steamers. The round trip from Cleveland, including meals and berths, costs \$16, from Toledo \$14, from Detroit \$11.50. Send two cents for illustrated pamphlet. Address A. A. Schantz, G. P. A., Detroit, Mich.