# GOOD HEALTH

*A Journal of Hygiene.*

VOL. XXXIV. MARCH, 1899. NO. 3.

## THE NEW DIETARY.

BY J. H. KELLOGG, M. D.

WHAT is the best dietary for health? what food will best sustain mental and physical effort? what substances are best adapted to building strong and enduring muscles, pure blood, active and well-balanced brain and nerves? in short, what are the best sources from which the essentials for complete nutrition may be obtained?

This is a very important and practical question. All the essential nutritive elements, with the exception of acids, may be found in both flesh-foods and foods of vegetable origin. The acids are obtained exclusively from the vegetable kingdom. The composition of the animal foods — fats, sugar, albumins, and salts — is practically that of the corresponding elements obtained from vegetable sources. There is this difference, however, — and a very great difference it is, — the food elements furnished by the vegetable kingdom in the form of oats, wheat, and other cereals, fruits, and nuts are in a state of absolute purity. There is no admixture of poisons or deleterious substances, and it is an exceedingly rare circumstance for any of the vegetable products in which these elements appear to become so deteriorated by disease as to be detrimental or dangerous for use as food, the very opposite of which is true of flesh-foods.

Persons who confine themselves to a dietary of fruits, nuts, and properly cooked grains, are, other conditions being equal, like the gorilla, possessed of unusual strength and vigor and endurance, and are likewise noted for remarkable longevity. The popular prejudice against fruit is entirely an error. Fruits taken by themselves are among the most easily digestible and wholesome of all foods; but when mixed with vegetables, fats, meats, milk, cream, sugar, and the various messes with which they are generally combined, they do undoubtedly add fuel to the flame, so to speak, — the consuming fire that is the chronic dyspeptic's internal purgatory. If in any case fruit does not agree with the stomach, try eating fruit alone, without any other food whatever, for a single meal or a day.

The acids of fruits are of infinite value as a means of purifying the alimentary canal. The germs that infect the stomach and give rise to biliousness, headache, sour stomach, gastric catarrh, and a variety of other ailments, can not grow in fruit-juice; and when fruit enters into the dietary in sufficient quantity, the development of germs in the stomach is suppressed, and by this means the great variety of symptoms resulting from the growth of these parasites is prevented. Fruits are especially rich in the choicest sugar, — levulose, or fruit sugar, — which

represents starch in a state of complete digestion and ready for perfect absorption and use by the body. It is this quality that renders fruits and fruit-juices so refreshing to a person greatly fatigued. Fruits contain no fat and practically no starch, and with the exception of the fig, the banana, and a few others, they contain so small an amount of albumin that that element may be considered as practically wanting. We use fruits for the sugar, the acids, and the water which they contain.

Nuts present the choicest and most concentrated nutriment of all food substances. They also contain a large proportion of albumin and fats. Most nuts contain fifty per cent. or more of an absolutely pure and easily digestible fat. Nuts also contain a high proportion of proteids, or albumins; so much that a half pound of nuts contains nearly as much albumin as a pound and a half of the best beefsteak. Unfortunately, nuts in a raw state are hard to digest, but they may be prepared in such a manner as to render them easily digestible, and so as to present all the desirable flavors and gustatory properties of milk, meat, and even fish, eggs, and other animal substances. Nuts contain all the pleasures of the palate; it is only necessary to bring out by scientific preparation the marvelously delicate flavors and the wholesome properties that they contain.

Nuts are bound to become a staple article of diet. They will be planted more extensively, raised more cheaply; and it is to be hoped that the time will come when nut foods will be manufactured and used everywhere, as are cereal foods at the present time.

Nuts in combination with fruits constitute a perfect dietary, the fat of the nuts and the sugar of the fruits supplying all the needs of the energy- and heat-producing substances, sugar being in fact only a digested form of starch. Of the various nuts, the almond, the filbert, and the peanut are the richest in food elements, and they are also the most serviceable. All of these, especially the peanut, are rather indigestible in the raw state. The peanut is rendered more indigestible by the ordinary method of roasting, but when properly prepared, without exposure to a high temperature, by careful selection, and by removing the obnoxious elements, it furnishes an exceedingly delicate, wholesome, and palatable food.

Grains are not the foods most naturally adapted to the human digestive apparatus. Nuts and fruits may be eaten and digested raw by persons with sound teeth and good digestion, but raw grains can not be so eaten. They must be cooked. Cooking is intended to do for grains what nature does for fruits; namely, to perform a preliminary digestion. Starch, in undergoing digestion, passes through the following five stages: First, it is converted into amylodextrin, or soluble starch; second, erythrodextrin; third, achroödextrin; fourth, maltose; and fifth levulose, or fruit-sugar. Cooking is capable of carrying the starch through the first three of these processes, rendering it ready for almost instant conversion into maltose when it comes in contact with the saliva in the mouth and the stomach. It has been shown by experiment that the preliminary digestive work done by cooking varies greatly with the method of cooking adopted.

As regards the cooking of cereals, there are practically three methods, which may be termed *kettle cooking*, *oven cooking*, and *toasting*, or *dry cooking*. Kettle cooking changes the raw, insoluble starch into soluble starch, or amylodextrin; in other words, it carries the starch through the first step of the digestive process. Baking, or oven cooking, converts the starch into

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erythrodextrin, the second stage of starch digestion. Toasting, or dry cooking, in which the starch is exposed to a temperature of about 300° and changed to a brown color, advances the starch one step farther, producing achroödextrin, the third step in starch digestion.

Each one of these processes may be complete or incomplete; that is, kettle cooking — stewing or boiling — may convert all the starch subjected to the process into soluble starch, or only a part of it. In the ordinary processes of cooking, especially in the preparation of the so-called breakfast cereals, the starch is seldom more than half cooked, hence it can not be acted upon at all by the saliva, which does not begin the process of digestion with raw starch, but can act only upon soluble starch, or amylodextrin; that is, starch that has been boiled until it has been converted into a paste. So likewise in baking; either a whole or a portion of the starch is converted into erythrodextrin. In dry cooking, or toasting, the transformation of the starch into achroödextrin is advanced in proportion as it has all acquired a distinct brown color.

The use of imperfectly cooked cereals is without doubt responsible for a great share of the prevailing dyspepsia among American people. Oatmeal porridge, cracked wheat, and similar preparations are absolutely unfit for food, and can be digested only by very sound stomachs. When cream and sugar are added, we have a combination well calculated to create a magnificent dyspepsia. Cereals must be cooked dry in order to be thoroughly cooked. It is often necessary that they be cooked moist first, and afterward subjected to dry cooking. Dry cooking, or toasting, is essential to complete heat digestion. When prepared in this way, cereals are well adapted to the human stomach, are easily digested, and in combination with fruits constitute an ideal dietary. In fruits the digestive process is carried still further, for the starch of the green fruit is, in the ripe fruit, found in the stage of levulose, the last stage of starch digestion, maltose in the intestine being converted into levulose at the moment of absorption.

Cereals must not only be cooked dry in order to be digested promptly, but they must also be eaten dry. Experiments have shown that one ounce of dry, well-cooked cereal food, well masticated, produces two ounces of saliva, whereas mush, gruel, and other moist foods cause the secretion of only a very small quantity of saliva, less than one fourth the amount produced by the same food in a dry state. Nature throws nothing away if she can help it. When the food is already moist, saliva is not needed to moisten it, and the impression of dryness not being made in the mouth, the salivary glands are not stimulated to pour out the fluid that is necessary not only to moisten it but to digest the food. Fishes must of necessity take their food moist, and hence have no salivary glands; whereas cows, which naturally take their food in a dry state, have large salivary glands. Human beings are likewise furnished with proportionately large glands for the secretion of saliva.

In connection with the cooking of cereals, it is interesting to note that the chief vegetable albumin, gluten, is rendered very much more easily digestible by cooking, whereas the digestibility of animal proteids in the form of both meat and eggs is very greatly diminished by cooking. In other words, if man would use grains, he must see that they are thoroughly cooked. When thus prepared, they are exceedingly wholesome and easily digested. But if he wishes to make use of flesh-foods, he ought to take them raw, as cooking lessens their digestibility.

# DOMESTIC CONDITIONS IN INDIA.

BY R. W. MUNSON.

INDIAN houses are constructed for the sole purpose of protecting the dwellers from the effects of the heat. Hence in many cases Europeans in India enjoy better health there than they would in England or America. When the temperature rises in the hot season to 110° and 120° F. houses with lofty ceilings, wide doors, and wider verandas encircling the entire house.

Every Indian dwelling is made as airy as possible. The windows are all double doors, and are usually put as near together as the architectural design will permit. Very early in the morning these are thrown

TRAVELERS' TREES AND ARECA PALMS, SINGAPORE.

in the shade, and holds that level far into the night; when there is added the scorching wind of the southwest monsoon that can not be compared to anything but the blast of hot air that rushes from a bake-oven; when the heat makes it necessary to close up the house as tight as a drum as early as eight o'clock in the morning; when all vegetation is burned and blistered, dried, and dead; when sleep at midnight is possible only in a nude state upon a hard cotton mattress and a well-dampened sheet,—then the newcomer begins to appreciate the wisdom of commodious wide open, to welcome every breeze that blows. An abundance of the purest air is thus constantly supplied. Venetian shutters are built into every door and window; no glass is ever employed. In some parts of the East five or six feet of lattice work completes the upper part of the outer wall of the house, thus furnishing perfect ventilation. The sleeping-room, which is generally the largest and pleasantest room in the house, has a bath-room attached.

The bath-room is the most important room in the entire building. In India it

is always on the same floor with the bedroom. In Malaysia it is on the ground floor, connected with the sleeping-room on the second floor by a private stair. It has a cement floor; the whole house is generally built of bricks which are plastered over with mortar and then lime-washed. In one corner of the bath-room is a big jar, or tank, that will hold from one to two barrels of water; on a shelf near by are soap and a four- or six-quart bathing bucket. The latter is a flaring wooden or tin pail with a round handle fastened across the mouth on a level with the top. The bather pours the unheated water over his head and shoulders, applies soap, and for fifteen or twenty minutes continues to luxuriate in a miniature Niagara of pouring water. He then dries himself with a Turkish towel, and feels greatly refreshed in a newly laundered suit of white drill or jeans. This is the daily program. In the hottest seasons two baths a day are commonly taken.

The dietary, while consisting, as a rule, of a great amount of flesh, includes also an abundance of rice and fruit, the former eaten with the far-famed "curry" peculiar to India, the latter consisting of half a dozen varieties of the most luscious bananas, or "plantains," as they are there called, mangoes, mangosteens, custard apples, pomelos, papaya, pomegranates, pine-apples, jack-fruit, chumpada, rambutan, souro range, lime, durian, and a great variety of other fruits whose very names would not be recognized because they are unknown in this hemisphere, but all of them most wholesome and nutritious. They are mostly sweet or subacid. Numerous esculent vegetables are found in the markets at a low price. Milk is available, but it is a perilous indulgence. Sterilized fresh butter is always on sale in India. The article imported in tin cans is preferred. There is no particular in which India stands more pre-eminent than in the variety, delicacy, and wholesomeness of its food products, particularly of its fruits. It is the vegetarian's paradise.

An interesting product is sago-flour, taken from the pithy heart of the sago

A Bush or Cluster of Bamboos, Singapore. The Governor's Residence in the Rear.

palm. Nearly the whole trunk is filled with it, and one tree will produce hundreds of pounds. The coconut enters very largely into the composition of native foods, particularly curry and condiments.

In Singapore rice is imported from Siam and Burma, potatoes from China, flour from California, and canned crackers, California fruit, etc., from Europe and America. These, with other wholesome articles of diet imported or indigenous, furnish a variety for the most exacting vegetarian appetite. Rice of the best quality can be had at a cent and a half a pound, bananas at the same price per dozen, and all Oriental products at the same rate. These extremely low figures for such substantial yet appetizing foods show that one can live well in India at half the price paid for food in this country.

These natural foods, together with the abundance of outdoor exercise that the European perforce must take, contribute handsomely to the physical welfare of men, who, if they should live there as people do in this country, would not live out half their days. If flesh, tea, coffee, drugs, intoxicating liquors, and tobacco were eliminated from the European's daily diet, there is no telling what the beneficial results would be. American missionaries usually omit the last two articles, but their nervous systems, as well as their digestive organs, necessarily suffer keenly from the injurious effects of the other evils, which are sufficient to produce dire-

Coconut Orchard and Sea Beach, Turtle Cape, Singapore.

ful consequences. I am firmly convinced that a strictly vegetarian diet would greatly enhance the missionary's usefulness and prolong considerably his years of service.

The Hindu is a most consistent vegetarian. It matters not that his religious instincts and training make him such: the salutary benefits derived are beyond computation. Perhaps a hundred million of the people of India subsist on one meal a day. That meal consists of fresh-baked cakes of unleavened bread made of millet meal or some other cheap grain or seed, such as timothy. To this is added "curry," a thick gravy made of *ghee*, or clarified liquid butter, and a variety of aromatic seeds ground into a paste and fried in a skillet. They seldom can afford to add fruit to this simple fare, because, cheap as it is, their incomparable poverty forbids the indulgence. They drink nothing but water, and sometimes finish the day with a very light luncheon, consisting of a handful of parched peas. On this diet the Hindu never gets corpulent, but he maintains a very high average of health. His life is short because of the consequences of the long-established custom of child marriage, insufficient food, and a hard climate. If he were a flesh eater, like most of the Chinese, India would long ago have been decimated.

A Tamil Woman.

Another important habit that contributes largely to the general health of the Hindus is their cleanliness of person. They bathe frequently, usually twice a day. They are exceedingly particular about the water they drink, and are very good judges of water. The first religious act of the day is to go to the well, the hydrant, or the spring, and spend a half hour in cleansing the mouth and scouring the teeth. They think they must do it, I was told, in order to expel any devils or evil spirits that may have found their way into their mouths during the night, intent upon entering their bodies. I have seen them scrub and dig, gargle and gag, for an amazing length of time. The result is that the Hindus have the finest teeth of any race of people I ever saw. One would almost think that divine Providence had overruled their mistaken religious ideas to their physical advantage. If they succeed in expelling no real devils from their mouths and throats, they rid themselves of germs that have almost satanic instincts and proclivities.

One of the most interesting peculiarities

of India, to the newcomer, and one that soon becomes annoying, also, is the astonishing prevalence and audacity of the common crow. Together with buzzards and vultures these birds render an economic service to the public that in their absence would cost the Indian civil and municipal governments millions of pounds annually. The crows are thicker than flies in sugar season. They are everywhere; they waken the dawn with their incessant, saucy "Caw-caw," and they put you to sleep with the same tune. Their boldness and impudence become the burden of the nervous housewife's life during the first year of her sojourn in the land. For a little while she wages an unrelenting warfare upon them, threatens deeds which result in nothing but the death of a crow or two and a fine in the police court; for the lives of these precious birds are protected by law. Annoying as they are, they render too valuable public service to be permitted to die at the hands of an irate housekeeper. The houses are built open, and the dining-table often stands within easy reach of these aerial sneak thieves. One will alight on the top of the screen or window-shutter, and saucily caw at you; but the instant your back is turned, monkey-like, he darts down, grabs something edible, and flies away to enjoy his plunder in the branches of some shady tree.

A Malay Family.

The long resident in India becomes sincerely attached to the crow, notwithstanding all his faults, because he forms so conspicuous a part of that fascinating life which has peculiar charms for the dweller in the land of the Moguls.

There are no flies in the empire, the reason being found in the many species of ants whose myriad hosts possess the fat of the land. The ants are everywhere and in everything, and the vegetarian in India must have a charmed life if he would remain true to his principles; for voluntarily, with the connivance of a lazy cook, ants find their way into the soup, the porridge, and the gravy. The sugar barrel, if left exposed, soon becomes as busy as a beehive; for the ant apparently can digest any amount of sugar without setting up fermentation in his gastric region. Fleas bound everywhere during the hot, dry season. They are such vexatious torments that nobody except the faithful Hindu feels any scruples about cutting short their carnivorous career.

An East Indian kitchen is a wonderfully simple, yet simply wonderful adjunct of an Indian home. It is always located in a detached building, often a hundred yards from the dwelling, as if nitroglycerin or dynamite or some other dangerous compound were prepared there; and strange as it may seem, there is much wisdom in this arrangement. Few housewives dare venture often to encroach upon that mysterious sanctuary of the Oriental cook, for they well know they can never hope to fathom the depths of culinary treachery or stem the tide of unsanitary, unhygienic preparation of food.

The "cook-room" in every part of the East consists of a low, one-story structure, with a tile roof; about three feet of the roof on either side of the ridge is elevated a foot or two for purposes of ventilation, as the smoke from the fires below rises upward and escapes through the roof. On this account the walls and roof are often a sooty black.

The "range" consists of a solid table of masonry elevated on arches, upon which is a narrow terrace of brick and mortar eight or nine inches high, in which are C-shaped wells, having the opening of the C in front to receive the fuel. Iron bars are laid lengthwise in the masonry across the cavities to support the pots and kettles. The firewood is cut quite small, and is so skilfully applied that the accomplished cook never burns his food or permits it to cook too slowly.

HINDU COOKING OUTFIT.

The natural result of this kind of cooking frequently is that the water in the teakettle is smoky and the foods taste of the wood used in cooking them. Few utensils are required, but some really wonderful results are obtained by good cooks. The baking is done in a Dutch oven. The cook's assistant washes the dishes, always in cold water without soap, toasts the bread, chops the meat, pares the potatoes, splits the wood, and performs various other small tasks. The cook, whom you pay from six to twenty rupees a month for robbing you by charging from twenty-five to one hundred

per cent. more for the food than he pays for it, watches the rice boil or the steak burn, and is perfectly happy,—a little *rajah* of a petty kingdom.

The daily routine of eating begins in India proper at about five-thirty or six o'clock with *chota hazri*, or little breakfast, which usually consists of a cup of tea or coffee, dry buttered toast, and a soft-boiled egg; *buhrra hazri*, or big breakfast, is eaten about half past nine or ten; the heavy work of the day is done between these two meals, particularly in the hot season; after breakfast there is a siesta of two hours followed by luncheon at two or half past two o'clock. The day begins to cool by this time, and outdoor work may be done until dinner, which is the big meal of the day, and comes at six-thirty or seven.

Most Europeans finish off with a cup of tea at nine. Meat is consumed at at least two meals and by the English invariably three times a day, tea or coffee four times. Is it any wonder that the Indian climate is deadly, particularly when it is recollected that Scotch whisky, stout, beer, or some kind of intoxicating liquor is freely taken at luncheon and dinner?

To illustrate the unseen horrors that are perpetrated in Indian kitchens I will narrate an incident which actually took place in the experience of one of the missionaries of Lucknow. The missionary was going off on an early train, and wanted his tea and toast promptly at six. As usual the cook was late, for all Indian cooks seem to have heard the voice saying, "Time shall be no more." In his haste the missionary rashly resolved to go to the cook-room and investigate the cause of the delay, and if possible hasten the preparation of the *chota hazri*. His rashness cost him his breakfast. When he reached the cook-room, he found the cook's naked assistant sitting on the floor, toasting the bread, with the untoasted slices leaning up against his bare legs and the toasted slices sticking between his toes.

## DR. ALCOTT AS AN EDUCATIONAL REFORMER.

BY HIS SON, WM. P. ALCOTT.

THERE is, of course, a close connection between health of body and of mind. "Are you desirous," says Rousseau, "to cultivate the understanding of your pupil, cultivate those abilities on which it depends. Keep him in constant exercise of body; bring him up robust and healthy, in order to make him reasonable and wise. Let him work; let him always be active and in motion. Make him once a man in point of health and vigor, and he will soon become a man in understanding."

The interdependence between bodily condition and mental, moral, and spiritual progress can hardly be too much emphasized. My father, therefore, builded better than he knew when, early in life, he began labor for both the physical and the immaterial nature of men. His educational work was on either side of that dividing line. Indeed, he seemed hardly to recognize such a line more than the farmer whose house stands in two States.

When Dr. Alcott first met Wm. C. Woodbridge, with whom he was to be intimately associated in educational work, the geographer asked what he considered the capital error of modern education. "The custom of pushing the cultivation

of the intellect at the expense of health and morals," was his reply. Thus, seventy years ago, Dr. Alcott clearly perceived the error which still remains entrenched in our educational systems almost beyond hope of dislodgment. Acting on this idea, his words to pupils and teachers usually concerned some practical topic like position in sitting and standing, eating green fruit, cleanliness, ventilation, purity of life, truthfulness, obedience.

For several years, at the beginning of his public life, our reformer gave much time to visiting public schools in Connecticut and Massachusetts, for the systematic collection of facts showing their condition. He had a schedule of twenty-three questions, and by filling these out he could obtain a sort of photograph of every school, and well compare one with another. Sometimes, as in the case of Golland, Conn., he tabulated all the schools upon one chart.

Such a systematic work prepared the way for a wise induction of general conditions and needs. He knew that the educational standard of his own State was then unsurpassed in our country, and could feel that what Connecticut needed, other communities still more demanded.

One can not at first credit what progress has been made during this century. It is most instructive as well as amusing to read that book, so rare in every sense, "The District School as It Was," by Warren Burton, or "The Confessions of a Schoolmaster," by Wm. A. Alcott. Can we imagine, as no further away than the childhood of some people still living, schools in which the seats had no backs, where there were no blackboards at all, and few slates, only quill pens, no arithmetic, geography, or grammar; in which the children took turns in warming themselves at the open fire, while the little ones were required to keep awake and still through the whole session, with nothing to do, and their feet dangling from a hard plank? This, too, was in our most progressive sections!

Parenthetically, it may be said that many a learned man came out of these educational Nazareths. We may see specimens of writing with the quill pen that an engraver of our own day could not surpass. Indeed, my father wrote nearly all his books with feathers from a goose's wing, and preferred them to steel or gold.

Our reformer wrought, from the first, not only with the voice, but through the press. Among his first books were essays "On the Construction of School-Houses," "On Penmanship," "Missionaries to Common Schools," "Slate and Blackboard Exercises," a description of "The First Public School in Hartford," "Confessions of a Schoolmaster." For two years he edited the *Annals of Education*, a monthly journal, and for many years wrote numerous reformatory articles for this and other periodicals.

In 1858, *Barnard's Journal of Education* gave a more complete account of the work I am briefly outlining. The editor says: "Probably no living individual has devoted more hours during the last forty years to education, especially that of the common school and the family, than Dr. Alcott." The same article computes that, during the past twenty-five years, he had visited in an informal way ten thousand schools, and that he had doubtless given more than half as many familiar lectures. It may thus be seen that his highest ambition and delight was to be a common school missionary.

Similar painstaking industry is essential to all high and abiding usefulness. The world may not recompense us more than it did him. But as with him, so with us, a sufficient reward should be joy in our work, and in the present and future approval of God.

How my father's whole soul was in whatever he undertook, as ours should be, is illustrated in what he says of one of his earlier educational attempts. "The truth is, I was wholly and entirely devoted to reforming the school. My whole mind and heart and soul were upon it. My dreams were of my school. I waked and rose early but to think of or do something for it. I conversed upon it, if possible, at breakfast; I hastened to the schoolroom as soon as breakfast was over; I stayed there during the intermission, unless I was boarding very near by; and I remained at the schoolroom, after the close of the school in the afternoon, till dark; and sometimes returned, after supper, and spent the evening there. In short, I lived, during the year, for no earthly object but my school."

#### His Breadth and Versatility.

Living for one single end has its dangers, yet in a very large measure is essential to success and usefulness. Would that we could each more truly say of some noble end in life, "This one thing I do."

After a time our reformer learned to do "this one thing," in a wiser fashion. By interspersing vocation and avocation after the manner of "layer-cake" — if that is the proper name for a certain abomination — he was able to do more work with less fatigue than was otherwise possible. His boyhood fondness for the ground and its cultivation never forsook him. After writing an hour or two he would rush out, like a child from school, to dig or hoe or rake, saw or split wood, or do errands, and then with freshness and zest he would return to brain work. Thus chores, conversation, newspaper reading, cheerful meals, family worship, early retiring, were most deftly mixed in all along, though to "mixed dishes" in cookery he was much opposed.

We always had a grand garden, raised much fruit, and indeed redeemed one lot from rough woodland to beauty and a home for ourselves, and then a second,— both in what is now the city of Newton, Mass. My father would have made a successful farmer or reformer in horticultural methods, as I might show. One of his first publications was an "Essay on the Improvement of Towns and Villages," printed by the American Lyceum in 1838. Herein he anticipates many of the ideas of modern rural associations, and suggests others as yet hardly broached. He was interested in municipal reform and, as an ardent abolitionist, in practical politics. He solicited subscriptions — and ridicule — for what, I believe, was the first medical college for women in our land.

Thus varied and versatile and progressive was his life. Broad and catholic sympathies are a part of religion, and tend to happiness and health. The only poem Dr. Alcott pretended to write, so far as I am aware, expresses some of these ideas. and describes his own experience in early manhood. It illustrates his favorite idea that one could do more and better work to take his vacation all along, as he did, than in a mass, once a year. Even physical labor he believed would be less wearing and more productive in results, if the mind were taught to "spell" the body at frequent intervals. The poem is entitled "Morning All Day," and illustrates the perennial freshness and joy that are the portion of one temperate in all things, and whose diet is simple and rational. It was written at the author's favorite time for composition,— as the birds began their matins, between three and five o'clock,— April 5, 1838. A part is omitted for brevity: —

"I have been the companion, the victim, of sorrow;
I have lain down at night with no hope of the morrow,—

No gleam in the future, not a single bright ray,
No quiet at night and no morning all day.

* * * * * *

"I have wished — O how vain! I had wings, and could fly
From earth and its turmoil to rest in the sky,
Where sun is not needed; for faint is each ray,
Where God is the light and 't is morning all day.

"But a change has come o'er me; I lift up my head,
The world is all joyous, my sorrows are fled,
No fears or forebodings beset my bright way,—
I rise ere the lark and 't is morning all day.

"You ask for the cause? The reply is soon given:
I 'm temperate in using each favor of Heaven;
I breathe the pure air, study, work, sing, and play,
I retire when it 's night, but I 've morning all day."

## DIET AND MORALS.

BY D. H. KRESS, M. D.

IT can truthfully be said that the character of nations, families, or individuals may be determined in great measure by the character of the food they eat. This is also true of the brute creation. Animals that live exclusively on the flesh of others are fierce, as the lion, the tiger, the leopard; while animals that live on herbs are gentle and useful, as the horse, the cow, the camel. It is well known that hogs fed on the offal of the slaughter-house become ferocious, treacherous, and dangerous. Dog trainers allow their dogs only bread made of corn or some other cereal; they have discovered that the disposition of the dog is changed when he is fed on the flesh of other animals. The experiment of flesh eating has been tried upon the cow. When she was confined to flesh-food, rather than starve, she at last ate it. Finally she lusted after it, and devoured it as greedily as if she had belonged to the carnivorous race; but it changed her natural disposition to that of the tiger.

A bear that had been fed upon grains and fruits was gentle, romping and playing with other animals. A change was made in the keepers. The second keeper, not knowing anything about the former habits of the bear, fed him for two or three weeks on flesh, the result being that he grew so ferocious that he killed his little playmate, and partially devoured him. Finally he became so dangerous that he had to be killed.

Rollin, the historian, says that in training pugilists for the bloody arena, in whom a ferocious spirit was the chief requisite, an exclusive diet of raw flesh was used. The Persians recognized the relation that exists between a simple, non-stimulating diet and morals more fully than many do at the present day. By them, as stated by Rollin, "the education of children was looked upon as the most important duty and the most essential part of government; it was not left to the care of fathers and mothers, whose blind affection and fondness often rendered them incapable of that office, but the state took it upon itself. Boys were all brought up in common after one uniform manner. Everything was regulated, the place and length of their exercises, the times of eating, the quality of their food and drink. The only food allowed either the children or the young men was bread, cresses (such as fruits and vegetables), and water. They considered that a plain, frugal diet, without any mixture of sauces or ragouts, would strengthen

the body, and lay such a foundation for health as would enable them to undergo the hardships and fatigue of war to a good old age. The design of the Persians, in all these wise regulations, was to prevent evil. Being convinced that it is much better to prevent faults than to punish them, and whereas, in other states the legislators are satisfied with enacting punishments for criminals, the Persians endeavored so to order it as to have no criminals amongst them."

They recognized that by keeping their young men on a simple diet, excluding entirely the use of flesh-foods, they could prevent evil and the formation of criminals in the state. In this they succeeded in a great measure. Cyrus, one of the noblest characters of history, was brought up in this simple way, and in after years, when surrounded with luxury, he still adhered to the habits of his early life. Daniel and his three companions, while at the court of Babylon as captives, refused to eat the food that was placed before them by the king. They purposed in their hearts that they would not defile themselves with the portion of the king's meat, nor with the wine which he drank. They continued using the simple diet of pulse and water, no doubt including grains and fruits. As a result, these young men were clear-headed, and prospered above the others, so that at the end of three years "they were found ten times better than all the magicians and astrologers that were in all the realm." The testimony is given that an excellent spirit dwelt in them. A great moral test was brought upon the inhabitants of Babylon; the king made an image of gold, and commanded that at a certain time every one should fall down and worship it or be cast into a burning furnace. Among all that multitude only the men that adhered to a simple diet remained steadfast. They fearlessly declared, "Be it known unto thee, O king, that we will not serve thy Gods nor worship the golden image which thou hast set up."

In an able scientific paper read before the American Medical Association, at Denver, Colo., in June, 1898, by Charles Shepard, M. D., of Brooklyn, N. Y., occurs this statement: "It is evident that as we progress in intelligence and refinement, our food standard changes." He adds, "Perhaps it would be more correct to state that as man improves in his dietetic habits, he will advance physically, mentally, and morally. As man advances toward a higher plane, he inevitably tends toward what, for want of a better term, may be called vegetarianism. Those capable of the greatest endurance subsist mainly upon the products of the earth. The Grecian athletes, who made the glory of the Olympian games, were trained on vegetable food. Those were the days when the Grecian outlines were the standard of physical beauty, both in face and figure. The eminent Professor Virchow says, 'The future is with the vegetarians.'"

Dr. Shepard further adds: "Undoubtedly many of the vices that injure society and eventually result in crime, have their beginning at our own tables. . . . It is what we eat and drink that makes or mars our condition. If we partake only of the pure, we shall be clean and pure throughout. [This makes it possible, at least, to be mentally pure.] If, on the contrary, we handle the unclean, and attempt to build up with gross material, it will result in uncleanliness, disease, and death."

Overeating, even of wholesome foods, has a demoralizing effect upon the entire man. The best authorities acknowledge that mankind, as a rule in this country, eat about double the quantity necessary for the highest condition of health. Men are controlled by appetite instead of by principle. They think only of the mo-

mentary pleasure experienced by the tickling of the palate as the food enters the body. They do not eat for strength. Food is taken for the same reason that the drunkard takes whisky or brandy, or the tobacco devotee uses tobacco. Esau, for one morsel of meat, sold his birthright. How many at this day cling to sinful indulgences that stupefy and benumb the sensibilities of mind and soul! They are just as truly selling their birthright for a morsel of meat. As Esau awoke to see the folly of his rash exchange when it was too late to recover his loss, so many undoubtedly will discover when too late that they have bartered their heirship to a better world for selfish gratification in this. If there is a lack of moral development, let us inquire if there is not a physical cause for it. In order to make character building possible, there must be a right physical foundation laid on correct habits of living. "No man is crowned unless he strives lawfully."

## THE HYGIENIC MANAGEMENT OF INSOMNIA.

BY W. H. RILEY, M. D.

(Continued.)

2. *Changes in the Functions of the Body during Sleep.*— Sleep is a condition in which consciousness is normally lost and during which the whole body, to a greater or less extent, but particularly the brain, enjoys functional rest. The phenomena of sleep are probably best seen in their simplest forms in the hibernation of cold-blooded animals, but the changes in the functions of the different organs of the body are sufficiently distinct in the higher animals to allow of observation.

The most conspicuous sign of sleep is unconsciousness, or a cessation of what may be called the automatic action of the brain; but this condition of rest is not confined to the cerebral hemispheres; the whole nervous system, and in fact all the organs of the body, to a greater or less extent, share in this sleep.

Unconsciousness may be produced by drugs, as chloroform or ether, by a severe blow upon the head, by hypnotism, by compression of the carotid arteries, etc. But the sleep produced by drugs differs from normal sleep in that it is not refreshing and restful. During natural sleep, new matter and new energy are stored up in the nerve cell to be transformed and utilized in the body during its wakeful hours of activity. On the other hand, sleep that is produced by anesthetics and drugs is attended by the storage of but little or no energy in the nerve cell, and consequently the sleep thus induced does but little, if any, good. After the use of the drugs, in many instances at least, the individual still feels tired and exhausted, and the reason for this is, that although he apparently slept, his sleep has been an unconscious, stupefying process, rather than that revivifying and refreshing that takes place during natural sleep.

During sleep the muscular system is relaxed, the muscular tone is lessened, and in sound sleep there is no movement of any part of the body. The beat of the heart in sleep is weaker and slower than during waking hours. This is brought about not by any inhibitory action, but because the energy liberated in the beating of the heart is gathered slowly, and is exploded only after long intervals of rest. The respiratory movements are slower in sleep than in the waking hours. Thoracic respiration is said to be more prominent

than diaphragmatic, and the Cheyne-Stokes respiration is sometimes observed. Glandular action is much less during sleep than when one is awake, and as the result of this the secretions of the body, as saliva and gastric juice, are diminished. The pupils are contracted, and the eyeballs are convergent, and point upward. All sensations are abolished; the reflexes are absent, or greatly diminished.

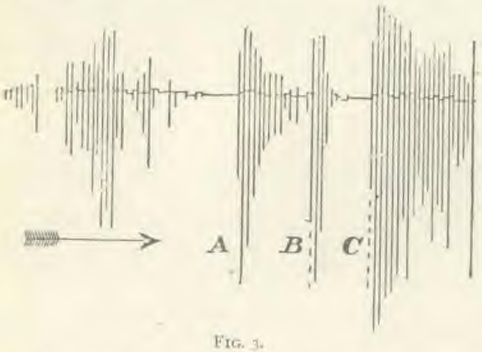


FIG. 3.

Record of Knee-jerk of a Demented Patient. The arrow indicates the direction in which the record is to be read. (Noyes.)

By reflex action is meant some change, usually an increase, in the activity of an organ of the body as the result of stimulating a sensory, or afferent, nerve; that is, those nerves that carry impulses toward the central nervous system. Perhaps the most conspicuous reflex action of the body is what is known as the knee-jerk, or the patellar tendon reflex. If the legs are crossed so that one limb is supported by the other, as is often done when sitting in a chair, and the limb is struck a light, quick blow just below the knee, the foot is suddenly raised. This we term a reflex action, and it is brought about by stimulating the nerve centers in the lower part of the spinal cord by the sudden tap that is given the knee.

This so called tendon reflex, or knee-jerk, is subject to various changes, both in health and disease, and is frequently made use of by physicians to aid in determining the presence or absence of disease, and also in locating diseases of the nervous system. It is usually more active in the young than in the old, and in those of a nervous temperament than in those who have a less sensitive nervous system. In some people it appears to be normally absent; at least one occasionally meets a person in apparently perfect health where it is absent. It also undergoes certain changes during the twenty-four hours. These changes are most conspicuous when one compares the knee-jerk of a person awake with that of the same individual asleep. Noyes, for instance, has shown that as one passes from a wakeful condition to quiet slumber the knee-jerk grows less and less, and during sound sleep is entirely abolished. He has also shown that it is subject to certain variations during sleep. For instance, it may be increased by a slight noise, or by some other form of stimulation, which, although it may not be sufficient to arouse one to consciousness, is nevertheless able to bring about certain reactions in the nervous system while one is still in slumber.

Fig. 3 shows a tracing which illustrates the change of the knee-jerk during wakefulness and sleep. In this experiment the knee was tapped at regular intervals of five seconds. The patient finally passed from a wakeful condition to that of slumber, and during this transition the knee-jerk diminished and finally entirely disappeared when the patient was sound asleep. At *A* a series of kicks appeared, which occurred when a person walked across the room in which the patient was lying asleep. This gradually diminished until *B* was reached, when another auditory stimulus caused a series of kicks. These again diminished and disappeared after the noise had ceased. At *C*, two taps of a pencil and a distant locomotive whistle produced a longer series of kicks of the limb.

This experiment illustrates two facts: —

First, that the knee-jerk is absent during sound slumber, provided no other stimulus is brought to bear on the nervous system at the time the knee is tapped.

Second, when some stimulus, as sound, pinching the skin, or some other sensory stimulus, acts upon the nervous system at the same time that the knee is tapped, it brings about a series of reactions which occur even if the patient is asleep.

These same changes are also noticed with reference to the knee-jerk when one is awake. If at the same instant that the knee is tapped by the physician, the patient is asked suddenly to close or to squeeze his hands, to recite some verse of poetry, or to talk, or if his skin is pinched or a sudden noise is made, or, in fact, if he does any slight act himself, or if in any way his nervous system is stimulated, the knee-jerk is increased by such stimulation.

All these experiments not only illustrate the fact that the nervous system is almost completely inactive during sound slumber, and that the so-called reflexes are greatly lessened or absent during this time, but it also brings out in a very positive manner the fact that the reaction which we may get from stimulating the nervous system, either during waking hours or during slumber, depends to a very great degree upon whether or not other stimuli are acting upon the nervous system at the same time, or the condition of what we may term the background of the nervous system at the time it is stimulated. In the case of the knee-jerk, for instance, when no other stimulus entered the system except that produced by the tapping of the knee when the patient was asleep, no response was obtained; but when other stimuli entered the nervous system, as when the auditory nerve was stimulated by sound, a reaction was obtained in the form of a knee-jerk.

This experiment, as well as others that have been made, also illustrates the fact that in order that one may get the greatest possible benefit from sleep, the body must be in a condition where it is as little as possible subjected to stimulation. Although a person may be entirely unaware of any such stimulus, yet it is true that such stimulation does cause an activity on the part of the nervous system, and in so far as this is the case there is a lack of complete rest and proper recuperation. We sometimes hear people say they can sleep as well on a moving train or in a building near some noisy street as they can in a quiet room. It is undoubtedly true that these persons in their sleeping hours in these noisy places are entirely unconscious of any sounds; but it is equally true that although the sounds may not be sufficient to arouse the sleeper to wakefulness, they do act upon the nervous system, and produce certain results and call forth certain reactions, and so far as these reactions occur, the body is not in complete rest, and to the same extent noises and other nerve stimuli are detrimental during sleeping hours.

Another important change in the function of the body during sleep is the change which occurs in the circulatory system. These changes have been studied by various methods. It was formerly thought that the cause of sleep was a recession of blood from the brain. More recent studies on this subject go to show that the diminution of the amount of blood in the brain during sleeping hours is not really the cause of sleep, but the result of sleep. That there is a lessening of the amount of blood in the brain during sleep has been proved by a number of experiments. For instance, if the body of a man is suspended in the air so that the longest diameter of the body, that is, a line drawn from the head to the feet, takes a horizontal position, and the body is arranged

so that it may move freely in a vertical plane, it is found that while one is passing from a wakeful condition to that of sleep the feet gradually decline while the head moves upward, and this inclination of the body is greatest when the suspended person is in sound slumber. If some noise or other means of awakening the person is used, it is found that as he awakes, the body returns to its original position, the feet coming upward and the head going downward until the body again reaches the horizontal plane.

FIG. 4.

Plethysmographic record taken from the arm of a person sleeping in the laboratory. Change in the volume of the arm of a sleeping subject caused by the sound of a music-box which was started at *. (Howell, Bardeen, and Nicholas.)

Then again by the use of an instrument called the plethysmograph it can be shown that the amount of blood in the arm is increased when one is asleep; and this increase of blood in the arm is accompanied by a diminution in the amount of blood in the brain. This plethysmograph consists of a case, with other attachments, which will receive the forearm. The space outside the arm is filled with water. Any change in the amount of blood in the arm will produce a similar change in the volume of the arm. When the amount of blood in the arm is increased, the size of the arm is likewise increased. The swelling of the arm drives water out of the case through a tube, and this increase in volume is recorded by a tracing on paper. It is found by making studies with this instrument that the amount of blood in the arm increases very decidedly during sleep. It is also found that if during sleep some stimulus, as a noise, acts upon the nervous system, there is a change in the volume of the arm as indicated by the plethysmograph, and this change shows that there is a diminution in the amount of blood in the arm. Fig. 4 shows a record which indicates the changes in the volume of blood in the arm when one is asleep, as the result of sound caused by a music-box.

The experiments with the plethysmograph, in connection with other experiments, show very conclusively that there is a diminution in the amount of blood in the brain during sleep; and it also shows, as has been indicated, that changes may occur in the circulation of blood in the brain as a result of stimulating the nervous system, although these various stimuli may not be sufficient to awaken the person. These experiments also illustrate and emphasize the fact already stated, that noises and other forms of stimuli that may act upon the nervous system when one is asleep do prevent complete rest, although they may not be sufficient to awaken one from slumber.

It is interesting to note in this connection the amount of stimulation necessary at different intervals during sleep to arouse one from slumber. If the height from which a ball falls to the floor of a room in which the subject is sleeping be taken as a measure of the loudness of the noise (which really amounts to the strength of the stimulus acting upon the nervous system), the amount of stimulation necessary to arouse one from sleep at different periods can readily be determined. From experiments made in physiological and psychological laboratories, it has been found that a louder noise is necessary to

arouse one from slumber during the first hour than at any other time of the sleeping period.

Fig. 5 shows in a graphic manner the height from which a ball must fall at different intervals in order to arouse the sleeper. The figures at the left along the vertical line represent the distance through which the ball falls, while the figures along the horizontal line indicate the different periods of time. From a study of this curve it will be seen that the distance through which the ball fell increased quite rapidly during the first hour. From the first hour to the end of two hours and a half the distance necessary for the ball to fall to awaken the sleeper decreased very rapidly, and less rapidly from two hours and a half onward.

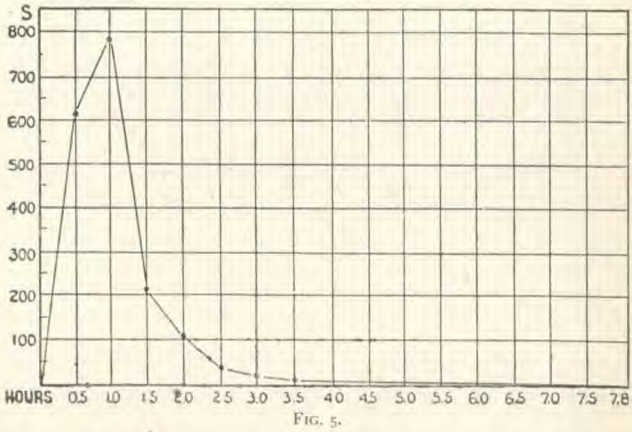


FIG. 5.

Curve illustrating the strength of an auditory stimulus (a ball falling from a height) necessary to awaken a sleeping person. The hours are marked below. The tests were made at half-hour intervals. The curve indicates that the distance required for the ball to drop increased during the first hour, then diminished at first rapidly, then more slowly. (Kohlschütter.)

These experiments show that sleep is more deep and sound the first hour or two, but this does not necessarily mean that the recuperation which goes on in the nerve cell by which new material and new energy is stored up in the cell changes with the curve that indicates the soundness of sleep. It is undoubtedly true that all through the sleeping period the nerve cell is continually building itself up with new material and recharging itself with new energy preparatory to future work.

From all these experiments it is evident that the stimuli acting upon the nervous system produce their effect during sleep. If this were not true, the sleeper could never be aroused; but it is also true that the fewer stimuli there are acting upon the nervous system during sleep, the more complete is the rest, and the greater are the restorative processes which go on in the nerve cells that make up the nervous system.

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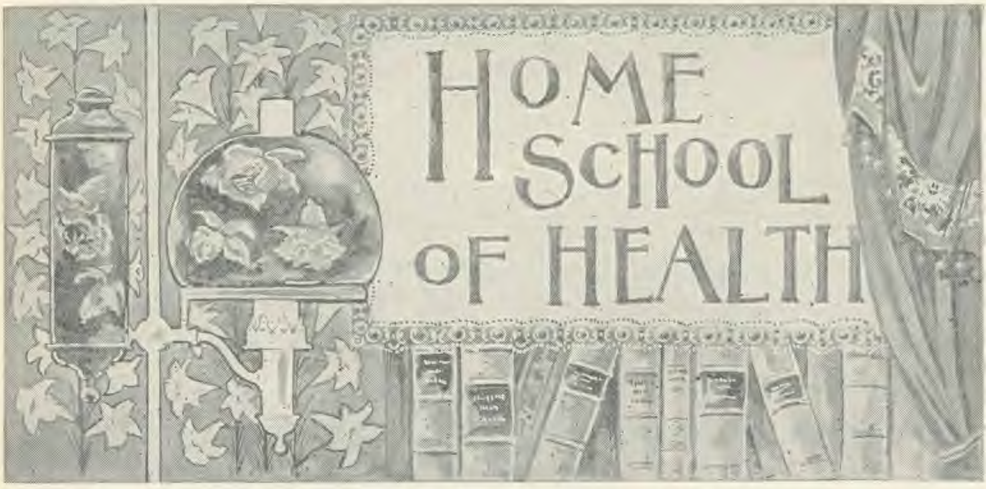
General Shafter puts himself on record in favor of total abstinence as follows: —

"I have always been strongly opposed to the canteen system or the sale of intoxicating drinks of any kind on military reservations, and have opposed it until absolutely overruled and required to establish a canteen at my post. I regard it demoralizing to the men, besides impairing seriously their efficiency. There are always, in every regiment, a number of men that will under any circumstances get and drink liquor, but the great majority are temperate, abstemious men; and it is to those that the evil effects of the post exchange system works the greatest injury, as young men who would not think of going away from the post for liquor will, when it is placed before them and every inducement offered them to purchase, do so, and thus gradually acquire habits of intemperance. The plea that it furnishes a large sum, which it does, to improve the table fare of the men, is, in my opinion, a very poor one, as the government of the United States is perfectly able to feed its men without any assistance from the profits of rum selling."




## NATURAL SYMMETRY OF FORM.

THERE are two things necessary to a symmetrical figure, — right proportion among the different parts of the body, and proportionate curves.

The ancient Greeks paid great attention to the subject of proportion ; they studied carefully the proportions of the body, and sought by training to develop the highest degree of symmetry. They laid down various rules respecting bodily symmetry. They made the length of the model head about one eighth or one ninth the length of the body.

According to the early Egyptians, the body should be nineteen times the length of the forefinger, leaving out the upper digital joint. The foot has also been considered as a measure of the length of the body, six and one-third times the length of the foot being taken as the proper length of the body.

If we make a comparative study of the physical proportions of the moderns, we find that the length of the body is about seven and one-half or eight times the length of the head ; that in a very short person the body is generally about seven times the length of the head, while in a very tall person it is about eight or eight and one-half times the length of the head. Difference in height is usually chiefly due to difference in the length of the legs.

Professor Giovanni, of Italy, is authority for several interesting laws of symmetry. He finds, for example, that the stretch of the ideal arms is exactly the same as the height. The circumference of the chest is found to be one half the height, and the length of the sternum, leaving off the cartilage at the lower end, is one half the length of the circumference of the chest.

The Greeks noted another proportion, — that the length of the sternum, leaving out the cartilage at the lower end, is also the length of the collar-bone, and measures as well the distance between the shoulder-blades.

With respect to symmetry, the curves of the body are perhaps still more important than the proportions. The most conspicuous deviations from the natural curves are probably those which have relation to the spine. There are two classes of abnormal curves which occur in the spinal column,— first, deviation in a lateral direction ; second, deviation in a posterior direction.

There are several varieties of lateral deviation, or curvature. There is single lateral curvature, in which the spine is concave on one side. In this case the shoulder is lowered on the side of the concavity. Another and very common form of lateral curvature is a double curvature,— instead of a single curve to one side, there is a double curve, a curve to the right at the upper part of the spinal column and a curve to the left at the lower part. In that case the left shoulder will be lower and the right hip higher.

There is another variety of both these forms of lateral curvature. In some young women the first form is reversed ; that is, there is a single curvature to the left instead of to the right. There occur also a curve to the left at the upper part of the spine and a curve to the right at the lower. Sometimes in addition to the spinal curvature, the shoulders are twisted around, and the upper part of the spine is also twisted, so that there is not only curvature but rotation of the spine. This is a more complicated condition to deal with, but is not infrequent.

The most common of all forms of spinal curvature, however, is posterior curvature. This is present in all cases of downward drooping of the shoulders. Every round-shouldered person, every flat-chested person, has posterior curvature of the spine. There are three forms of this curvature, one chiefly affecting the upper part of the spine, thrusting it forward, causing roundness of the shoulders and carrying the hips backward ; another, located farther down, in the middle portion of the back, producing an excessive prominence at this point, throwing the head and the hips forward ; and a third, in which the lower part of the back, the lumbar region, is principally concerned, the natural lumbar curve, the forward curve, being almost completely destroyed, so that this part of the spine becomes straightened. Sometimes in such cases the hips and the spine are nearly on a line.

The first form of posterior curvature is most common in old people, and the second in middle-aged or young people. The first two forms are the result of muscular weakness caused by advancing years, and neglect of physical development, especially neglect to strengthen and develop the muscles of the trunk. The third form comes from allowing the vertebræ to ossify, or become rigid, thus losing their normal flexibility.

There is just one way to preserve, develop, and perfect the natural symmetry of the body and to avoid these deforming curvatures, and that is by taking proper, regular, and systematic exercise. The purpose of exercise is to develop every group of muscles in the body, so that the skeleton may be held erect, supported equally on every side, like the masts and spars of a full-rigged ship.

Exercise promotes symmetry by the

proper distribution of fatty tissues, by preserving the suppleness of the body, the elasticity of the muscles, and the flexibility of the joints, tendons, and ligaments. If the muscles of a certain part of the body are not used in such a manner as to stretch them, they become shortened, and after a time all use of them beyond the habitual extent becomes impossible.

FIG. 1.

Nature abhors idleness, and punishes the idle organ by complete extinction or partial obliteration; so, if a muscle is not used to its full capacity, if it is not stretched to its full length, nature shortens it. This shortening may become so permanent in character as to be irremediable.

In order that the body be kept symmetrical such exercises must be taken as will keep the muscles at the proper length. By active, daily exercise, by constant and full use of the muscles and joints, not only can the general bodily symmetry be preserved, but the hardening and ossifying processes, even of old age, can also to a great extent be prevented.

FIG. 3.

In our last lesson we gave some special exercises for strengthening the back and loins. For preserving and developing the general symmetry of the body there is no better exercise than walking. If done properly, walking brings a large number of the muscles of the body into gentle action in maintaining the erect position of the body and propelling it forward. In ordinary walking upon a level surface, the body is not lifted, but is inclined forward in such a way as to make it necessary for the feet to be advanced, first one and then the other, in order to keep the body from falling. Walking is a valuable form of exercise, but is so gentle in character that a large amount must be done, at least several miles a day, to constitute a fair amount of exercise. Figs. 1 and 2.

FIG. 2.

To walk healthfully, first make the body erect by throwing the shoulders well back and the chest forward, holding the head erect and drawing the chin in a little. This will straighten the muscles of the back, and give to the body an erect carriage. Let the arms swing easily by the side, with the palms open and turned inward. In stepping forward, place the foot down firmly, letting the heel touch first, then the toe. Avoid a teetering gait by keeping the knees well set back. Put vigor and elasticity into the step. At the beginning, let the pace be moderate, and the distance not greater than can be accomplished without severe fatigue. Gradually increase the distance and the speed until able to walk four or five miles an hour. The amount of exercise obtained in walking may be regulated by the

FIG. 4.

speed and distance of the walk. The amount of work done may be increased by carrying loads of different weights, either in the hands or upon the shoulders.

Running, leaping, and hopping are modifications of walking which afford much more vigorous means of exercise than ordinary walking. A person who has not been accustomed to violent exercise of any sort, should carefully avoid an excessive amount of this kind at the beginning of practise. In running, the gait should at first be very moderate, and the distance traversed short, so as to give the heart and lungs opportunity to become strong enough to sustain the increased effort required of them during this active exercise. The same observation holds good respecting hopping and leaping. The proper positions in running are shown in Figs. 3 and 4.

J. H. KELLOGG, M. D.

## THE EVILS OF CONVENTIONAL DRESS.

IN comparing the figures shown in our previous lessons, it must be evident to all that there has been a marked change in the human form as a result of the ordinary mode of dress, together with other influences which tend to weaken and destroy. It may astonish some if I say that one of the evils resulting from the conventional dress is deformity. Many would be horrified if told that their bodies, which they have come to regard as beautiful, are really deformed. However, let us investigate the facts, and see if this is not really the truth.

The outlines of the figures of the boy and the girl at the age of thirteen or younger are practically the same, being made up of graceful curves. The young man continues to grow and develop, while the outline of his figure preserves its beauty and grace; but not so with the young woman. As she nears womanhood, her form is artificially changed. Instead of the rounded, graceful figure that nature intended, she develops one of stiffness. The natural curves are broken, and angles begin to appear. Soon she presents to view a flat chest, round shoulders, a flat back, chin projecting forward, and abdomen protruding. This condition is so common that we have come to look upon it as the natural form, and the worst defects are so covered by the devices of dressmakers that we are deceived, and the evil continues.

The second of the evils we will mention is displacement of the organs. By the weight and pressure of clothing at the waist line, all the organs below the diaphragm are crowded out of their normal position, and hence can not perform their functions properly. It is not an uncommon thing to find the stomach three or four inches lower than it should be, and the kidneys floating about in the abdominal cavity; the stomach and the kidneys, being crowded down, tend to push everything before them so that we find the intestines also crowded down,—a condition resulting in chronic constipation.

A third evil is the interference with the circulation. A constriction of any part of the body interferes to a greater or less extent with the circulation in that part, and if very extensive, affects materially the whole circulation. If a tight band is

bound about the arm, the flow of blood to this part is hindered, and the blood which does make its way to the part is so checked that it passes more slowly than it should, thus becoming stagnant; the part becomes clogged, the tissues are not properly supplied with pure blood, and if the process continues, actual death of the part may ensue. The blood passing from this diseased member poisons the whole body. If this constriction, instead of being about the arm or leg, is about that part of the body where are located the large vessels and the vital organs, the injury is of course far greater. A band, corset, or any garment that does not allow perfect freedom about the waist compresses to a certain extent the large artery which supplies the entire lower portion of the body with blood. Though it lies deep, the circulation is slowed, and the blood, passing more slowly than it should, and having to be carried a long distance from the heart, becomes cooled before it reaches the feet, so that the person suffers with cold feet. This chilled blood flows back to the heart more slowly than is normal, and thus the whole circulation is hindered.

Arabic Girls in Dancing Costume.

Another evil resulting from a disturbance of the circulation is that the blood passing too slowly through the body does not carry sufficient oxygen to the tissues, and consequently they are not properly nourished, and become weak and diseased. Again, in consequence of this sluggish circulation the waste products are not so rapidly carried away, and the system becomes loaded with impurities. In this condition one is susceptible to almost any disease, and if attacked by disease, often has not enough vital force to resist the poisons. Hence death follows.

The fourth evil to which we shall call attention is that of interference with respiration. The present mode of dress is such that the lower ribs are compressed, and crowd upon the lungs to such an extent that the air can not enter the lower portion of the lungs. It is quite a common idea that there is a difference between the respiration of man and that of woman, man using both the upper and the lower portion of the chest, while woman breathes only with the upper portion of the lungs. A little thought will convince any sensible person that in the normal condition there is no difference between the breathing of man and that of woman. At birth and during childhood there is no difference between the breathing of the boy and the girl. At the age of thirteen or fourteen a

change takes place in the girl, and she ceases to use the lower part of the chest; upon investigation it will be found that her clothing is such that the chest can not expand, the air entering only the upper part of the lungs, being hindered from passing downward. What is at first a cruel restriction becomes after a time a sort of "second nature." Nevertheless, kind nature protests. The same results come from this perversion as from interference with the circulation; that is, the air does not enter in sufficient quantity properly to oxygenate the blood, and the tissues are not properly nourished, so we have a weakened condition of the body and an accumulation of poisons in the system which tend to produce disease of various kinds.

These we consider the chief evils of conventional dress, and from any one or all of them may result almost any disease to which flesh is heir.

ABBIE M. WINEGAR, M. D.

A MODEL GOWN.

THE artistic and healthful gown shown in the accompanying cuts requires from six to eight yards of all-wool material, one bolt of the wider ribbon used on the skirt, two bolts of the narrow ribbon that trims the waist, and four and one-half yards of sash ribbon. This gown was of marine blue "whip cord" with a white satin yoke and a separate silk lining for the skirt.

MRS. WILLIAM ASTOR boasts that she has never worn a corset, and her friends are inclined to give this fact credit for her superb bearing and easy carriage. "She holds herself straight and erect, like an empress," one writer remarks. Although a grandmother, she looks to be just in her prime.

## A STUDY OF YEAST.

THE making of good bread with yeast is one of the most difficult processes of cookery, although, as children often say, "it is easy enough if you know how." Nothing but a thorough knowledge of the materials entering into its composition and the principles involved in the process, combined with the skill and dexterity acquired by careful practise, will insure success. The materials needed for bread are flour, yeast, and a liquid, usually water or milk. Wheat flour, the substance from which bread is generally made, contains all the food elements in proper proportion to meet the requirements of nutrition, provided it is the product of the entire wheat kernel. Flour made from the hard wheats is considered preferable for bread making. These wheats possess a stronger, more elastic gluten, a consideration of importance when the bread is to be made light by the expansion of gas, as when yeast is used.

Next to good flour the most important requisite in the making of bread is good yeast. The best of flour in conjunction with poor yeast will not produce good bread.

The nature of yeast was for a long time shrouded in mystery, but science has revealed the fact that it is a collection of living organisms, or plants. We have all observed that in the vegetable world there are two kinds of plants: green plants, that thrive only in light and air; and fungi, which can live and grow in darkness. These latter have neither leaves nor blossoms, and are usually very short-lived. A more important point of difference is that the fungi derive their sustenance from animal or vegetable matter in the process of decomposition, while the green plants seek nourishment from earth, air, and water.

Yeast is one of the simplest organisms, a cell plant of the order of fungi; several varieties are known to scientists. Its first appearance in growth is that of a tiny oval cell, composed of an outer envelope, and filled with a jelly-like substance. In the proper medium and under proper conditions this cell will readily grow, and when mature, sends out a bud or enlargement upon one side, gradually increasing in size until it quite resembles the parent cell, from which it gradually becomes separated and in its turn produces other cells. From each cell in like manner usually grow four other cells, making the plant appear like a chain of cells growing end to end, and under proper conditions their multiplication is very rapid. In size the cells are exceedingly minute, a single cubic inch of yeast containing as many as eleven hundred and fifty-two million.

Like all living things the yeast plant must both eat and breathe in order to thrive, but having no opening in its cell covering, or, as we might say, no mouth, it must ingest its food through its cell walls by lying in a food bath. This necessitates that the yeast be placed in a solution of food material, for if surrounded by dry or solid food, it would be unable to make any use of it. The food best suited to the nourishment of yeast is sugar. It is, however, not necessary to supply it with cane-sugar, as the flour of wheat contains starch, a small amount of which is converted into sugar by the diastase which lies next the bran. The yeast plant, when surrounded with a warm bath of flour and liquid, readily seeks out and extracts its own food ma-

terial, and, other conditions being favorable, feeds and grows until the food supply is exhausted. Then, unless new food is provided, it dies.

Extreme heat or cold will retard or altogether arrest the growth of the yeast plant. It thrives best at a temperature between 70° and 80° F. To grow well, the yeast plant must be kept at an equable temperature, ranging between these limits. A slow growth at a low temperature favors the development of other micro-organisms which make the yeast unhealthy, and produce bad flavors. With a high temperature, the yeast growth proceeds very rapidly and is of extremely short duration.

During the process of growth yeast has the property of producing in food material certain changes termed fermentation.

Fermentation may be continued through three stages, the first developing into the second, the second into the third. During the first stage the yeast plant decomposes the sugar, splitting it into alcohol, carbon dioxide, or carbonic acid gas, glycerin, and oxygen. It appropriates the oxygen for its own use, and gives off the carbon dioxide, a gas which puffs up and makes light a dough in which yeast is distributed. This stage of fermentation is termed alcoholic fermentation, because alcohol is one of the principal products. If the fermentation is stopped at this stage by the baking of the dough, the bread is sweet; but if fermentation is allowed to proceed into the second stage, instead of alcohol, acetic acid is formed, carbonic acid is no longer given off, and a sour loaf is the result. At this stage the yeast plant has outlived its usefulness. Fermentation continues, because there are other micro-organisms as well as the yeast plant that are capable of causing fermentation, and when a medium becomes unhealthy for the growth of yeast, it becomes healthy for the growth of other micro-organisms.

These micro-organisms multiply with quite as great rapidity as do the yeast cells, and as they grow, they produce chemical changes in the material much as does yeast. When fermentation is very long continued, particularly in substances of albuminous composition, putrefaction takes place.

The most convenient yeast is that sold as compressed yeast, made from pure yeast cultures, to which is added a proportion of starch before compression to add to its keeping qualities. When fresh, this yeast is exceedingly strong and vigorous in action. The use of too much, however, is more likely to produce over-fermentation than yeast of other kinds.

Many housekeepers prefer to manufacture yeast for themselves. Liquid, home-made yeasts are numberless. Essentially the same principle is involved in their production; viz., the introduction of a small quantity of fresh, lively yeast into a mixture of some form of starch and water with or without the addition of such other substances as will promote fermentation or aid in preventing the yeast from souring. The starch may be obtained from potato or flour, or from a combination of both.

If no seed yeast is obtainable for planting a yeast-garden, such seed may be obtained by covering a cup of raisins with water, and keeping it in a warm place until fermentation takes place. Then prepare a solution of starch and water, and use this fermenting liquor as seed. There are other ways of obtaining the yeast germs for planting, but this simple one is within the reach of nearly every housekeeper.

Liquid yeast is best kept in earthenware or glass utensils, air-tight receptacles being best if it is desired to keep the yeast in a quiescent state. This is necessary because it will grow rapidly when having access to the oxygen of the air and be

very short-lived unless furnished with abundant food. All receptacles used must be sterilized and kept scrupulously clean, since the admixture of other germs will cause the yeast to spoil.

Compressed yeast may be considered good in quality when it looks white and breaks off dry and is easily crushed. If moist and stringy when broken, it should be discarded at once. Liquid yeast, when fresh, is light in color, foamy, effervescent, with a pungent odor, similar to weak ammonia. If it has a dull, watery appearance and a sour odor, it is probably poor in quality and will not produce good bread.

The surest test for yeast of any kind concerning which there is any question is to prepare a small amount of it in liquid form, add a little flour, place it in a temperature favorable for growth, and watch the result. If it begins to ferment in the course of fifteen or twenty minutes, it is good. ELLA EATON KELLOGG.

## .... Seasonable Menus ....

By Mrs. E. E. KELLOGG

### Breakfast No. 1.

Fresh Fruit
Ceraline with Canned Grape-pulp
Dry Toast with Hot Cream
or Nut Cream
Pulled Bread Baked Apples
Fruit Wafers

### Dinner No. 1.

Vegetable Soup
Scalloped Potato (see Feb. No.)
Celery
Dried Corn Stewed with Tomato
Pearled Barley with Raisins
Whole-wheat Wafers
Carrot Pie
Raisin Bread (see Jan. No.)

### Breakfast No. 2.

Fresh Fruit
Oatmeal with Apple
Steamed Figs with Graham Wafers
Apricot Toast Hominy Gems

### Dinner No. 2.

Black Bean Soup
Vegetable Hash (see Feb. No.)
Stewed Carrot Baked Squash
Beaten Biscuit Whole-wheat Bread
Popped Corn Stewed Apple
Assorted Nuts

### RECIPES.

**Stewed Carrots.**— Prepare young and tender carrots, drop into boiling water, and cook for fifteen or twenty minutes. Drain, slice, and put into a stew-pan with rich milk or cream nearly to cover; simmer gently until tender; season with salt and a little chopped parsley.

**Hominy Gems.**— Beat one egg until very light, add to it one tablespoonful of thick sweet cream, a little salt if desired, and two cupfuls of cooked hominy (fine). Thin the mixture with one cupful or less of boiling water until it will form easily, beat well, and bake in heated irons.

**Pulled Bread.**— Remove a loaf from the oven when about half baked, and lightly pull the partially set dough into pieces of irregular shape about half the size of one's fist. Do not smooth or mold

the pieces ; the rougher the shape the better. Place them on perforated tins, and bake in a slow oven until browned and crisp throughout.

**Carrot Pie.**— Boil, drain, and rub the carrots through a colander. For each pie required use two large tablespoonfuls of carrot thus prepared, two eggs, two cups of milk, a little salt if desired, four tablespoonfuls of sugar, and lemon or vanilla for flavoring. Bake with under crust only.

**Vegetable Soup.**— Prepare a nuttose broth by simmering one pound of minced nuttose in two quarts of water, mince one-half cup each of turnip, carrot, cabbage, onion, celery, parsnip, and potato, and cook together in a small quantity of water until tender, putting those requiring longest cooking on first, adding the potato last. Cook one-fourth cup of rice in the nuttose broth, add the cooked vegetables with the water in which they were cooked, and serve.

**Black Bean Soup.**— Soak a pint of black beans overnight, drain, and put to cook in fresh water ; parboil. Cook again with one small onion and three stalks of celery until tender. Press through a colander. Add to the pulp a tablespoonful of nut butter, salt as desired, add the juice of half a lemon, and water to make of the proper consistency.

**Oatmeal with Apple.**— Into a quart of boiling water sift a cup of coarse oatmeal. Boil rapidly, stirring continuously until thickened, then turn into the inner cup of a double boiler, and cook for three hours. Serve with apples boiled with syrup, a few pieces over each dish.

**Boiled Apples with Syrup.**— Halve, and remove the cores of half a dozen nice apples, leaving the skins on. Boil until tender in sufficient water to cover them. Take out with a fork and put into a glass dish. Add to the juice three or four slices of a large lemon. Boil for ten or fifteen minutes ; sweeten to taste ; then pour over the apples, and cool.

## COLD WATER IN THE TREATMENT OF FEVERS.

FEVER is due to the disturbance of the heat-regulating centers. Such disturbances may result from the presence of poisonous substances, from nervous impressions, and from changes in the temperature of the blood. Fever is no longer, as formerly, regarded in the light of an unmitigated evil, and to be combated irrespective of other symptoms, as it has been clearly shown that a rise of temperature is, at least in some cases, curative in its tendency. It is the result of the resistance of the body against the morbid elements that constitute the cause of disease.

The temperature has been known to rise as much as 15° above the normal in pathological conditions, and even a higher temperature has been noted just before death. Recovery rarely occurs when the temperature exceeds 107° F.

In fever, the functions of the heat-regulating centers are so greatly disturbed that influences, which, under ordinary conditions, would not affect the body temperature, may occasion a rise of temperature of several degrees. In other words, there is, in fever, a disablement of the heat-regulating centers of such a character that the generation and elimination of heat are not properly controlled, and there is a marked loss of resistance to the causes of thermic disturbance, both those that tend to produce depression of temperature and those that produce temperature elevation.

A warm atmosphere in conditions of fever tends far more than in health to cause rise of temperature, both by decreasing heat elimination and by increasing heat production. Under normal conditions an atmospheric temperature continuously above 60° F., as elsewhere remarked, tends to increase heat production, and at a temperature of 104° F., heat production is increased to more than three times the normal amount. In health this increase of heat production is of course largely balanced by increased heat elimination, but in fever this balance is not maintained. The skin is commonly dry in fever, under conditions which in health would induce profuse perspiration. Hence heat elimination is greatly diminished.

Fortunately, heat production is increased much less in fever than in the normal state, when an equal rise of body temperature is induced by exposure to hot air or by exercise. If heat production were increased in fever to anything like the degree that the elevation of temperature would at first suggest, the temperature would rise much higher than it does, because of the disproportionately small increase of heat elimination.

Hence the importance of proper regulation of the temperature of the air surrounding the patient in fever cases. A cold atmosphere, that is, air at a temperature below 60° F., increases heat production in fever, but to a less degree than in health. The neutral temperature for the air is from 58° to 68° with from 92° to 95° for water.

Exercise, either muscular or mental, even so slight as sitting up in bed or conversing with a visitor, will affect the temperature by increasing heat production, sometimes to a very unusual degree, and may even cause relapse when the patient is just convalescing from a fever.

The temperature in fever may be reduced either by diminishing heat production or by increasing heat elimination, and therapeutic applications may be made in such a way as to cause either heat production or heat dissipation.

Both heat production and heat dissipation may be influenced by drugs of various sorts. But the effect is always poisonous, and involves not simply the heat-regulating centers, but all the other nerve centers as well, and lessens the resistance of the body and the activity of the reparative processes by which the healing forces of the body seek to effect a cure.

It is encouraging to note that fever-controlling drugs are much less used by physicians at present than formerly, and that their pernicious effects are being recognized, while the value of physiological measures in the treatment of fevers is rapidly coming to be appreciated.

Both hot and cold water may be used in the treatment of fever. Any application of water made in a definite manner and of a definite temperature may, at one time and under one set of circumstances, produce an effect radically different from that produced by an identical application at another time and under different circumstances; for example, an application which in one patient might prove to be exciting or tonic, in another would produce decidedly sedative or depressing effects, and the reverse.

The characteristic, however, is not peculiar to water. It is one which applies to all classes of therapeutic agents. No two persons are exactly alike, and the state of the system in every individual is constantly varying from hour to hour and from day to day, the condition at each moment differing from that of other moments, past or future. Particular individuals also present special peculiarities or idiosyncrasies of constitution which must be taken into account in the em-

ployment of thermic applications as well as in the use of other therapeutic measures.

In our last lesson we stated the general effects of cold applications. (See February number.) The primary effect of an application of heat is excitant. The secondary effect is depressant, sedative, atonic. The actual effect of an application of heat depends upon many factors, as the condition of the patient, the intensity and length of the application, the form of the application, etc. In general, it may be said that—

(*a*) The effect of a very short application at very high temperature is strongly excitant, the depressant effects being practically imperceptible.

(*b*) The effect of a less intense and slightly prolonged application of heat is moderately excitant during the application; after the application decidedly depressant effects appear, resulting from a lessening of thermic and other tissue activities through atonic reaction.

(*c*) The effect of a prolonged application of heat at a high temperature is both excitant and exhausting or depressant, the excitation resulting from the elevation of the temperature of the body, the depression being due to the exhaustion of nervous energy, the usual result of long-continued stimulation. The depressing effects may appear before the application is withdrawn.

Applications of water at a temperature below that of the body always lower the temperature of the part to which the application is made.

Local applications of cold water, such as immersion of the hand or foot, reduce the temperature of the surface, but have no appreciable effect upon the internal temperature, unless a considerable amount of surface is involved, as in the employment of large cold compresses to the trunk, except in case of internal applications and applications to special regions.

Immersion of the hand in cold water gives rise to lowering of temperature in the other hand. The application of heat to a foot or a hand causes a rise of temperature in the opposite foot or hand. These local applications of heat and cold are without influence upon the general temperature. The application of snow to the forearm produces, first, a lowering of temperature in the hand to the extent of two degrees, and then an elevation of 1.3° F. Ice held in the mouth causes a lowering of the temperature of the cheek of the corresponding side. Copious drinking of ice-water likewise produces a fall in the temperature of the skin of the epigastrium. This lowering of the temperature is so marked in degree that it may be used as a method of locating the stomach. The application of cold water to the soles of the feet, especially if in the form of spray, gives rise to a lowering of temperature.

The cold sponge bath is an exceedingly useful measure in cases of fever in which the temperature is not very high, but the skin is flushed and dry. If a sponge is used, it should be as wet as possible, so that the surface will not simply be moistened, but thoroughly wet. The intensity of the bath may be increased by the amount of surface exposed at one time. If the patient is very sensitive to cold and complains much of the disagreeable sensations produced, small areas, as a single limb, may be sponged in succession, each part being covered as soon as gone over with the sponge, or the whole body may be sponged and left uncovered to cool by evaporation.

The cold towel bath is essentially the same as the cold sponge bath, only applied somewhat differently. A towel of ordinary size is wrung out of cool or cold water; then, instead of being rubbed over the surface, it is simply spread out and quickly applied over as large an area as

possible. It is allowed to remain in contact with the surface only until slightly warmed. It is then quickly renewed by dipping in cold water and wringing slightly, and applied to another adjacent or corresponding surface; and so on, until the entire body has been gone over, the operation being continued as long as may be necessary to procure the desired results. This method is applicable only to cases in which there is but a slight rise of temperature, or in cases in which the patient is too feeble to be subjected to more vigorous measures.

J. H. KELLOGG, M. D.

## SALIVARY DIGESTION.

THE importance of starch as a food is shown by the fact that the body requires a much larger amount of it than it does of any of the other food elements; in fact, the quantity of starch required is several times greater than that of all the other food elements combined, the amount needed per day by the average working individual being about sixteen ounces, while of the proteids and fats together only four ounces are required (proteids, 2.8; fats, 1.2 ounces).

The inability to digest starchy foods properly has resulted in the production of many varieties of stomach disorder. A study of the process of the digestion of starch shows how these disorders may be averted or cured.

The first digestive fluid that acts upon the starch is the saliva, which comes in contact with the food in the mouth. The starch when brought in contact with the saliva goes through a series of changes, and finally is converted into sugar. This series of changes can with a few chemicals be demonstrated by any one. The apparatus consists of two or three test-tubes, some Fehling's and Lugol's solutions, and an alcohol lamp. An ordinary lamp will answer the purpose, but is not quite so satisfactory as the alcohol lamp. Fehling's solution and Lugol's solution can be obtained at any drug-store, and the whole outfit will cost but a trifle. Lugol's solution, when brought in contact with cooked starch, turns blue, but has no immediate action on raw starch for the reason that the starch granules are surrounded by a woody covering which will not allow the solution to reach the starch. When the starch has been cooked, these coverings are ruptured, and a beautiful blue color results as the solution is brought in contact with the starch. These facts can be demonstrated by placing a few drops of Lugol's solution on the cut surface of a raw potato. Very little if any change in color will be produced. Now cook the potato or take one that has been cooked, and add a few drops of the solution; the result is, the cut surface of the potato at once turns blue. The saliva, like the Lugol's solution, can not penetrate the covering of the starch granules, consequently is unable to digest it. This simple experiment demonstrates very clearly that raw starch can not be digested by the saliva. From these facts we learn that the first process of digestion takes place outside of the body.

The cooking of starchy foods is usually imperfectly performed, the "twenty-minute" mushes being productive of no end of mischief. In order that all of the starch granules may be ruptured, it is necessary to cook the starch from three to five hours. The cooking of starch (by cooking is meant boiling or steaming) changes it into a form known as soluble starch, or amylodextrin. Starch in this form is readily acted upon by the saliva, which first changes it to erythrodextrin, then to achroödextrin, and finally to maltose, a form of sugar which can readily be absorbed by the mucous membrane of the stomach. But this is not the form

of sugar found in the blood, as the sugar found there is identical with the sugars in ripe fruit; viz., dextrose and levulose. During the process of absorption the maltose is changed into dextrose and levulose.

It is of interest to note the different changes which take place during the digestion of starch, both within and outside of the body. We have already learned how the first change is effected, and that it is possible for the saliva to complete the process; but the changes which the saliva is capable of effecting are frequently interfered with. This interference may be due to eating soft foods, which receive very little mastication and which contain a considerable amount of water. Such foods do not properly stimulate the salivary glands, and as a result a sufficient amount of saliva is not thoroughly mixed with the food. Hasty eating, which implies imperfect mastication, produces the same results. Drinking at meals not only dilutes the saliva, but washes the food down before what little saliva there is has had time to perform its duties. Tea, coffee, and vinegar retard or entirely stop the action of the saliva on starchy foods.

The presence of erythrodextrin, which is produced by the action of saliva on soluble starch, or amylodextrin (place some boiled starch and some saliva in a test-tube and keep it at the temperature of the body, or about 100° F.), can be demonstrated by pouring a drop or two of Lugol's solution into a test-tube supposedly containing erythrodextrin; if present, a red or port-wine color will be produced; should no color appear, it is evidence that the digestive process has gone beyond this stage, and achroödextrin or maltose has been produced, as neither of these substances gives any permanent change in color with this solution.

Since Americans are said to be a nation of dyspeptics, and as the majority of people really are troubled with some stomach disorder which in all probability is due to the results of the imperfect digestion of starch, it might be well to consider some means of preventing and curing these disorders. Starch in a form which will excite a profuse flow of saliva and at the same time be as nearly digested as possible can not fail of thorough digestion; and all that remains to insure this is its absorption into the blood, which is readily effected when the mucous membrane of the intestine is in a healthy condition. The query will naturally be raised: How can we obtain such foods? The answer is simple: Let the cook-stove instead of the body do the work. By being subjected to a high degree of heat, as in baking, the starch is changed into the form known as achroödextrin, which is next to the last stage of salivary digestion. When this point is reached, the saliva can readily effect the remaining change into maltose.

In order to demonstrate that heat can produce these changes in starch, one might perform the following simple experiment: To a bit of white bread taken from the center of a loaf add some water and allow it to stand for five or ten minutes, then pour off some of the liquid into a test-tube. This solution contains soluble starch, or amylodextrin. Treat in a similar manner some zwieback, granose, granola, or any other starchy food which has been baked until it is thoroughly browned and crisp. Pour into another test-tube fluid from this equal in amount to that placed in the first tube. We are now ready to make our test to ascertain to what extent the heat has digested the starch. Place in each tube an equal amount of Lugol's solution, beginning with five drops in each tube. At first a blue color is seen in both tubes, the one containing the

soluble starch giving the deepest hue, the color in the second tube entirely disappearing when the fluid is shaken. Keep adding an equal amount of the Lugol's solution to each tube, and it will soon be observed that a permanent blue color exists in the first tube, while the second, which contains the soluble material from the granose, will give no permanent color; it will also be noticed that it takes about three times as much Lugol's solution to produce a color in the tube containing the fluid from the granose as is required to give a permanent color in the solution from the bread. The color produced in the solution from the granose soon disappears when left standing. The reason for this difference in color in the two solutions is that in the first case the starch has only been taken through one step in its digestion, while in the second, three steps have been completed and achroödextrin has been formed. This, when brought in contact with saliva, is readily changed to maltose.

The conversion of cooked starch into maltose by means of the saliva may be demonstrated as follows: Chew some of the starch, rice, oatmeal, or any other starchy substance which has been changed to soluble starch by cooking, for a short time; put this in a test-tube, add a small quantity of water, and boil; into this heated solution pour a few drops of Fehling's solution. If maltose is present, a yellow- or orange-colored precipitate will be produced.

A similar test with the starch before it has been subjected to the action of saliva will show that very little, if any, sugar is present.

During the ripening of fruits, nature produces the same change in the fruits that is caused by the action of saliva upon starch. Green apples contain starch. This can be shown by making the test for starch. But when the test is applied to the ripe apple, no starch is to be found, for in the process of ripening it has all been changed to dextrose and levulose, or what is commonly known as fruit-sugar.

The presence of sugar in the ripe fruit can be demonstrated by placing it in a test-tube, adding a little water, mixing thoroughly, and pouring off the fluid, which is tested by boiling and adding a few drops of Fehling's solution, when an orange-colored or red precipitate at once appears.

The digestion of starchy foods continues for some time after the food enters the stomach; the saliva continues to act until the contents of the stomach become so acid that the ptyalin, which is the active principle of saliva, can act no longer. This action usually continues for thirty or forty minutes after the food enters the stomach.

The personal performance of the foregoing simple experiments will give one an insight into the process of the digestion of starch that can not be obtained by any amount of reading. We advise all who can to try them.

CHARLES E. STEWART, M. D.

## SPRINGTIME AND HOUSE CLEANING.

ALL nature renews herself in the springtime, and everything seems to feel a refreshing touch, and so it seems to be something akin to instinct that prompts the housekeeper to undertake a general renovation of the house once a year. Unfortunately, much of the work accomplished by the general spring house

cleaning ought to have been done day by day during the winter. The longer unhygienic and unsanitary conditions are allowed to continue, the more mischief they breed. Carpets, wall-paper, neglected corners, the unsuspected place under the kitchen refrigerator, the bottom of the woodbox, and above all, in more ways than one, the attic, often by neglect become veritable death-traps. Almost superhuman efforts are made to shut out cholera and the plague, expensive quarantines are maintained to protect our southern cities from the invasion of yellow fever; yet the amount of illness and the number of deaths caused by these epidemics are comparatively insignificant when compared with the long train of illnesses and premature deaths which date their rise from spring fevers, or a severe cold and cough contracted at the same time, and which finally end in the dread disease, tuberculosis. A kind Providence, who always has the good of his creatures in view, never arranged for us to have a beautiful spring whose effect is so death-dealing to the human race.

The real reason for all this disease is that during the winter King Frost holds subdued and paralyzed in his grasp millions of dangerous germs. The sun, which has healing in its beams, releases all these agents of destruction, but at the same time, unless they are covered by filth and moisture, destroys them. Yet how frequently the life-giving rays of the sun are carefully excluded from the house for fear that they will discolor the carpet and the beautiful furniture. In the same proportion that the color is maintained in these, it fades from the cheeks of the children who occupy these rooms, and we often have invalids even in the adult members of the family.

The cold of winter is one of nature's tonics, and so the individual is often able to live during this time above the disease line, so to speak, but as springtime approaches, this potent influence ceases to be felt, and the man is made susceptible to the unhygienic condition of the foul air imprisoned in the living room or to the contamination lurking in the dust of carpets and rugs, and in the poison-saturated bedding which has not been thoroughly exposed to air and sun, and he begins to yield to all these agents of destruction. Then the patent medicine man begins to reap his harvest, and "spring tonics" are sold by the wagon-load. The majority of the individuals swallowing these nostrums little imagine that most of them owe their supposed efficiency directly to the amount of cheap whisky which they contain.

Instead of floors' being covered with tight-fitting carpets, which can be taken up only at stated intervals, and then at great inconvenience, it is far better to have rugs, which can be taken out every few days, shaken, and exposed to the pure air and sunlight. When carpets are removed, there is found on top of the padding a deep layer of dust and dirt.

Well-finished walls of any kind are far more hygienic than wall-paper, but a pernicious custom, which is quite common in many parts of the country, is year by year, when the paper becomes discolored and stained, simply to paste a fresh layer over the old one. There are rooms which have nearly a dozen of these dust- and disease-infected layers on their walls. A leaky pipe in the room above or an overturned water pitcher soaking down through this paper will cause it to become a culture-medium for the germs that have been imprisoned there for half a generation. The leak is stopped, and the new paper is matched on to the old to cover the stain, and no one dreams of the unseen danger that is pasted up. The danger slumbers on, but is not dead.

DAVID PAULSON, M. D.

## HOME CLUB QUESTIONS.

PHYSICAL DEVELOPMENT.

1. WHAT does the word "symmetry" mean?

2. What are the principal characteristics of a perfectly symmetrical figure?

3. How does Oliver Wendell Holmes define walking?

4. Is a man taller or shorter when he is walking than when he is standing still?

5. What law of fashion is directly opposed to the law of hygiene with respect to position in walking?

HEALTHFUL DRESS.

1. Can displacement of the stomach be cured?

2. If the corset is loose, can it do any harm?

3. Does the fashionable "model" figure represent a correctly proportioned body?

4. What is the correct position of the stomach?

5. Is removing the corset all that is necessary in changing the manner of dress?

SCIENTIFIC COOKERY.

1. In making yeast bread, what are the requisites?

2. How does yeast make bread light?

3. What must be the result upon the flour of the growth of the yeast plant during fermentation?

4. What laws govern the growth of the yeast plant?

5. Why is yeast bread not the most wholesome?

HYDROTHERAPY.

1. Why is it better in cases of fever to reduce the temperature by water applications than by drugs?

2. What is a thermic application?

3. What is "atonic reaction"?

4. What is the "epigastrium"?

5. Why does loss of appetite always accompany fever?

PHYSIOLOGY AND HYGIENE.

1. What is the most common form of dyspepsia?

2. Why is it necessary to cook cereal foods so long?

3. What are the chief objections to the use of vinegar?

4. When is the best time for house cleaning?

5. If there must be a house-cleaning siege, what especial hygienic error must be guarded against?

### For Answer by Subscribers.

1. What are the most noticeable deviations from natural symmetry in the modern figure?

2. Has a walking automaton ever been made in which the legs were the true source of motion?

3. Do men suffer from prolapse of the stomach more often than women?

4. What is the strongest influence in perpetuating the evils of conventional dress?

5. Is it simply a "fad" to advocate the use of hard breads?

6. How is a fever a compensation of nature?

7. Are hot or cold water treatments preferable in fevers?

8. What are the most important objections to the eating of candy and other sweets?

9. What dietetic distresses can be laid at the door of mushes?

10. When does nature do her house cleaning?

## ANSWERS TO HOME CLUB QUESTIONS FOR FEBRUARY.

PHYSICAL DEVELOPMENT.

1. DIFFERENT forms of spinal curvature, round shoulders, flat chest.

2. It throws the stomach out of position, and disturbs the entire digestive system.

3. They are usually more hygienic. They have straighter backs and less upholstery.

4. Savages, the peasantry, and those who have studied physical culture.

5. It tends to crowd the vital organs still farther down below their natural position.

HEALTHFUL DRESS.

1. Most of the so-called health corsets are simply an excuse for the corset; while they

have fewer steels and are not quite so stiff, still they are stiff enough to compress and hinder the free action of the muscles.

2. Ordinarily, no. They usually have some stiffness, and are made to fit a model, instead of being adapted to the individual figure.

3. In most cases, yes; but the probability of cure depends upon individual conditions, age, muscular development, general health, etc.

4. They interfere with the circulation of the blood to the head, and cause headache and nervousness.

5. She may discard it at once, providing she makes the other necessary changes in her manner of dress, and takes measures to strengthen the muscles that have been weakened by corset wearing.

SCIENTIFIC COOKERY.

1. Because they contain very little nutriment, and are more or less difficult of digestion. They are not worth the trouble they make.

2. Because their chief element of nutrition is starch, which is particularly difficult for the ordinary stomach to digest.

3. No, because vegetables require a much longer time than fruit for digestion; while fruit, if retained in the stomach, is likely to cause fermentation.

4. Cereals and nuts.

5. Vegetables contain many of the same constituents as fruit, and should be used to furnish bulk when fruit can not be obtained.

HYDROTHERAPY.

1. To check vital activity.

2. The length of time of the application.

3. In this connection it means the increased physiological activity resulting from the hydrotherapeutic treatment.

4. One that produces a physiological stimulation, increasing all the activities of the body.

5. By making it long enough.

PHYSIOLOGY AND HYGIENE.

1. Imperfect insalivation of food; failure thoroughly to disintegrate it in the mouth, thus creating a necessity for washing it down; overeating; fermentation in the stomach; dyspepsia.

2. The fact that it dilutes the gastric juice, thus retarding digestion.

3. Because the foul odors and the disease germs that are produced there are, if anything, more dangerous to health than those possible in lighter, less confined parts of the house.

4. No; because they do not contain nutriment.

5. The argument that the nicely adjusted plan of nature must inevitably be disarranged by such a garment.

## ANSWERS BY SUBSCRIBERS TO QUESTIONS IN JANUARY NUMBER.

1. HEALTH is the state of being physically in harmony with God's law.

M. R. WHARRAM,
Harpersfield, O.

2. Because as one's health is impaired he is rendered incapable of the accomplishment of his life's work and of the best enjoyment of God's gifts.

ELIZABETH A. WHITTLESEY-PHELPS,
Hebron, Conn.

3. The change in temperature causes the air to be denser, so that one inhales more oxygen when the weather is cold. This has a marked effect in purifying the blood. The brisk cold causes the blood to hasten in its round of work. It carries more sail, so to speak, therefore is propelled faster, and thus a habit of good circulation becomes established. Disease germs are less active in cold weather.

MRS. JENNIE SHARKEY,
Colby, Wash.

4. By physical exercise the broken-down tissues and decayed matter are thrown off, burned up. Physical exercise aids digestion and the proper assimilation of food, therefore it is equally necessary to good health. We may live without it, but can not have health.

No name signed,
Humboldt, Tenn.

5. For the same reason that it would be absurd to suppose that we could eat a sufficiently large quantity once in three or four days to make up for neglecting it altogether during the intervening time.

ELIZABETH A. WHITTLESEY-PHELPS.

6. In summer to shield our bodies from the intense rays of the sun, and in winter to hold the heat which is produced by food and exercise. No name signed.

7. Lightness, proper ventilation, and warmth are three of the most desirable qualities in clothing. The dress should be fitted so as to be graceful and becoming, and not to restrict the movements or unduly press upon any part of the body. The length should be such as not to wipe up the filth of the street.

ELIZABETH A. WHITTLESEY-PHELPS.

8. No satisfactory answer received.

9. The temperance reform as well as the dietetic reform begins in the home. Things that stimulate the nerves should find no place in the diet. Children brought up on healthy food will not crave stimulants.

MRS. JENNIE SHARKEY,
Colby, Wash.

10. A normal brain and heart are better fitted to be filled with reverence for God and admiration for his works than a brain weakened and blood impoverished from the lack of the best of bread. Starvation of the brain is the first step in preparing it for the abiding place of evil.

ELIZABETH A. WHITTLESEY-PHELPS.

**Notice.**— The Secretary wishes to call the attention of readers to the fact that it is only the ten questions headed "For Answer by Subscribers" to which answers are requested. Also please notice that any reader of the journal is entitled to answer any one, two, or all ten of these special questions, just as he sees fit. The five questions under each department in any number are answered in the succeeding number by the Faculty. For further details concerning the "School of Health" see the plan suggested in the January number. It is hoped that many of our friends will avail themselves of this opportunity to make a systematic study of health principles.

# THE POWER OF THE TOBACCO HABIT.[1]

BY CHARLOTTE SMITH ANGSTMAN.

(Concluded.)

A GOOD example of the supreme unconscious selfishness which this habit engenders is to be found in traveling upon the boats. The wife of a professor in one of our important colleges, in going down the Hudson, made several attempts to stay on deck and enjoy the beautiful scenery, but every time was driven to her berth by the effects of the tobacco smoke which she was forced to inhale. It seems never to have occurred to smokers, whose fine feeling for others has long been blunted by this habit, that most of the people who go upon our steamers are delicate women and children traveling to improve their health in the fresh, pure air, and they, of all others, ought not to be obliged to breathe poison.

There has been some effort to regulate smoking upon boats, but so far little change is perceptible. It is encouraging to know that so large and respected a body as the Homeopathic Practitioners' Society of Detroit sent a communication to the Belle Isle and Windsor Boat Company, asking them to regulate smoking on their boats. A few years ago there was a petition largely signed by the citizens of Detroit, asking the same thing.

[1] Copyrighted.

Where shall we look for examples of that personal purity in all things so emphasized in our Testament, if not to the heads of our churches; but alas! some of them, too, have succumbed to the seductiveness of this narcotic. How can a soul belonging to a body no longer as God made it, but stimulated and injured out of its natural self, rise to the Most High? He who would aspire to teach the people in things holy should be so impressed with the sanctity and elevation of his office, so filled with the Holy Ghost, that it would be impossible for him to commit such a worldly sin as this against his own body, "the temple of God," as we are told.

The poet Bryant reached a higher plane than many of those who stand before us as moral teachers. The idea was always present with him that his body was "God's temple," and he always treated it as such, never indulging in a stimulant (even coffee), a narcotic, or condiments.

The power which this weed can acquire over even a clergyman's moral understanding is well illustrated by the following incident: The rector of an important church in a large city, being present at the annual picnic, and indulging in his favorite occupation of smoking, offered a cigarette to one of the boys of his Sunday-school, with whom he happened to be talking. Fortunate to relate, the boy's mother came to the rescue. Who can say which the boy will heed later — his mother's counsel or the rector's example? In this same Sunday-school we have the spectacle of the janitor's receiving from the boys a box of cigars, publicly presented, for his Christmas present.

The power which the tobacco habit exerts over self-control is illustrated in the case of another clergyman who gave up the indulgence as a Lenten task. Holding out till he had finished the Easter services, during which he confessed to an almost insane longing and restlessness to have the remaining hours pass so that he could again indulge himself, he gave himself up to his pipe, smoking the whole night through.

Comparatively few smokers realize that every time they touch tobacco they are upholding a double standard of morals for men and women, and yet this must be as plain as if seen in the glare of a flash-light. Should we not be able to look to the clergy, at least, to uphold a single standard by their example, in the conspicuous position in which they stand? Questionable habits in those who stand before us in the attitude of moral teachers certainly weaken their power for good in every cause which they espouse. It is necessary that a very high standard of morals be maintained by the men whose influence so vitally affects all morality in the community. The clergy exert a mighty influence upon the highest welfare of society, hardly more by their preaching than by their living.

A very practical kind of Christian work which might be undertaken in connection with the churches (which ought to stand by all reform for a higher and purer life) is the forming of anti-tobacco leagues. Some among the church-members will be found to object to any war upon a favorite indulgence, but with determined leaders using knowledge for their weapons, very much might be accomplished.

We find all thinkers emphasizing the perfect condition of the body as essential to a perfect intellectual and moral condition. Dr. Parkhurst says, "The body is the ground-work upon which the edifice proper has to be reared. As in the case of structures in general, that which is laid at the bottom determines and conditions whatever is afterward put upon it. However far the process of mental or spiritual development may be carried, there is little likelihood of its escaping

the limitations imposed by the physical premise . . . so that a sound body is the first prerequisite to a vigorous intellect, a pure heart, and general wealth and ennoblement of spirit. In manhood, as much as in house-building, the foundation keeps asserting itself all the way from the first floor to the roof."

Chauncey M. Depew is a shining example of a man who came to realize that the condition of his body, his nerves, determined the reliability of his mental operations. If many others might only become similarly enlightened! He found that he could no longer think clearly unless he was stimulated by a good smoke. This indicated to him the thraldom under which he had fallen, and he promptly discontinued the tobacco habit. He declares that he regards his success in life due, in a great measure, to his firmness in breaking it off.

Tobacco exhausts not only the human system, morally, mentally, and physically, but it exhausts also the soil upon which it is grown. It contains a large per cent. of mineral or incombustible matter — one pound in every four — which has of course been derived from the soil on which it was grown, and which belonged to the class of bodies that are most necessary to vegetation, and least abundant, even in fertile soil. As every four tons of perfectly dry leaves carries off one ton of this mineral matter, — as much as is contained in fourteen tons of wheat, — it will readily appear to any one that the growing of tobacco must be a very exhaustive kind of cultivation. Is it right to encourage the devastation of thousands of acres of once fertile land, so sadly needed to produce food for the world, in order to pander to an injurious, merely luxurious habit? Is it any wonder that we have hard times, when such enormous sums are spent for something so foreign to the necessities of life?

Last year the people of the United States paid to the government $30,000,000 in taxes on tobacco, to say nothing of the money paid for the article itself. If the use of tobacco could be stopped, in comparatively few years no nation would have any national debt.

What must be the effect of such a habit upon any nation, when the income of a large proportion of its people and the cultivation of thousands of its acres are misdirected; when the physical and mental development of its youth and the health of thousands and thousands of its adult population are daily being injured; when the development of self-control, personal purity, and unselfishness is constantly ignored? What must be the effect upon posterity? Can any one imagine that it will be inconsiderable?

There is certainly no larger body of refined and cultured men of lofty character in the world than in New England and New York. It has been said that as a whole they dislike the use of tobacco; that at least there is in these States a very large thinking and conscientious body of men who are exerting themselves to repress and suppress the use of the weed, and who even desire a legislative enactment to prevent it. The Western and Southern States, on the other hand, largely and almost universally indulge in tobacco. One can not travel from New York toward those States without coming in contact with the practise of smoking and chewing in their most offensive forms.

Shall we not follow the example of the thinking and refined portion of our population, rather than that of heathen nations, and of that part of our own nation which makes itself obnoxious to others, even to the extent of acquiring a characteristic stamp?

Indirectly, tobacco was responsible for our Civil War. After its first introduction into Europe from America, the English

people became so infatuated with its use that trade in it rapidly developed, and the planters found that if they could obtain cheap labor, great sums could be realized from its cultivation. This led to the importation of slaves, all the consequent developments, and finally the Rebellion.

We often hear instanced in favor of the use of tobacco all the industries which it fosters: as if the thousands employed in its manufacture from beginning to end would never have had any means of livelihood without this kind of labor. Is it improbable that without this industry, which draws people in such numbers toward the centers of population (a condition so deplored by all our students of sociology), our cities would be much less congested, agriculture in a much more healthy condition, and our mining resources much more fully developed?

I will quote from an interesting summary of the facts concerning tobacco given by William Gilman Thompson, an eminent authority in this matter: —

"1. Both individuals and nations have attained the highest intellectual and physical development without the use of tobacco in any form.

"2. Tobacco is in nowise essential to the welfare and progress of mankind. . . . The tobacco habit is seductive, and, once thoroughly established, tends to grow beyond easy control.

"3. Tobacco, like alcohol, is positively injurious: (1) to the young; (2) to those suffering from certain maladies, notably cardiac and pulmonary diseases; (3) to those who have a marked idiosyncrasy against it, or who have a highly neurotic diathesis; (4) to those who have not sufficient will-power and force of character to enable them to restrict its use properly; (5) to every one if used to great excess."

All this provokes a smile, and makes one wonder who could be found that would not belong somewhere in this category.

Among the many methods of opposition to its introduction into Europe in the seventeenth century, may be mentioned the publication in 1616 of King James's book, called "A Counterblaste to Tobacco," in which he summed up some of the characteristics of its use in a way quite as appropriate now as then. He called it "a custom loathsome to the eye, hateful to the nose, harmful to the brain, dangerous to the lungs, and in the black, stinking fume thereof, nearest resembling the horrible Stygian smoke of the pit that is bottomless."

Every devotee of the weed is emphatic in his declaration that no other way of using it than his is tolerable. Every cigar smoker will tell you how filthy it is to smoke a pipe or to chew. Every chewer will decry the disadvantages and injuriousness of any other method. Every cigarette smoker says that there is no other genteel or tolerable way of using tobacco; and all the rest unite in saying that cigarette smoking is the one way in which its use is not to be tolerated at all. Old smokers have been heard to say, "Oh, my, a cigarette! Why, the very smell of one makes one sick!" So everybody stands convicted, on another's testimony, of having a filthy, offensive, and injurious habit. Shall our ideals of personal purity, unselfishness, frugality, and the power of example and precept be allowed to vanish in *smoke?*

# THE CHILDREN'S LIBRARY.

BY MRS. E. E. KELLOGG.

THE influence of a good book is of untold worth in the right formation of character; that of a bad book is as immeasurably harmful.

No one thing over which parents possess control should be more zealously guarded than the literature permitted their children. Many who would in nowise allow their little ones to partake, indifferently, of wholesome and unwholesome food, with seemingly no concern, permit them to read anything and everything that comes to hand.

The vigorous crusade, which, under the leadership of Mr. Anthony Comstock, has been carried on during the past few years against the dissemination of openly vicious and immoral literature, has resulted in laws which keep such largely in abeyance. But the enemy of good is not to be baffled thus. In many an alluring form he appears in print, warping and poisoning the minds of those who read. So adroitly is the evil mingled with the good in bright and fascinating text that to the inexperienced child-mind it is nearly or quite imperceptible. Harm comes to the child far more directly in such pleasing guise than in any other way, and parents can not be too watchful regarding the intellectual food furnished their children.

Some who are awake to the baneful effects of novel reading upon boys and girls in their teens appear to think that all books for the little ones are innocent and wholesome. Doubtless most such do purport to be harmless; that is, they do not wantonly present evil. Much, however, of the juvenile literature of the present day is of little or no literary worth. Mere rimes and jingles, with gaily illuminated covers, poor print, and inartistic illustrations, or if the pictures themselves possess merit, with reading matter "made up" to fit the page or the picture. The majority of those who make books for children are actuated by motives based on pecuniary profit. To produce something bright and taking is their aim. Such can hardly be expected to furnish reading matter best suited to the needs of childhood.

Because all children naturally love stories, the market is flooded with stories, good, bad, and indifferent. There are touching tales of virtuous children with unsympathetic, tyrannical parents or guardians, which give the little reader unreal and perverted ideas of life; entertaining narratives of the mischievous pranks of refractory children, stimulating or creating a disposition on the part of the reader to do likewise; charming rehearsals of the remarkable doings and sayings of innumerable little Johnnies and Katies, which make the child in the story the center of thought, and tend to cultivate self-consciousness in the young reader. Such literature appeals to the weaker side of child nature, and when read largely to the exclusion of what would give the mind sturdiness and vigor, it becomes highly detrimental.

The choice of books for the little child can not be made too carefully. The intellectual food given to the young mind should be the product of writers who have had actual contact with children, who have lived with them upon their own plane, who know their needs and understand their nature. All books for children should have educational value; not that all ought necessarily to convey knowledge, but they should serve to draw out the best in the child, to unfold and build

up his character. In tone they should be simple, joyous, and true, containing no false ideas or statements to be unlearned in later years. In sentiment they should be pure and uplifting, and withal they must be interesting; for even the best book from a moral standpoint will fail in its purpose if not interesting. There are such books, though they are rare; but they are well worth searching out.

With a taste for the good in literature established during his early training, the child will be far less likely to relish reading matter of an inferior quality when in later years it comes to his notice.

The foundation for a taste for good literature should be laid in the nursery. What the child receives during the first seven years of life will leave a deeper impress than that received during any after period. The wise parent, recognizing the golden opportunity of these early years, will begin before the child can read, to store his mind with good thoughts by reading to him.

There are parents who purposely delay the time when their children shall be taught to read that they may themselves have the privilege of first filling the young mind with high and pure ideals, with a knowledge of the Creator and his wonderful works, with facts about life, nature, and the world in which we live. When the child has learned to read, it may require the utmost vigilance to keep objectionable matter out of his hands. Before he can read, the parent may give him only that which he deems wisest and best. Most children enjoy hearing a good reader better than reading for themselves, and what they thus hear is likely to be more firmly fixed and longer retained in mind, particularly if pains be taken to explain the words and phrases yet beyond their comprehension, and to arouse thought by talking about the subject in hand.

Fathers and mothers can ill afford to miss the opportunity of reading with their children. Not only do such seasons serve as a source of information and entertainment to the child, but they help to put the parent in sympathy with him, and form a bond of soul unison between them that may last through life. That it takes too much of the parents' time is an unworthy excuse. To clothe and feed the child's body requires time; why should it be thought less necessary to feed and clothe his mind and heart? His physical being is only a part of the real child; he possesses a threefold nature; for symmetrical development his mental and moral faculties must be cultivated as well as his physical. Indeed, it should be the parents' aim to call into vigorous activity the higher, nobler, spiritual part of the child's nature before he has become hardened by contact with the sin and selfishness around him. One of the most effective helps in doing this is reading to him stories of other lives which illustrate the noblest and best Christian principles. Learning of other lives helps him better to understand his own life. As he sees himself in comparison with others, he realizes more clearly the possibilities within himself, and begins to form an ideal, toward which he strives.

When a knowledge of that which is bad must be presented to the child, let the evil be shown so plainly that it appears as evil, hidden under no gloss or charm. The book of all books for the child is the Bible itself. Its principles and precepts should be among the first thoughts instilled into the young mind. Before he can talk plainly, the stories of Bible child life, of Moses and Samuel and the Babe in the manger, will stir his heart with love and thoughtfulness, if told in simple child vernacular. Let it not be supposed, however, that because the Bible is the best of all books, every story,

every incident recorded in its pages, is suited to the child's tender years. Discretion is needed even in the selection of stories from the Bible. Only those should be chosen which are adapted to the child-mind, and these should be presented to him in such a way as to make perfectly clear the great truths that underlie them.

There are many books of stories from the Bible. Few, however, are to be recommended as worthy interpretations of the Sacred Word. Far better is the plan of reading the Bible text direct with the child, then having little talks concerning obscure passages. If some "helps" are thought desirable, there is nothing better for little ones under seven years of age than "First Steps for Little Feet in Gospel Paths," published by Chas. Foster, Philadelphia. For children from seven to nine, "The Story of Jesus for Little Children," The Fleming H. Revell Co., Chicago, and "The Story of the Gospel," published by Chas. Foster, Philadelphia; and for children still older, "The Prince of Peace," by Pansy, and "Christ Our Saviour," by Mrs. E. G. White, International Tract Society, 43 Bond St., N. Y., are most excellent. As contemporary literature we may mention Dr. Newton's books: "Bible Wonders," "Bible Blessings," "Bible Jewels," "Nature's Wonders," and "The Best Things," Robert Carter & Bros., of New York. These are all worthy of recommendation save that they are somewhat lacking in scientific accuracy, having been written more than thirty years ago. We also recommend "Talks to Children," by Dr. Eaton, The Fleming H. Revell Co.; "Talks to the King's Children," and "Through Eye Gate and Ear Gate," Funk and Wagnalls Co., New York; "Sketches of Bible Child Life," Review and Herald Press, Battle Creek, Mich.; "Stories and Pictures from the Life of Jesus," by Pansy, D. Lothrop & Co., Boston; "Gospel Picture and Story Sermons," of the Moody Colportage Library are desirable books for parents to read to their children.

Of stories, the old, yet ever new to the child, "Pilgrim's Progress;" "The King's Cup Bearer," a story of the life of Nehemiah, published by the Religious Tract Society, 56 Paternoster Row, London, England; "Joel, a Boy of Galilee," Robert Bros., Boston; "Stephen, a Soldier of the Cross," Henry Altemus, Philadelphia; and "Hero Tales from Sacred Story," Funk and Wagnalls, N. Y., are beautiful and wholesome. Most of these, however, are too advanced for the youngest listeners. For the little ones, a story entitled "Little Soldier," American Tract Society, N. Y., may be found pleasing and helpful. A book entitled "The Children of India," Religious Tract Society, London, England, will give the children an insight into Hindu life and customs. The Fleming H. Revell Co. publish "The Child of the Ganges," a tale of the Judson mission, and "James Gilmour and His Boys," presenting many interesting facts connected with the life of a foreign missionary. The first named is a very touching story best suited to the older children. The second is a series of letters from a missionary father to his sons.

To familiarize children under seven with the Creator's handiwork, there is nothing better than a progressive series of three volumes entitled "Seaside and Wayside," D. C. Heath & Co., Boston; "Little Talks about Plants," Interstate Pub. Co., Chicago; "Nature Studies for Youngest Readers," and "Stories of Birdland," Educational Pub. Co., Boston. For those more advanced "The Child's Book of Nature," in three volumes, and "Home Studies in Nature," Harper Bros., N. Y.; "Twilight Talks, or Easy Lessons

on Things around Us," Religious Tract Society, London; "Curious Homes and Their Tenants," "The Story of Birds," and others of the Appleton Home Reading series, D. Appleton, N. Y., are good.

To introduce the little ones to life and customs beyond their own vision, there are "Little Folks in Other Lands," Interstate Pub. Co., Chicago, and "The Seven Little Sisters," Lee and Sheppard, Boston. For the children upwards of seven, "Stories of Australasia," "Stories of India," "Stories of China," Educational Pub. Co., Chicago, are commendable. "Stories of Industry," two volumes, "Stories of Massachusetts," "Story of Columbus," Educational Pub. Co.; "The Children's Life of Lincoln," A. C. McClurg & Co., Chicago; "Young Folks' Life of Washington," D. Lothrop & Co., Boston; "Florence Nightingale," The Fleming H. Revell Co., Chicago; "Longfellow Remembrance Book," D. Lothrop, Boston; "Poor Boys Who Became Famous," and others of Mrs. Bolton's famous books, will give the children a pretty fair knowledge of American history, American industries, and the biographies of the noted men and women of the age.

With children who are inclined to be lacking in kindness to animals, "Black Beauty" and "Beautiful Joe" have often proved especially helpful. For the children just merging into young manhood and womanhood, two little booklets, "Almost a Man" and "Almost a Woman," Wood-Allen Pub. Co., Ann Arbor, Mich., are invaluable for parents who find the task of imparting to their children a knowledge of the mystery of life a difficult one, to read to their children. As helps for the young in their social relations, and in their struggles toward an ideal and Christian life, "Talks to Girls," "Talks to Boys," American Tract Society, N. Y., "How to Win," W. T. P. A., Chicago, Ill; "Young People's Problems," "Building of Character," "Making the Most of a Life," and others of the Rev. Dr. Miller's books are some of the many excellent works to be recommended for the older children's library.

Besides books, children greatly enjoy some weekly or monthly periodical coming to them as a friendly visitor at regular intervals. Among those to be recommended for the wee ones are: *Our Little Friend*, Pacific Press, Oakland, Cal., and *Child Garden*, Kindergarden Literature Co., Chicago, Ill.; for the older children, *Over Sea and Land*, a missionary magazine for the young, 1334 Chestnut St., Philadelphia; *Birds and All Nature*, Nature Study Pub. Co., Chicago, Ill.; *The Pansy*, Lothrop and Co., Boston; *The Young Crusader*, W. T. P. A., Chicago; and *Our Dumb Animals*, Boston, Mass.

The children's library should not be a sudden creation, but a thing of gradual growth. Let books be added one by one, after those already in possession have been read and reread until the good they contain has been fully absorbed. It is an excellent plan to mark each birthday with the gift of a book suited to the child's age and needs. Furnish the children with a case or set of shelves of their own, and require them to keep their books in place and care for them properly. Children should be taught to handle books carefully, and to take pains to keep them from becoming soiled and torn. Particularly should they be taught to handle with reverence the Book of all books.

Children early learn to love books, and nothing which they can possess is of greater worth to them. The well-read child is best equipped for life; while the systematic habit of reading good literature, because it affords occupation for leisure moments, becomes to the child a wonderful safeguard against temptation.

# A QUESTION OF ETHICS.

BY MRS. S. M. I. HENRY.

(Concluded.)

JOHNNIE WHEELER had not been gone from home an hour before he was missed. The empty pegs in the closet where his top garments hung, told a story that aroused the household and brought the chief of police into the family council. Mr. Wheeler was one of the wealthiest and best-known men of the city, and at once offered a small fortune to the man who should bring his boy home, so that it was not long until the streets were being beaten like rabbit-brush.

It would have been a long day before the child could have been traced to the hole in the ground into which he had been trapped,—partly because it was such a hole, and partly because Margaret Stillman, although an unfortunate woman, was considered above any meanness,—but it happened, if anything ever can truly be said to happen, that not long after Margaret had so unceremoniously departed with Johnnie's hat and coat, the officer on duty on that beat, in passing along the court, saw a funny little figure with an old petticoat wrapped around its head and trailing down its back, climbing up a broken stairway dog fashion, that being the only way possible, for the steps were long and the legs were short.

As soon as the bright eyes in the grimy face caught sight of the officer, the figure scrambled fast and faster, got on its feet, and the most comically soot-marked little mouth cried out,—

"O Mister P'liceman! please take me home. Nurse told me to always tell a p'liceman that my name is John Eldred Wheeler, and I live at 400 Washington avenue. So now take me home right away"

The officer stopped and looked at the child with unofficial kindliness. He had not been notified of the hunt. His beat was too remote socially from Johnnie Wheeler's to make such notification worth while, so he was ignorant of the reward of which he stood in imminent danger. He was not thinking of rewards. He did not just now feel the need of any; for his thoughts were full of a little bundle of white flannel that he had just left lying on a pillow in the big armchair in one of the two rooms that he called home; and these thoughts in entering had left his heart open to the call of even a slum "rat," like the one that was crawling out of that dark stairway. He felt even a throb of pity for him and his fellow rodents; a flash-light picture of a home for children which he had once passed came vividly before him; and some old words dropped down from somewhere into his memory, about One who had told somebody not to forbid the children from coming. He had done such a thing before now, when he was in a hurry or wanted to do something special, but now,—although he was both in a hurry and had something special to do, he stopped.

He had not understood all that Johnnie had said, so he was still without any real clue to the situation, while Johnnie went on,—

"That little sick boy in there is awful hungry—so he cries—and he 's cold, too. He ain't got much clothes, and I've got lots. But I guess I don't know the way to my house. Please take me home, and I 'll get a lot of things,—all that he can eat,—and I 'll take him home with me, and the lady, too. I 'll tell Max to bring us all back to my house, and ——"

"Ha! ha! Well, you have got a string in your teeth," laughed the officer. "What in the world is this all about, and who are you, anyhow?"

"Didn't you hear me?" asked Johnnie, a little sternly, for the judicial element was not lacking in him. "My name is John Eldred Wheeler, and I live at 400 Washington avenue; and I asked you to please take me home, 'cause I came to call on a little sick boy, and he 's hungry, and I — I want my dinner, and I ain't very warm without my coat and cap."

"Do you live at 400 Washington avenue?" for the officer was very much impressed by the mention of the locality, and was beginning to notice that the child did not manifest the usual slum characteristics, although he was certainly dirty enough to "belong."

But the policeman was familiar with the quick-witted street Arab, who is even in his infancy a match for almost any ordinary mortal in those things that pertain to cunning and worldly wisdom, and he did not intend to be "taken in;" so he began to study the specimen before him. He lifted a corner of the petticoat that one little hand was holding firmly about head and neck, and he recognized at once in the delicate throat and comfortable dress a different order of being and estate from that which appeared on the surface.

"What in the world are you doing here?" he asked at last, "and what have you got this toggery on for?"

"I told you twice that I came to see a little sick boy. His mama took my cap and coat to put them away, I s'pose; and she was a very kind lady, and put this on my head to keep the smutty off."

"I see," said the officer grimly, looking sharply about, and down into the pit below. "Did you come up out of there, child?"

"Yes, I climbed up; didn't you see me? and I want to go home, and get some things for that sick boy.

"Don't, I can walk;" for the officer had stooped and lifted Johnnie on his arm, and was going toward the cellar. "Don't go there; take me home please."

"All right, little man, don't be afraid, I 'll take care of you; but I want to see what is down there." The warm clasp of the strong arm, the kind face and voice, seemed so comfortable to Johnnie that he accepted the situation, and together they went down into that awful kennel so full of the very atmosphere of death.

It did not take long for the officer to comprehend the situation, and with Johnnie still in his arms he hastened up and over to a corner from whence he could telephone a call for help; in a few minutes he was re-enforced by another uniform.

"Watch that cellar on the sly," he said to the recruit. "Let anybody in, but nobody out until orders." Then with long strides he started for 400 Washington avenue.

Before the Wheeler mansion was reached, the child, exhausted by the exciting experiences and unusual effort of the day, was asleep on the officer's shoulder, and awoke only as he was transferred to his father's arms, for Mr. Wheeler was all ready to receive him, having kept his station at the home-end of the telephone line, while the mother and nurse, with Max on the carriage, had joined the hunters.

"O papa," cried Johnnie with his first awakened consciousness, in a shrill, excited voice, "I did make my call, too!"

"I should say you did," said Mr. Wheeler, unbundling him from the petticoat which he threw to one of the servants who was at hand, "and you did something else, cherub."

"O yes, papa; and I have n't got it all done yet!"

"You have n't? I should say you have done a pretty good day's work, for you have succeeded in converting that elegant mother of yours, and in getting our next New Year started right. And now the next thing is to get clean, and to settle with grandma and nurse."

"Grandma said I could go and make calls, and I found my little sick boy; and I guess you 'd be glad I found him if he was your little boy, papa. But he ain't got any papa, nor any light; least 't ain't turned on, and he was so hungry, and cried so I did n't wait to find the 'lectric button; and we must go back now quick with some dinner 'n' jam 'n' oranges 'n' clothes 'n' steam heat, 'n' bring him and his mama (and she 's lame), over to our house, 'n' send for Doctor Hunt. Let 's go right away, papa, for he 's crying, he 's so hungry."

"Well, you are hungry, too, aren 't you?"

"Yes, some. But papa, when that little boy is sick, and no light and no house, only a dark way-down-place, and no clothes, and no papa, and cold and hungry, don't you think I ought to 'vide? I 'd rather 'fore I eat my dinner, I guess, if you please, papa."

Mr. Wheeler folded the child to his breast, while the officer surreptitiously wiped his eyes with the back of his hand.

"The lady was a real kind lady, papa," continued Johnnie. "She took off her skirt to cover me from the smutty, and ——"

"Well, darling," said Mr. Wheeler, "you go now with Lizzie and be washed and dressed, and have your dinner, and I will go back with the officer to find the little sick boy, and see what we can do for him."

"O, I am so glad. I told him you would, and I knew you would n't 's'point me. But you 'll have to turn on the light 'fore you can see much 'bout him. You can find the button, can't you?"

"I 'll try, darling; but I am sure the switch is open and the light is on all right. Good-by, darling, papa will do right by your sick boy, and the lady, too."

"Good-by, papa. I knew you would."

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It was late that night when Mr. Wheeler returned, happy in the conviction that he had made a right beginning to the solution of that little question of ethics which is bound up in the golden rule.

There was a new patient in the children's ward of the best hospital in the city, and a grateful, penitent mother, rescued from the beginnings of crime, was housed in a comfortable room not far away from her boy, waiting only for Johnnie's mother to take her in hand on the morrow when there would be work, and care, and cure, if such a thing were possible.

Johnnie was sleeping the sleep of innocence, and as the father and mother stood together beside the little bed, Mr. Wheeler said,—

"Johnnie could n't comprehend what he has done any more than the baby did who touched off the electric spark that opened hell-gate — he opened the switch that let light in on the one great truth for which all other truths are made, as I never saw it before."

"And what truth is that?" asked Mrs. Wheeler.

"Just love," said Mr. Wheeler. "The greatest of these is love."

**Physiological Effects of the Emotions.**

Doctor L. Manerd, in a series of articles written for a Paris journal, and translated for the *Literary Digest*, sets forth some of the most recent views of the physiological theory of the emotions. "Joy," he says, "makes us feel younger, lightens the body, and puts at our disposal a large amount of superabundant energy. . . . Sadness produces the opposite effect; it makes the voluntary movements more sluggish, and disposes to inaction. This obstruction of the voluntary movements, which is accompanied by a contraction of the small vessels, brings on, when the sadness is permanent, a premature old age, a deep-seated injury to the health. On the contrary, their habitual expansion through constant happiness brings long life."

In describing the symptoms of anger, which he holds to be nearly the same as those of joy, only intensified, he says: "An angry man gives himself up to irregular motions; he becomes red, and cries out. These three phenomena occur also in joy, but with less intensity. But there is a third characteristic that occurs in anger only,—the swelling of the veins of the forehead. This is due to overtension of the vessels, in connection with obstruction of the pulmonary circulation. The excessive activity of the voluntary muscles appears, just as in joy, in violent movements, but they are more sudden and more difficult to control, and in violent emotion we can not suppress all signs of it completely. Thus, an angry man may be able to hide a frown by raising his eyebrows, but the concealment is incomplete, and his lips are probably compressed by reflex action. When the repression of the emotions seems most complete, it is probable that the nervous discharge takes place in some other form; in fact, it is a common notion that when the expression of an emotion is controlled, the internal after-effects are more intense. . . .

"The impossibility of suppressing all exterior manifestations of anger gives to this emotion a special character that approximates it to insanity. . . . After great anger there is often a complete loss of memory of what caused it. The paroxysmal character of this emotion and the intellectual confusion that accompanies it make it resemble the crisis of an epileptic attack. Certain epileptics, for a long time, show no other signs of their disease than violent fits of anger, excessive and causeless, leaving no recollection behind them. Alcoholics are subject to the same attacks.

"As there are remedies for alcoholism and epilepsy, so there must be for anger; and this opens up a new chapter in the study of the emotions — the medical treatment of excessive or morbid emotivity — the medicine of the passions."

**How to Avoid Consumption.**

"By living out of doors," is the easy inference from an article on "Consumption: an Indoor Disease," by S. W. Abbott, M. D., of Boston, in the *Journal of the American Public Health Association*. He says: "Given a definite number of healthy persons, say one thousand, having identical conditions as to age, sex, and race, and let them be divided equally, five hundred to lead an indoor life, and the other half an outdoor life (for example, like fishermen); let an equal quantity of . . . dried tuberculous sputum be distributed equally among the two groups, and it may be laid down almost as an axiom that the indoor group will become infected in far greater numbers than the outdoor group."

Again the writer states: "The conditions to which I have alluded being known and recognized, we are prepared for the statement of Cornet that open-air infection from tuberculosis may practically be disregarded, since no positive evidence

has ever been presented to the effect that human beings ever contract tuberculosis in the open air. The results of observation and experiment both tend to show that the far greater danger lies in the direction of indoor infection."

After presenting some very interesting statistical tables in support of his view, the author draws the following conclusion from the table showing the death-rates from consumption at different ages: —

"In the first two years of life, the death-rate of boys from phthisis is slightly greater than that of girls; but in the third year of life the death-rate is equal. In the fourth year the difference in the phthisis death-rate of the sexes is reversed, that of the girls being the greater; and for the two years three to five, this excess among girls amounts to thirty per cent. In the five-year period (five to ten years) this excess has increased to thirty-six per cent.; but in the next period (ten to fifteen years) it suddenly makes a bound, and rises to triple the male death-rate. So far as can be learned, the greatest relative difference in the death-rate of the sexes occurs between the twelfth and the nineteenth years of life. The phthisis death-rate of each sex then increases rapidly to its maximum in males in the age-period from thirty to forty years, and in the females in the period from twenty to thirty years. The highest death-rate of males probably occurs at a little over thirty years, and that of females at a little less than thirty years. I venture, therefore, to offer the following conclusions upon the theory that the infection of tuberculosis is mainly an indoor infection: —

"At birth, and from that time throughout the first three years of life, the death-rate of the sexes from phthisis is very nearly equal. During these years the relative amount of time spent indoors is about the same for both sexes, but in the fourth year of life, on an average, boys begin to spend more time out of doors than girls, and the relative amount of difference in time so spent continues to increase from that time onward. It can not be urged that the period of puberty in girls has an effect in causing this difference, since the difference begins at a much earlier time of life and reaches its climax before that age in females. The delay in the onset of this increase in females in England and the lessened difference at the age of ten to fifteen years may, perhaps, be accounted for by climatic differences, *i. e.*, a generally milder climate in the British islands."

### A Hygienic Sleeping-Car.

A new type of parlor and sleeping-car is described in the *Journal of the American Public Health Association*. In the opinion of the writer of the article it has some noteworthy features of a hygienic character. He says: —

"The contracted and pent-up character of the lower berth is ingeniously avoided by making a direct and generous open communication between this berth and the upper part of the car, and by placing within the compartment occupied by the lower berth a register having such claimed connection with the outside air as to furnish an abundance of pure air, which may be tempered at the will of the occupant by the manipulation of a lever.

"Among other hygienic features of the car is a compartment fitted up for either the disinfecting or the sterilizing of bedding. It is of ample size, and is furnished with heaters for bringing the compartment as nearly to the temperature of the steam carried under pressure in the pipes beneath the cars as possible, and is provided for special and thorough ventilation from beneath the compartment through the roof."

# EDITORIAL.

## IS THE FOOD QUESTION SETTLED?

REFERRING again to the discussion of the vegetarian problem now agitating the English medical and dietetic journals, and prevalent to a certain extent in our own country also, we would say that the *Medical Record* is certainly mistaken in the assertion that the remarks of the *Times* are "well considered," when it claims that "if there be any question which has been thoroughly threshed out by physiologists and physicians, it is that of diet." The very reverse is the case. The subject of diet is one that offers more opportunities for scientific research and investigation than almost any other question which physiologists can raise. A few things have been learned, but the subject, instead of being exhausted, has only just been fairly entered upon. Too hasty conclusions have been drawn. The experiments spoken of have been made upon abnormal rather than normal individuals. Conclusions have been formed from too limited data. There is scarcely a single large question in the whole subject of dietetics which can properly be considered as scientifically settled.

It should perhaps be said in behalf of vegetarians that if they are not able to claim Sir Henry Thompson as a vegetarian, they certainly find ample support for their position in his published articles upon this subject. He repeatedly states, for example, that it is a matter of indifference whether the several food elements — proteids, hydrocarbons, etc. — are obtained from the animal or the vegetable kingdom, in which he agrees with every other physiologist. It is, then, certainly absurd to say that a man who prefers to take his proteids, hydrocarbons, etc., from vegetable sources is thereby "imperiling his life or usefulness."

Sir Henry Thompson also points out the fact that there is danger in flesh eating; in one place he remarks, "There is no doubt that more flesh is eaten than is necessary," leaving us to infer that by this course life and health are imperiled. This is a fact with which every physician is familiar. Let us inquire of Sir Henry Thompson and of others who defend the flesh dietary if they can cite any disease that is due to the use of too large a proportion of bread, or any special malady which results from an excessive consumption of beans or peas or any other wholesome food. The fact is that every well-informed physician who confronts a chunk of roasted ox, a dead hen, an asphyxiated fish, or any other corpse, finds staring him in the face the fact that the dead beast is a cadaver, and, like every other dead, decomposing animal, must be filled with poisons, not only those poisons which are constantly present in the tissues of living animals, but other poisons produced by the putrefactions that begin within a few hours after death.

The fact that a man is able to endure a small amount of flesh eating argues nothing in its favor, while the fact that if he takes a little too much flesh-food, or if he does not take enough exercise to work the poison out of his system, he becomes a victim of chronic poisoning, a subject of uric acid diathesis, with all its horrors manifested in rheumatism, neuralgia, gall-stones, Bright's disease, renal calculus, stone in the bladder, and a score of other painful and often incurable maladies, is certainly an overwhelming argument against the use of flesh as food.

The argument on the part of flesh eaters, in this case, is precisely like that used by the advocates of alcohol,— because it can not be very clearly shown that a man's life and usefulness are entirely wrecked by the use of alcohol in small doses, say a glass of beer three times a day, or a small bottle of wine daily, it is argued that it is only the excess of alcohol that does harm. The same argument is also used for tobacco. Perhaps

the majority of physicians smoke, and certainly the majority do not object to smoking a mild cigar two or three times a day, though all recognize the fact that tobacco is a poison, and that its use may give rise to blindness, tobacco-heart, and a variety of other grave maladies. That alcohol, in a little more than so-called safe doses, produces mental, moral, and physical devastation and degradation; that tobacco, when used in a little more than a so-called harmless measure, produces tobacco amaurosis, weakness of the heart, indigestion, and many other vital mischiefs,— these are facts which prove that alcohol and tobacco are poisons, and unsafe things to dabble with. So likewise the fact that a man, by doubling the quantity of flesh-meat which he ordinarily consumes, may introduce general disorder of the body with painful and destructive maladies, is evidence that the thing contains intrinsic evil; in other words, that, mingled with the food, there is a poison which works wide and deep mischief in the vital domain. No one would dream that any man would contract disease by doubling the quantity of bread which he ordinarily consumes, or by taking such an additional quantity of lentils, fruits, or grains as his appetite might crave. The pure foods furnished by the vegetable kingdom have no sting in them. God has put no poison in the cup of health. When man adheres to nature, he is safe. And the margin of safety is wide; a slight deviation this way or that does not necessarily involve disease and death. But when man utterly departs from the order of nature, as in killing and feasting upon the humble creatures which God created for quite another purpose, he must suffer the penalty of sin, and he does.

After wandering in a maze of unscientific exhortation on the subject of diet, Sir Henry Thompson finally recovers his mental equilibrium, and sums up his remarks by the very practical suggestion: "If a man finds that he is in better health on a vegetable diet, he should by all means use that description of food." So it is apparent that Sir Henry is quite conscious that he has presented no argument against a vegetarian dietary, but submits the whole question to the test of experience, a very sensible and proper thing to do. Sir Henry says, in effect, that if a man tries a vegetarian diet and finds that it suits him, and that he is maintained in good health thereby, science has nothing to offer by way of warning him that he is on the wrong track, but bids him Godspeed. So Sir Henry's authority is on the side of vegetarianism after all.

In conclusion, we extend Sir Henry's invitation to make a practical test of vegetarianism to all the readers of GOOD HEALTH. The writer has tried it for a third of a century, and likes it. He could not be induced to go back to the "flesh-pots" by anything short of impending starvation. Vegetarianism is not a modern notion; it is not a fad; it is not a fancy; it is not a superstition. It is simply a revival of one of the good old-fashioned ways of our forefathers away back in the days of primitive innocence, purity, peace, health, and happiness. Bellamy and Howells tell us that in the coming altruistic age there will be no butchers' shops, no butchers, no carnivora. Isaiah tells us that in the coming age of peace "the wolf and the lamb shall feed together, and the lion shall eat straw like the bullock, and dust shall be the serpent's meat. They shall not hurt nor destroy in all my holy mountain, saith the Lord." (Isa. 65 : 25.) The only way a man can have happiness on this earth is by conforming to those mighty principles of righteousness which rule in heaven, and to which man yielded complete obedience before he fell. Man is physically sick for the same reason that he is morally sick,— he has sinned. We acquire moral health by ceasing from moral sins; a high state of spiritual health can only be the result of the most perfect obedience to spiritual law. So also in relation to physical health, we are able to achieve the highest attainment only when we conform perfectly to every heaven-born principle that bears upon physical life and well-being.

# SLAUGHTER OF THE INNOCENTS.

JOHN MUIR, in a delightful article, "Among the Birds of the Yosemite," in the December *Atlantic*, 1898, made a most eloquent appeal in behalf of the robins that are being slaughtered and devoured by the people of San Francisco. We quote as follows: —

"In November the robins in flocks of hundreds make their way into the gardens of towns, as well as into the parks and fields and orchards about the bay of San Francisco, where many of the blessed wanderers are shot for sport and for the morsel of meat on their breasts. Man then seems a beast of prey, pray as he may. Not even genuine piety can make the robin-killer quite respectable. Saturdays are the great slaughter days in the bay region. Then the city pot-hunters, good and bad, with a ragtag of bots, go forth to kill, kept in countenance by a sprinkling of regular sportsmen arrayed in self-conscious majesty and leggins, leading dogs and carrying hammerless, breech-loading guns of famous makes. Over the fine landscapes the killing goes forward with shameful enthusiasm. After escaping countless dangers, thousands fall, big bagfuls are gathered, many are left wounded to die slowly, no Red Cross Society to help them. Next day, Sunday, the blood and leggins vanish from the most devout of the bird butchers, and they go to church, carrying gold-headed canes instead of guns. After hymns, prayers, and sermon they go home to feast, to put God's song-birds to use, to put them in their dinners instead of in their hearts, to eat them, and suck the pitiful little drumsticks. It is only race living on race, to be sure, but Christians singing divine love need not be driven to such straits, while wheat and apples grow, and the shops are full of dead cattle. Song-birds for food! Compared with this, to make kindling of our pianos and violins would be pious economy."

We can heartily say "Amen" to the above earnest protest against the slaughter of innocent birds, but we feel pressed to inquire why there must be a discrimination against cows. It is true cows can not sing, but they are not responsible for that, and are no less innocent; and if their voices lack melody, who shall say that the deep lowing of hungry cattle or the wild bellowing of a bovine mother robbed of her offspring is not as pathetic an appeal to humane instincts as the song of the robin or the nightingale? Besides, the cow and the ox have an additional claim upon our humanity because of the useful service which they render. More than two thousand years ago a heathen whose philosophy might well put to blush all modern Christendom in its sacred regard for that divine life which dwells alike in man and beast, thus eloquently appealed in behalf of the innocents found in the shambles as well as those which sing in the treetops: —

"Let plow thy steers, that when they lose their breath,
To nature, not to thee, they may impute their death.
Let goats for food their loaded udders lend,
And sheep from winter cold thy sides defend;
But neither springs, nor nets, nor snares employ,
And be no more ingenious to destroy.
Free as in air let birds on earth remain,
Nor let insidious glue their wings constrain;
Nor opening hounds the trembling stag affright,
Nor purple feathers intercept his flight:
Nor hooks concealed in baits for fish prepare,
Nor lines to heave them twinkling up in air.
Take not away the life you can not give;
For all things have an equal right to live."

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### The Diet of an Athlete.

The strong men, physically as well as mentally, are fast coming around to a practical belief in rational dietetics. A recent six-day bicycle race in New York City demonstrated once again the superiority of a simple vegetarian fare as a preparation for carrying off the honors. The winner of this race, Charles W. Miller, is a German, twenty-three years old, who has been in this country little more than five years. During the six days of the race his diet consisted of

oatmeal, rice pudding with raisins and sugar, apples, oranges, and grapes. He drank large quantities of kumyss. During the race he ate a peck of apples and about three dozen oranges. He had nine hours' sleep, from fifteen to thirty minutes at a time. One hour was the longest continuous sleep allowed him during the one hundred and forty-two hours. He was off his wheel just fifteen hours altogether, and during the time not asleep received vigorous general massage.

The first day of the race Mr. Miller lost three pounds in weight; at the finish he had not only gained this back but had added another pound.

The distance traversed by the winner was $2{,}007\frac{4}{10}$ miles in one hundred and forty-two hours. This was an advance over his own previous record.

The second best man in this race, Frank Waller, of Boston, rode 1,985 miles, and trained in the same manner as Miller, using no meat. These two men not only came out freshest in the race, but at once began riding at exhibitions.

Mr. Miller's trainer, John West, of Chicago, who is a staunch vegetarian and an abstainer from both liquor and tobacco, attributes the success of his man to the diet and the massage. The latter he considers better even than sleep, as its beneficial effects are realized more quickly.

This race was certainly a most severe trial of endurance, and the fact that the vegetarians came out ahead is a practical lesson of no small value in dietetics. It is remarkable, however, that sportsmen and athletes are the quickest to seize hold of every new point which offers aid to physical development and endurance. Why should not lawyers, preachers, and business men be equally anxious and willing to adopt a dietary which will secure the keenest mental acumen, the greatest ability for prolonged and taxing labor, and the largest output of energy, mental or physical. Success in business, professional, and political life depends as much upon physical endurance, upon mental alertness, or nerve energy, as does a contest in a prize-ring or on the race-course. Some sharp-witted people are beginning to see this fact, and not a few are turning away from the flesh-pots and earnestly laying hold of the good, pure, strength-imparting food substances which Nature's bill of fare affords.

### A Potato Gospel.

When Professor Alcott, the eminent and learned cousin of the late renowned Bronson Alcott, of Concord, visited England in 1842, and instituted in that country a campaign against flesh eating, he was soundly berated by Carlyle, who denominated the views which he advocated a "dom'd potato gospel," and went on with his tobacco smoking, chewing, and his consumption of dyspepsia-producing viands, the effect of which the world has seen in the pessimism and heartless irony with which his books abound.

Even a potato gospel might have been a saving grace for Carlyle. A potato regimen certainly would have been an improvement upon that to which he was accustomed. Nevertheless, Carlyle, as well as many others who probably have never made a careful study of the teachings of vegetarians, was mistaken as to the scope and meaning of vegetarianism. Vegetarians, as a rule, are not particularly partial to vegetables, using the word in its technical sense as employed to distinguish certain vegetable products from fruits, nuts, and grains. A vegetarian is simply one who abstains from the use of flesh-foods or the eating of dead things, excluding from his dietary whatever can not be employed as food without the taking of animal life. The diet of the intelligent vegetarian consists chiefly of grains, fruits, nuts, milk, and eggs. The potato and other wholesome vegetables are not excluded from his bill of fare, but are by no means regarded as essential to a vegetarian regimen, or even as one of the most valuable constituents of an irreproachable bill of fare.

### Only Too Common.

A health commissioner of the city of Chicago a few years ago made the following statement to a representative of the *Chicago Tribune*: "The Health Department inspec-

tors condemned 1,550,337 pounds of meat last year as being unfit for human food. I do not presume we caught a fractional part of the whole amount." A man recently came under the writer's care as a patient who had for a number of years been employed about the stock-yards of Chicago. He had conducted, in the employ of others, a business in diseased cattle. He explained how he managed to evade the law, by slipping the animals out by night and disposing of them to small butchers in the city. He seemed to think it was not a difficult matter to evade the vigilance of the inspectors. This testimony quite agrees with that of the health commissioner, according to whose statement the 675 tons of diseased meat annually condemned by the inspectors is only a fractional part of the whole amount of diseased flesh prepared for human consumption. Although this statement was made several years ago, we have no evidence that there has been any change for the better since.

### The Cigarette.

A correspondent sends us a clipping from a Southern journal in which the use of the cigarette is defended by a physician who claims to be a "State bacteriologist." This writer claims that "no intelligent physician who knows anything about the subject believes the cigarette to be deleterious to health." Some time ago the editor made the experiment of extracting the nicotine from a single cigarette, and found the quantity sufficient to destroy the lives of two frogs. A drug capable of destroying the life of a hardy creature like a frog must be to no small degree deleterious to human health.

We are astonished that any one professing to have the right to a medical title should be capable of presenting such an article to the public, in defense of the cigarette. The statement combated by the writer of the article, that the cigarette is certainly deleterious to health, is without doubt absolutely correct, and if there are medical men who disagree with this statement, they are certainly not those who stand at the head of the medical profession or enjoy the reputation of masters of scientific research. Cigarettes are evil, and only evil; they are evil for men, for boys, for girls, and for women.

Whether or not cigarettes are more harmful than cigars is a question not worth discussing. Tobacco is deleterious in every form. The amount of harm done those using tobacco depends not only upon the method of introducing the poison into the system, but also upon the quantity introduced. The use of cigarettes is a particularly pernicious habit for the reason that cigarettes are small and cheap, and their use is so readily acquired that not infrequently schoolboys are encountered who have become so addicted to the use of tobacco in this form that they have lost all control over the appetite, and are rapidly becoming mental and physical wrecks because of their indulgence. We are glad to note that the legislatures of various States are taking this matter in hand, and are passing laws forbidding the use of cigarettes by and their sale to boys. A law of this sort has been enforced for many years in France, Switzerland, and other continental countries, and it is hoped that a similar law will soon exist in every one of the United States.

### The Patent Medicine Habit.

By the aid of the family newspapers and popular magazines, by fence boards and barn-doors, the patent medicine manufacturers have succeeded in creating the popular impression that it is of all things most dangerous and improper to undertake to live and die without patent medicines. A certain leading journal published not long ago the statement that a citizen in humble circumstances "died without medical assistance," as if he could n't die fast enough without being helped. Physicians, perhaps, are scarce and not readily available, but the nostrum vender is on hand, ready to render assistance in such cases. Thousands of men and women die annually upon whose tombstones might be appropriately written the dolorous epitaph, "Dosed to Death."

The patent medicine business is one of

the greatest industries of the country. The profits are enormous, and so long as the people are ignorant of the nature of the disease and the relation of bodily habits to sickness, not only the traveling charlatan but the patent medicine manufacturer and the nostrum vender will continue to flourish.

The man whose bowels are inactive as the result of the free use of mustard, pepper, pepper-sauce, and other things which produce a feverish condition of the alimentary canal, imagines his liver is out of order, and straightway supplies himself with a box of "Radway's Regulating Pills," and quickly finds temporary relief; that mighty triumvirate of stomach-scouring drugs — jalaps, aloes, gamboge — sweeps down the alimentary canal like a Western cyclone, and relief is experienced. But there is an awful "goneness" left behind which suggests the need of "Herman Bitters" or "Tonic" or "Radam's Microbe Killer," for microbes swarm in the wake of a purgative. Then "Hunyadi Janos Vichy" or "Kissingen" is tried as a mild alternative, but without much success, until the victim gets discouraged, and in sheer desperation pins his hope upon somebody's "Liver and Kidney Cure," which he imagines "safe" because he finds it advertised in the religious newspapers, which, the *Philistine* sarcastically suggests, "seem to have for their prime motive to prove that man has liver trouble, and salvation can only be found by patronizing 'Dr. Blank's Pungent, Pugnacious, Pollywog Perquisites.' More debilitated than ever, he tries 'Vinegar Bitters,' 'Hamburg Tea,' and 'Jayne's Ague Mixture.' By this time his system is so upset that all sorts of maladies are in the wind. 'Harlem Oil' is tried, only with the result of making matters worse. Backaches, 'goneness,' giddiness, sleeplessness, biliousness, and other ailments multiply, so a flank movement is tried by means of a stomach pad in front and 'Good Samaritan Liniment' behind, while a movement is made upon the enemy's center with 'Piso's Cure for Consumption,' 'Brandreth's Pills,' or 'Compound Oxygen.'"

After running the gauntlet of all these nasty mixtures, if the miserable man survives, he may have the good luck to run across somebody who will tell him to go to a sanitarium where the sick are treated on rational principles, and learn how to eat, drink, dress, and exercise; in other words, to put himself in the proper relation to the laws of life, and thereby escape from the quagmires and morasses of disease, and work his way up into the highlands of physical health and happiness.

### The Martyrdom of Babies.

The majority of people have their stomachs spoiled before they are a year old, through the ignorance of nurses and mothers. I know of no class of persons who suffer more from the transgression of natural law than do babies. The baby is often a martyr to its mother's mistaken kindness, and also to the nurse's mistaken kindness and ignorance. It is given confection and all sorts of unwholesome sweets to keep it quiet. The child can not digest sweets, hence they ferment, and the child's stomach swells up causing it great distress. It needs to have something done to relieve the pain; perhaps a fomentation should be applied, or it may be the stomach needs rest. But what does the mother do? — She gives the baby more food, although the poor thing is already suffering from too much food.

Children are often fed to death! If the baby cries, it is given food; if it wriggles about or turns over in bed, it must have food. It may be that there is a pin sticking into it somewhere, or it may have become chilled, or it is aroused from sleep by a noise. Whatever the cause, it must have food; food is the remedy for everything.

Food is a ready remedy, and that is the only good reason for its use. It stops the crying for the time being, because when the baby is eating, it can not cry; but such treatment is repaid with interest by and by; it stores up groans and utterances of anguish as the result of this overfeeding in infancy, that will be wrung from the victim in later life. Many a man of forty years is mourning over abuses of this kind to which he was subjected when a year old.

# ANSWERS TO CORRESPONDENTS.

**Granola.** — "Audley" writes: "If granola causes fermentation in the stomach, how can you recommend its use for one so troubled?"

*Ans.*— Granola does not cause fermentation in the stomach. When taken with cream, the mixture sometimes ferments, but granola taken by itself certainly would not produce such a result unless the stomach was in an exceedingly foul condition, requiring cleansing by means of a stomach-tube or a strictly fruit diet for a few days.

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**Vegetarianism — Comparison of Professions — Butter — Milk — Fruit.** — J. K. W., Indiana: "1. Does vegetarianism tend to make one healthy and long-lived? 2. If so, why are the vegetarian animals that we use as food so frequently diseased? 3. Is it a fact that the United States has about seven druggists, dentists, and doctors, per capita, to every other civilized country's one? If so, what is the reason? 4. Why do you use butter for shortening, in place of nuts and coco products in making crackers, in cooking, etc.? 5. Is it a fact that milk is composed of from eighty-seven to ninety per cent. of dirty water? 6. Why do you use so much at your Sanitarium? 7. How long should one eat fruit to receive any benefit for his stomach or for a coated tongue?"

*Ans.*— 1. Yes, most certainly.

2. Because of their association with flesh-eating man.

3. Yes; the reason is without doubt the enterprise of physicians in creating medical colleges and manufacturing doctors.

4. Nut butter is used at the Sanitarium both in making bakery products and in preparing foods for the table.

5. Average milk contains water in the proportion of 87 per cent.

6. The amount of milk used at the Sanitarium is far less at the present time than formerly. Nuts and other substitutes are rapidly taking its place. Every drop of milk used in the institution is thoroughly sterilized.

7. An exclusive fruit diet for three or four days is generally wonderfully effective in cleansing the tongue and mouth; but when the desired results are not obtained by an exclusive fruit diet for a few days, it is well to adopt the plan of taking fruit only for breakfast, and continuing the practise for some time.

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**Goiter.** — B. J. I., Ohio: "1. What causes goiter? 2. Can it be prevented? 3. Can it be cured? 4. If so, by what means?"

*Ans.*— 1. It is a disorder of nutrition, the exact cause of which is not well understood.

2. Generally, by the improvement of the general health.

3. Yes, in the majority of cases.

4. By the improvement of the general health, by the employment of massage, electricity, etc.

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**Milk — Baldness.** — M. M., Massachusetts, is curious to know (1) what the Sanitarium substitutes for milk; and (2) if baldness ever results from the use of milk.

*Ans.*— 1. Nuts, especially almonds, furnish a complete substitute for milk. It is only necessary to crush the nuts and dissolve in water, and a splendid substitute for milk is obtained.

2. We have never known of a case in which baldness could be traced to the use of milk alone, although baldness is frequently the result of dyspepsia, and indigestion not infrequently results from the use of milk.

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**Hay-Fever.** — Mrs. C. S. T., Colorado, asks the cause of hay-fever and the remedy for it.

*Ans.*— It is a parasitic disease due to the action of certain germs that have been taken into the nose, and have developed there.

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**Salt Rheum — Tea — Water.** — B. C. M., Massachusetts, asks: "1. Should a person who has salt rheum drink tea? 2. Can you give a remedy? 3. Should one drink a great deal of cold water at meals?"

*Ans.*— 1. Certainly not.

2. The stomach must be gotten into a proper condition by the use of proper food. The general health should be improved by the daily sponge bath, avoiding the affected surface. When the skin is thickened, bathe the parts in hot water. If the skin is moist and greatly irritated, an application of ichthyol or a five-per-cent. solution of permanganate of potash will often be found useful.

3. Certainly not. This practise is exceedingly harmful, and is certain to lead sooner or later to dyspepsia, with its numerous and distressing attendant evils.

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**Colitis — Cream.** — Mrs. F. S. Mc G. wishes to know: "1. Is catarrh of the lower bowel the same as 'colitis'? 2. May cream be used — a pint a day — when it agrees with the stomach better than fruits and nuts?"

*Ans.*— 1. Yes, catarrh of the lower bowel is one form of colitis.

2. Cream seems to agree very well with some persons, although its use is open to various objections; but persons who have dilated stomachs, com-

prising a large proportion of dyspeptics, must generally avoid the use of cream and milk in all forms. Glenard pointed out this fact a number of years ago, and it is quite singular that it should have been so long and generally overlooked.

**Unfermented Wine—Sour Cider—Elderberries—Faradic Electricity.**—A reader in Ohio asks: "1. Is unfermented wine fattening? 2. If so, when and in what quantities should it be taken? 3. Can you give a recipe for making unfermented wine from elderberries? 4. Is sour cider that has not worked a healthful drink? 5. In what manner and for how long should faradic electricity be applied for a general tonic effect? 6. Is it a nerve stimulant? 7. Is there any danger of using it too much or too often? 8. Is electricity good for nervous exhaustion?"

*Ans.*—1. Yes, if sweet.

2. A pint a day would be no excess.

3. No.

4. Fresh apple-juice is wholesome. We do not recommend cider.

5. The application should be made for fifteen or twenty minutes daily or every other day. The application should be made in such a way as to cause the muscles to contract.

6. Yes.

7. Not unless the muscles are made too sore or the nerves are overexcited.

8. Yes, if properly used.

**Beans—Honey—Cocain.**—Mrs. H. A. C., Minnesota: "1. What is the composition of beans? 2. How do you regard them as an article of diet? 3. What do you think of cocain as a dressing for the hair and scalp?"

*Ans.*—1. The composition of beans is as follows: Proteids, 26.9; fats, 3; carbohydrates, 48.8; salts, 3.5; total nutritive value, 82.2 per cent.

2. Excellent.

3. It is probably as good as any other kind of grease.

**Floating Kidney.**—Mrs. J. M., Colorado: "1. What is the cause of and the treatment for floating kidney? 2. Would you recommend a truss? 3. How does floating kidney affect the general health?"

*Ans.*—1. Prolapse of the abdominal viscera, generally due to neglect of exercise, wrong positions in sitting, and the wearing of improper dress.

2. The Natural Abdominal Supporter is useful in cases of this sort. It acts like a truss, and is more effective.

3. Reflexly generally, but sometimes the organ becomes diseased in consequence of its wrong position.

**Hyperpepsia—Bromose.**—C. B., Illinois: "1. Will medicine cure indigestion quicker than dieting? 2. What fruits should be taken by one who has hyperpepsia? 3. Do bromose and granose flakes constitute a perfect diet? 4. How much is it necessary to eat of each at a meal? 5. I have been eating granose, bromose, and ambrosia for some time, but I am still troubled with gas. 6. What is the trouble?"

*Ans.*—1. No; removal of the cause is the most effective means of curing any disease.

2. Sweet fruits.

3. Yes.

4. See our little booklet, "Balanced Bills of Fare," a copy of which will be sent you as soon as published.

5. Fomentation to the stomach, and the moist abdominal bandage worn at night, together with a cold sponge bath every morning, would probably be helpful. It may be advantageous to substitute malted nuts for bromose, taking pains to boil the preparation for a few minutes after dissolving in water. It is very likely that you are suffering from prolapse or dilatation of the stomach, and that something more is needed than a simple change of diet. A few weeks at a sanitarium will probably help you. An exclusive fruit dietary for a few days might prove beneficial. The other symptoms mentioned are doubtless due to infection of the alimentary canal. It may be well to cleanse the colon two or three times a week by a very short water enema.

6. You are doubtless suffering from gastric neurasthenia, or nervous dyspepsia, and ought to have a thorough course of health training.

**Weakness in Small of Back—Hyperemia.**—R. M. R., Michigan, is anxious to know (1) if all forms of hyperemia are curable; (2) if any special exercise will effect a cure; (3) if dieting, and what diet, is necessary; (4) what causes a continuous weakness in the "small" of the back when there are no apparent symptoms of kidney trouble; what treatment would relieve when plasters and liniments are ineffectual.

*Ans.*—1. Generally, yes.

2. Yes, any exercise that improves the general health should be beneficial.

3. Any unstimulating diet, consisting of fruits, grains, and nuts.

4. Probably prolapse of the abdominal viscera. Apply fomentations at night just before going to bed, and follow with a moist abdominal bandage to be worn during the night. An abdominal supporter should be worn during the day.

**Food for Infants.**—B. W. M., California, asks what "purely vegetable" foods can infants a year old and under be fed on?

*Ans.*—Malted nuts.

**Uric Acid — Water.**— A. D. S., Michigan, is troubled with an excess of uric acid. He has received some benefit from buttermilk. Sweets seem to agree with him better than starchy foods. After eating bread, it is difficult for him to keep awake. He feels comfortably well if he perspires freely, but when he cools off, the sensation is indescribable. 1. Is it well to drink much water after a dry-bread meal? 2. What is the best treatise on dyspepsia?

*Ans.*— 1. Not immediately afterward. Two or three hours after eating, water may be taken in reasonable quantity.

2. There are several voluminous works on the stomach. The work by Ewald is one of the best. The Modern Medicine Pub. Co., Battle Creek, Mich., publishes a work entitled "The Stomach," which is full of practical advice.

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**Anemia.**— "Junius," New York: "1. What is the cause of pernicious anemia? 2. Does it produce 'nerve starvation'? 3. How may the nerves be restored to a healthy tone? 4. Does it cause insomnia, constant headache, tingling sensation in the head, dilatation of the pupil of the eye, and an utter lack of energy, and occasionally great depression of spirits?"

*Ans.*— 1. Nobody knows.

2. Yes.

3. By restoration of the general health.

4. Yes, sometimes.

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**Hyperpepsia and Hypopepsia.**— A. W. B. wishes to know the difference between hyperpepsia and hypopepsia, and why they are so named.

*Ans.*— Hyperpepsia is the condition in which the stomach produces an excess of hydrochloric acid. In hypopepsia the amount of hydrochloric acid produced is less than normal.

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**Lumbago — Rolled Oats — Wine — New York Health Food Co. — Aseptic — Septic.**— A. H., seventy-six years old, Kentucky, sends the following queries: "1. What foods will best prevent the accumulation of uric acid in the system? 2. Do not raisins, dates, and prunes tend to produce Bright's disease? 3. What is the best way to eat such fruits, and with what may they be used besides rice and tapioca? 4. Is the use of a beef bone necessary for nourishment in a vegetable soup? 5. Do you know of any more nourishing soup than this, even if the beef bone or meat be excluded? 6. Is it imperative that I should eat beefsteak underdone at least three times a week to keep up my stamina? 7. What treatment would you give for lumbago or muscular rheumatism? 8. Is 'Piperazin' good for it? 9. Is rolled oats, well boiled with milk, enough for breakfast for one of my age? 10. Is well-cooked bacon a desirable adjunct with potatoes for breakfast? 11. Is it a fact that the best food for old people is that generally given to infants and young children? 12. How much home-made grape-wine with yolk of egg should I drink a day? 13. What do you think of the New York Health Food Co., their gluten butter wafers, biscuits, etc.? 14. What do 'aseptic' and 'septic' mean?"

*Ans.*— 1. A diet of fruits, grains, and nuts. All meats must be avoided, and it is well also to use eggs very sparingly, if at all.

2. Most certainly not.

3. Dates may be eaten as found in commerce. Raisins and prunes should be stewed until the skins are tender. They combine well with granola, granose, zwieback, and all other cereal products.

4. Most certainly not.

5. Recipes for excellent soups are often published in this journal. Nuttolene may be very conveniently used for soups. Combined with peas or beans, it makes an exceedingly palatable soup.

6. By no means.

7. The treatment must be constitutional. Warm baths three or four times a week, at night, fomentations over the affected parts, massage, and applications of electricity.

8. We have had no occasion to use it.

9. Dry food, such as granose, zwieback, dry cooked grains, like well-boiled and well-browned rice, and crystal wheat, is better.

10. By no means. Substitute nut products for the bacon.

11. It is sometimes true, especially when the teeth have been lost or have greatly deteriorated, but the food given children is often entirely wrong. Granose, granola, nuttola, malted nuts, are especially excellent foods for elderly people.

12. Home-made wine is not to be recommended. Alcoholic drinks are exceedingly detrimental to elderly people, contrary to general opinion.

13. I have never had occasion to recommend them.

14. The word "aseptic" means free from germs. The term "septic" implies the presence of germs capable of producing fermentation, putrefaction, or some other form of bacterial growth.

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**How to Avoid Taking Cold.**— A subscriber asks, "How can one avoid taking cold?"

*Ans.*— To avoid taking cold the things essential are: (1) Train the skin to healthy activity by a daily cold bath, followed by vigorous rubbing and exercise; (2) avoid overclothing the body either by day or night, and especially avoid confinement in close, overheated, and unventilated rooms; (3) adhere strictly to a diet of simple, pure foods.

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**Flatulence.**— W. E. B., Canada, gives his symptoms as follows: "Extreme flatulence with bloating, restlessness, irritability, and clouding of mental faculties. This apparent paralysis of mental powers begins about 3 P. M., and continues until

the next morning. A short time ago, when returning from an exciting meeting, I heard something snap in my head, and have been growing worse since then. 1. Is my case curable? 2. Is electricity beneficial? 3. What will relieve this clouding, or apparent paralysis, of the mental faculties? 4. Is the last-named symptom indicative of brain trouble? 5. Is it in any way dangerous?"

*Ans.*— 1. I think you might be benefited, but probably not entirely cured.

2. It will doubtless be found of service.

3. The cause, which is probably indigestion, must be removed.

4. No; it indicates disturbance of the sympathetic nerves.

5. Yes.

These symptoms indicate the presence of diseased conditions and processes which ultimately end in such disorders as Bright's disease, cirrhosis of the liver, and general disturbance of the whole body.

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**Synovitis — Buttermilk — Soda — Cottage Cheese.**— W. R. M., Michigan, has had rheumatism from early childhood. For two years he has had synovitis in the left knee. He asks: "1. What treatment would you advise? 2. Is buttermilk harmful? 3. Does the soda used in baking-powder have a harmful effect? 4. What are the best nuts to eat?"

*Ans.*— 1. Hot fomentation at night followed by heating compress to be worn during the night.

2. No.

3. Yes.

4. The best nuts for regular use are almonds, pecans, hickory-nuts, and filberts.

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**Teeth — Water.**— E. M. H., Ohio, asks (1) what to do for teeth that are wearing away too fast; (2) if fresh spring-water going through the cellar will dampen the house too much?

*Ans.*— 1. Decaying teeth give evidence of constitutional decay or deterioration; the whole nutrition must be improved by attention to the general health. A dentist should be consulted, and if necessary the teeth should be capped with gold.

2. Yes.

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**Sugar — Charcoal Biscuit — Honey — Thirst.**— A. S., California, asks: "1. When there is so much nutritive value in sugar and treacle, why is it not good for food? 2. Are not pure honey and pure maple syrup good food? 3. Where can I obtain a recipe book for all kinds of fruit butter, as apple butter, orange marmalade, and the Norwegian fruit soups? 4. Does the Battle Creek Health Food Co. still make charcoal biscuits? 5. After eating anything sweet or salty I almost choke with thirst. Water does not quench it. Can you advise a substitute?"

*Ans* — 1. Sugar is a food element, not a food.

2. Sugar in a concentrated form is very likely to produce disordered digestion, as these substances are not digested in the stomach.

3. "Science in the Kitchen" and "Every-day Dishes," published by the Modern Medicine Pub. Co.

4. Yes.

5. Use less sweet and salt.

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**Insomnia.**— C. B. W., Pennsylvania, wishes a remedy for insomnia.

*Ans.*— There is no panacea for insomnia. The moist abdominal bandage worn at night is one of the simplest measures.

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**Obesity.**— M. J. C., New York, wishes to know how to reduce his flesh.

*Ans.*— Take enough exercise every day before breakfast to produce moderate fatigue. Take a full bath every morning on arising. Select some one article of food not especially fattening in character, and live upon it exclusively. This is one of the best means for the prevention of overeating.

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**Catarrh of the Stomach — Buttermilk — Grape-Juice.**— B. H., Ohio: "1. Is buttermilk good for one having catarrh of the stomach? 2. What is the nutritive value of buttermilk? 3. How can I keep grape-juice from fermenting?"

*Ans.*— 1. Buttermilk is frequently valuable in cases of this sort.

2. The nutritive value of buttermilk is a little less than ten per cent., or about two thirds that of ordinary milk, and a little less than skim-milk. It contains less than one half the amount of fat found in skim-milk, and less than one fifth that in fresh cow's milk.

3. By canning the same as fruit is canned.

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**Correction of the Candy Habit.**— J. M. B., New York: "1. Can you recommend anything as a restorer of energy for one whose debility has been brought on by the excessive use of candy?"

*Ans.*— A diet consisting of fruits, nuts, and grains, an abundance of out-of-door exercise, and a cool bath every morning.

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**Backache — Tired Feeling.**— Mrs. C. T., Ohio: "What is the cause of pain across the back, near the waist line, and often lower, which occurs in the morning before rising, but gradually passes away, leaving a tired feeling in its place?"

*Ans.*— The probable cause is prolapse of the stomach and bowels.

# LITERARY NOTICES.

**Current Literature and Information** is one of the magazines which it is almost impossible to do without if one wishes to keep informed of the best literature of the day. It contains selections from all the principal books and magazines, besides editorial comments, reviews, book and magazine reference lists, and a fund of general information on literary subjects. (The Current Literature Pub. Co., Bryant Building, New York. $3 a year.)

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**A Primer of Psychology and Mental Diseases,** for use in training-schools for attendants and nurses and in medical classes, by C. B. Burr, M. D., medical director of Oak Grove Hospital for nervous and mental diseases, Flint, Mich.; formerly medical superintendent of the Eastern Michigan Insane Asylum; member of the American Medico-Psychological Association, etc., second edition thoroughly revised. The F. A. Davis Company, publishers, Philadelphia, New York, Chicago.

In this little primer of psychology and mental diseases, now in its second edition, the author treats the subjects in a brief but clear manner. The work is divided into four parts. Part one treats of psychology, part two of insanity, part three of management of cases of insanity, and part four of suggestions as to what to do and what to avoid in caring for the insane. Many points are clearly brought out, and are of special value to nurses and medical students, this being especially true of the part dealing with insanity.

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P. Blakiston's Son & Co. issue a series of **Physician's Visiting List,** of 25, 50, 75, and 100 names' capacity, containing, besides the calendar, a table of signs, the metric or French decimal system of weights and measures, a table for converting apothecaries' weights and measures into grams, a dose table, directions for treatment of asphyxia and apnea, a comparison of thermometers, etc., with blank leaves for various memoranda. There is also a perpetual edition without dates, and a monthly edition. This visiting list is the simplest, most compact and convenient pocket memorandum yet devised. It is put up in the form of a diary. Prices range from $1 to $2.25.

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The Pacific Press Publishing Co., of Oakland, Cal., has issued a little pocket calendar and memorandum-book combined with a Diamond Atlas of the United States and an index of 1,800 towns indicated on the maps, with county, State, year, and population. There is a place for addresses, one for a cash account, though apparently inadequate, and a page for memoranda of a personal nature, as name and address, No. of bicycle, watch, gloves, etc. Bound in flexible morocco.

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**Making Home Happy,** by Mrs. L. D. A. Stuttle, Review and Herald Pub. Co., Battle Creek, Mich. This is an interesting story founded upon the relations which should exist in the family to make a happy home. The importance of perfect sympathy between parents and their children is plainly set forth. The book is practical and wholesome.

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A writer new to American magazine readers is William Charles Scully, who appears in the February **Scribner's** with a tale of South Africa, entitled "The Lepers." Mr. Scully is a magistrate of Pondoland, whose work has attracted the favorable attention of Rudyard Kipling, who says of him, "He has been practically brought up among South African races, and has no small reputation of his own, as the author of 'Between Sea and Sand,' and several other books." (Charles Scribner's Sons, New York. $3 a year.)

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In his "Autumn in Franconia," in the February **Atlantic,** Bradford Torrey continues his entertaining and instructive tour through the White Mountain region, giving vivid descriptions of the animals, birds, and flowers, with lively and characteristic comments upon people met and places visited, together with glowing pictures of the scenery at this most brilliant season of the year. He makes one feel the breath of the woods, the infinite calm of silent road winding up the mountain — silent but for the songs of nature. (Houghton, Mifflin & Co., Boston. $4 a year.)

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A study of Mr. Edison from the life is given in **Ainslee's Magazine** for February, which is illustrated with some splendid new photographs. There is also a thorough account of Chicago's greatest public work, the Drainage Canal; and for such as are curious about the future a unique article on "The Chances of Life." Dr. George F. Shrady deals a strong warning to the banker, broker, merchant, or capitalist who kills himself with business worry, in a trenchant paper entitled "When the Wires Are Down." In addition to

other interesting papers and the usual departments are stories by Bret Harte, Jerome K. Jerome, Opie Read, Richard Marsh, and Shan F. Bullock. (Street & Smith, publishers, New York. $1 a year.)

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The **Cosmopolitan** announces the publication of a novel by Count Tolstoy, the proceeds of which the author intends to devote to the transportation to Canada of three thousand Russian Quakers. It is generally believed by his friends that this work will mark the conclusion of Count Tolstoy's literary career. Not merely on this account, but because of the subject treated, it will attract the widest attention, the world over. It is a profound study of the life of man and woman, and treats of three phases of love — that of the youth, that of the young man, and that of the man in mature age. (Irvington, New York. $1 a year.)

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"Bethlehem was little among the thousands of Judah," writes Mrs. Lew Wallace in the February **Ladies' Home Journal**. "We are told that probably not over thirty children fell under the order of Herod. The murder of the innocents of the nineteenth century is a march to untimely graves, not by order of a wrathful king, but under what is claimed to be the finest free-school system in the world. Go into any public school, and you will see girls pallid as day-lilies, and boys with flat chests and the waxen skin that has been named the school complexion. Every incentive and stimulus is held out: dread of blame, love of praise, prizes, medals, badges, the coveted flourish in the newspapers — the strain never slackens. Watch the long lines filing past, each pupil carrying books — three, four, five — to be studied at night in hot rooms by fierce, sight-destroying lights. Time was when spectacles went with age. They are no sign of age now. Many must wear glasses to help eyes worn prematurely old by night work.

"I do not undervalue education; it is greatly to be desired, but overeducation is slaying its thousands. The burden is books. The tasks imposed on the young are fearful. The effort seems to be to make text-books as difficult and complicated as possible, instead of smoothing the hill so high and hard to climb." (The Curtis Pub. Co., Philadelphia. $1 a year.)

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**Social Elements, Institutions, Character, Progress,** by Prof. C. R. Henderson, New York. Charles Scribner's Sons, publishers.

This work by Professor Henderson, of the University of Chicago, is the ablest and clearest presentation of the subject of sociology which we have had the pleasure to examine. It is not only a lucid and comprehensive digest of the whole subject, but treats the various questions involved in a philosophical and practical way which can not fail to interest all who are not mere idle spectators of the remarkable drama that is at the present time being enacted in society. We know of no work by the study of which a student of sociology can so readily acquire a grasp of this great question.

The publishers have gotten the book out in excellent form.

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**Why I Am a Vegetarian,** by J. Howard Moore, a tastefully gotten up reprint of an address delivered before the Chicago Vegetarian Society and published in GOOD HEALTH several years ago.

This is a little booklet which every meat eater ought to read. It is difficult to see how any person possessed of a really human soul can look a cow or a sheep in the face without blushing, after reading this book, unless, indeed, the perusal of this eloquent appeal in behalf of the rights of animals should have led him to repentance and reform.

Seventh thousand. Published by Frances L. Dusenberry, McVicker's Theater Building, Chicago. Price, 25 cents.

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**A Lesson in Practical Philanthropy,** an extemporaneous address given by request by Dr. D. K. Pearsons before the Civic-Philanthropic Conference at Battle Creek, Mich., giving the details of how he spent his money.

This pamphlet may be regarded as a sort of manual of common sense principles applied to philanthropy. Dr. Pearsons has spent hundreds of thousands of dollars in lifting struggling colleges to a position of assured and permanent success, and has given his money in such a way as to secure for these same colleges two or three times as much from others as he has himself given. He is one of the few thoroughly practical philanthropists who spend their money for the good it will do rather than for the purpose of making a monument for themselves. He asserts that in all his philanthropic work his motive is purely selfish. It is a pity that other men do not more often get a streak of the same kind of selfishness.

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### Pamphlets Received.

"Asheville and Vicinity" is a nicely illustrated brochure of this famous summer resort.

"The Radical Cure of Inguinal Hernia by Fowler's Method, with Report of Cases," by H. O. Walker, M. D., Detroit, Mich.

"Some Remarks about the Study of Medicine in Germany," by Emil Amberg, M. D., Detroit, Mich.

# PUBLISHERS' DEPARTMENT.

THE Battle Creek Sanitarium is enjoying a splendid patronage this winter. The Nebraska Sanitarium at College View reports that it is overflowing. The St. Helena Sanitarium is rapidly filling up. The Portland Sanitarium is in a prosperous condition, also the Chicago Branch of the Battle Creek Sanitarium. The Boulder Sanitarium is also doing an excellent business. Both the invalid public and the medical profession are learning that the sanitarium is a necessary institution, affording, as it does, the means whereby all scientific and rational measures of treatment may be applied for the relief and healing of the sick.

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AMONG the distinguished guests of the Sanitarium at the present time is Dr. Newman, son of the eminent Professor Newman, of the world-famous school at Vienna. Dr. Newman, Jr., is well known on this side of the water as well as in his own country, not only as a physician, but as an athlete. He won several of the first prizes in the Olympian games at Athens at one of the recent annual contests. Dr. Newman attributes his athletic success in large part to his healthful habits of life, as he has never learned to smoke or use tobacco in any form, and endeavors to observe the laws of health.

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THE publishers are pleased to announce that the May number of GOOD HEALTH will contain a story by "Josiah Allen's Wife." The story is entitled "My Freedom Suit," and is thoroughly in harmony with the principles advocated in this magazine. At the same time it is a characteristic specimen of the author's quaint and homely humor and spicy way of putting every-day truths. We are sure the readers of GOOD HEALTH will look forward with pleasant anticipation to this bright side-light on one of their favorite subjects, that of dress.

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WE regret to state that for unforeseen reasons the promised article by Dr. Jay W. Seaver on "Medical Gymnastics in Sweden" could not appear in this number. It will, however, be published in April, with interesting and appropriate illustrations. Among other valuable features of the April number will be an article by the editor on "The Education of the Poor in Hygiene and Sani-

tation." There will be also an illustrated article on "The Fashions of Nature," with a frontispiece, "From Madame Nature's Spring Fashion Book."

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AN International Temperance Conference is to be held in Paris beginning April 4 of the present year. One day will be devoted to the different phases of the medical temperance question. We find on the program the names of Dr. Lauder Brunton and numerous other men of world-wide reputation as physicians and scientists. This occasion promises to be one of the most important of the kind that has ever been held in any country. Medical men everywhere are beginning to appreciate the importance of the alcohol question, and the necessity of giving this subject more careful attention than it has been accorded heretofore.

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ARRANGEMENTS have recently been perfected for the opening of a Sanitarium at South Lancaster, Mass., about June 1. The building which has been purchased for the purpose is a fine, new four-story structure, admirably adapted to the purpose, and most beautifully situated. South Lancaster is located amid the most delightful scenery, charming vistas meeting the eye in every direction. There has for some years been a growing interest in the methods of treatment of the Battle Creek Sanitarium, and it has long been evident that a branch institution was needed here. The friends of this new enterprise are to be congratulated on their success in obtaining so fine and admirably located a building for this work. Dr. C. C. Nicola and his wife, Mrs. Dr. Mary B. Nicola, will take medical charge of the institution, assisted by a corps of trained nurses from the Battle Creek Sanitarium. The institution will without doubt be a success from the very start.

This notice will be of interest to a considerable number of invalids in the East who were patrons of the Staten Island Sanitarium last summer, and who are very much interested in the question of an Eastern branch of the Battle Creek institution.

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"HOW to Live on a Dime a Day or Less," our little booklet relating to a better way in diet, is having a very large sale. Sent post-paid on receipt of five cents, or fifty cents a dozen.

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

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A GREAT ENGINEERING FEAT.— December 18 the engineers of the Chicago & Northwestern Railway accomplished the wonderful engineering task of moving its 220-ton bridge, crossing the Kinnickinnic River at Milwaukee, on its Chicago division, down stream 250 feet. This is a feat that has been undertaken but very few times in the history of engineering. The bridge was a single-track draw, and was removed to a new foundation in the quick time of two hours and forty-seven minutes. The structure was floated on two scows, one on either side of the center, which were sunk with 90,000 gallons of water. With the scows in proper position, the water was pumped out and the bridge gradually lifted from its foundation and towed to its new resting place by two tugs. The bridge was in perfect condition, and was removed only to make way for a double-track structure of the latest pattern.

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MAPS FOR READY REFERENCE.— The Chicago Milwaukee & St. Paul Railway Co. has just issued in convenient form for household, library, and school reference, an atlas of seven colored maps of the world, the United States and our new possessions in the Atlantic and Pacific oceans, together with an amount of valuable information connected therewith — all up to date. This atlas will be sent free to any address on receipt of six (6) cents in postage. Apply to Geo. H. Heafford, General Passenger Agent, Old Colony Building, Chicago; or to Harry Mercer, Michigan Passenger Agent, Detroit, Mich.

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HAWAII AND THE PHILIPPINES.— Send four cents (in stamps) for an illustrated booklet issued by the Chicago, Milwaukee & St. Paul Railway, the direct route across the American Continent to the new Trans-Pacific possessions of the United States. Full of the latest reliable information, and valuable for reference. Can be used as a text-book in schools. Address Harry Mercer, Michigan Passenger Agent, Detroit, Mich.

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LADY AGENTS wanted to sell flavoring extracts and perfumes. It will pay you to write me. R. W. Snyder, 140 E. Canal street, Battle Creek, Mich.