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PITCAIRN ISLAND.

FOR thousands of years the world have visited and admired the grand displays of the handiwork of nature in Europe, Asia, and America, and also in Africa; and indeed there is probably nothing on the globe to exceed the beauty of Norway's rugged coast or Italy's brilliant skies, the richness of India's products or the practical utility of America's plains and rivers. But the gems of the ocean, nestled in the lap of the waves, seem so fairy-like in their verdure of fern and palm that they excite the admiration of the most inveterate traveler on the Continents.

Dr. M. G. Kellogg, a medical missionary now traveling among the Pacific islands, writes as follows of the island of Pitcairn, a small isle lying almost on the outskirts of this great group of islands: —

"Pitcairn Island presents an interesting field for study when considered in its physical aspects alone; but when studied in connection with the unique community of people who make it their home, it becomes doubly interesting.

"The island is located in Lat. 25 S. and Long. 130 W., in about the center of the Pacific Ocean. It is five miles in circumference, and rises in precipitous cliffs, directly from the ocean to a height of more than four hundred feet. It is of volcanic origin, being composed of basaltic lava, which by decomposition at the surface, has formed a rich, deep, friable soil. The island is nearly covered with vegetation, and presents an inviting appearance to the eye of the mariner when seen from a distance. On near approach, however, it is most forbidding, for its shores throughout nearly their whole extent, present an unbroken wall hundreds of feet in height. There is no harbor, and no safe anchorage. There is one place, however, where surf boats can make a landing in fair weather, but even here there are only five or six square rods of level land that can be utilized as a landing place. The island has no regular communication with the outside world, and the nearest habitable land is 300 miles distant.

"From this little landing a pathway leads up the side of the steep cliff to a gently sloping valley, which lies about 400 feet above the sea. Here a scene of beauty greets the eye of the visitor. Arriving at the summit of the pathway, we find ourselves at the entrance of the village. There are no streets or roads in this village, footpaths only being required, as there is not a beast of burden nor a vehicle, except wheelbarrows, of any kind on the island: The quaint cottages, nestled among beautiful groves of tropical fruit and forest trees, are built of boards and have thatched roofs. All the cottages have doors and floors of wood, but, with the exception of the governor's house, none of them have glass windows, wooden shutters taking the place of glazed sash.

"The northern end of the valley opens directly to the ocean, along which it fronts for half a mile, then gradually ascends for a half mile toward the interior, with a varying elevation of from 500 to 700 feet. Its easterly, southerly, and westerly sides are walled in by a rocky ridge 700 to 1100 feet in elevation. The rocky cliffs which rim this basin break off abruptly into the sea. There are no pools or streams of fresh water, and only three springs on the entire island, none of which are convenient to the village, one being at the foot of the hill, near the landing, while the other two are over the ridge. All the water required for domestic use, has to be brought up a

PITCAIRN ISLAND

steep ascent of nearly 400 feet, to the top of the above-mentioned ridge, on the shoulders of the men and women, the men usually carrying a ten-gallon can each, and the woman five gallons. From the top of the ridge it is nearly a mile to the village. Wheelbarrows are used for this part of the trip, each man or woman wheeling twenty gallons at a load.

"All the produce of the island, and all that is sold to passing vessels or purchased from them, and all the material used for building purposes, have to be packed on the shoulders of the people, and so carried to their destination. Their lumber is sawed by hand with pit saws.

"When I was ready to go down to the landing, as I came away, I called for a young man to carry one of my boxes. No young man being at hand, the oldest man on the island, October Thursday Christian, 75 years of age, came forward and picked up the box, walking off with it with a firm, elastic step, and at a speed which I found it difficult to follow. When I remonstrated, insisting that I had called for one of the boys, he replied that he considered himself boy enough for that.

"The island has a climate that cannot be excelled. The temperature seldom rises above 80° F., or falls below 70° F. The rainfall is seldom excessive, being frequently too little. Malaria is unknown.

"The people inhabiting Pitcairn Island, now numbering 140 persons, are a strong, hardy race; sickness is seldom known among them. The men are tall and straight, averaging five feet nine inches and a half in height. The women are shorter and thicker set, in proportion to their height, than the men. Only twenty deaths have occurred on the island in thirty-five years. Three were under one month old, four were between sixty and seventy years old, and one was ninety-eight years of age. Few places can show a better average length of life; statistics gathered in California show a much shorter average. Of these twenty deaths, eight were accidental, three died under one month old, leaving only nine who died of disease.

"The people of Pitcairn rise between 4 and 5 A. M., spend a half hour in reading the Bible, singing, and prayer, then go to their morning work in the vegetable garden, usually a half mile distant, or to the spring over the ridge for water. At 10 A. M. they take their breakfast, then spend a few hours in rest or in light work about the house, after which they

BOUNTY BAY.

work as occasion may require until evening. At dark they take their supper, or dinner, and after family worship, with singing and reading of the Bible, they retire to rest.

"The domestic habits of the islanders are very simple, their principal diet consisting of fruits and vegetables, of which sweet potatoes form a large proportion. The grains in common use in the United States are seldom used here, as none of them are raised on the island. Watermelons, squashes, beans, and Irish potatoes are grown, however. Goat meat, chicken, and fish are used to some extent, also a small amount of corned beef, the latter being obtained from passing vessels in exchange for fresh fruit. Rice is obtained in small quantities in the same manner. The magistrate of the island informed me that the entire income to the is land from all sources was less than $1000 per annum, and that from this sum 140 persons have to be clothed, and all their foreign bread foods purchased."

"Cocoanut oil is made by thoroughly cooking the butter, and then letting it separate into oil and water, after which the oil is poured off. The oil is again cooked, then bottled or canned, and hermetically sealed while hot. Thus prepared, it will keep for any length of time. The cocoanut oil of commerce is always rancid, being prepared from copra, or dried cocoanut, which becomes rancid while drying in the sun."

Mrs. Iva Cady, a member of the Sanitarium Health and Temperance class, recently sent to Australasia by the S. D. A. Medical Missionary and Benevolent Association, writing of the food of the Pitcairn Islanders, says: —

"Though grain is not raised on the island, the people are supplied with wheat, corn, and some flour by passing ships, in exchange for fresh fruit or other products of the island. I do not know whether they have enough to use it as freely as it is used in America; but at any rate, it is not used so freely. While on the island, I sat down to several meals where there was no grain flour prepared in any form on the table, and though bread is considered by Americans the staff of life, its place was so well supplied by other foods that I did not miss it at all.

"The native foods are soft, so one is liable to eat them hastily without masticating them as much as they should; therefore hard bread would be a valuable addition to the diet, as it would not only add to the health of the whole body, but be good for the teeth as well.

"Cocoanut milk is obtained by grating the meat of the nut; a little hot water is then poured over it, and a little of it at a time is gathered up in a cloth or piece of fiber from the cocoanut tree, and squeezed,

CHURCH ON PITCAIRN ISLAND.

when a liquid is forced out which resembles animal milk. It is too rich with fat to be wholesome for common use, unless diluted with water; and three or four times its bulk of water is generally mixed with it. This takes the place of cow's milk on the island, and I like it better, for we can feel quite sure that it is free from disease germs. It is very good for use in cooking.

"When butter is wanted, they let this milk set over night, and a sort of cream rises upon it. Then in the morning, this is churned, and in a few moments' time butter is made in about the same way that butter is made from animal milk. The cocoanut butter, though, is always white. If the atmosphere is too warm, they cannot make butter, for it will turn into oil. The Pitcairn islanders use this oil for the various purposes for which fats are used in

cooking. The milk can be prepared with almost any degree of richness.

"A dish, the native name of which is *pilhi*, is much used here. There are several kinds, but I think the most common is the sweet potato pilhi. This is prepared by paring and grating the potato, mixing cocoanut milk with it, and baking it in a shallow tin or a banana leaf. Other forms of pilhi are made from green bananas, yams, and taro. This preparation is quite simple, which is one recommendation for it. It is palatable too, and makes quite a good substitute for bread.

GATHERING COCOANUTS ON PITCAIRN.

"If the ideas are correct which we have formed concerning the proportion of nutritive elements of the vegetable foods used here, most of them lack in albumen, though we do not understand how to analyze the yam, taro, cocoanut milk, etc., and so cannot ascertain the facts of the case. We know that banana contains about the right proportion of the different food elements, and perhaps other of the foods. We can appreciate now how useful a thorough knowledge of the use of chemicals in analysis would be here.

"The chief food products of the island are oranges, limes, bananas, guavas, jack-fruit, watermelon, rose and pine-apples, sweet and Irish potatoes, pumpkins, cocoanuts, yams, taro, beans, and bread-fruit. All these articles are used for food, though those most commonly used are oranges, bananas, potatoes, watermelons, milk from the ripe cocoanuts, and meat of the green nuts. When the cocoanut is still green and the meat soft, they eat it with a spoon, and consider it quite a delicacy. This as well as the fruits to which we have not been accustomed before, we do not relish at first, but we have to learn to like them. More bread-fruit would be used here, but it is not so plentiful as in the other islands. Syrup is made from sugar cane; also from the roots of the *rau ti* tree. Sugar they get from passing ships.

"They do their boiling, frying, etc., over a fire built on the ground in the cook house, and under the same roof have a large stone oven in which they do their baking. The oven is heated by building in it a hot fire, and keeping it burning till the stones become very hot. The fire is then removed, and the food put into the oven, where it is cooked very nicely by the heat from the stones. It is surprising to see how long the oven will hold the heat.

"Kids are roasted in dirt or underground ovens, just as the natives of the other islands roast pig. They make a hollow in the ground, and build a fire in it, placing a quantity of small stones in the fire. After the fire is burned out, they remove some of the stones, placing the remainder here and there over the bottom. Banana leaves are then laid over the hot stones, and the kid laid in the banana leaves, covered with more of the leaves, the rest of the stones spread over that; next a layer of cloth or canvas, and lastly dirt is raked over it all. This covering is to keep the steam from escaping. In about two hours the kid is well cooked. Sweet potatoes are often put in with the meat and roasted.

"I was glad to learn how to use hot stones in cooking, for one may sometime be placed where no stove is accessible. The banana leaves are so large and strong that they are useful for a number of things. They do very well as a substitute for dishes when nothing better can be had.

"The 'two-meal' system is in vogue on the island, but the people have the habit, as most Americans do, of eating fruit at any and all times, regardless of the

fact that it necessarily makes extra work on the part of the digestive organs. But the simplicity of their foods with the abundance of pure air and physical exercise which they get, is conducive to health, and in some measure seems to counteract the bad effects of their irregularity in eating."

HEALTH AND BEAUTY.

BY CARRICA LE FAVRE.

STUDENTS of science have for the sake of convenience and intelligent study, classified things of this world under three great heads, or kingdoms: The *Mineral*, the *Vegetable*, and the *Animal*. To the mineral kingdom belong all things having the nature of stone and metal. Members of this kingdom are inorganic. To the animal (the highest) kingdom belong all living creatures, including the lowest animal and the highest man, man having in him much of the divine. To the intermediate (the vegetable) kingdom belongs all plant life of whatsoever nature. Members of this kingdom are also organic, though lower and different in form from the animal. Vegetarians are those who nourish themselves, not upon creatures of their own kingdom, but upon things from the vegetable or food kingdom. Thus is plant life allowed to rise and express itself through man or animal.

The bodies of human beings and animals are made up of material from the vegetable kingdom, either first hand, second hand, or third hand. Certain kinds of fish, fowl, animals, and men eat others of their own kind. When people eat any of these, they are building their bodies of food at third hand. Those who eat only the herb and grain eating animals, take their food second hand; and those who wisely eat only food from the vegetable kingdom, are building their bodies and brains of material at first hand.

Our bodies are built up of the food we eat, and the kind and quality of the food determines the possible use of the body. Reasoning from cause to effect, we see that it is in every way a wiser plan to go directly to nature's laboratory for the material with which to build the "house beautiful for the man wonderful." A coat made of shoddy, be it ever so well finished, will soon give way; so a body built up of second or third hand material (animal flesh) cannot possibly bear the strain of toil and wear of time that a body built of new material (vegetable food) will bear.

Flesh food is disease producing, and tends to premature decay. It is nothing unusual to see persons in youth and mature years with decaying bodies. Their bodies are frequently so poorly built and of such shoddy material, that they fail to last half their allotted time; others hobble through life with bodies of which they may well be ashamed, and which they seek to conceal beneath a conventional cloak of broadcloth in the semblance of man divine.

Our being the present popularly supposed climax of the animal kingdom, is no evidence that we are finished — not at all. We may still go on evolving higher qualities and greater structural beauty. But this we cannot do while indulging in the barbaric custom of that earlier period when man and beast fought for existence, each in turn killing and eating the other, until the habit became a fixed nature; and even to-day in some countries man and beast kill and eat each other with the same relish as of old, when there was a struggle for life.

Some persons are egotistical enough to ask what the animals were made for if not for them to eat. To such I always say, Well, the tiger and the body vermin eat man with the same relish and evident naturalness that man eats the ox, and therefore man must have been created as food for such creatures. Certainly this is as reasonable as the other. And again: If animals were to be eaten, why reject some and eat others? No, no, good friends, there never yet was an animal created to be food for any one. Animals and man were created and intended to live and improve, to help each other; created as friends, not as enemies, to war upon and devour each other.

Since man has the ability to think and reason, and has shown himself capable of taking on Godlike attributes, he should become the lord and not the ravager of creation. Man was commanded to govern the world, not to eat it. Again, they say: If we did not eat the animals, they would overrun us, and what should we do with them? In countries where vegetarianism prevails, this question does not trouble people. And did you ever notice that of the larger animals, the ones you eat are the most plentiful? So eating them does not eradicate them, nor even diminish them. And when pestiferous animals and vermin overrun you, you do not eat them, do you? "Demand" and "conditions" create an increase in

these as in all other things. Remove the demand and conditions, and you will eradicate the *excess* and *annoyance*.

To sow the grain, to plant the vineyard and the orchard, inspires us with lofty hope. What is the nature of that hope which prompts the raising of cattle for slaughter? To garner in the golden grain is a symphony. To gather in the fragrant, daintily painted and powdered cheeked fruit is a veritable anthem. Where do you find anything æsthetic or ethical in the stockyards or meat market?

In studying this question with a candid search for truth, one is amazed and delighted with the important part food plays in structural beauty, mental aptitude, and soul expansion. I say *delighted*, because it is a delight to know that the possibility of health and beauty are within easy reach of us all. And I say *amazed*, because only a few realize that when they eat *they are soul sculpturing for eternity*, but such is surely the fact.

A woman's dietary regime often determines what the children and grandchildren will be, and food is or should be an active factor in determining social and political questions of the day. I may truthfully say that there are no three things combined which are internationally and universally of such importance as the food question. And yet to our shame this question is not made a study in our public schools, and only a few brave lovers of the human and the animal race are daring enough to come out and teach it in the face of the opposition that confronts them in such flesh-eating nations as the English and the American.

Had I the time to show you through the various ramifications of this question, you would readily see that *eating is a sacred act*, and the food question a vital one.

The evils of meat intemperance are more wide spread than intemperance in drink, because fashion has made it appear less decollete, and therefore it is given entre to society too circumspect to countenance the other. If the evils of these two forms of intemperance could be estimated and compared, that of meat intemperance would be found to far outweigh the other. A proof that meat or flesh eating is also responsible for intemperance in drink, is shown in the fact that vegetarianism will invariably cure that disease. A vegetarian diet will also cure hereditary inebriety and other defects. Thus physical regeneration becomes not only possible, but within easy reach of us all.

When the number of persons civilized enough to do away with the meat market has become large enough for that undertaking, then the saloon will die a natural death, instead of having to be amputated by the surgical knife of temperance reform and legislation.

Not many refined men and but very few women would themselves go out and take the life from an animal to satisfy even a depraved appetite. On the other hand, fruit gathering is in accord with the tastes of the most highly developed and refined persons.

The artist can with the most bewitching grace transfer to his canvass the lovers in yon orchard plucking fruit. What painter would be such an incarnate fiend as to depict his lovers in the slaughter house, cutting the throats of lambs, quartering beef, or salting down pork? Ah, do I shock you? Well, then I say there is something wrong about it. A visit to the famous stock yards and slaughter houses of Chicago (or any other butchery) will readily convince one that the "millennial dawn" is yet a great way off. So much worse than any conception we had of hell are these slaughter establishments that we dare not dwell upon this thought more than in a passing notice. My words, too, are entirely inadequate to express my feeling regarding them.

These brutal men and their brutalizing institutions cannot exist side by side nor at the same time with the millennium; that is evident. It will require more charities and missions than these rich men can ever contribute with their polluted money to make reparation for the awful wrong of this brutalizing business.

All war sentiment and spirit of antagonism and their belongings, together with flesh eating, should be relegated to those tribes laying no claim to civilization. Flesh eating is out of place in an age of the electrical achievements, railroads, journalism, art-science, and the industry with which we are surrounded to-day.

The whole triple nature of mankind can now best be sustained by adopting that food which is not in any way associated with brutality, and hence is remotest from barbarism. Any article of diet which engenders strife and destruction, must be rejected.

Children taught flesh eating and cruelty to animals, imbibe therewith all the restlessness, disease, and ugliness belonging thereto.

Flesh food is stimulating; and like other stimulants, it impairs the nerves, and becomes injurious to the mental and moral faculties.

There is nothing so discouraging to look upon as an ugly, sickly body. There is nothing that so breaks in upon the well-directed plans of life work as sickness. And we well know that if health instead

of illness were the rule, our plans could be carried out with well-nigh scientific exactness. A high standard of health could be permanently established upon a vegetable basis.

A sound mind and good morals should always have a beautiful body through which to express themselves; for be the mind and the soul ever so beautiful, they would express yet greater beauty if clothed with a beautiful, responsive body. I say we have no right to thrust before friend or foe an ugly, diseased body, no more right than to make an exposition to them of moral depravity.

Physical ugliness is a crime against nature and God. Physical beauty is an attribute of virtue when it enables us to glorify God and show forth the perfection of his creative power; when it more fully enables us to exercise the mental and moral faculties; when it serves to prove that there is a law of harmony, and that that law is at least in a measure complied with.

To improve is the organism's natural tendency, but it cannot develop the most noble proportions, artistic beauty, and highest expression while the sensuous nature is being nourished in excess of the sympathetic moral nature, as is the case when flesh food is used. The tendency with most people now is to mental and sensual predominance. What is really needed in this age is to cultivate and exercise the sympathetic nature. We need to have more love in our hearts, and more sympathy for man and beast.

Some say we should eat what is set before us, and ask no questions. This is a criminal error. Not only should we ask of what and how our food is prepared, but we should also demand that our food be furnished us of the right sort, from legitimate sources, and by humane and noble means.

We *are* our brother's keeper, not only as regards those persons upon whom we impose the now unenviable task of food production, but also upon our helpless dumb animals. To shut our eyes to the source of our food supply is a much greater crime than to shut our eyes to the source of other departments of supply in which figure the fatigue and heart pangs of man, woman, child, and beast. Our very inconsistent educational and social standards demand that we recognize and reject a cotton thread or flaw if it by any fair or foul means gets woven into the carpet upon which we tread, and yet we dump into the human body materials of the most questionable and obnoxious character, and ask no questions. No objections are made, and no complaints, save that made by outraged nature itself, when its pitiable cries manifest themselves in sin, ugliness, sickness, and death. My dear sisters, it is more questions we must ask regarding our food, its source, principles, — material and psychic, — and its artistic appearance when served, all of which do figure powerfully in the health, beauty, and development of the well-rounded individual and race.

Is it not probable that woman's work in the home has a far greater significance and power for good than has ever yet been dreamed of?

(To be continued.)

SPAIN'S FOEMEN IN MOROCCO.

BY J. E. BUDGETT MEAKIN.

THERE is probably no more hardy or warlike race in existence than the Berbers of North Africa, with one of whose tribes Spain has succeeded in picking a quarrel in Morocco. This race, stretching across the north of Africa from near Egypt to the Atlantic, occupying the highlands, accustomed to resisting extremes of heat and cold, have also resisted successfully every foe till the French came upon them in Algeria and Tunis. In Morocco no one has yet become their master. They seem to be as much at home above the snow line as on the broiling plains, and the way in which their sturdy frames get over many ills that flesh is heir to is remarkable.

Spare in flesh, more often approaching gauntness than adiposity, they are wiry and full of activity, in every way a contrast to their indolent countrymen of the plains, — chiefly of Arab descent, — or the still more depraved mixed races of the towns, to whom corpulence is as sure a sign of "comfortable circumstances" as a good coat, or even the negroes, who manage to combine a fair share of fatness — when they get a chance — with considerable activity and strength.

While the last named classes are regular gormands when they have the opportunity, and love especially fattening dishes prepared from wheat, adding to them all the meat they can afford, and every heating condiment or flavor that they know of, the Berbers are as a rule content with a most meager diet, chiefly vegetarian. The majority of them do

not taste meat once a week, if as often, and many subsist almost entirely on barley porridge. This is especially the case in the Central Atlas, where the great dish of the country was minutely described by Leo Africanus in his account of those parts written three hundred and fifty years ago. The barley is ground and boiled in water much as oatmeal is with us, rude hand-mills being employed in the first named operation. When cooked, it is poured out into shallow earthenware dishes, settling a little as it cools, till a hollow can be made in the center, which is filled with oil or butter. The family party, grouping round the dish, eat of it with rude wooden, long-handled spoons, commencing at the outer edge and dipping the spoonfuls into the oil in the center.

In other parts the national dish of Morocco prevails. It is made of wheat or barley semolina, worked up with water and flour into pellets the size of mustard seed, or sometimes, when inferior, almost of hempseed. This, when steamed and dried in the sun, will keep for years. To cook it, steaming is once more resorted to, a stew of meat or vegetables, or both, being placed in the lower half of a rude earthenware steamer, the joint of which is stopped with dough. The contents of the lower pot are emptied out on the heap of meal, after it has been well worked up with butter till no two grains adhere. Often only sifted sugar and cinnamon are spread on the top, and the dish is taken as a sweet. More often the only addition is some vegetable, such as broad beans, onions, or marrows, or several may be used, and raisins and quinces added, making altogether a most palatable dish. The favorite flavor of the Moors is imparted, however, by butter a few years buried.

The skill required to partake of such a preparation elegantly with one's fingers, without spilling a grain, is considerable, but the Moor is a born gentleman, and it is only the European tyro, brought up in helpless dependence upon spoon and fork, who makes himself ridiculous in the attempt. Wheat and its products are held in such esteem by the Moors that after this dish, before washing their hands, the owners carefully pick off all adhering grains from their fingers with their tongues. Bread found on the street or on the floor is carefully picked up and deposited out of harm's way in some crevice. It is this diet chiefly on which the townsmen, and officials especially, grow so corpulent; but then they eat meat and multitudinous spices with it, and live in comparative idleness.

With the working classes, however, things go quite the other way, and among them all no one eats less, or does more work, than the public couriers. These worthies, little more than scarecrows in appearance, but of a most wonderful endurance, subsist during their long and trying runs on parched wheat flour — practically the "gofio" of the Battle Creek Health Foods — a small bag of which slung by the side serves to make up for all the lack of inns or hostelries along the route. It is called *Zummeetah*, and is prepared for eating by being merely mixed with a little water.[1]

Strong drink is unknown to them, though many among the Berbers have a love for home-brewed drinks and fiery spirits prepared by the Jews from figs, raisins, or dates, and strongly flavored with anis seed. Otherwise a cup of green tea-syrup, or of pea-soup-like coffee at a wayside "cafe" booth is all the courier affords by way of luxury, his main drink being pure water.

SOME FACTS AND FIGURES ABOUT TOBACCO.

HARDLY any one knows the gigantic proportions which the use and manufacture of tobacco in its various forms has reached in this country. The consumption of tobacco throughout the world far exceeds in value the consumption of bread, and fully one tenth of the population of the United States are engaged in its growth, manufacture, and sale. No other one of nature's productions, save salt, is consumed in such immense quantities. Over two hundred million pounds are raised in this country, and, according to the Chicago *Times*, the amount of tobacco manufactured and sold in Chicago alone is something astounding to one unacquainted with the immensity of this traffic. There are 1360 cigar and cigarette manufactories in that city, besides 130 other factories which turn out smoking and fine-cut tobacco and snuff.

As to the quantity of the weed manufactured annually in that city, the revenue returns tell a big story. The government tax which these establishments paid for the fiscal year ending with June, 1893, amounted in round numbers to $2,119,973.44. But this, the *Times* thinks, represents but a fraction of the vast tobacco traffic of Chicago, as fully seven eighths of the tobacco sold in that city is manufactured in other portions of the United States. It esti-

[1] On this alone a courier will run 150 miles across a roadless country in 3½ days. Travelers on horse or mule back become sick.

mates that the aggregate sale in Chicago of all forms of the weed cannot be less than forty million pounds. There are fully 20,000 places where cigars, cigarettes, and tobacco are retailed.

Though tobacco takes much money out of the pockets of those who use it, it puts not a little into the pockets of those engaged in its manufacture and sale. Assuming that an average of five persons are employed in each of the 1490 Chicago manufactories mentioned,— and so high as five hundred workmen are known to be employed in the larger ones,— together with the 20,000 places where tobacco in some form is on sale, the total number of persons of all ages and both sexes, will be over 100,000, or nearly one tenth of the entire population of the city; enough human beings to form a large city, of themselves alone.

Numbers, mostly foreigners, pursue their business at home, of which the *Times* remarks: "In small, dirty, ill-ventilated tenement houses, whole families, from the infant toddler to the gray-haired sire, work at the various branches of tobacco-making; and here, amid the rankest compound of villainous smells that ever offended the nostrils are produced some of those rare brands of Havana cigars so much esteemed by the connoisseur smoker."

Taking these facts and figures into consideration, one can easily believe what is asserted; namely, that the principal portion of the revenue of every civilized country is derived from tobacco.

The duty upon tobacco is enormous. The fraternal tie between England and the United States is no doubt greatly strengthened by the fact that she buys most of her tobacco from us, paying us yearly the sum of $2,000,000. For the privilege of using this, her citizens pay into the treasury of their own government, each year, $20,000,000. Of all the great warehouses in London, those for the handling and storing of tobacco tower preëminently above all the rest. Those of the States which produce most tobacco are Virginia, North Carolina, Kentucky, Tennessee, Maryland, Pennsylvania, Ohio, Connecticut, and Wisconsin. The American output of cigarettes alone, it is estimated, will reach the enormous aggregate of 3,350,000,000 for 1893.

It is well known that tobacco has cut short the career of many a useful life, but its action as the prime factor in the degeneracy of nations has not been so patent to ordinary, casual observation. A recent writer in the *North American Review* has summed up the effect of tobacco-using upon nations, somewhat as follows: It intensifies the national trend, "making the Frenchman more gay and the Spaniard more grave. It has confirmed the German in his speculative philosophies, and has made fatalism the firm belief of the Moslem. The Turk, who before the introduction of tobacco ruled a good part of the civilized world, has since sunk into the 'sick man' of the nations.

"The Hollanders, whose ancestors swept the sea with the broom of their commerce, now serenely smoke their pipes and stolidly contemplate the vision of their departed greatness through the hazy atmosphere of their tobacco smoke.

"Its effects on the American nation are apparent in the increased activity of the mental powers, at the expense of the physical frames. The mind becomes more brilliant, but our endurance less; in consequence of which our active business and professional men seldom now reach the allotted age of man."

E. L. S.

Sudden Change of Climate. — If a blizzard of unusual severity were coming from the northwest that would send the thermometer down fifty degrees or seventy degrees in three hours, we should expect a great increase of pneumonia and other respiratory diseases, resulting in many deaths. Now instead of three hours, suppose the mercury were to drop threescore degrees in three minutes — or, to take another step in fancy, suppose this great change to take place in three seconds — what would likely be the effect on health? And yet we bring about artificially, changes to ourselves quite as sudden and as severe as this. We make an artificial climate in our houses. We live indoors in an atmosphere heated by stoves, furnaces, or steam-pipes, to seventy degrees or eighty degrees; and we pass from our parlor or hall so heated into the air. At a step, literally in a breath, the temperature of the air has, for us, dropped fifty degrees or seventy degrees. We may put on an extra coat or shawl and shield the outside of the body and chest, but we cannot shield the delicate linings and membranes of the air-passages, the bronchial tubes and lung cells. Naked they receive the full force of the change — the last breath at seventy degrees, the next at freezing or zero, and all unprepared. We have been sitting, perhaps for hours, in a tropical atmosphere; nay, worse, in an atmosphere deprived by hot iron surfaces of its ozone and natural refreshing and bracing qualities. Our lungs are all relaxed, debilitated, unstrung: and

in this condition the cold air strikes them perhaps sixty degrees below what they are graduated to and prepared for. Is it strange if pneumonia and bronchitis are at hand?

If we are in the West Indies, or even in Florida, and wish to come north in winter, we try to make the change gradual. But in our houses we keep up a tropical climate, or worse, for we have not the freshness of air that prevails in a tropical atmosphere, and we step at once into an atmosphere as much colder as forty degrees difference of latitude will make it. It is in effect going from Cuba to Iceland — or at least to New York — at a step, and we make the journey perhaps a dozen times a day. And often, while we are shut up in our domiciliary Cuban climate, Iceland comes down upon us from an open window. Especially is this likely to occur in schoolhouses, where children will instinctively seek to get a breath of fresh air that has not had all its natural refreshing qualities quite cooked out of it by hot stoves, furnaces, or steam-pipes. And all these sudden changes and shocks of cold come upon us while the whole system has its vitality and power of resistance gauged down to the low necessities of a tropical climate.— *Popular Science Monthly.*

The Missing Scientist of the Peary Expedition. — A correspondent of the Boston *Transcript* gives an account of the life of John M. Verhoeff, the scientist of the first Peary expedition, who did not return last September in the "Kite," and whom the world read of as "lost in a crevasse," but whose relatives and friends, the correspondent says, believe him still alive. The story is most interesting. Verhoeff was a direct descendant of one of the officers of "The Old Swiss Guard" of Paris, so that he ought to have been brave if heredity goes for anything. His father, a wealthy merchant of Louisville, died while John was a baby, and thus his mother — a very talented woman — had full charge of his training. When only five years old he is remembered to have exclaimed: "When I grow to be a man, I shall go to Greenland and live with the Eskimos and find the north pole;" and almost from that time this was his sole aim. Says the correspondent: —

"He early learned to read for himself, and delighted in books of travel, telling his young schoolmates that he meant to go to the north pole. He was born with a purpose in life, and early began to deny himself any taste or pleasure that would conflict with it. He never ate but two meals a day, and that of the plainest and most nutritious kind of food. He would never wear an overcoat in the very coldest weather, sleeping at night under but one cover. He devoted himself to a rigid course of training in the gymnasium, strengthening every muscle and joint of his body. He rode all the way from Louisville, Ky., to New Haven, Conn., on his bicycle when he entered Yale College, the first attempt at that time to travel on one. All his feats of strength and daring, as jumping from roof to roof on a sleety morning in January, were but tests of his skill. He was a strong, manly, brave youth. He dared to live alone, as he had often done while yet a boy, absenting himself for periods of time, testing his strength of endurance in walking in rough places, until at last he had acquired the strength to walk sixty miles a day continuously.

"When Peary organized his expedition, Verhoeff paid a large sum for the privilege of joining it, and if these stories of his training are true, it is manifest that hardly one of the party could have been better prepared than was he to go to Greenland. The theory is that when the relief party took charge of the expedition, Verhoeff became his own master, and improved his opportunity to attempt still further the great object of his life. Peary himself is reported as having called him 'the most faithful and conscientious young man I ever saw, so reticent that I never learned all his purpose in coming with me.' Four nations sent exploration companies into the Arctic last summer, and if it should indeed happen that Verhoeff still lives, it is likely that the world will hear of him."

What Goes to Make up a Man. — An interesting exhibit at the National Museum shows the physical ingredients which go to make up the average man weighing one hundred and fifty-four pounds. A large glass jar holds the ninety-six pounds of pure water which his body contains. In other receptacles are three pounds of white of egg, a little less than ten pounds of pure glue — without which it would be impossible to keep body and soul together — forty-eight and one half pounds of fat, eight and one fourth pounds of phosphate of lime, one pound of carbonate of lime, three ounces of sugar and starch, seven ounces of fluoride of calcium, six ounces of phosphate of magnesia, and a little ordinary salt. Divided up into his primary chemical elements, the same man is found to contain ninety-seven pounds of oxygen — enough to take up, under ordinary atmospheric pressure, the space of a room ten feet long, ten feet wide, and ten feet high. His body holds fifteen pounds of hydrogen, which under the same conditions would occupy somewhat more than two such

rooms as that described. To these must be added three pounds and thirteen ounces of nitrogen. The carbon in the corpus of the individual referred to is represented by a foot cube of coal. It ought to be a diamond of the same size, because the stone is pure carbon, but the National Museum has not such a one in its possession. A row of bottles contains the other elements going to make up the man. These are four ounces of chlorine, three and one half ounces of fluorine, eight ounces of phosphorus, three and one half ounces of brimstone, two and one half ounces of sodium, two and one half ounces of potassium, one tenth of an ounce of iron, two ounces of magnesium, and three pounds and thirteen ounces of calcium. Calcium at present market rates, is worth $300 an ounce, so that the amount of it contained in one ordinary human body has a money value of $18,300. Few of our fellow-citizens realize that they are worth so much intrinsica"y.— *Cincinnati Commercial Gazette.*

A CURE FOR DYSPEPSIA.— A sallow-faced, unhappy looking man came to Dr. B——'s office one day when the writer chanced to be present. He wanted some medicine for dyspepsia.

Among other questions, the doctor asked, "How long a time do you usually spend at dinner?"

"I dunno exactly," replied the patient. "Ten or fifteen minutes, I guess."

"Does your food taste good?" Dr. B—— asked.

"That it does," was the reply, "but half an hour after I 've eaten it I 'm nearly dying with distress."

"Do you drink much with your food —tea, coffee, or water?"

"A pretty considerable amount," answered the man.

"Yours is a grave case," said the doctor, "but I can help you if you 'll follow my directions."

Dr. B—— gave the man a dark colored mixture in a bottle, and said: "Now, it is of the utmost importance that this medicine be taken properly. With each mouthful of food take a very small sip, and then chew, chew, chew, in order to mix it completely with the food. Do this and report to me in a week."

Two weeks later I saw this dyspeptic again, but I scarcely recognized him, he was so much improved in looks.

"That medicine of yours works like a charm," he said to the doctor. "I 've about forgotten that I have a stomach."

"That 's good," responded Dr. B——. "Continue taking it in the same way for three months, and you' ll be a well man."

Then, as the man went out, Dr. B—— said: "The whole story of that man's cure is in the word *mastication.* It is merely what I said to him — chew, chew, chew. But he would n't have believed it without the medicine, which was the simplest. The man was bolting his food, and I stopped it."— *Youth's Companion.*

MEAT-EATING AND BAD TEMPER. — Mrs. Ernest Hart, who accompanied her husband in his recent trip around the world, appears to come to the conclusion that meat-eating is bad for the temper. In the *Hospital* she says that in no country is home rendered so unhappy and life made so miserable by the ill-temper of those who are obliged to live together, as in England. If we compare domestic life and manners in England with those of other countries where meat does not form such an integral article of diet, a notable improvement will be remarked. In less meat-eating France, urbanity is the rule of the home; in fish and rice-eating Japan, harsh words are unknown, and an exquisite politeness to one another prevails even among the children who play together in the streets. In Japan I never heard rude, angry words spoken by any but Englishmen. I am strongly of opinion that the ill-temper of the English is caused in a great measure by a too abundant meat dietary combined with a sedentary life. The half-oxidized products of albumen circulating in the blood produce both mental and moral disturbances. The healthful thing to do is to lead an active and unselfish life, on a moderate diet, sufficient to maintain strength and not increase weight. —*Boston Med. and Sur. Jour.*

AN ENGLISH EDITOR ON DIETETIC SIMPLICITY.— In the agricultural districts of England, the wages of the laborers are so pitiably small that indulgence in butcher's meat is out of the question. Yet, amid all the hardships and privations which this class undergo, their health and physique are superior to that of the more highly paid and more generously fed artisans in our great towns. It is absolutely certain that all the dietetic necessaries of life may be purchased for two or three pence per day, with food at once pure, nourishing, and enjoyable. Yet how many, even among the working classes, would actually starve upon such a sum.— *Herald of Health (London).*

"THE music of the spheres," said Pythagoras, "can be heard by abstaining from the flesh of animals, by bodily purity, and by meditation."

HOW NOT TO BE FAT.

BY J. H. KELLOGG, M. D.

Address delivered at the Bay View Assembly, July 28, 1893.

(Concluded.)

Now what is the best kind of exercise?—The best exercise for the obese man is the thing that is hardest for him to do. Walking does not amount to very much. Walking for a person who is very obese may be good exercise to begin with, for he must have such kind and quantity of exercise as he can take. If a person is so obese that he cannot even walk, it is necessary for him to begin with passive exercise, massage, etc. Then he should have active passive exercises, in which he pushes out his limbs while the attendant tries to keep them flexed; and the same with all the parts of the body. This active passive exercise is continued until the patient is tired. The waste matters must be gotten into the circulation to be carried off by the aid of massage. By and by, when the patient begins to gain a little in strength, he can be gotten upon his feet; then he can be made to walk a little distance. From day to day the distance is increased, and after a time he may walk a mile, then two miles, then three miles, then five, ten, even fifteen miles. He must be made to walk enough to do a good day's work, which is fifteen to twenty miles. After a little while he must be made to walk up an inclined plane. He must first walk up a plane that is of moderate inclination; then he may walk up a hill with a little greater pitch, then one of still greater pitch, until he becomes strong enough to climb a mountain. I have used a treadmill as a substitute for a hill or a mountain, and find it a good thing, because we can make the mountain just as long and as steep as we please with an adjustable tread-mill. Exercise must be begun gradually, and increased systematically. One must be careful not to exhaust himself with exercise at any time.

Suppose a patient is suffering from an excessive amount of fat in the abdomen; we must make the abdomen do the greatest amount of work. For this condition a person may take exercises in bed, such as raising the head as high as possible without moving the rest of the body. You would be astonished to see how much this exercise will make the abdominal muscles work. While lying down upon the back, lay the hand upon the stomach, then raise the head from the pillow as high as possible,—you cannot do this without strong contraction of the abdominal muscles. A still more vigorous contraction of the muscles will be produced in this way: raise one leg to a perpendicular, then the other. A much more vigorous exercise is to raise both legs and the head at the same time. Perhaps you cannot do it at first, but after a time you can do it. Another exercise which is very useful, is lying prone upon the floor and raising one's self upon the elbows and the toes. If you will take the exercise in time—one, two, three, etc., bringing the trunk and head in line each time,—the abdominal muscles and the back muscles will contract with very great vigor. You may not be able to accomplish this at first, but it is a capital exercise.

Another excellent mode of exercise is to lie between two small stools, or a couple of hassocks, resting the head upon one and the heels upon the other, face upward. This is a very excellent exer-

cise. Here is another exercise you can take at home, and a very good one: kneel down upon the floor with the heels underneath the edge of the sofa; now bend forward to the floor, then backward; repeat it several times. Be careful to have some obese person sitting upon the sofa, so that it will not be elevated into the air. The effect of this exercise will be to bring into activity the muscles of the trunk and abdomen.

The following exercise is also a good one: Place the hands on the sides of the doorway, the door being open. Raising the knee, throw the body forward and backward. Here is another: With the hands at the sides, raise first one knee and then the other, pointing the toes straight down. Repeat with first one side and then the other, thus bringing into play all the muscles of the trunk and abdomen.

Lying flat upon the back and raising the trunk to the sitting posture is an exercise of very great value for the abdominal muscles.

By the means of these exercises, the muscles of the abdomen may be made to contract vigorously, and the longer they are continued, the more marked the effect will be, and the more the fat will disappear. All this extra fat in the abdomen may be carried away by abdominal musoular work.

Abdominal bandages lessen the downward tendency of the organs somewhat, but the real remedy is work, hard work, of the abdominal muscles. Bicycle riding is also to be recommended most highly.

I wish to say another word with regard to the amount to which flesh may be reduced. A man ordinarily weighs 160 pounds. Suppose he now weighs 260 pounds. He wants to get back to his former elastic condition and weight. He must not expect to do that; he ought not to expect to get down to 160 pounds again. I have met many patients who were anxious to be reduced to their original weight, and to make sure that they would not become obese again they thought it desirable to be reduced even a little below their original weight. This is a dangerous thing to do. When a person has reduced himself below his original weight, he is in great danger of consumption or some other malady in consequence of the undermining of his vital powers. The weight should not be reduced lower than within ten or twenty pounds of the original weight, because an abnormal habit has been established in the body which cannot be wholly cured; it can only be kept within bounds.

Should anybody reduce his weight when he has not a great amount of extra flesh? I think persons who weigh only ten or twenty pounds more than usual, should not undertake a course to reduce flesh, because by so doing the vitality may be lowered. It is better to exercise sufficiently to prevent an increase of weight. A person who already weighs thirty or forty pounds more than he should, may take a mild course to reduce flesh.

Now a word in reference to the relation of overfatness to other diseases. Obesity is associated with rheumatism, because there is a large amount of those waste substances in the obese person which are the exciting causes of rheumatism. Rheumatism is not a blood disease, as many suppose. It is a disease in which the liver fails to do its work, in converting into urea, etc., the waste substances of the body. This renders the whole body impure,—not simply the blood, but all the tissues. There is an accumulation of waste matters in the body in rheumatism, as well as in obesity.

There is still another disease which is also often associated with obesity, viz., *diabetes mellitis*, a disease in which there is sugar in the urine. This is also due to the accumulation of residual matter in the system. Sugar is one of the residual substances which accumulate in the body. Glycogen, or animal starch, is stored in the muscles, and sugar is stored in the blood. Now if there is an insufficient consumption of fat, there is an accumulation of adipose tissue. If there is an insufficient consumption of sugar, we have an accumulation of sugar in the blood, and then sugar is eliminated in the urine. So diabetes originates in the same way that obesity does. In one case there is an insufficient consumption of fat, and in the other there is an insufficient consumption of sugar.

We may have obesity and diabetes together. The remedy for diabetes, as for obesity, consists in avoiding the excessive use of sugar and starch, and taking sufficient exercise to burn up the sugar. In curable diabetes it is only necessary to take sufficient exercise to burn up all the sugar. Then the sugar will disappear from the urine. A person suffering from obesity or diabetes may burn up his extra fat by hard work, just as the engine which has an excess of coal may use it up by hard work. Run an engine up a steep grade, and the fireman must ply his shovel more vigorously. The engine goes puffing and tugging up the incline, and is burning up a great quantity of coal. So the obese man or woman can burn up extra fat by climbing a hill. Panting for breath, and perspiring at every pore, he is burning up his extra fat, and in so doing he is reaching the root of the difficulty.

But you say, "Are there no anti-fat medicines?" Yes; there are medicines which will cure obesity. I have known young ladies who have made themselves very pale, thin, and "interesting," as they thought, by drinking vinegar, eating pickles, etc. I am sure you have all known such young ladies. One young lady told me she had been taking half a glass of vinegar daily. She was thin, haggard, and almost as white as a corpse; she was in fact almost a corpse, as she had nearly killed herself in making herself thin and pale. She had destroyed her digestion, and by destroying her digestion she had made herself pale, bloodless, and thin. In the same way, the person who is over-fat may destroy his fat by destroying his liver, by taking medicine which will destroy his digestion, which will render his liver inactive, and which will tear down his constitution. In this way he can render himself lean and poor, but he cannot afford it. The remedy is worse than the disease. The same is true of the man suffering from diabetes. If he would become intemperate, and drink whisky enough, he could cure his diabetes, but it would ruin his liver. In the same manner a person may be cured of obesity, but it is at too great a cost. Anti-fat remedies are all of them damaging, that is, those of them which have any effect whatever. Some years ago a lady gave me some anti-fat pills as a specimen of what she had been taking for obesity. It was guaranteed that two or three of these pills taken two or three times a day for six months would cure the worst cases of obesity. I examined them and found that they were composed simply of chalk — carbonate of lime — nothing more. Of course they were perfectly harmless; they were doing no harm, but they were doing no good, except as a mind-cure. But I imagine a mind-cure doctor would not like to undertake a case of obesity. I never heard of such a case being cured by Christian Science.

The natural remedy for obesity is exercise and restricted diet, and the reason that this disease has increased in America to a certain extent, is that exercise is so much neglected. As people at the present time ride more than formerly, as manual labor becomes less necessary, as labor-saving machines have been brought into use, exercise has become less and less popular, and the result is, that obesity has alarmingly increased.

One of the forms of exercise that I should perhaps speak of more at length, is bicycle riding. I could not recommend this exercise to a person who weighs a quarter of a ton, but an obese person who weighs 175 to 200 pounds will find it an excellent exercise, and one of the best means of combating obesity.

I will only add that cold bathing is an excellent aid to diet and exercise in reducing flesh; but hot baths are not to be recommended except occasionally. They only abstract water, which is quickly replaced. I say this as the result of much observation and twenty years' experience in treating cases of this sort. Exercise and diet are the great remedies, — as much as possible of the first without exhaustion, and as little as possible of the latter without starvation. In a work which I have in press, I have gone more fully into this subject than it is possible to do in an hour's talk.

Corsets in Early Times. — In the letters of Synesires, Bishop of Cyrene, on the Greek coast of Africa, about four hundred years after the Christian era, is found one of the earliest references to stays. He tells us how, when he was shipwrecked on a remote part of the coast, and he and the rest of the passengers were starving on cockles and limpets, there was among them a slave girl from the far East, who had a pinched wasp-waist, such as you may see on the old Hindoo sculptures, or on any street in America. And when the Greek ladies of the neighborhood found her out, they sent her from house to house, to behold, with astonishment and laughter, this new and prodigious waist, in which it seemed impossible to them for a human being to live or breathe; and they petted the poor girl, and fed her, as they might a dwarf or giantess, till she got quite fat and comfortable, while her owners had not enough to eat. So strange and ridiculous seemed our present fashion to the descendants of those whose glorious statues we pretend to admire but refuse to imitate.

Cycling for Women. — Sir Benjamin Ward Richardson, whose opinion on the subject is entitled to weight, holds that women can indulge in cycling just as safely as men, and, moreover, that the exercise is of great use to healthy women. It secures a quick and sure cultivation of the senses; it supplies a good and salutary muscular exercise; it causes a fine expansion of breathing; it causes the lungs to inhale pure air; it quickens the circulation, and brings to the mind a free and wholesome change of scene, which is a most admirable tonic to the depression incident to sedentary monotony. For all ordinary

purposes of cycling Dr. Richardson considers that bicycles are preferable. Ladies mount and dismount them with more ease and grace than men, and, moreover, they cause less vibration than the tricycle. Lastly, the dress is better arranged on the bicycle than on the tricycle; there is less risk of the folds of the dress being caught in the wheels, and less resistance from the wind. Twenty-five miles is a thoroughly good day's ride for even an accomplished female rider on a moderately good road. It is good for women, as it is for men, to dismount occasionally and walk, and it is always good for them to do so when they are climbing long and steep hills. The change of movement brings new sets of muscles into play, and saves strain on the muscles of respiration. . . . In training, and ever afterward, girls should be taught to sit erect on the seat or saddle, and always to have the dress perfectly free around the waist and chest. The ankles ought also to be free, and the dress sufficiently short to allow the movement of the feet to be untrammeled.

Resolutions of the Congress of Physical Education. — The Congress of Physical Education which met in Paris last year, after a five days' meeting, passed the following resolutions: "That every college, school, or teaching institution whatever, primary or secondary, should have an open space where pupils can carry on games and sports. That shooting should be taught, target and shot being furnished by military authorities. Boxing, wrestling, and fencing should be taught in all *lycees* and colleges. Swimming should be compulsory. A model running ground should be laid out, and a sum should be given for buying velocipedes. That children under thirteen should be forbidden to learn bicycling. That pure woolen clothes should be worn in all schools during the exercises. A register of the physical condition of each pupil should be kept after the examinations of physical exercise; his dexterity, chest girth, and the various functions."

Training of the German Army. — In the spring, when the snow is off the ground, marches are undertaken and these are regulated as carefully as are the strokes and the courses of the college crew under the hand of the trainer. Each day the men march half a mile or so farther than the day before; each day they carry on their back an ounce or two more; each day the speed they are able to maintain is carefully noted; in fact, the record of a company's marching from day to day, until late in the summer, when they move into the open country, is kept as minutely as if it were a single picked company training for a match or competitive drill. The German soldier is educated and trained for the purpose of fighting; and to have a man fall out before he reaches the fire-line, is looked upon as quite as much of a disaster as if he had been shot and wounded by the enemy. — *Poultney Bigelow, in Harper's Monthly.*

A careful record has been kept at Yale College during the past eight years, with reference to the physical condition of non-smokers as compared with smokers. It has been found that non-smokers are 20 per cent taller, 25 per cent heavier, and have 60 per cent more lung capacity than smokers.

A recent graduating class at Amherst College presented a similar difference in favor of the non-smoker, who had gained in weight 24 per cent over the smoker, in height 37 per cent, and in chest girth 42 per cent, and also exceeded him in lung capacity. — *Pacific Record of Medicine and Surgery.*

Blanche Weaver's Advice to Women. — The following is from an address to women, delivered before the Professional Women's League, by Mrs. Blanche Weaver, of New York City, who is herself a recognized mistress of the art of physical culture: —

"Don't wear corsets — you constrict the lungs and diaphragm, and don't get enough air. An elephant takes eight breaths a minute, a mouse nearly one hundred and twenty. A tightly laced woman takes pretty nearly as many as the mouse, and is of as little account.

"Don't train your muscles to hardness, but to suppleness. When you go to bed tired, relax. When you have learned to stand and to breathe, take simple walking exercise, not a few blocks, but four or five miles.

"Don't slump. This is the way most women stand: chest in, abdomen out. You must elevate the chest and exercise the torso.

"I took up the art as a restorative. I was broken in health, and had spent hundreds of dollars doctoring, and had taken all kinds of patent medicines and nerve tonics. I tried physical culture in sheer desperation; I became fascinated with it, and from being a delicate, sickly girl, am a healthy woman."

Plato called a man lame because he exercised the mind while the body was allowed to suffer. Varied, light, brisk exercises, next to sleep, will rest the tired brain better than anything else. Metal will rust if not used, and the body will become diseased if not exercised.

Home-Culture

SYMPATHY BETWEEN MOTHER AND CHILD.

One of the most important relations to be cultivated between parent and child is that of sympathy. Webster defines sympathy as "a feeling corresponding *with* that which another feels." Please note that this feeling is not merely *for* but *with* another, the answering of heart to heart. According to Paul it is to rejoice with them that do rejoice and to weep with them that weep. Love should not be mistaken for sympathy. There are mothers who love their children, but who fail to be in full sympathy with them. The mother who fully sympathizes with her little ones, puts herself, in feeling, on the same plane with them, looking upon things from their standpoint as well as her own. The beautiful motto of the kindergarten, "Come let us live with our children," is indicative of a state of true sympathy. Many parents live for their children, but how many live with them?

As one writer upon this subject says, "We do indeed often try to live for our children, to bear their sorrows and hardships out of our deepest love, and we do for them many things which they ought to do for themselves, because this is easier for us than to teach them and wait for them to learn. But this is the opposite of living "with them."

"Individuality of sorrow, of loss, and of disappointment as well as of need, is one of the most precious as well as mysterious qualities of life, and suggests the infinity of resource from which to draw our supply of help, of comfort and up-lifting. When we live with the children, we honor this individuality, and walk hand in hand with them to their and our supply."

The same writer offers the following illustration upon this point: "Not long since, while waiting in a car, a lady and a little boy, perhaps five years old, entered. She took a seat opposite me, and he came into the seat in front of me to look out of the open window. At once he put his head out as far as possible to look up and down the train. . . . The mother called out to him, 'Johnnie, stop putting your head out of the window.' A scowl came over Johnnie's face, and he took no notice of his mother or her request than to draw back a very little, and soon the same request was repeated with the strengthening affix, 'Don't you hear?' There was not the slightest recognition of any other relation between the mother and the child than ruler and ruled, though it is quite likely the mother would give all she possesses, perhaps life itself, in the interest of her boy.

"In the dawn of his babyhood no doubt she thought she loved him from the depth of her heart, and very likely was possessed by one great desire to be a true mother to the little being so mysteriously presenting his claims to her love and care.

"Where and how did her feet first slip into the path that had led her so far from her boy in these few short years? Did her love prompt her, really to study his growing intelligence with the thought of supplying the best conditions for his development? Did she not rather indulge in the feeling that she was to feed and clothe him, be pleased and proud of his cunning baby ways, until he was old enough to go to school, and then, somehow, that was to make a man of him?

"Very likely she gratified his wishes when she could do so without too much trouble on her part, especially if he teased and she could spare herself annoyance and trouble at the time, by yielding. She had evidently given much thought and care for his clothing, making the raiment for his body as beautiful as possible. She was ready to spend money, time, and strength in his service, but did she live with him?

"The two rode but a short distance and as they left the car, left also an aching in my heart. I longed to clasp the mother in my arms and show her before it was too late how she was missing the pure gold of life for herself and her little boy. But she had gone, and as I turned my eyes from the window, where I had looked out to see them once more, I half felt that the thought in my heart which seemed almost a

cry, would arrest the attention of the mother, and arouse a new impulse in her heart.

"I looked up, and as if in a new world I saw a sweet looking lady who had just entered with two little boys. The younger boy sat with his mother, and the elder came over and took the very seat by the open window just vacated by the little Johnnie, and repeated at once the operation of looking out to see all that was to be seen. He was not outdone by Johnnie in putting his head out as far as possible, to see the engine, and, with great interest, I watched the mother's loving, anxious glances. Soon she came over and sat down by the boy, and made some pleasant remarks about the outlook, and then suggested that it might not be quite safe to put his head out so far, and the matter was talked over between the mother and child with as much candor and interest as if the subject were as new to her as it was to him. He listened with the eagerness always so charming of a child who is getting a new thought.

"The mother went back to her seat, and the dear little fellow went on with such investigations as he could make without putting his head out of the window, and instead of feeling soured or even interrupted by his mother's counsel, seemed impressed by her wisdom, and looked so sweetly for her to notice each new discovery that it was a delight to watch him.

"She evidently lived with her children, and to give these two illustrations force, you have but to watch mothers and children in their daily intercourse. You will find these two extremes, sympathy and entire lack of it, as well as all the shades between, and the results in every case will be justified by the amount of wholesome, wise sympathy that has existed from earliest babyhood, for in order that sympathy may grow with the child and overspread with loving light its whole existence, it must begin with its earliest days."

It should be the mother's earnest endeavor to cultivate this sympathy with her child. During the first few months of its existence this sympathy can be shown only for its physical being. It may be imagined that this is an impossibility, but to illustrate some of the ways in which it may be done, a writer upon culture of the cradle says, "At the very first let us fully realize how very delicate the little human organization is. Think how sensitive this nerve tissue must be, how susceptible to any rude touch, any harsh sound, any dazzling light. Be careful therefore, that it be held firmly, but very gently, let it never feel a jerk, lay it quietly upon its bed, and soothe it sweetly to sleep. Be careful that it is not startled when it wakes from peaceful sleep; greet its opening eyes with smiles.

"Let the whole order of the nursery be one of gentleness and good order, not dull or somber or unloving. Let the little eyes meet smiles, the little hands soft caresses; let it often, especially, after it may have been racked with pain or convulsed with sobs, feel the mother's strong, loving arms holding and supporting it.

"Such sympathy poured out upon it from the maternal fount will awaken the love lying dormant in the little one's heart, and it will burst forth, not in the cold light of mere earthly existence, but in the holy, pure radiance of a mother's love, type of that perfect love in which is no fear.

"As the child grows older, it is not only the sympathy which can be exercised through the physical senses, but the finer harmony of feeling which will put the mother in perfect accord with her child, that she should cultivate. She must begin to live with him in the miniature world of joys and sorrows in which he dwells."

The beautiful outgrowth of true sympathy of this genuine living with the children, is that perfect confidence between child and parent, which, if continued, will, through all his life, prove one of the surest barriers against evil that can be erected.

This close sympathy between mother and child will tend to that unity of purpose which will enable them to work together for the overcoming of evil and the correction of faults. The child will struggle harder because the mother's loving sympathy makes him feel that she is struggling with him. They will take counsel together over faults that need to be overcome, weep together over failures, and rejoice together over victories. If real, true sympathy exists, there will be no more hesitancy in coming to mother with the failures, the misdeeds, the wrong doings, than there is in bringing to her their pleasures and victories, for they will feel somewhat as we do when we take our troubles to the Lord,—that she is their refuge and their strength, an ever present help in time of trouble. The help that is not within human power to give she will help them to gain by leading them to the infinite Source.

If mothers could only be made to realize what a tower of strength such a living with their children may become, no effort would be considered too great to be made in cultivating this sympathetic relation, for it must be cultivated if it is to be continuous. It must grow with the children, it must broaden with their years, and take in their play, their playmates, their studies, their work, their read-

ing, as well as their pleasures, their joys, their sorrows, and their deepest feelings.

Too many mothers who feel with their little ones in their tender years, allow them to drift away as they grow older, through failure to respond to the outgoings of their hearts, and thereby discouraging them from coming to mother with the troubles and pleasures of every-day life. Not finding with the mother the sympathy craved, the child naturally turns to other sources, and by no means always the best. A writer upon this subject aptly says: —

"If children must be provided for scantily anywhere, it should not be morally or intellectually. In the home of poverty, clothing may be thin and food plain, while the children may be bright and happy, loving and obedient, delighting in the home circle above all other places on earth, because the parent listens patiently to their inquiries, enters interestedly into their thoughts, treats with respect their questions, and is never too busy or too weary to give them an honest answer. Nothing can do more to bind the hearts of parent and child together than this. Said a daughter to me, 'My mother is my confidant, I tell her everything, and I cannot remember the time when she did not listen to me as the most loving sister would.' Said a mother when asked how she managed to keep her boys so firmly attached to home and so willing to spend their leisure hours there, 'I always pay attention to their simplest requests, patiently listen to and answer to the best of my ability every question they ask me, and try to make myself not only a faithful mother, but an agreeable companion.' Such instances carry their own lesson with them."

One engaged in work for mothers was once asked the question how mothers could win the confidence of their children. Her answer is so full of helpful suggestions that I cannot do better than to quote it here: —

"A mother ought not to have to win her children's confidence — a precious birthright. It is hers; the child gives it of its own accord. But most mothers lose this precious gift — treat it so carelessly, value it so lightly, that some do not even know when they have lost it.

"I would say to young mothers whose children are on or about their knees, never break your word to your child; never refuse an honest answer to a child's question; never deceive your little one. I say *never* — not even petty deceptions, they are not safe, and truth is so much more beautiful. Take the story of Santa Claus. Can it compare with the story of the heavenly Father's love, which puts it into the heart of all dear friends to give to the children?

"Never laugh to others about your children's ideas; gaurd their childish secrets jealously. Let our children feel quite sure that unless they actually force us to do so, we will not reprove them or expose them before others. If you think your boy or girl is wrong, tell him so privately, and he will be far more apt to confide in you.

"But I know that there are many mothers who grieve over mistakes they have made, and long to retrieve those mistakes. 'Have you no words for us?' they cry. Yes, my friends, I think if your girls or boys are in their teens, and you have lost their confidence; if they do not speak freely to you on any and every subject; if they are prone to have secrets with those you cannot approve, I would do this: I would sacrifice almost everything else, for a time, to winning their hearts. I would cultivate their society, go out with them, be with them in the home, and when I had convinced them of my true mother-love, I would tell them how I felt as to the past, and ask them to give me the lost treasure of their confidence. I would not do this without earnest prayer, very great carefulness; but, so doing, I believe you will find that which is lost, and angels will rejoice with you.

"Let me say a few more words as to keeping promises with children, which is the ground work of all confidence; do not promise unconditionally, but when you make a promise, keep it, even at great self-sacrifice.

"One other word: Do not accustom yourself to leave your little ones. No one, no one, can take a mother's place to a little child. If God sends them out into the world, he will temper the wind to the shorn lamb; but don't shear your lamb and then expect the wind to be tempered. O, if mothers only knew the value of every day in a child-life up to ten years of age; if mothers would be more jealous of their children's love and confidence! Let your little girl chatter with the girl in the kitchen while you read or visit? No, no, throw aside your book, give up your visits, keep your children close by your side."

For cultivating and keeping the confidence of children there is no one opportunity so favorable for quiet confidence as the "children's hour," just before bedtime, when the cares of the day are laid aside, and the mother gathers her little ones about her to talk over the events of the day, to cheer the discouraged ones, to listen to their confidences, and offer her own. Mothers who fail to make use of this opportunity are losing one of the most blessed experiences that motherhood can offer. E. E. K.

THE POISON OF TONGUES.

"YES, I have found a treasure this time. Esther has been with us a month, and she is all I could ask."

Mrs. Surrey's friend laughed. "What is a month? Remember it is the new broom that sweeps clean."

Mrs. Surrey was sunning herself in the thought of her good fortune, as she started for a call one afternoon.

The friend she had wished to see was not at home, and having in mind some necessary sewing, she returned home. She sat down at her sewing-table without delay, noting carelessly that the children were talking on the veranda. They were out of her sight, because the blind of the end window was closed.

She had sewed some minutes, keeping company with her own thoughts, before it occurred to her that the children's high-pitched chatter was replaced by Esther's low voice, softened somewhat beyond its custom. A word caught her attention — her sewing slipped to the floor; she slid without noise to the window, listening with frightened face close against the blind.

Upon the eager attention of the four children, the trusted Esther was pouring a stream of filthy information and anecdote. An occasional laugh or comment in answer betrayed that the occasion was not alone of its kind.

The mother's energy was paralyzed for a few seconds by the unexpectedness of the affair. Truly, Esther had found a use for her magnetic power over the children, in compelling them to keep silence in regard to these lessons in evil — these children whose hearts had once been open for the mother to read!

Mrs. Surrey went to the side door, forcing herself to speak naturally.

"Gertrude, had you not better practice your hour before it is any later? Mrs. Bruce was not at home, so I came back again. And, Charley, will you do an errand in town for me?"

She went back to her sewing, the younger children following her, while the older ones went away as bidden. The eyes of the mistress and maid had met, and Esther knew that a reckoning would follow as soon as the little ones should be absorbed in their play.

Esther being dismissed, Mrs. Surrey set about administering antidotes to the poison. An earnest little chat, a renewal of confidence between mother and child, a few warnings, removed danger in the case of the little ones. But for ten-year-old Charley and thoughtful Gertrude there was but one sure antidote — TRUTH.

Mrs. Surrey had not been one to withhold timely information. Yet she was reminded by this accident that she had erred on the side of reticence.

Suppositions are not always profitless. What if Mrs. Surrey had not so soon discovered the poison at work in her family? What if she had been less wise in the matter of antidotes? What if her children had not been prepared for scientific truths by familiarity with natural laws at work in fields, garden, sky, and water? What if poison has touched your children while you thought them safe?— *Ruth Merriam, in the Household.*

THE TRUE HAPPINESS.— The only kind of happiness which is not marred by fear or loss, change or misfortune, is usefulness to others. This is open to the poor as well as to the rich. It is not the bestowing of money which brings the greatest joy to those about us, but the thoughtful consideration of their rights and feelings. Some act of self-denial and kindness performed daily, not always for those most near and dear, but for the casual fellow-voyagers over life's sea, will become a happiness-producing habit which will brighten the dullest and darkest lot. Couple with this habit the power of mental concentration, sufficient to enjoy a few moments even of music, reading, or social life each day, and the kings of the earth may envy you, and the Jay Goulds die without having known one day of such happiness as you will find making an eternal fountain within your bosom. This may seem trite and homely, but it is nevertheless true, as all who search through many paths through many years must find at last.— *Ella Wheeler Wilcox.*

THE long trail of the gown of modern court dress is a survival from the trail of some animal whose skin was worn by our barbarous mothers. It was dragged behind because it was less in the way there than elsewhere, and the trading value of the skin was greater when the trail was intact. Such skins were probably ceremonial dress for men before they became precursors of "dress" for women.— *Geo. Wilson in Jenness Miller Monthly.*

A MOTHER'S WAGES.

It was an uncouth bird's nest of rushes in which Jochebed moored her birdling "in the flags by the river's brink." Little did she know what precious freight she was entrusting to that basket-cradle. And little did Pharaoh's daughter know — when she took the little foundling out of the floating basket — what manner of child he yet would be. As she hands back the handsome boy into the very bosom that first gave him life, she says to Jochebed, "Take this child away, and nurse it for me, and I will give thee thy wages."

"I will give thee thy wages," says the Egyptian princess to the Hebrew nurse. She got her wages in better coin than silver or gold. She got them in the joys that a mother feels when she yields up a part of herself to sustain her darling child; she got them in the love of the babe she nursed; she got them in the glorious service that her child wrought for Israel in after years. She was paid in the heavenly coin with which God pays good mothers. For all her anxieties and all her efforts to preserve the life of her "goodly child" she was abundantly rewarded.

When God lays a new-born babe in the arms of a wedded pair, he says to them, "Take this child and nurse it for me, and I will give thee thy wages." And the answer of Christian gratitude and faith should be, "O Lord, thou hast put thy noblest work into our hands. We accept the precious trust. We will try to stamp on this soft, plastic heart the impress of a godly example. We will shelter this young life under thy mercy-seat. We will bear with it as thou bearest with us. We will be truthful, that it may never learn falsehood. We will nurse this soul in its infancy with the 'sincere milk' of love, that in after years it may bear 'strong meat' for strong service of God and righteousness. O God, make our lives in harmony with thee, that this young life may reflect thine image in reflecting ours!"

To such pious fidelity God offers the only wages that can satisfy the claims of love. He pays the heart's claim in the heart's own coin. What wages could repay Hannah's prayerful care like the sight of Samuel's after career as Israel's upright judge? Moses standing on the mount was the "wages" of the poor Hebrew mother who cradled him in her basket of rushes. St. Augustine's mighty service for the gospel was the best reward that God could give to Monica. John Wesley's mother was repaid for all her patient discipline when her son built the world-wide tabernacle for Methodism to worship in. George Washington was God's reward to Washington's good mother; as Archibald Alexander, and Brown of Haddington, and Lyman Beecher found their "wages" in the noble sons who took the gospel banner from their aged hands.

Alas! I have seen other "wages," too, the sad outcome of parental impiety or neglect of duty. Eli's sin was repaid in Eli's sorrow. I have seen a frivolous, prayerless mother paid in the wages of a broken heart. And when to many a father's door a drunken son has been brought home from a Sabbath-breaking debauch, it was only the wages of that father's sin which a just God was paying. The "wages of sin is death," and of no sin more surely than parental. It is death to peace of mind — death to domestic happiness — death to the neglected or misguided souls of evil offspring.

"Take this child and nurse it for me, and I will give thee thy wages," is the inscription which God's hand writes on every cradle. "When I dress my child each morning, I pray that Jesus will clothe it with purity," said a good mother to one who inquired her secret of right training. "When I wash it, I pray that His blood may cleanse its young soul from evil; when I feed it, I pray that its heart may be nourished with truth, and may grow into likeness with the youthful Jesus of Nazareth."

Here was religious training from the cradle. It began with the dawn, and its course was like the sun, growing more full-orbed in beauty until the "perfect day." That mother received her golden wages in the early conversion, usefulness, and honor of all her children. What a blessed recompense! "Go, and do thou likewise."— *Theodore L. Cuyler, D. D., in the Mother's Companion.*

THE TWILIGHT BELL OF THE ANGELS.

There has come to my mind a legend, a thing I had half forgot,
And whether I read it or dreampt it, ah well, it matters not.
It is said that in heaven, at twilight, a great bell softly swings,
And man may listen and harken to the wondrous music that rings.
If he puts from his heart's inner chamber all the passion, pain, and strife,
Headache and weary longing that throb in the pulse of life,—
If he thrust from his soul all hatred, all thoughts of wicked things,
He can hear in the holy twilight how the bell of the angels rings.
And I think there lies in this legend, if we open our eyes to see,
Somewhat of an inner meaning, my friend, to you and to me.
Let us look in our hearts and question, can pure thoughts enter in
To a soul if it be already the dwelling of thoughts of sin?
So, then, let us ponder a little,— let us look in our hearts and see
If the twilight bell of the angels could ring for us,— you and me.— *Sel.*

THE MEXICAN KITCHEN.—The Mexican kitchen is entirely foreign to the American one, and Mexican housewives or servants would be as much confused by the hundreds of contrivances found in the American kitchen to lighten the burdens of cooking, as is their sister of the United States by the absence of useful cooking utensils in the Mexican. The first thing a traveler observes upon entering the kitchen is that there is no cooking stove, range, or refrigerator, or no faucets for hot and cold water. One will look in vain for the chimney, and wonder where the smoke goes; but there is no smoke, and were it not for several recently constructed American houses, the chimney would not be known in Mexico. As for a range or base burner, it would be regarded as great a curiosity to the ordinary Mexican, as would the telephone, electric light, or any other recent scientific discovery that is introduced into the Mexico of to-day, to the Montezumas, were it possible for them to come back and view the modernized city of Tenochtitlan.

All the cooking of Mexico is done over charcoal, and the *brazero* answers all the purposes of the modern cooking stove. It is a table-like structure of masonry, jutting out from one end of the room. In the top along the center are square or round openings, perhaps six inches in diameter; in these are set iron grates to contain the charcoal, over which is placed the cooking vessel. Along the sides of the *brazero* are openings which extend under the grated charcoal receivers, for the purpose of supplying air, and while the cooking is in progress, the Mexican cook keeps her *brazero* fan in constant motion before these apertures, in order to keep the charcoal at a red heat. The *brazero* is usually built of a red, brick-like tile, which also lines the wall about it to the height of two feet or more. This tile may be of any color, however, and is sometimes pure white. The cooking vessels are all of native red pottery, and the walls are lined with basins and jars of it in all sizes and shapes. One American lady, who had made Mexico her home for a number of years, considered this pottery the curse of Mexico, for though cheap, it is very fragile, and breaks so easily that by the end of the year the pottery bill forms no small item in the expense account.

The floor of the Mexican kitchen is also of brick, as are indeed the floors throughout the houses, even to the second and third stories. The houses are seldom of more than three stories, and two is usually the limit, one being the rule. They are Spanish or Moorish in their architecture, and always built about an open court, or *patio*. This *patio* is open to the sky, and is generally a beautiful flower garden, unless horses are kept, when the lower floor is devoted to them, and the court used as a carriage house. There are often two or three of these courts, however, according to the size of the house, and all the rooms open on them.—*Home Furnisher*.

SOME WAYS TO USE SWEET POTATOES.

IN selecting sweet potatoes, choose firm, plump roots, free from any sprouts; if sprouted, they will have a poor flavor, and are likely to be watery.

The sweet potato is best cooked with the skin on; but all discolored portions and the dry portion at each end, together with all branchlets, should be carefully removed, and the potato well washed, and if to be baked or roasted, well dried with a cloth before placing in the oven.

The average time required for boiling is about 50 minutes; baking, 1 hour; steaming, about 1 hour; roasting, 1½ hours.

RECIPES.

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

Mashed Sweet Potatoes.—Either bake or steam nice sweet potatoes, and when tender, peel, mash them well, and season with cream and salt to taste. They may be served at once, or made into patties and browned in the oven.

Potato Hash.—Take equal parts of cold Irish and sweet potatoes; chop fine and mix thoroughly; season with salt if desired, and add sufficient thin cream to moisten well. Turn into a stew pan, and heat gently until boiling, tossing continually, that all parts may become heated alike, and serve at once.

To Dry Sweet Potatoes.—Carefully clean and drop into boiling water. Let them remain until the skins can be easily slipped off; then cut into slices and spreab on racks to dry. To prepare for cooking, soak over night, and boil the next day.

GOOD HEALTH
J·H·KELLOGG·M·D·EDITOR·
BATTLE CREEK·MICHIGAN·

TWO MEALS A DAY.

THE question is sometimes asked: "Is not a person who eats only twice a day liable to overeat?" Such has not been found to be the case. A person is much more liable to overeat when he takes four meals a day than when he eats only twice, because he has only two opportunities to overeat, whereas when he takes four meals a day, he has four opportunities for eating too much. Another thing: When a person has the habit of eating so often, he feels hungry very soon after eating; the stomach is tired, and irritated by the rubbing of the walls, and he mistakes that rubbing for hunger.

Many persons think it bad for the stomach to be empty; mothers sometimes think that wind will get into a child's stomach if it is allowed to become empty, and so they keep the poor child eating night and day. I have seen cases in which the child had a nursing-bottle in its mouth nearly all the time. There are persons who go all through life overeating. I knew a man who said that the doctor told him that he must not let the walls of his stomach come together, and he never did; he would have something to eat in his pocket all the time, so as to piece out between meals. The argument is often used that the English, who partake of four or five meals every day, are the most healthy people in the world. But this is not the case, neither are they the most long lived people; they are full-blooded — plethoric — because they eat so much. Apoplexy and gout, both caused by over-feeding, are the national diseases.

An appetite which calls for four meals a day is morbid. One meal a day is enough for a person who is accustomed to it. An Indian when out hunting, will sometimes pass several days without eating, having failed to find any game. He simply takes up a notch in his belt when he feels hungry, and goes on without inconvenience. We are not likely to die of starvation, since Dr. Griscomb and others have fasted with safety for forty days, and an Italian is said to have fasted for sixty days. Hippocrates, of Greece, who lived 300 years before Christ, recommended two meals a day; the ancient Greeks ate only once a day, and that is the practice among most of the savage people; they gather their food in the daytime, and at night they eat their meal. The modern fashion of eating three or four meals a day is a mere innovation.

When in France a few years since, I was surprised to find that invalids at the hospitals were furnished with only two meals a day, and both the French and the Italian army eat only two meals a day; it is also so in India.

I find that the same hygienic plan of eating two meals a day which has been adopted for invalids in France, is growing in this country. In Washington, D. C., it is becoming customary among persons working in government offices, to eat twice a day, and if they take anything at noon, it is only a glass of milk, or some light lunch. This is in accordance with physiological science. In the morning, if one wishes to break his fast, he should have something very light — not a hearty meal; the hearty meal should be taken after the work is done, so that the food can be digested. After dinner, there should be some light employment at first; hard work immediately after eating, is not physiological.

A most interesting physiological fact is the following: If one goes to bed hungry, when he wakes in the morning, he is not so hungry as he was when he went to bed. When I was a boy, I ate but once a day, and that was all day, and the consequence was, that when only about twelve years old, I had a severe form of dyspepsia. Every mouthful of

food was an agony to me. I used to shut my teeth together and close my eyes while swallowing a mouthful, until it was in my stomach; eating became a perfect horror to me, but in four hours I wanted to eat again. When I was about fourteen, I adopted the plan of eating two meals a day. I felt much worse at first. I would lie awake for hours at night, with a horrible gnawing at the stomach. But I was soon convinced that I was on the right track, however; for although I went to bed with an "all-gone" feeling, in the morning the "all gone" feeling was all gone. The stomach only wanted rest.

This fact can be demonstrated in the following manner: —

It has been found by careful study that the length of time the food remains in the digestive organs is fourteen hours. One meal overlaps another; for example, we take breakfast at 7 : 30 A. M.; then if we take dinner at a suitable hour, our next meal would be at 2 : 30, or an interval of seven hours, which is a very good physiological interval. Now it is fourteen hours before that breakfast reaches the larger intestine, and the dinner remains in the alimentary canal fourteen hours; and as we have one meal overlapping another by seven hours, there is no great danger that we shall starve. When "supper time" comes, fourteen hours after breakfast, it is 9 : 30 o'clock P. M., and then it is time to go to bed, but we have not an empty stomach, by any means; we have enough to last us for seven hours yet. It is only the little pouch — the œsophagus — that is empty, and this is only the antechamber to the great digestive apparatus. Now these seven overlapping hours, from 9 : 30 P. M., will bring us to 4 : 30 A. M. If no food is taken after 2 : 30 P. M., the whole digestive apparatus will now have an opportunity to rest three hours before the next meal time arrives, and it certainly needs that little time for rest. So it is not during the whole long night that the stomach or the alimentary canal is empty; but only from 4 : 30 to 7 : 30 A. M.

Now suppose we eat supper at 9 : 30 P. M., and breakfast at the same hour as before (7 : 30 A. M.); the work of digesting the breakfast ends at 9 : 30 P. M., dinner is disposed of at 4 : 30 A. M., and, if we observe the same intervals in eating, seven hours after that will bring us to 11 : 30 A. M. But on this same day we must breakfast at 7 : 30 A. M., so there is no rest at all for the digestive organs; on the contrary, there is a doubling up from 7 : 30 to 11 : 30 A. M.

There is only a small portion of the twenty-four hours when the alimentary canal is not at work when we eat two meals a day; when we eat three meals, it is doubly loaded for the greater part of the day and night. The plan of eating twice a day is the only rational one, and it is one which will give the system all the nutriment that is needed for the support of all the healthful functions of nature.

Every organ of the body needs rest; even the heart rests after each beat. The heart rests even more than it works; when you consider the time spent in beating, and the rests between heart beats, you will find that the heart spends more time in resting than in work.

The stomach needs a great deal of rest. Although the digestive process is going on all the time, the organs of digestion are not all at work all the time, the work of digestion being first taken up by the stomach; then the stomach rests and the work is taken up by another organ, and so on; each organ works and rests in its turn. In order that nutriment shall be properly supplied to the body, it is necessary that food should be taken intermittently and not continuously. This law is recognized among all classes of animals. Why is this? — It is because the food taken into the stomach does the body no good until after it has been digested. It must go through a very elaborate semi-chemical process before it can be assimilated and made into blood, tissue, bones, brains, nerves, etc. Eating involves such very important consequences, that all these questions of how many meals a day should be eaten, and at what intervals, what kinds of food are best adapted to the needs of the system, etc., demand our serious and careful consideration.

LADY PAGET ON VEGETARIANISM. — The *Popular Science Monthly* recently published the following interesting remarks on vegetarianism from the pen of Lady Paget: —

"Vegetarianism is often called a fad, but it is a healthy and an innocent one, and the natural reaction against the present state of things. It imparts lightness and elasticity to the body, brightness and clearness to the mind. The vegetarians I know are unusually strong, active, and young-looking people for their age; one of them walked without stopping for thirty-four and another time thirty-seven hours without a rest, while on an excursion in Norway, — feats not easily equaled by the most inveterate beef-eater. Traveling, mountain-climbing, all seem easier and less fatiguing on this light and soothing diet.

And why should it not give strength to the limbs and sinews, if one reflects that all the strongest animals who do the heaviest work in the world, like horses, oxen, and elephants, are entirely herbivorous?

"There is, of course, a great deal more to say on so wide a subject, but I have in these pages confined myself almost entirely to my own experiences. Being but a beginner myself, there is much for me to learn, and I have not even touched on the possibilities and probabilities which this theme opens out into in the domain of psychology. Only a few days ago one whose experience and knowledge on this subject are greater than those of most men, told me he owed almost everything he had attained in his domain to his strict adherence to a vegetable diet. It certainly gives, to those who live on these lines, a kind of detachment from material things, a sense of calm and content. It is in the hope of helping some who may feel nervous or worried in mind or ill in body, that I write these lines, to point out a simple remedy everybody can apply. It not only costs nothing, but even puts money in our pockets — only, like everything else, it must be governed by good sense and reason in order to be successful."

No Tobacco for Lunatics. — The city of New York has passed a law prohibiting the use of tobacco by the insane in its asylums. If this law were enforced in such a manner as to suppress the use of the weed by all the lunatics who are now smoking, a much-needed reform would be inaugurated. It is a great comfort to know that there are public institutions in the State of New York in which the air is not contaminated by the noxious fumes of tobacco. One cannot enter a great hotel, lecture-room, hall, or scarcely a church, in all the great commonwealth, in which one's nose is not saluted with the nauseous effluvium of tobacco. If the use of the weed continues to increase at its present rate in New York, as well as elsewhere, the time may come when it will be necessary for one to flee either to the country or to a lunatic asylum to get rid of this monstrous nuisance.

An East Indian's Criticism of America. — Mr. Mozoomdar, at the World's Congress of Religions, read an interesting paper entitled, "The World's Debt to Asia." In contrasting the two countries, he remarked, "We have no stock yards in India, and you will find no hog-killing machine there." This was not intended as a fling at Mr. Armour, but as a gentle method of hinting that the average East Indian is possessed of a more refined, gentle and humane nature than the average American. The country which can tolerate the horrible cruelties (one may say, crimes) and atrocities which are committed in the gigantic slaughter pens of our great cities; the nation which is so blood-thirsty, and with instincts which require the death of many millions of innocent brutes to satisfy its morbid craving, has certainly something to learn from the life-respecting Hindoo, to whom the thought of taking the life of an animal is nearly if not quite as repulsive as that of murder.

Is Life Worth Living any More? — This is a question asked by a newspaper correspondent who seems to have seen a recent article from our pen calling attention to the presence of microbes in cheese, and presenting, somewhat practically, the thought that cheese is an article wholly unfit for human consumption. Deprived of cheese, our friend seems to think that life it scarcely worth living. Charles Lamb thought very much the same thing about tobacco, when he wrote his famous "Farewell," beginning with the lines: —

> "Farewell: for thy sake, Tobacco, I
> Would do anything but die."

He was not yet quite ready to die for tobacco, though a great slave to it; but our friend seems to be so addicted to cheese that without it he is almost ready to give up life altogether. His capacity for enjoyment must be very small indeed, if it is wholly confined to the appreciation of the rank and toxic odors and flavors of old cheese. The problem with us is not, How can we dispense with cheese? but, How did the human palate ever acquire a taste for such a loathsome, detestable article?

It is somewhat difficult for us to comprehend how the native Burmese can eat with so great a relish, — considering it quite a dainty, in fact, — *gnappee*, a comestible quite peculiar to his own country, consisting of fish which has been buried in the ground undergoing decomposition for a period of three weeks to three months or more; and it is equally difficult for the writer to comprehend how any one can eat with a relish, milk which is far advanced in the process of decomposition and decay. The so-called "ripening process" of cheese, is, strictly speaking, a rotting process. Let dead, decaying things go to the scavengers. Nature provides an abundance of wholesome, palatable, and nutritious food, and we can easily dispense wtth these loathsome and sometimes dangerous articles.

ANTHROPOMETRY.—From a late number of *Physical Education* we clip the following appreciative words:—

"Dr. J. H. Kellogg, of Battle Creek, Mich., has for a number of years been at work upon a phase of anthropometry which differs in certain respects from the work that has been done in the colleges and Young Men's Christian Associations. He has proceeded upon the theory, which is unquestionably a true one, that function is a more fundamental matter than structure. He has devised a dynamometer, which he calls the Universal Mercurial Dynamometer, to test any or all muscular groups of the body. After the measuring of a large number of individuals, he has arranged these measurements in a percentile chart on which diagrams are made in the usual way.

"All teachers of gymnastics will recall cases in which an individual has done good, faithful work in the gymnasium, but who has increased practically none in size of muscle. The tape shows nothing, the dynamometer will indicate the real work that has been done.

"Let us take, for instance, a person going to the gymnasium, never having done any physical work. We will suppose that the muscles of the upper arm are thoroughly infiltrated with adipose tissue. Two months' work has largely gotten rid of the fat, and has developed a strong, vigorous muscle. The tape measure will show nothing, the dynamometer will show a great deal.

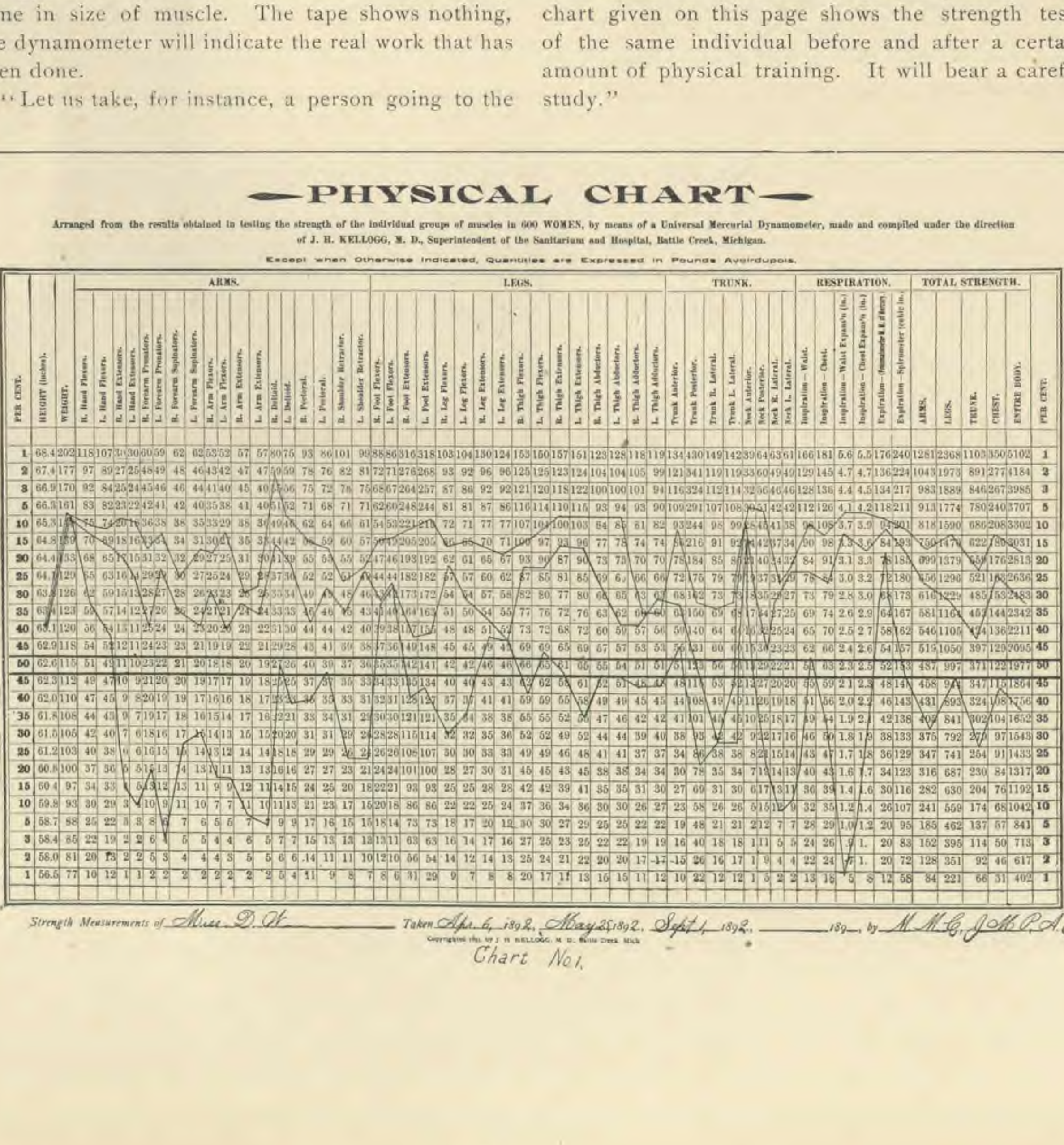
"In the charts which have been generally used in the colleges and Associations there have been a few strength tests used, but they have been exceedingly unscientific as compared with these of Dr. Kellogg's, each test, with the exception of that of the grasp, having involved the use of a large number of muscular groups.

"Just what place this kind of study of anthropometry will take in the work of the future, we do not know, but we feel sure that there is in it something that is much more satisfactory in certain ways than the work that we are now generally doing. The chart given on this page shows the strength tests of the same individual before and after a certain amount of physical training. It will bear a careful study."

—PHYSICAL CHART—

Arranged from the results obtained in testing the strength of the individual groups of muscles in 600 WOMEN, by means of a Universal Mercurial Dynamometer, made and compiled under the direction of J. H. KELLOGG, M. D., Superintendent of the Sanitarium and Hospital, Battle Creek, Michigan.

Except when Otherwise Indicated, Quantities are Expressed in Pounds Avoirdupois.



Strength Measurements of Miss D. W. *Taken* Apr. 6, 1892, May 2, 1892, Sept. 1, 1892, ——189—, *by* M. M. C. J. M. P. A. C. J.

Sept. 1, 1892.

May 2, 1892.

Apr. 6, 1892.

Chart No. 1.

Correct Breathing a Cure for Consumption.— It is a curious fact that consumption, the scourge of civilization, is not found within the Arctic or Antarctic circles. The women of those regions breathe zero air, which contains no dust and probably few consumption germs. It is probable, however, that their immunity from consumption is in large part due to the fact that their clothing is so constructed that it does not restrict the movements of the body in the slightest degree, and gives an opportunity for the freest activity of the chest in breathing.

One of the greatest advantages of a residence in an elevated climate is the increase of lung activity induced by the rarity of the air. Nearly the same advantages may be obtained by proper attention to lung-gymnastics, or to exercises such as rowing, chopping, and other active exercises which induce the full activity of the respiratory organs.

Management of Squint in Infants.— Probably few parents are aware of the fact that squint is often due to some condition of the eyes which may be remedied by properly adjusted glasses. This is true of most forms of squint. It is not possible, of course, to have your children wear glasses. The important thing is to keep the eyes in such a condition that, when older, glasses may be so adjusted as to effect a cure of the difficulty. In cases of bad squint, one eye usually loses its power of acute vision. The cause of this is the same as that of an arm carried in a sling; namely, disuse. If the eye turn in or out positively, only the other eye is employed in looking at objects, and as a result, the affected eye deteriorates, and after awhile loses the power of clear vision altogether. It is generally found, when squint has existed for many years, that vision is not improved by an operation, for the reason that the affected eye has been so long at rest that it has become incapacitated for practical use.

A very important suggestion, with which every mother should be acquainted, is applicable to these cases. Here it is: In cases in which the squint is not constant, apparently affecting sometimes one eye and sometimes the other, the trouble is due to a want of balance between the muscles of the eyes. Both eyes may be kept in health by simply taking the precaution to bandage first one eye and then the other, thus using the eyes in alternation. This should be done daily so as to keep the eyes active, wearing the bandage over one eye on one day and over the other the next. By this means both eyes can be kept in health till the child reaches an age when glasses may be worn and the difficulty corrected.

The correction of this fault by wearing glasses is likely to be more permanent in its results than by an operation. Properly adjusted glasses relieve the difficulty by removing the cause. The advice has been given in cases of this sort to leave the matter till the child is older, then have an operation. This course works great mischief, often resulting in the complete disablement of one eye.

Tobacco as a Germicide.— It is a fact that nicotine will kill germs; there are, however, only three animals that will eat tobacco,— man, goats, and the tapeworm. Tobacco will even kill plants. Prof. Darwin made an experiment with the plant *drosera rotundifolia*, or sun-dew, which has a sort of head, and on that head a large number of hairs. The point of each of these hairs is expanded a little, and it is found that when a fly touches one of them, the rest of the hairs curl down around the fly and capture and digest it. Prof. Darwin put some of these sun-dews under a glass, with a little nicotine (volatilized by means of alcohol) upon the heads of the plants, and he found that they soon died. He also applied a little nicotine in solution to the plants, and it killed them in every case but one; in one

case, the sun-dew was not killed, but it seemed to be sick at the stomach, for the hairs on the head of the plant would not curl down and capture a fly.

It is a universally conceded fact that the nicotine contained in tobacco is a poison; it poisons all life, from the most highly organized animal to the lowest plant, even germs. Tobacco is bad for the germs, but at the same time there is a large proportion of the tobacco which poisons the stomach; and any germicide which will poison the stomach is not a good medicine; for example, we never introduce into the stomach, bichromate of mercury, or corrosive sublimate, which will kill germs, because these substances would kill the man as well as the germs. If we introduce germicides into the stomach, they should be those which are not injurious to the stomach. Salicylate of bismuth, for example, will kill germs, but it is not soluble, and would not be absorbed; consequently a person would not be injured by it; he could take a large quantity of this medicine — enough to kill germs — and it would do him no harm because it is not absorbed. But this is not true of nicotine. Nicotine is absorbed with great readiness; it is a deadly poison, and circulates through every tissue of the body; so it cannot be recommended as a germicide.

PRECAUTIONS IN SCARLET FEVER. — In the first place, precautions should be taken against other children; isolate the patient completely, — quarantine him against every one except his nurse, — and he ought to have two nurses, one for the day and one for the night, and no one else should go near him except the doctor. There should be no communication between the sick-room and the other rooms in the house, for scarlet fever is very tenacious, and it is very difficult to prevent the extension of the disease, unless every precaution is taken. Then, in reference to the person who takes care of the patient: In the first place, he should dismiss fear; for the person who is afraid of taking a disease is much more likely to take it than one who is not afraid. It is quite possible for one to protect himself against germs, by placing a cotton handkerchief over his nose and mouth; but one should remember, after using it in this way, that the handkerchief is infected, and it should be burned. The hands and the hair should be cleansed, and one should take great pains that no portion of the body which has been exposed, comes in contact with the mouth or the respiratory organs. The clothing should also be changed.

Then there are some precautions to be taken with reference to the patient. The most contagious point of the disease, is at the time when the skin is peeling off, — desquamation, as it is called, — for this contains the germs of the disease. At this time the patient should take soda baths, — a pint of soda to fifteen or twenty gallons of water, — or a sponging in a solution in the proportion of a tablespoonful of soda to a gallon of water. It will be better if a little carbolic acid is added, — a dram to a pint of water. A teaspoonful of hydrate of naphthalin to a gallon of water, is a good disinfectant.

Some of the most serious conditions of the *sequelæ* are those affecting the throat and ear. The swelling of the tonsils in the throat and the introduction of other germs and the extension of the disease from the throat to the ear, is one of the most serious causes of suffering and of permanent damage resulting from scarlet fever. This can probably be prevented. Dr. J. Lawrence Smith suggests that when a child is taken with scarlet fever, the attendant should at once use a spray of peroxide of hydrogen, and continue to use it every three or four hours, cleansing the mouth and throat thoroughly. It is the best of all germicides. You will see the foam rising, which indicates the destruction of germs by the peroxide. The use of peroxide of hydrogen is an excellent protection in case of an exposure to diphtheria. Spraying the throat with it would prevent the contraction of the disease, as the germs would be destroyed as soon as received into the throat, or before they had obtained a very firm foothold.

TYPHLITIS. — This disease is an inflammation of a portion of the intestine — the cæcum. There is a small appendix to the large intestine, about as large as the little finger, located at the lower end of the cæcum, and typhlitis is an inflammation in that region, either inside or around it. Sometimes it is very hard to cure; a surgical operation is sometimes necessary to remove the diseased portion. This operation is usually successful; sometimes, however, the disease is neglected until it is too late.

CATARRH OF THE BOWELS. — Tannin is a very excellent remedy for this disease; it kills germs; it is an astringent. For this reason, substances containing tannin, such as oak bark, bloodroot, etc., are used, and have been found of great value in cases of this kind.

INSUFFLATION FOR DIPHTHERIA. — Insufflation of the throat is recommended by an English physician as the best local application for this disease.

ANSWERS TO CORRESPONDENTS.

DIET FOR NERVOUS DYSPEPSIA — BATHS — HORSFORD'S ACID PHOSPHATES. — G. C. asks: "1. What is the best diet for a person suffering from that form of nervous dyspepsia which is caused by anxious thought or worry? 2. Would you recommend a cold morning bath with hard rubbing with a towel or flesh-brush as suitable for a person in such a condition? 3. If not, please state when the bath should be taken, and also its temperature. 4. Would a salt bath be of benefit? 5. Do you consider Horsford's Acid Phosphates beneficial in such cases?"

Ans. — 1. A diet of fruits, grains, and a moderate allowance of milk is usually best for nervous dyspepsia. The food should be dry, so as to require thorough mastication.

2. For most cases, a cool morning bath is excellent.

3. The temperature of the water should be from 70° to 80° F. Persons with considerable vigor may employ a lower temperature. For sensitive persons, bathe only a portion of the body at a time, drying the part bathed before proceeding to another portion.

4. Salt added to water in the proportion of a tablespoonful to a quart, increases the tonic effect.

5. Acid phosphates are, possibly, sometimes an aid to digestion.

HEATED SPELLS — ALUM IN FLOUR. — Mrs. M. C. B. asks (1) the cause of certain heated spells that come on at irregular intervals, and also for a remedy. (2) "Is it true that millers mix alum with white flour?"

Ans. — 1. What is known as the "change of life" is probably the most frequent cause of hot spells. These spells are caused by the disturbance of the sympathetic system. Indigestion may also be a cause.

2. Adulteration of flour with alum is probably not so common nowadays as formerly. The mixture of alum with flour is more frequently done by bakers than by millers. The writer has never personally met a case of the form of adulteration for which the millers are responsible.

A PROLAPSED STOMACH — NEURASTHENIA — ETC. — A. L. B. asks: "1. Can a prolapsed stomach be restored to its normal position by local applications of electricity? 2. Of what is neurasthenia a symptom? 3. Has a London supporter been worn too long if one finds it difficult to give it up?"

Ans. — 1. Electricity, massage, and special gymnastics are of great service in the cure of a prolapsed stomach and other abdominal viscera. Applications of electricity to the inside of the stomach are also of great value to the stomach, in cases in which the stomach is dilated.

2. Neurasthenia is a symptom which may accompany any exhausting disease.

3. Under such circumstances, it would doubtless be damaging to dispense with a supporter at the same time. It is important that other measures should be added to it, especially gymnastics calculated to strengthen the abdominal muscles, massage and electricity applied in such a way as to cause a vigorous contraction of the muscles, and thus increase the development.

BLIND ATTACKS ACCOMPANIED WITH PAIN IN HEAD. — Mrs. C. A. P. inquires: "What is the cause of certain attacks of blindness, accompanied with pain in the back of the head? At such times the eyeballs cannot be moved. The trouble has continued since an attack of rheumatism."

Ans. — This symptom indicates a diseased condition of the abdominal sympathetic nerve, probably a dilatation or prolapse of the stomach upon which the irritation of the abdominal sympathetic is dependent.

MEAT-EATING — NERVOUSNESS. — M. J. V. asks: "1. Would you advise a person to eat meat if it seemed to agree with him better than fruit, vegetables, or any other kind of diet? 2. What ought to be done for a person suffering from nervousness?"

Ans. — 1. No; I should ask him to ascertain why food does not agree with him, and by a removal of the cause, accustom himself to the use of a fruit diet.

2. The cause of the nervousness should be removed.

FRECKLES. — E. L. asks for a remedy for freckles so that they will not come back worse than ever.

Ans. — Freckles which are produced by exposure to the wind and sun may be easily removed by the application to the skin of a saturated solution of borax or a solution of borax in lemon juice, and other simple remedies. Freckles which are constantly present at all seasons of the year and are due to irregular distribution of coloring matter in the pigment layer of the skin, cannot be cured by any means whatever.

PURITY OF SUGAR — CHILDREN GOING BAREFOOTED. — Mrs. G. L. B. inquires: "1. Which grade of the sugar now in common use is the purest? 2. Is it true that blood is used for purifying granulated sugar? 3. If so, does it injure in any way the healthfulness of the sugar? 4. Is it advisable for children to go barefooted in the summer season, and how young is it proper for them to do so?"

Ans.— 1. The white, coarse, granulated sugar in use at the present time, is practically pure.

2. This is one of the processes used.

3. Probably not, as the sugar is afterward boiled.

4. Yes, provided they are not exposed to the injury of the feet. Age is not a matter of importance.

NURSING A CHILD.— L. M. J. asks the following questions: "1. If a mother has scrofula, or any other disease of the blood, should she nurse a child? 2. If not, what infants' food would you recommend?"

Ans.— 1. A wet nurse should always be in good health.

2. Sanitarium Infants' Food is an excellent article, and exactly what it is recommended to be.

GALL-STONES.— A subscriber asks: "1. After gall-stones have been removed by a surgical operation, is there danger of their forming again? 2. Is the stomach under these circumstances apt to be dilated and sore? 3. Should the patient live on a certain diet?"

Ans.— 1. Yes.

2. Yes.

3. Yes. The catarrh of the gall-bladder which precedes the formation of gall-stones, is usually the result of a gastro-intestinal catarrh which is most commonly produced by errors in diet.

HARD WATER — WARTS — SOAPS — POCK-MARKS — ETC.— L. E. S. asks the following questions: "1. Is the drinking of hard water injurious? 2. Please give directions for treatment of chronic constipation. 3. Please give the cause and remedy for warts. 4. Is Dr. J. H. Woodbury, of New York, a reliable dermatologist? 5. Are pock-marks remediable by building up or feeding the tissues? 6. If so, what can be used? 7. Please give method of treatment for blackheads, acne, stomach blotches, and freckles. 8. What is a good tonic for the skin? 9. Please name a good soap. 10. Please give a recipe for a good tooth powder. 11. What should be the diet and mode of life for a bilious, nervous male adult? 12. What should be used to medicate the steam in face steaming for blackheads, etc.?"

Ans.— 1. Yes, providing the water is very hard. Water which contains more than thirty grains of calcareous matter per gallon is hard water.

2. The treatment of common constipation is by no means an easy matter. The successful management of this morbid condition often requires all the tact and ingenuity possessed by the most learned and intelligent physician. The following measures are effective in most cases: —

1. Proper dieting. It is important that the diet should have ample bulk.

2. Regularity in going to stool,— the most suitable time is soon after breakfast; daily kneading of the bowels; drinking a glass of cold water before breakfast; wearing a moist abdominal bandage at night; abundant physical exercise, particularly walking and bicycle riding.

3. We do n't know. We have no information upon this subject.

4. We do n't know. There are physicians who advance special theories and announce themselves as extraordinarily skillful, but as a rule, they are utterly unreliable.

5. No.

6. There is no satisfactory remedy.

7. We should have to write a treatise to answer this question. Blackheads (comedones) should be pressed out, and the parts bathed in hot water daily. Acne requires careful attention to diet, and in some instances the application of a germicide to the skin. The indigestion, if existing, must be cured. Freckles are curable only when due to wind and sun. Such freckles frequently disappear after a few days' rest indoors, or are readily removed by most of the simple remedies in common use.

8. A cool morning sponge bath. The addition of a little salt to the water is advantageous.

9. There is nothing better made than Spanish castile soap. The mottled variety is the best, as it is certain to be pure.

10. Precipitate of chalk to which a little orris root has been added, is a good tooth powder; the addition of a little magnesia is advantageous.

11. A fruit and grain diet with a moderate allowance of milk, and outdoor occupation.

12. Benzoin and other gums are useful.

COFFEE DRINKING.— B. C. M. writes that he is an old man, and his strength is failing. His physician tells him to drink coffee. He asks for advice.

Ans.— Coffee drinking does not impart strength. It relieves the sense of weariness, but only at the expense of increasing the subsequent exhaustion.

RELIEF DEPARTMENT.

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

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

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

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

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

The following list contains the names and addresses of persons who have kindly consented to act as agents for us in this work, and who have been duly authorized to do so. Facts communicated to any of our local agents in person will be duly forwarded to us.

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

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

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

A SEVEN-YEAR-OLD (NO. 129).— A little boy seven years old, in California, has lost his mother, and the father has given him to some aged people who do not feel able to bring him up right. He is of German parentage, with light hair and good health. Will not some one make a home for him

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TWO BROTHERS (Nos. 131 and 132), from Michigan, are in need of a home. One is five and the other ten years of age. Their mother died some two years ago, and the father is not able to care for them.

TWO MORE BOYS (Nos. 133 and 134) are in need of a home. These also live in Michigan. They are three and five years of age, have good health, with brown hair and eyes. Here is a good opportunity for doing missionary work in bringing up these children to be a blessing to the world. Who will undertake the task?

MOTHERLESS.— Another little boy and girl (Nos. 143 and 144), in Kansas, have been left motherless, and the father's health is so poor that he is anxious to find homes for his children before he is called away from them. They are good children, well-appearing, and have good health. The little boy is nine and his sister six years old.

WHO WILL HELP? — Here are two boys (Nos. 163 and 164) from North Carolina, who want homes. The father and mother are both dead. They are bright, intelligent boys, and, as the application says, would make somebody's home brighter. They are eight and eleven years old respectively.

No. 165 is a strong, healthy boy, nine years of age, who needs a home. He is in Michigan.

ANOTHER BOY (No. 168) from Michigan, ten years old, is in sore need of a home. He has lived on a farm, and is rather small for his age, though in good health.

TWO BROTHERS.— From Pennsylvania comes another call for homes for two boys (Nos. 169 and 170), three and eight years old. They both have good health, the younger one has dark hair and eyes, and dark complexion; the older one, dark hair and light brown eyes. They have had good care till their mother died, and have not been allowed to run on the street, so have good characters to recommend them.

A BOY eleven years old (No. 174), of German parentage, is in need of a home. He has dark brown eyes and hair, is four feet high, and a good tempered, obedient boy. He lives in Illinois.

Two little boys in Pennsylvania (Nos. 175 and 176), one aged four and the other two years, have been left destitute. They are stout, well-built little fellows, bright and intelligent, and have had very good training. They have never been allowed to run upon the street, and are "real good, attractive boys."

Two little waifs, eight and ten years of age (Nos. 177 and 178), are left without a home or kind care from any one. The only love they know is that which they each have for the other. They are in Minnesota. They have blue eyes, light hair, and excellent health, and seem to be very affectionate.

No. 180 is a little boy eight years old, living in Kansas. He has been abandoned by both father and mother. He has good health, and is a bright, lively boy. He needs careful training, but Christian kindness and love will doubtless yield a rich harvest.

A MICHIGAN boy (No. 181), seven years old, needs a home. He has blue eyes, light hair, and good health, and has been taught good manners.

A BOY WANTED.— A gentleman living in Oregon wants to take a boy who is large enough to help him on the farm. He would like a boy about fourteen years old.

A BAND OF FOUR.— Here comes a band of four boys (Nos. 189–192), to claim our attention and sympathy. Their ages are three, nine, ten, and eleven. They all have dark eyes and auburn hair. With the sad life they must have lived, they have not had the right kind of training, and hence will need careful watch-care from the ones who undertake their rescue. Has not some good Christian heart faith enough to take one of these lambs of the fold and bring him up for God? Surely the promise of grace and wisdom sufficient is not alone for those who minister to the children who seem the most promising. God alone knows what destiny awaits any one of his little ones.

LITTLE blue-eyed Harold, only four months old (No. 193), is a bright baby boy waiting for some one to catch him up to their heart and home. He is in Michigan.

HERE is another Michigan baby (No. 194), seventeen months old, with blue eyes and light hair. How dreadful it seems for such little wee men to be left out in the cold this winter weather. Surely some cosy fireside would be wonderfully brightened by their childish prattle.

A MOTHER in Iowa wishes her boy (No. 195) placed in a family of Seventh-day Adventists. He is ten years old, has no bad habits, is a fine looking lad, with brown hair and eyes, and an American.

TWO little Swedish children, aged five and six (Nos. 196 and 197), demand a share of sympathy, for their father is dead, and their mother is too poor to take care of them. She has done the best she could, but is unable to do more. They have good health, and are nice appearing.

No. 198 is an orphan boy who has lost his mother and father, and has been living with his grandparents. They are very old, and cannot take proper care of him longer, so desire that a home be found for him. He is nine years of age, has dark eyes and light hair, and of fine appearance. Here is an opportunity for some real missionary work, for this little fellow has been quite neglected.

WE are happy to announce that six little ones have recently found homes through the medium of this department. Nos. 139 and 140 have found a home in Michigan; Nos. 172, 186, and 187, in Iowa; and No. 188 in Quebec, Canada. One letter speaks of the little one's being contented and happy in his new home. The others have not reached their destination, but we expect that by the time this paper goes to press they will be well settled and happy in the homes which the love of Christ has opened for them.

PERSONS making application for children advertised in this department, are requested to send with their applications the names and addresses of two or more persons as referees. If possible these referees should be known, either personally or by reputation, to some member of the Board of Trustees.

CLOTHING FOR THE POOR.

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

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

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

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

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

LITERARY NOTICES.

Good Housekeeping for December closes the seventeenth volume of that popular and valuable family journal. In modestly referring to its success in the past, the magazine promises even better things for the future, naming some of the attractions which it will offer during the coming year. It is emphatically, as its title indicates, "a family magazine, conducted in the interests of the higher life of the household." Subscription price, $2 a year. Clark W. Bryan Company, Springfield, Mass.

THE *Chautauquan* for January has the following articles, besides many others which we have not space to mention. "In Italy," by Bishop John H. Vincent: "The Principles and Practice of Debate," first article, by J. M. Buckley, LL. D.; "What is Biology?" by Professor Franklin P. Mall; "The Voyage of 'The Viking,'" by Professor Hjalmar Hjorth Boyesen; "Bird Language, a Speculation," by Samuel G. M'Clure, A. M.; "The Miner and His Perils," Part I, by Albert Williams, Jr.; "Social, Artistic, and Literary Holland," by Rev. William Elliot Griffis, D. D.; "Women as Inventors," by Leon Mead; "Women Keepers for Women Convicts," by Margaret W. Noble; "The Political Status of Women," by Jeannette Howard; "Social Shams," by Hester M. Poole. The poetry of the number is by J. Edmond V. Cooke and Clinton Scollard.

AMONG the literary contributors to the December *Century* one finds the names of James Russell Lowell, Mark Twain, Thomas Bailey Aldrich, Richard Henry Stoddard, Mrs. Schuyler van Rensselaer, Phillips Brooks, Kate Douglas Wiggin, F. Hopkinson Smith, Anna Eichberg King, T. Cole (the engraver), Joel Chandler Harris, George W. Cable, Nellie Mackubin, William Bispham, Clinton Scollard, Howard Pyle, Charles Egbert Craddock, Rev. Dr. Henry van Dyke, John Williamson Palmer, Alice Williams Brotherton, William C. Church, A. W. Drake, W. Lewis Fraser, Alice Wellington Rollins, and Richard Watson Gidder. The number presents in art, music, literature, and fiction a most attractive program.

Scribner's Magazine for January marks the beginning of the fifteenth volume. A feature of this year will be a series of special frontispieces selected by the eminent art critic, Philip Gilbert Hamerton, to represent the tendencies of contemporary art. Each picture will be accompanied with a brief article by Mr. Hamerton and a portrait of the artist whose painting is reproduced. In this number Manet's "Fifer" is the striking picture chosen. F. Marion Crawford concludes his pen picture of Constantinople with some of his most brilliant writing, which is picturesquely reinforced by the beautiful illustrations. Frederick Keppel has written an entertaining article about Sir Joshua Reynolds, which is illustrated with reproductions of some of the most famous portraits painted by that artist. There is a brief paper of interest to all students of sacred history in regard to the "Place of the Exodus in the History of Egypt," by A. L. Lewis.

THE complete novel in the January number of *Lippincott's* is "The Colonel," by Harry Willard French; Gilbert Parker supplies the opening chapters of a serial story, "The Trespasser," which will run through six numbers of the magazine; "Frenchy" is a domestic tale by Mollie Elliot Seawell; "A Mother and Her Boy," by George Morley, is a pathetic sketch from every-day life; "The Peninsula of Lower California," by James Knapp Reeve, gives valuable information concerning that little-known region, and corrects sundry errors of the "Encyclopædia Britannica" and other received accounts; Mrs Sherwood's "Recollections" of Rachel, Fanny Kemble, and Charlotte Cushman will interest many. Julian Hawthorne, in "A Poet of Manhood," pays tribute to the memory of Daniel L. Dawson; under the heading, "A Juvenile Revival," Thomas Chalmers celebrates 'the "Christian Endeavor" era; Frank Shelly writes of "Early Marriage Customs," and Charles Morris anticipates "The Twentieth Century;" in "Talks with the Trade," F. M. B. answers some questions of young writers. The poetry of the number is of unusual merit.

PUBLISHERS' DEPARTMENT.

THE graduating exercises of the Sanitarium Training School for Missionary Nurses were held in the Tabernacle, Dec. 19. A very interesting program of exercises was carried out, the chief features of which were the following: —

After the invocation, Dr. Kellogg spoke at some length of the advancement made by the institution since its opening,— from one main building and two cottages, two physicians, no nurses, two bath attendants, and two patients, to twenty-five buildings, and a constant family of workers of 375 to 400 persons, most of whom are students engaged in the study of subjects pertaining to medical missionary work. Ten years ago the Training School for Nurses was started, with one student. To-night there are 250 persons who are taking the course or have graduated from it; there are also between thirty and forty medical students, ten physicians, and about the same number of medical matrons. Other institutions are springing up in different parts of this country, and in distant lands. A fully equipped Sanitarium is expected to be in operation within a year in South Africa.

A prosperous institution is in operation at St. Helena, Cal., and preparations are being made for the establishment of other institutions in Milton, Oregon, and California.

The Doctor then spoke of the work recently started in Chicago, showing stereopticon views of some of the lowest parts of the city, where our workers find so much to do.

Miss Louise Burkhardt, "Sister Louise," then gave a few interesting incidents of her work among the poor of Chicago, telling how she found them and what she did for them.

Some details of the Christian Help work were presented, the use of the triangular bandage being illustrated, and the first aid for the injured. Christian Help work, organized only one year ago, is growing wonderfully. More than twelve different States have called for bands to be organized. Some twelve bands are kept busy with work in our city alone.

One feature of the missionary mothers' work, which is to be carried on in connection with Christian Help Bands, was illustrated by a class of children, twelve little girls, who came upon the platform each bringing a miniature wash tub, wash board, and all the appurtenances of washing day, and exhibited one of the exercises of kitchengarden work, singing an appropriate song while keeping time to the music with their work. A sweeping exercise accompanied by appropriate singing was also exhibited.

Near the close of the exercises some fifty graduated nurses stepped upon the platform wearing their uniforms and crosses, and singing the first verse of the missionary hymn beginning, "From Greenland's Icy Mountains." At the conclusion of the first verse the thirty-five young men and women who have just completed the second of the three years' course of training, and are preparing to enter the ranks of missionary nurses, marched upon the platform singing the second verse of the same hymn; when all together joined in singing the third verse.

The closing exercise was the presentation of the missionary nurses who have received appointments to labor in foreign lands and are about to take their departure. Of the five persons thus presented, Mr. and Mrs. Semmens go to Melbourne, Australia; Mr. and Mrs. Replogle and Miss Stone to South Africa, and Miss Crawford to Old Mexico. After a few words from Dr. Kellogg explaining with reference to the different fields to which these missionaries are going, several clergymen stepped forward and kneeled about them, when Eld. A. T. Jones offered a most earnest and inspiring prayer in behalf of the work represented by the exercises of the evening, and especially in behalf of those who were going out to the ends of the earth as its representatives. The "Missionary's Farewell," a beautiful song, softly sung by a quartet at the rear of the stage, constituted a fitting closing for the exercises.

NOTICE TO OLD SUBSCRIBERS.—At the beginning of the volume for 1893, the publishers were led, by the advice of those who had been engaged in the circulation of the Journal, to make a change in the subscription price from $1.00 to $2.00, with the understanding, however, that the $2.00 would include a bound volume accompanying the Journal. This plan has led to some confusion in consequence of the fact that some overlooked the companion volume, and considered that the price of the Journal alone was $2.00; while others, especially of our old subscribers, are led to believe that the price of the Journal alone has been raised to $2.00, and have been remitting to us this sum, which pays for two volumes instead of one. It was not the intention, in making this change, to affect the price of the Journal to old subscribers, but only to new ones, and the purpose was to place in the hands of each new subscriber of the Journal a handy volume, which would be in some sense a resumé of the valuable matter which the Journal contained in previous volumes, and thus extend the educational influence of our work. The confusion which has arisen, however, compels us to return to our old plan, and beginning with this volume, the subscription price will be $1.00 per year. The companion volume will be furnished as before, for an additional price which is barely sufficient to cover the cost of the work, postage, and mailing.

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CHRISTMAS at the Sanitarium was celebrated in the usual manner, with a Christmas tree, music, and speeches. A Christmas anthem opened the exercises, sung by the Sanitarium choir, followed by prayer, and a few remarks from Eld. Mc Coy and Prof. Hartwell. The manner of celebrating Christmas in different countries was told by natives of the countries, Sweden, Denmark, Holland, England, France, Germany, Africa, South America, and Australia being represented. Mr. Aldrich, an aged gentleman and an old friend and patient of the Sanitarium, rendered an original song, representing in verse the various interesting exercises and occupations of a patient at the Sanitarium, much to the amusement of those who had had similar experiences in the institution. The opening exercises closed with the singing of "Nazareth," by Mrs. Dunlap, Miss Steward, Mr. Russell, and Mr. Kellogg. The tree was then unloaded of its midwinter fruit, and an enjoyable time followed.

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THE Haskell Home for orphan children, the gift of Mrs. Haskell, is now so near completion that the date for the dedication will soon be announced. It is expected that the building will be dedicated and occupied within two weeks of the present time. This building is much needed and will meet a great want. Scores of little ones are waiting to enter it, and will find such a home far superior to anything which has ever been previously arranged for similar purposes.

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DO NOT FORGET TO RENEW YOUR SUBSCRIPTION.—Now is the time to renew subscriptions to GOOD HEALTH as well as to other good magazines. No household can afford to be without this journal, which, it is believed, will prove a blessing to every home it enters. No other journal covers exactly the same ground as this. Its editorial staff exercises the greatest care to exclude from its pages errors, extreme views, and useless matter of every description, and no journal published gives as much valuable matter for the price as does this. No family can afford to be without it. It is true that times are hard and money scarce in many localities, but the harder the times the greater the need for economy, and wisest of all economies are those which have for their purpose the preservation of health. When times are hard, people cannot afford to be sick. Sickness involves not only loss of time, and in many instances corresponding loss of income, but many additional expenses for doctor's bills, nurses, etc. Money invested in the preservation of health is not expended in the same sense as money used for pleasures or luxuries, but is certain to bring larger returns in happiness and usefulness than any other investment that can be made.

If your subscription has expired, you will receive a notice of the fact, and a blank which may be conveniently used in sending the renewal of your subscription.

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DR. M. G. KELLOGG, medical missionary on the ship "Pitcairn," which has been cruising among the South Sea Islands, has been sending in very interesting reports of his labors, several of which have already been published in the *Medical Missionary*. Dr. Kellogg has had many years' experience as a physician, and his work among the South Sea Islands has been exceedingly interesting and profitable. He is now spending a few months in Australia, lecturing in the various cities.

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DR. LILLIS WOOD, who has for several years been connected with the faculty of the Battle Creek Sanitarium, has recently received an appointment to engage in work as a medical missionary in Old Mexico, and has recently left this place for her new field of labor, which will probably be at Guadalajara. Dr. Wood has had unusual opportunity for preparation in the work as a medical missionary, and her many friends entertain most sanguine hopes of her success.

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OUR Sanitarium medical students at Ann Arbor, Chicago, and New York are all enjoying good health and prospering in their studies. Several are now home spending the holidays at the Sanitarium.

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WE have had the pleasure of a visit from our friend Frederic Reed, from South Africa, who is visiting this country for the purpose of making himself acquainted with Sanitarium methods and principles in the interest of a similar work in South Africa.

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THE Managers of the Sanitarium have had the pleasure of receiving a medal as an award for their painstaking effort in the presentation of the interesting and instructive exhibition of their work and methods.

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SANITARIUM IN SOUTH AFRICA.—We have recently received the news that a company has been organized in Cape Town, South Africa, for the purpose of erecting and managing a large sanitarium upon the same plan, and in harmony with the same principles as have characterized the Battle Creek Sanitarium for so many years. This enterprise is the partial result of the visit to this country of Mr. Philip Wessels and also his brother, Mr. Peter Wessels, and the liberal donations made by these gentlemen and their friends, particularly Messrs. John and Francis Wessels, G. D. J. Scholtz, Frederic Reed, and others. In a letter recently received from the committee, in whose hands has been placed the work of planning and erecting a suitable building for this enterprise, we were asked to forward plans for a suitable building and all the material, excepting brick and stone, necessary for the building. The architect is at work preparing plans and estimates, and it is expected that within three months from the present time, everything necessary for the erection of a large sanitarium will be placed on board the ship at the sea board, and started for its destination at Cape Town, South Africa.

TO SUBSCRIBERS IN ARREARS.—We beg to call the attention of our subscribers, who are in arrears on their subscription, to the fact that now is a good time to pay up. The beginning of the year is a time when one should seek to get square with all the world and make a fair start for the new year. In paying bills to your baker, carpenter, and grocer, and to others to whom you are under obligation, do not forget that printers, editors, and publishers must have their compensation as well as others. We have done our part, friends, in making our regular monthly visits, and now we hope you will do yours by sending us prompt remittance of the amount which you have been notified is due.

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"SCIENCE IN THE KITCHEN," by Mrs. E. E. Kellogg, A. M., has been warmly welcomed by the people where it has been introduced, and will doubtless be the means of inaugurating a new era in dietetic reform as its circulation extends. Many thousand copies have already been sold; it sells rapidly in the hands of good canvassers. Every woman who is interested in the preservation of the health of her household will be interested in this work. It is not a compilation, but is the result of original work; it is a means of practical and useful information. Liberal commission is given to agents, and we are sure good success will attend those who care to engage in the canvass for the work.

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"OUTLINE STUDIES OF THE HUMAN FIGURE," by J. H. Kellogg, M. D. Published by the Modern Medicine Publishing Co., Chicago, London, and Battle Creek, Mich., 1893.

This series of charts, numbering twenty-one in all, 50 by 36 inches in size, comprises 118 different figures, many nearly life-size, illustrating the influence of dress, bad posture, and the neglect of physical development, in the production of bodily deformities. These studies are compiled from the results of a careful observation of thousands of individuals of different nationalities, including the following: American, English, Welsh, Scotch, German, French, Italian, Icelandic, Scandinavian, North American, Mexican, Chinese, Samoan, Egyptian, Nubian, and East Indian.

These outlines are not diagrams, but tracings made directly from the human body by an apparatus devised by the author for the purpose.

One chart presents the interesting results of original researches made among Chinese and Indian women, and those of other nationalities for the purpose of determining the natural breathing movement in women. These results have been accepted by the best physiologists as conclusively showing that the so-called feminine type of respiration is not physiological, but is the result of an unnatural and harmful mode of dress.

This series of charts is indispensable to all teachers of physical culture, and should be in every gymnasium. They are admirably printed in white lines on a black background, and are of such a size as to be clearly seen by the largest audience. The charts are printed on very strong white enameled paper, and consequently are very durable. They are published at a price barely sufficient to cover cost.

Size 30 by 36 inches. Price in sheets, $5; mounted and in case provided with an arrangement for exhibition, $10.

As but a limited number have been printed, orders should be sent promptly to the Modern Medicine Publishing Co., Battle Creek, Mich.

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THE Sanitarium Health Food Company has for a long time been taxed to the extent of its facilities by the demand for its various products. In order to meet these increasing demands, it has recently added an additional oven to its plant, and improved its facilities in other ways, so as to increase the amount of its products. There has been a very great interest in the foods manufactured by this company exhibited at the World's Fair. All these foods are exactly what they are represented to be, genuine and valuable food products, and are offered at a moderate rate, so that the well as well as the sick can afford to make use of these preparations.

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SIXTEEN WORLD'S FAIR PHOTOS FOR ONE DIME.—The Chicago, Milwaukee & St. Paul Railway has made an arrangement with a first-class publishing house to furnish a series of beautiful World's Fair Pictures, of a large size, at the nominal cost to the purchaser of only ten cents for a portfolio of sixteen illustrations. Nothing so handsome in reference to the World's Fair has before been published. The series would be worth at least twelve dollars if the pictures were not published in such large quantities, and we are therefore able to furnish these works of art for only ten cents.

Remit your money to George H. Heafford, General Passenger Agent, Chicago, Milwaukee & St. Paul Railway, at Chicago, Ill., and the pictures will be sent promptly to any specified address. They will make a handsome holiday gift.

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EXCURSIONS TO CALIFORNIA.—On account of the San Francisco Mid-winter Fair, the Chicago, Milwaukee & St. Paul Railway Company will sell excursion tickets to San Francisco, St. Jose, Colton, Los Angeles, and San Diego, Cal., and Portland, Ore., at reduced rates, good until April 1, 1894. For full particulars call on any coupon ticket agent or address Harry Mercer, Michigan Pass. Agent, 82 Griswold St., Detroit, Mich.

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WHERE TO LOCATE NEW FACTORIES.

THIS is the title of a 150-page pamphlet recently published by the Passenger Department of the Illinois Central Railroad, and should be read by every mechanic, capitalist, and manufacturer. It describes in detail the manufacturing advantages of the principal cities and towns on the line of the Southern Division of the Illinois Central, and the Louisville, New Orleans, and Texas Railroads, and indicates the character and amount of substantial aid each city or town is willing to contribute. It furnishes conclusive proof that the South possesses advantages for the establishment of every kind of factory, working wool, cotton, wood, or lcay. For a free copy of this illustrated pamphlet, address C. C. Power, Foreign Representative, 58 Michigan Ave., Chicago, Ill.

CHICAGO & GRAND TRUNK R. R.

Time Table, in Effect Nov. 19, 1893.

GOING EAST. Read Down.				STATIONS.	GOING WEST. Read up.				
10 Mail Ex.	4 L'v'd Ex.	6 Atl. Ex.	8 Erie Lim.	2 Pt. H Pass		1 Day Ex.	9 P'tic Ex.	7 Erie L'v'd	11 Mail Ex.	3 R'd L'v'd
a m	p m	p m	a m			p m	a m	p m	p m	pm
8.40	2.30	8.15	11.25	.....	.....D. Chicago .A.....	4.50	8.00	10.30	7.00	9.10
11.10	4.27	10.30	1.20	.....	.....Valparaiso.....	2.45	5.45	8.30	4.27	7.10
p m										
12.45	5.47	12.00	2.35	.....	.....South Bend.....	1.20	4.10	7.10	2.50	5.47
1.29	6.32	12.45	3.07	.....	.....Cassopolis	12.40	3.28	6 32	2.06	5.14
2.21	.....	†1.33	.....	.....	.....Schoolcraft.....	†12.02	.....	.....	1.19	.....
2.33	7.17	1.48	.....	.....	.....Vicksburg	11.53	2.37	.....	1.08	.....
				a m		11.15	1.50	5.18	12.25	3.55
3 40	8.00	2.40	4.30	7.00	.....Battle Creek.....	11.10	1.30	4.15	12.10	3.50
4.33	8.42	3.25	5.11	7.47	.....Charlotte.....	10.29	12.53	4.33	11.15	3.07
5.10	9.10	4.00	5.40	8.20	.....Lansing.....	10.02	12.20	4.03	10.40	2.40
6.50	10.00	5.03	6.35	9.30	.....Durand.....	9.05	11.28	3.20	9.35	1.55
7.30	10.30	5.40	7.05	10.05	.....Flint	8.35	10.47	2.58	8.35	1.28
8.15	11.00	6.15	7.35	10.43	.....Lapeer	8.02	10.07	2.25	7.49	1.00
8.42	a m	†6.35	.....	11.06	.....Imlay City	.....	.....	.....	7.28	.....
9.56	12.10	7.30	8.46	12.05	.....Pt. H'r'n Tun.....	6.50	8.46	1 20	6.25	11.55
			p m			a m	p m	p m	a m	a m
9.25	.....	7.40	9.25	11.50	.....Detroit.....	6.40	.....	.....	.....	.....
p m	a m	p m		p m			a m	a m		
.....	8.30	7.40		8.10	.....Toronto.....	.....	1.00	7.40	.....	.....
	p m	a m		a m		a m	a m	p m		
.....	7.50	7.00	.....	7.25	.....Montreal.....	9.30	9.30	10.30	.....	.....
	a m	a m		p m		a m	a m	a m		
.....	8.15	9.30	.....	7.15	.....Boston	9.00	7.00	11.30	.....	.....
	a m	p m	a m	p m		a m		a m		a m
.....	7.25	4.13	3.00	7.30	.....Niag'ra Falls.....	1.45	.....	8.40	.....	7.30
	a m	p m		p m		a m	p m	a m		
.....	8.30	5.35	4.15	9.00	.....Buffalo	12.30	1.00	6.20	.....	.....
	p m	a m	p m	a m		a m	p m	p m		p m
.....	9.40	7.52	4.52	10.10	.....New York.....	9.15	8.30	6.30	.....	6.00
	a m	a m	p m	m			p m			
.....	7.00	10.00	9.25	12.00	.....Boston	.....	7.30	.....	.....	.....

Trains No. 1, 3 4, 5, 6, 7, 8, 9, run daily; Nos. 10, 11, 23, daily except Sunday.

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

No. 23, Battle Creek Passenger, leaves Pt. Huron Tun. at 3:49 p. m., arrives at Battle Creek 9:35 p. m.

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Way freights leave Nichols eastward 7:15 a. m.; from Battle Creek westward 7:05 a. m.

† Stop only on signal.

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A. S. PARKER,
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MICHIGAN CENTRAL

"The Niagara Falls Route."

Corrected Dec. 3, 1893.

EAST.	†Detroit Accom.	†Mail & Express.	*N. Y. & Bos. Spl.	*Eastern Express.	*N. Shore Limited.	*Night Express.	*Atl'ntic Express.
STATIONS.							
Chicago.....		am 6.50	am 10.30	pm 3.10	pm 4.00	pm 9.35	pm 11.40
Michigan City.		8.55	pm 12.15	4.56	5.45	11.35	am 1.40
Niles		10.20	1.12	5.55	6.43	am 12.45	2.55
Kalamazoo		11.58	2.19	7.03	7.53	2.17	4.38
Battle Creek...	am 8.05	pm 12.53	2.58	7.38	8.25	3.00	5.26
Jackson.....	9.50	3.00	4.15	8.52	9.40	4.30	7.10
Ann Arbor.....	10.52	4.18	5.08	9.45	10.33	5.40	8.17
Detroit.....	pm 12.10	5.45	6.15	10.45	11.30	7.20	9.30
Buffalo.....			am 12.40	am 6.10	am 6.20		pm 5.10
Rochester.....			3.35	9.55	9.25		8.20
Syracuse			5.35	pm 12.15	11.25		10.20
New York.....			pm 2.20	8.50	pm 7.05		am 7.00
Boston			4.15	11.15	9.25		10.50

WEST.	*N.Y. Bos. & Chi. Sp.	†Mail & Express.	*N. Shore Limited.	*Chicago Express.	† Kalam. Accom.	*Night Express.	*Pacific Express.
STATIONS.							
Boston	am 10 30		pm 2.00				pm 7.15
New York.....	pm 1.00		4.30	pm 6.00	pm 7.30		9.15
Syracuse	8.25		am 12 05	am 2.10	am 3.35		am 7.20
Rochester.....	10.25		2.10	4.10	5.40		9.55
Buffalo	11.20		3.10	5.30	7.00		pm 11.50
Detroit.....	am 6.20	am 7.25	9.35	pm 1.00	pm 4.55	pm 7.35	9.00
Ann Arbor.....	7.20	8.50	10.35	1.55	6.08	8.50	10.13
Jackson.....	8.25	10.25	11.40	2.55	7.40	10.13	11.45
Battle Creek...	9.34	n'n 12.00	pm 12.53	4.00	9.13	11.55	am 1.12
Kalamazoo	10.13	pm 12.40	1.31	4.35	10.00	am 1.00	2.12
Niles	11.25	2.52	2.45	6.00		3.00	3.52
Michigan City.	pm 12.25	4.17	3.45	7.05		4.40	5.22
Chicago.....	2.10	6.35	5.30	9.00		7.05	7.15

*Daily. †Daily except Sunday.

Niles accommodation train goes west at 8.30 a. m. except Sunday.
Jackson " " east at 6.18 p. m. "

Trains on Battle Creek Division depart at 7.55 a. m. and 4.35 p. m., and arrive at 12.40 p. m. and 7.15 p. m. daily except Sunday.

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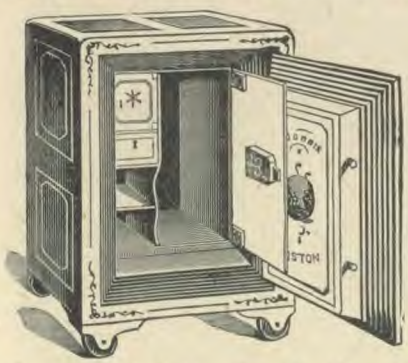

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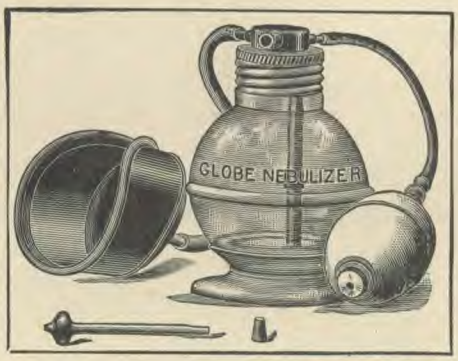

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