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INTERNATIONAL HEALTH STUDIES.

BY FELIX L. OSWALD, M. D
Author of "Physical Education," "The Bible of Nature," Etc.

39.—The Bahamas.

IT has been said that the world does not know its greatest men, and it is certainly strangely apt to neglect the mementos of those it professes to know. The greatest masterpieces of ancient art have been lost as completely as the original text of the Buddhist scriptures; neither the birthplace nor the tomb of Columbus is positively known, and the Spaniards omitted to erect as much as a memorial-mound on the spot where the great discoverer first planted the banner of Castile on the soil of the new world.

"Cat Key," the name of a crescent-shaped ledge of cliffs, was long supposed to be a synonym of San Salvador, but it has since been proved that a navigator, approaching those cliffs from the east, could not fail to come first in sight of another "key," and there seems little doubt that Pinzon's shout of "Land!" referred to a high reef known as Punta Delgada, and that Columbus landed in a bay half a mile north of that reef, on the northeast coast of Watling Island.

At the time of the world-changing discovery, all the larger islands of the Bahamas were covered with groves and orchards,—an archipelago of veritable Blest Isles of the West,—but pursuing their exploring cruise in a southwesterly direction, the Spaniards soon sighted the coast ranges of Cuba and San Domingo, and the El Dorado of the latter island soon absorbed their attention. But fifteen years after, when the taskmasters of Hayti got short of slaves, they remembered the Lucayos, as Columbus called the Bahama Islands, and the fate of the natives horribly illustrates the meaning of a French proverb to the effect that "The wolves eat him who makes himself a sheep" (*qui se fait brebis, le loup le mange*). The Lucayanos had received the bearded strangers with lavish hospitality: they replenished their stock of provisions, they volunteered every possible assistance in repairing their ships, they instituted festivals in their honor, and in quarrels where the cause of provocation could not be clearly ascertained, the native chiefs gave the foreigners every benefit of the doubt.

That submissiveness of disposition was now remembered to their sorrow, and year after year expeditions were fitted out to explore the Lucayos in quest of slaves till the entire archipelago of sixteen larger and seven hundred smaller islands had been depopulated, so completely indeed, that in 1522, a six weeks' man-hunt resulted in the capture of only four men and twenty-eight half-grown children. Younger children and cripples were left to die, and for a century and a half the Bahamas were left tenantless.

About the middle of the seventeenth century, the fertility and the incomparable winter climate of the archipelago began, however, to attract the attention of English colonists, the islands of New Providence, Eleuthera, Andros, and Mariguana were settled, and soon became the sanitaria of the West Indies, besides deriving patronage from the convenience of their situation as supply stations for storm-delayed vessels from the other side of the Atlantic. Towns began to spring up, and after the declaration of independence, hundreds of American Tories (patriots, as the English preferred to call them) removed from the United States to the Northern Bahamas.

With the exception of a few volcanic reefs, the

archipelago is composed of calcareous rocks, covered with a rather thin stratum of vegetable mold, but porous enough to absorb moisture and support a luxuriant vegetation of trees and shrubs. The chain of islands stretching from Florida to San Domingo, a total length of nearly six hundred miles, is crossed in the exact center by the line marking the border of the tropics and the northern temperate, and with its perpetual sea-breezes and the winter-tempering influence of the Gulf-stream, enjoys a perhaps unparalleled combination of climatic advantages.

A BANANA ORCHARD.

The great "ocean-river," with a volume estimated as equal to that of three thousand Mississippis, pours its flood of sun-warmed water along the northwest coast of the archipelago, and in midwinter, when the city of Matamoros, Mexico (only a few miles from the coast), is swept by icy blizzards, the island emporium of Nassau, New Providence, under the same parallel, basks in the climatic luxuries of Madeira, and the cliffs of Andros are haunted by tropical sea birds that dread frost as they dread the arrows of the fowler. At the coast of Newfoundland, more than two thousand miles farther north, the Gulf-stream is still so sharply separate from the waters of the Atlantic that its borders can be defined like the shores of an inland river. "Ships beaten back from their harbors by fierce northwesters," says Captain Wright, of the British navy, "seek relief and comfort in the Gulf current. A bank of fog, rising like a wall, caused by the condensation of warm waters meeting a colder atmosphere, marks the edge of the stream. The temperature at once changes, and so sudden is this transition that when a ship crosses the dividing-line a difference of 30° F. has been marked between the bow and the stern."

No wonder that twenty-two hundred miles farther south the same stream, straight from the caldron of the tropics, can turn midwinter into summer, even in seasons when the sleet storms of our bleak central plateaus stray far beyond the valley of the Rio Grande. The deep indigo blue of its waters contrasts strangely with the light green of the surrounding ocean, and swarms with fish that have followed it from the neighborhood of the equator. Seaweed, torn from the coral rocks of the Caribbees, is borne along on its current, and the shells of a Bahama beach rival those of the Sunda Islands.

On the shores of that summer sea the greatest aircoward of christendom can forget his dread of the out-door atmosphere, and New Providence, in con-

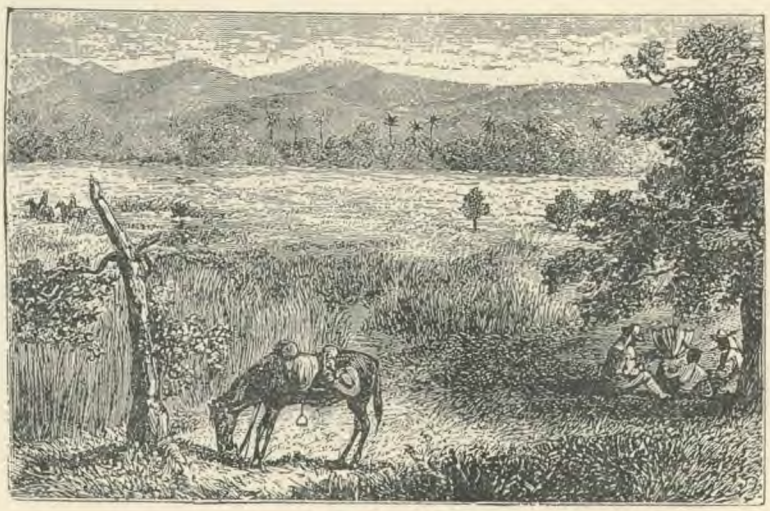
sequence, has become a great winter resort for consumptives. As compared with Florida, it can claim the advantage of fair-sized hills and the absence of malarious swamps; the cliffs of the east shore are perhaps the breeziest (not stormiest) elevations of East America, and even in August the nights are rarely sultry. Still, the entire population of the island does not exceed 16,000, and the hotel accommodations of the little town, though remarkable in proportion to its size, are rather too limited for the demands of special seasons, and in winter the aggregation of hundreds of consumptives can hardly be said to favor the chances of recovery. For fargone patients who hope to avert the more distressful symptoms of their complaint, rather than its inevitable termination, the prospect of an euthanasia in the loveliest clime of the western hemisphere is naturally inviting, but sufferers from curable lung complaints would better try their luck farther north.

A NATIVE HUT.

The organism of the human body can generally accommodate only one disease at a time or develop only one set of microbes,—as the exponents of the germ-theory would express it,—and while the lungs are congested with virulent tubercles, the risk of additional contagion does not amount to much; but after a partial recovery by the temporary elimination of the disease germs, the peril of re-infection is much increased in an atmosphere saturated with the breath of other patients. In a first-class sanitarium such patients are kept apart or lodged in disinfected dormitories; in highland resorts they are diverted by chances for sport and excursions, but in the winter hotels of Nassau they are sorely tempted to crowd the reading-rooms or congregate on glass-fronted verandas, in an atmosphere where tubercle microbes flourish as well as lianas and tropical orchids. The whole island is not much larger than the ground occupied by the city of Philadelphia; besides the town itself, there are fishermen's hamlets, the uplands are largely fenced in by truck farm owners, and the territory available for sporting purposes is necessarily scant. A fierce competition for sea shells has depleted the beach, and various kinds of sea birds are protected by law.

The attractiveness of New Providence as a health-resort could be greatly enhanced by more frequent opportunities for excursions to other islands of the archipelago, a considerable portion of which is still unsettled. Of the seven hundred larger and smaller islands of the group, only twenty-five have been partly resettled; hundreds of others, varying in size from a sugar loaf to a big sugar plantation, are overgrown with wildering shrubs and have been abandoned to the seals and pelicans. A few of the larger ones (larger anyhow than Manhattan Island) are tenanted by cats that have somehow made their escape from foundered vessels, others by half-wild dogs that flee at the sight of man, though their puppies are apt to follow an explorer and cringe about his feet in hope of adoption.

Finding that carnivorous animals can live and multiply on abandoned islands, the natives of New



A NATURAL FARM.

Providence have bethought themselves of a way to utilize the abundance of shell-fish by introducing hogs on the forest-covered islands of the archipelago. Sows with a litter of pigs are taken out in a schooner, and left to shift for themselves on one of the half thousand bushy *cayos*, where sweet water can generally be found in upland lagoons or springs. Some five years after, the owner revisits the colony, and, barring the risk of having been forestalled by marauders, may count upon finding the community of bristly settlers increased to a herd of porkers galloping seaward on his appearance like their demon-ridden kinfolk of Gadara. The operations of the sausage-makers, under such circumstances, have to be preceded by a campaign of sharpshooters, but the flesh of these half-wild pigs is said to be as much superior to ordinary pork as big-horn sheep venison is to mutton.

The large islands of Abaco and Inagua were formerly haunted by pirates, and afterward by almost equally unscrupulous wreckers, but have now only few permanent inhabitants, though they abound with natural farms, which once supported a large population of frugal natives. Figs, olives, and oranges thrive, together with many fruits of the temperate zone, but the staple products of the Bahamas are bananas and pineapples, of which hundreds of schooner loads are shipped every year to North American seaports.

On the island of Inagua (larger than any New England county), there is a mountain where a few years ago an enterprising citizen of New Orleans proposed to establish a refuge sanitarium for yellow-fever patients. Land could have been had free, and building material for next to nothing, but those inducements were eventually eclipsed by the still more liberal offer of the citizens of Hendersonville, North Carolina, who, in the enthusiasm of their confidence in the microbe-killing atmosphere of their highlands, proposed to receive refugees in their own homes — in some cases, it is said, even on the plan of certain Chinese hospitals, where no charge is made to specially invited patients till they can be dismissed as cured.

Only the lack of habitable cabins could have prevented the natives of Inagua from risking a similar offer. The absence of expurgative frosts is made up by perpetual breezes; and climatic diseases are almost unknown. The neglect of the last three hundred years has covered the big island (45 miles long by 20 broad) with rabbits which, together with myriads of sea birds, might have enabled the refugees to survive their extra holiday without other aid.

(To be continued.)

How Epidemics Travel.—If you take an apple seed and plant it in pure, dry, siliceous sand, it will not grow. If you put it into moist earth, it will sprout in due season. So with the germ, or seed, of disease. In order to produce the disease, it must find in the person it enters, the peculiar conditions necessary for its reproduction. Otherwise nature will eliminate the germ, and no disease will follow.

A disease on its travels may either die out or gather strength. Should the germs come to a people who happen to be unusually healthy, the disease, if it attacks them at all, will be modified and become less malignant. The germs given out by these new cases are less virulent, and the disease in the next country will, therefore, appear in a milder type.

But the converse of this rule holds. A disease may be indefinitely intensified in its travels. For example, the famine in Russia this year will probably develop a germ of *la grippe* much more virulent than that we have seen so far.

Suppose France and Germany to be involved in war next year. The hardships incident on such a war would themselves create a malignant disease out of a mild one, and such a war would intensify the malignancy of the germ evolved in Russia. Then the United States might receive a germ which, instead of having been attenuated on its travels through France and Germany, would be greatly intensified, and produce here a very serious epidemic. Hence Americans, for purely selfish reasons alone, should earnestly desire the continuance of peace in Europe.

We can no longer congratulate ourselves on our isolation. Steam travel has done away with it. Famine or suffering in Europe or Asia do affect us. Such conditions threaten our health. True, the abundance of food and the general prosperity tend to make us better able to meet and throw off disease.

Well-nourished bodies do not yield to the microscopic bacilli as quickly or as completely as those weakened by want. But so long as the commerce of the world goes on, so long as men and women travel, just so long does each and every one of us have a personal interest in the well-being, the health, the prosperity of all races and peoples. There may be direct connection between the funeral passing on the street of New York, and the famished and downtrodden people of Russia.— *Youth's Companion.*

OCCUPATION FOR OLD PEOPLE.

To prescribe one cure for all cases of *ennui*, even to retired mechanics alone, would be a futile task; but as human nature is nearly all the same, under like conditions of living, climate, and surroundings, some general, fundamental points deserve consideration.

Where occupation dependent on remuneration is desired, the choice of such occupation is more limited; but where the object in view is simply to avoid *ennui*, the choice invariably must be the one for which inclination, interest, and even love exists.

There are but few people in existence who are not possessed of a "hobby," and in such cases that hobby, provided it is compatible with the individual capacities, bodily and mental, should be selected and vigorously carried on until the "one-horse shay" collapses in the midst of its last usefulness in the roadway. It is far better to wear out than to rust out, and as a stubborn rule, rust consumes material faster than wear.

It is supposed that any retired mechanic, not dependent on continued gain, has a home of his own, and with this some family, or at least some human being dear to him, who can enjoy his joys with him and share his sorrows with him; for "joy shared is joy doubled, and sorrow shared is sorrow halved." For such it is no hard task to find useful, pleasant, and healthful employment.

Let them look around on their own premises, and they will be astonished to find ever so many opportunities for employment. None is more healthful, pleasant, and useful, than the garden. Where large pumpkins and cabbages are of no consideration, a choice bouquet of carnations, mignonette, roses, or even heliotrope, will gladden the heart of the donor and the receiver. Where no ground permits garden culture, the ingenuity of the lover of flowers easily finds the sunny window, porch, balcony, or roof, where with willing hands, a little paradise may soon flourish. It takes work and tools to overcome difficulties, but the latter will be the best investment that the retired worker can make, as they often suggest many operations that, without them, would never be thought of.

In case no love for plants exists, where the attraction of a fine lawn, a shady arbor, or the charms of flowers in and out of the house fall on barren ground, the comfort of a more commodious house, with its numberless possibilities, the repairs of doors, sills, steps, and stairs, repainting, repapering, revarnishing, changes in ventilation, light and heating apparatus, gas and water pipes, and the endless introduction of modern improvements, may offer some inducements to the man of leisure to try his own skill in this direction. The trouble with most people is the lack of tools.

No investment that I ever made (and my case is not different from that of many others) has paid me better return than my stock of tools, and my investment is quite costly. I recommend the purchase of such tools as you cannot make yourself, and I predict that you will use them with profit to yourself.

Should your inclinations not run in this direction, it may be that music, drawing, and painting strike your fancy. Be sure to take these up, but do not forget to let your body have exercise and fresh air, and keep up an even balance. "*Mens sana in corpore sano*" should be the motto of everybody, but the older the man becomes, the more careful he should be to guard himself against excesses.

Boating, rowing, fishing, or hunting may be the hobby of others, while the ten-pin alley and the billiard room find other advocates. While not specially recommending these, as they satisfy exclusively the selfish notions of the individual, I by no means would forbid them; in fact, any recreation agreeable to the person enjoying it, provided no unhealthy sequences are in sight, should be eagerly improved.

Cycling may be forbidden fruit to many, but walks, long walks through fields and forests, are possible; a closer acquaintance with things around us — the worm that creeps at our feet, the bird that attracts our ear or eye, the beautiful butterfly that is wafted by the balmy breeze from the near clover field, the impertinent beetle that flies into our face, or the shy lizzard that hides under the rail fence,— any one, any number of these creatures may interest the truly wise man, and may form, as well as plants, objects of collections and the creation of a new and truly interesting hobby.

Where true benevolence toward the rest of mankind, including the "benevolens," is one of the virtues of the retired seeker of employment, a vast field of operations is open for him; and without his joining himself to any specially fanatical guild, let him constitute himself a committee of one, to look up, judge, decree, and execute his cases and their remedies. This will exercise body, mind, and heart, allow him to rest well at night and be less afraid of

robbers, as his pocket-book will keep pace with his light heart.

To those of selfish natures, but still possessing pride and self-esteem, who find themselves for the first time enabled to look into themselves, and find their knowledge of even common things lacking — they had to work too hard to get where they are — I say, Study, study, study! It is no shame to be ignorant, but to neglect a chance to learn, is shameful.

Humboldt said: It is never too late to learn.

Through our knowledge we have risen above the brute. By our ignorance we approach it again.

To the second class of retired workers, whose object is to secure a money remuneration, aside from pleasant and healthful employment of their time, I say, Select such as combines both, but bear in mind that your reduced vitality and bodily powers require special considerations, and that well regulated activity means prolongation of an enjoyable life. — *Scientific American.*

AN ARRAIGNMENT OF ALCOHOL. — Dr. Wilhelm Bode, of Hermsdorf, near Dresden, in the *Christliche Welt*, thus arraigns alcohol for its fearful work done in Germany: —

"The preparation of alcoholic intoxicants robs us year by year of sixteen million double hundredweight of grain, twenty million double hundredweight of potatoes, twenty-seven million double hundred-weight of coal, and many other useful articles. It robs us, in other words, of the harvest of 1,779,000 hectors, whose rye value would be 380,000,000 marks; it robs every inhabitant of 65½ pounds of bread each year. It robs us of the working power of one man out of every sixteen; on its battlefields we find each year 6,343 wounded (lunatics, murderers, etc.) and 223 dead. The drink bill last year robs us of 2,000,000,000 marks, of which we pay 60,000,000 marks to foreigners; it makes each year 32,000 paupers to be supported by the State and by charity; takes 4235 German men each year into the involuntary imprisonment of the working colonies, and endless numbers of men, women, and children into other charitable institutions. At lowest estimate fully 1,333,000 German men are shortening their lives through these intoxicants; 1600 become suicides each year from the same cause, 1300 are injured by accidents, 30,000 lose their minds, and 150,000 become transgressors of the law."

THE French Anti-Tobacco Society, of which M. Decroix is president, and the renowned Dr. Dujardin Beaumetz, vice-president, is doing a great and good work in France, in the enlightenment of the people respecting the evils arising from the use of tobacco. In a recent number of the journal of the Society, which we have the pleasure of receiving regularly, it is shown that a most vigorous and active work is being done by this association in the direction of the suppression of the tobacco habit. That a great interest has been created by the work of the Society, is shown by the fact that gifts have been made to it by individuals, to the amount of 45,000 francs. This handsome sum has been placed at interest, the income only being used in carrying forward the work of this Society, thus securing to it a permanent endowment. An interested gentleman who has previously contributed to the endowment fund of the Society, recently presented the association with another handsome gift of 2000 francs, more than one third of his total possessions.

A DUDE'S DIARY. — A. M., 8.00, woke; 8.05, dozed; 8.24, yawned; 8.25, rose; 8.30, dressed; 9.00, breakfast; 10.00, walked; 10.15, talked; 11.00, cigarette; 11.15, sick; 11.17, better; 11.19, lemonade; 11.45, dressed. P. M., 12.30, lunched; 2.30, drove; 6.00, dressed; 7.00, dined; 9.30, "mashed;" 10.00, proposed: 10.10, rejected; 10.23, drank; 11.04, drunk. A. M., 1.00, disrobed; 1.10, retired; 1.11, slept. — *American Notes and Queries.*

THE IMPORTANCE OF BODILY HEALTH. — The public health is a great public concern. It is the people's cause. It appeals not only to the wage-worker and the bread-winner, but to those of all classes and conditions of society. Whether we will or not, the physical stamina of a nation to a great degree determines its intellectual and political status. A weak man or a weak woman may do great things, but weak nations do not keep on doing great things. The old age of nations requires robustness. If this is not fostered and continued, the nation itself dies or is crippled in comparative youth. It is the record of the Romans that they showed physical before they did intellectual or moral decadence. It is a great political and social question, and one for wise statesmanship to consider, how the physical welfare of a people is best to be promoted. It cannot be left without a plan. Labor is healthful, but if allowed its way, goes on under many enforced conditions prejudicial to vigor. Recreation is healthful, yet it may be so conducted as to lead to an ease as ignoble for the body as for the mind. Food is healthful, but

it may be so indulged in as to wreck and ruin the noblest framework. Sleep is healthful, and yet the sluggard may need to go to the ant, not only to learn wisdom, but to find an animal living in accord with the laws of its being.

It is high time to realize that the great national problem is at hand,—how to preserve the health of the people. Study it as bearing on happiness and contentment, or on intellectual and moral productivity, it is far beyond astronomy, botany, mechanics, or the arts. Study it as an economic factor, and it is appalling, not only in view of sickness and death, but of the reduced vitality that remains to the nation that survives.— *New York Independent.*

A VERY NATURAL QUESTION.— Not long ago a bright boy accompanied his father to a neighboring market. The gentleman wanted bacon and liver. He bought the bacon without being interrupted, but when it came to liver, the boy wanted to know what it was and where it came from. "Why," said the father, "liver is a part of a cow or calf."

"Good to eat?" asked the boy.

"Yes; that 's what I 'm buying it for."

"Have I got a liver?"

"Yes; don't your doctor tell you that he gives you medicine to keep your liver in order?"

"Well, if I have to take medicine to keep my liver in order," asked the boy, "how do cows keep their livers fit to eat?"

THE MULBERRY.— The mulberry in America is chiefly known by the kind employed in silkworm culture — *Morus alba* — the white mulberry, though varieties with black fruit are not uncommon. The true black mulberry, grown for some thousands of years in gardens for its fruit, is *Morus nigra*, or, as it is called by the European fruit culturists, the black mulberry. Like many fruits of the gardens its original native home is unknown. It was cultivated by the ancient Persians, from whom the Greeks and subsequently the Greek gardeners obtained it, and the seeds, distributed by birds and by other means, have caused the plant to become scattered through the woods of the Old World till it seems almost as truly indigenous as the Persian cherry does to the woods of the older settled portions of America. Sometimes we get a clue to the original history of things by tracing the etymology of the name. But "mulberry" has defied investigation. The ancient Latins called it *Morus*, and this has been retained as its name in modern botany. Mulberry is more German than English, and seems to have followed the Saxons to Britain, and some have guessed that the ancient Germans changed the *r* in *Morus* to *l*, and thus finally came about mulberry. But this is little more satisfactory than the wit's derivation of jacket from cucumber — "cucumber, gherkin, jerkin, jacket." Leo Grindon notes that nothing in the Old Testament indicates a knowledge of the tree, by the people of those days, though he believes the reference in Luke 17 : 6, to be really to the mulberry-tree. It seems to have been in use for silk culture in the past, though forms of the *Morus alba*, or in silkworm language, Italian mulberry, are now exclusively used all over the world.— *Sel.*

Teacher — "Johnny, why is George Brown absent?"

Johnny — "Why George Brown says his sister 's got a cold. But dat ain't nothin'; one o' my sisters is got de smallpox, and t'other one de measles, but I come all the same." — *Washington Post.*

A WONDERFUL CURE.

THERE was once a girl in Dixie, so quarrelsome and tricksy,
If she could n't rule the other girls, she 'd say she would n't play!
And her mother sighed, "My Julia is so nervous and peculiar
That how I 'm e'er to govern her is more than I can say."

But a funny little woman (who was more or less than human)
Saw that willful little maiden once break up a merry play,
And she took her, and she shook her till the "nervousness" forsook her,
And that sad "peculiarity" was shaken quite away.

— *St. Nicholas.*

THE RIGHT NAME.— The following amusing perversion of words really occurred recently in a city nurse's experience: —

"On one occasion, I remember, a little child had an eruption of the skin. When the mother asked the doctor what it was, he answered, 'Urticaria.' Soon after, a neighbor came in and asked what was the matter. The mother said promptly, 'Dirtycaria.' She had spoken better than she knew."

LIVING IN THE COLD.— The most northern inhabitants of the world are the Arctic Highlanders, a tribe inhabiting the north of Greenland, numbering only about 150 persons.

Lieut. R. E. Peary, with his wife and five assistants, spent the past winter among this curious people preparatory to an expedition this summer, the purpose of which is to discover the north end of Greenland. The winter night here is 120 days long at this point. One of Lieut. Peary's purposes in making this expedition, is to make a thorough study of this isolated people. We shall look for something interesting on his return.

PEEL YOUR WALLS.

A WORD to housekeepers in relation to the sanitary condition of the walls of living-rooms surely can never be out of place. A prime condition of health in a house is the frequent renewal of air by ventilation. But the wall needs ventilation as well as the room, and wall-respiration is essential for a healthy home. The constant passage of air in and out of the walls of rooms has much to do with the ventilation of the room, but more with the healthy condition of the walls themselves, by promoting the oxidation of decomposing organic matter deposited thereon.

The fact of wall-respiration is shown in a plastered room long in use, where the varying accumulations of dust reveal the position of every beam, joist, and lath in the wall, because air passes more freely through plastering than where a backing of wood restricts its passage. The wall acts as a filter for all suspended solid matter, and the air in passing through leaves a tell-tale of dust to mark its passage. Many housekeepers object to plastered walls "because they catch dust," and the very proof of their ventilating capacity is made an objection to a plain plastered wall. Many devices are resorted to in order to avoid this soiling with dust, and the wall is strangled in various ways to keep it clean. Wall-papers are plastered on with glue or paste, and they make the wall look clean in proportion as they prevent wall respiration. After a time the paper becomes dingy or torn, and a new papering is considered necessary to make the walls appear clean and fresh. It is difficult to remove the old paper so as to have a smooth wall for the new paper, and so the new paper is applied over the old. In this way layer after layer of wall-paper is applied till four to six or even ten papers may cover the wall at the same time.

The chief concern with the paper-hanger is whether the paper is liable to peel off the wall by reason of the accumulation. No thought seems to enter his mind of the continued accumulations of dirt and filth covered up by the new paper and thus made a permanent part of the wall, besides the annual addition of putrescible organic matter applied in the form of paste to fasten the paper. The layer after layer of paper and paste is in good condition to decay and fill the air of the room with the smell of decomposing organic matter. Hence the close, stuffy smell of many rooms, suggestive of a decomposing rat in the wall. No room with such wall accumulation of paste and paper can remain in a good sanitary condition. Hence my advice: *Peel your walls of all old paper, before applying new paper.*

Besides being a resting place for the development of disease germs in the wall, such accumulations are dirty. The filth is covered up and concealed, not removed. It is making our walls "like unto whited sepulchers, which indeed appear beautiful outward, but within are full of dead bones, and of all uncleanness." If a wall must be repapered so as to look clean, tear off the old paper and wash the wall before applying a new paper. This applying layer after layer of wall-paper reminds me of a story I lately heard. A man was boasting of his care for his health: "In September I put on a flannel undershirt; in October I put another over this; in November another outside of both; in December another outside of all, and in January I put on the last one to cover all. Then in February as it begins to warm up, I take off the outside undershirt; in March the next one; in April the third one, and finally in June I peel off the undershirt I put on in September."

"What do you do then?"

"Do? Well, I take a bath!" — *Sel.*

HOW TO BE BEAUTIFUL.

IF the laws of God that seek the health of the body were obeyed by but a single generation, the next one would be physically beautiful. I am always glad when one of our "society girls" says to me, "Coffee and tea hurt my complexion, so I have left off drinking them;" or, "Greasy food coarsens one's looks, and I can't afford to eat it;" or, "Buckwheat cakes and sausage make my face 'break out' so, though I love them dearly (!), they have been put aside." The motive might be higher. It should be grounded in a reverent purpose to know and do the will of God at the table where grace is so often said over most graceless food; but untold good will come of a simpler and more wholesome diet. The desire to be beautiful is instinctive, because we were all meant to be so, and may all claim our heritage upon this spiritual plane, even though so ruthlessly defrauded of it on the material plane, by the ignorant excesses of our ancestors and the follies of our own untaught years. But while I

would beg my clear-headed American girls to make a special study of the sacred laws of health, I would still more urgently impress the importance of the spiritual law of beauty upon their sensitive young hearts. It is not left to a fish to determine whether its mouth shall draw up or down, but that matter *is* left to a human being's choice. A chimpanzee has no control over his wrinkles, but men and women have. A dog has his hair cut in ways to suit purchasers, and a boy at the present day makes himself a spectacle to the human race, by the "penitentiary clip," but a young woman can greatly modify and improve her *tout-ensemble* by the style of her coiffure. She can refrain from piercing her ears, bangling her arms, *a la* Piute Indian belle, emulating the heels of a French ballet dancer, deforming her waist, "banging" her hair, or sporting an aviary on her hat.

Now, aside from all that I have said about the insanity of fashion, about hygiene and outward adorning, about the possibility of modifying both "bumps" and features, let me emphasize the highest method of acquiring that beauty which is the result of one's own inner life. Behind everything there is a thought. "As a man thinketh so is he." Expression is the loftiest and the final charm in every human face.

While it is right, indeed, a heavenly intuition, to desire beauty, and while attention to the laws of hygiene, good taste, and good behavior mightily conduce to it, heavenly thoughts are the only sure recipe for a countenance of heavenly expression. St. Cecilia heard the music of the upper courts, and hence her face mirrors its ethereal loveliness. It is not only true that prayer will cause a man to cease from sinning, even as sin will cause a man to cease from prayer; but it is also true that no heart can be lifted up toward God, as a lily lifts its chalice to the sun, without the face beaming with a light that never shone on sea or shore, but which reflects the Shekinah of the upper sanctuary.

The ever welcome, homely face of a beautiful soul is vastly more endearing and endeared to wistful human eyes than the classic brow of Eugenie, the sparkling eyes of Patti, or the statuesque pose of Mary Anderson. Their beauty is on the material plane, and evanescent, but this is on the spiritual plane, and beauty of expression shall endure and grow forever, if we but keep on thinking thoughts of peace, purity, and tenderness.

None but the beautiful can win, since beauty is the normal condition of us all, and whatever is abnormal is in so far a failure. But God is good. His tender mercies are over all his works; he makes it possible for every human being to be beautiful, and the method of becoming so involves the serene and steady search after the highest happiness.— *Frances E. Willard, in "How to Win."*

MADNESS AND BADNESS.

THIS is an experimental and inventive age. It must, therefore, of necessity be a speculative age. An experiment presupposes an idea, a thought, which is neither reason nor knowledge, but imagination and speculation. An invention is generally brought out as a result of a hypothesis which is called a working theory, this meaning a conception, only that there are some discovered things which render it plausible and perhaps probable, even if the law of probabilities cannot as yet be applied to it. The result of all this is wonderful discoveries, great inventions. But for every hundred of these there are thousands of vagrant fancies, hypotheses proved only to their authors, or perhaps to some school or sect that has received them. The first great sphere for these theories is in the physical world, and relates to physical nature. Not only is there the seeking of a cause for everything, but the conclusion that a cause is discovered. There was nothing wilder in alembic days than some of the modern announcements of the laboratory, or the assumption of those who speculate about the means of vitalizing enfeebled life. There never before was so favorable an age for humbugs. We do not mean patent nostrums or cunning but useless devices, but humbug ideas, believed in as solemn verities by those who have espoused them.

It is impossible to confine this activity to the sphere of physical nature. It is mental activity and moral activity and speculation also, and is as rampant in mental science and psychology as amid the laws of the material universe. Indeed, everything is asked to materialize. As to health, we are told it is a conception. Think yourself well, and you are well. The bodily condition is a mental state. As to badness or crime, it is madness in the sense that it is an infirmity consequent upon the physical constitution of the brain. Between physical philosophers, like Huxley, or mental philosophers, like Maudsley, philosophic novels like those of George Eliot and "Robert Elsmere," and beliefs like those of the Christian Scientists, we find strange appropriations and jumblings of terms, strange faith in unbe-

liefs, and strange admixture and trituration of body, mind, and soul.

As to invalidity, pauperism, and crime, how far is all this true? Is this a correlation and conservation of the forces, so that they are all one energy or one inertia? As Emerson puts it, Is the sick man a rascal? Is the pauper thriftless only by force of circumstance, or by the laws of Reformer George? Is the criminal guiltless because of the material convolutions of the brain? These questions would not be so earnestly discussed were it not that somehow some grains of truth had become mingled with much error. It is true that no one part of that which is human or that which our personality represents is independent of the other parts. Ill-health often inclines one to irritability, to hasty judgment, to discouragement, or to some mental or moral morbidity. Hence health is to be sought for its mental and moral uses. It is to be prized not merely for athletics, but for thought and for character. But the moment that invalidity is used to cover up permanent faults or to apologize for the absence of graces, that moment it is pressed beyond its legitimate use.

It is to be admitted that acquired or inherited conditions of our physical, mental, and moral natures may and do often give a wrong bias, and that this bias is harder to be controlled by some than by others. But bias does not vacate responsibility. It gives all the stronger argument for assertion of self-restraint and self-control. It awakens another resident force which determines to be master in defense of right and truth. Some of the strongest characters and some of the noblest of men — the Fabers, the Cowpers, the Paysons, and multitudes of less noted sufferers — have shown that mentality and morality need not and do not succumb to ill-health. Indeed, instances abound in which invalidity has brought out the finer traits of character in those naturally vicious, stubborn, or ill-tempered, and made them examples of "sweetness and light" or, what is better and older, love and light.

Poverty, too, has its bias, but is no excuse for "blaming the Fates." One of the most distinguished preachers of New England was born in an almshouse, and we could point to other cases of equal lowliness and similar success.

Most of all, crime is not either a physical or a mental state. Here, too, bias is no doubt strong, and there must be a summoning of all the mastery of self and an appeal for help to the higher Power. There is triumph by the road which Bunyan, John Newton, Medley, Colonel Gardiner, and Jerry McCauley walked. We are hearing nowadays so much apology for failures of character that we must carefully guard against confusion of terms or excuses derived from inclinations which were bound to be resisted. Yet because it is desirable not to have temperaments or dispositions which are aggravated by invalidity, we are to think of health as one of the great factors for the elevation of society and the improvement of mankind. Mental, moral, and physical hygiene are associated outside of the body as well as in it, and must together do what they can to increase our powers of vital resistance to all that will damage our manhood or impair real force of character. — *N. Y. Independent.*

THE FROST CURE.

EUROPE and North America have for years recorded the progress of a phenomenon, which a friend calls the "Siberia mystery" — the northward exodus of the more enterprising elements of population. During the last two thousand years the centers of civilization have moved at least eight hundred miles nearer the poles; the balance of political and intellectual power has been transferred from Rome and Athens to Berlin, London, St. Petersburg, Boston, and New York. Within the limits of our own national territory a similar current is setting toward the frozen tablelands of our northern border. The overpopulation of the sunnier latitudes cannot explain the enigma, for there is more elbow room in the Elysian terrace lands of the southern Alleghanies than on many bleak prairies of the far Northwest. The key of the mystery may be found in the stimulating influence of a low temperature. Frost is an antidote, and greatly modifies the penalties of our manifold sins against the health laws of nature. It enables gluttons to digest greasy made dishes; it helps topers to survive excesses that would kill a native of the tropics in a few weeks. It also counteracts the chronic indolence of exhausted constitutions. In the uplands of the Black Hills a squatter is not apt to neglect his woodpile. In "Duluth, the solid" (lake often solidly frozen to a depth of eight feet), a business man can shift with a minimum of after-dinner rest. The efficacy of the plan is undeniable, but with open bedroom windows and less superheated tea, its benefits might be enjoyed nearer home.

The "mountain cure," American physicians call the last expedient in cases of far-gone consumption. The patient, wardrobe, library, and all, is transported

to a tent camp in the upper Adirondacks, where the temperature in October often sinks to fifteen degrees below zero. Blankets are allowed *ad libitum*, but no stove-fires at night, and even in daytime highland blizzards may oblige the convalescent to take refuge under his blankets. Few breeds of tubercle microbes have been able to resist that prescription for more than a month, and in the course of a winter such remnants of pulmonary substance as the invalid may have saved from the influence of city life will get expurgated effectively enough for him to remain in fair working order for years to come.

Those remarkable results have been variously ascribed to the purity of mountain air, or to that mysterious allotropic form of oxygen called ozone; but again, there is a probability amounting to what lawyers would term a violent presumption, that they are simply due to the protracted influence of cold air. The prevalence of pulmonary diseases decreases with every mile farther north on the road from the factory districts of the English border to the pastoral regions of sea-girt Scotland, and next to the natives of Senegambia, where indoor work is almost unknown, the Norwegians, Icelanders, and the Yakuts of Northern Siberia, enjoy the most complete immunity from consumption. The severe frosts of the Arctic regions counteract even the filthy habits of the hovel-dwelling Eskimos, and whalers in an atmosphere not specially distinguished for its purity or abundance of ozone manage to get the better of incipient tubercles by frequent exposure to icy gales. The frost-cure doctrine is, indeed, a logical, and practically by far the most important correlative of the germ theory of disease. A few years ago the proprietor of a Hot Springs sanitarium advertised his establishment with the motto: "Warmth is life; cold is death." In a modified form that aphorism may become the key-stone principle of sanitary philosophy: Warmth is life; cold, even in a moderate degree, is death — not to man — but to myriads of disease germs far more sensitive to changes of temperature. — *Felix L. Oswald, M. D., in North American Review.*

Moral Influence of Hygiene. — The highest usefulness in life is only possible with the highest standard of health. So great is my reverence for supreme wholesomeness that I should almost be tempted to assert that perfect health is virtue. At least, as a physician, I like to say that in my opinion, and for men in general, health, the best health, is essential to the attainment of that efficiency which makes duties easy and resistance to temptation a normal result.

Speaking of the higher, the spiritual development of man's faculties, a famous divine has said: "Yes, it is a good thing to be born again, but he who wins this new birth will be better born again for having first been well born." The truth, the largely applicative truth of this epigram, comes home to every physician who has seen how much of the usefulness of the good, and the productiveness of the intellectual is crippled or lost because of physical failures due to follies in education or to impairments growing out of preventable maladies.

I have a fixed belief that a population below the normal level of health is sure to be also below the normal of goodness; I am as firm a disbeliever in the utility of long-disordered health to make men better. You remember what Becky Sharpe said of goodness: "I should have been a good woman had I had £5,000 a year." Trust me, a large income of health means for the many capacity to live at their moral best for themselves and for their fellows. Poverty of blood, like poverty of pocket, has its temptations.

Others will tell you how the ill-health which comes to masses of men in epidemics affects the economic prosperity of the community — how vast is its influence, how untraceably far-reaching. I choose, rather, to hint at the ill-results as to morals which may arise from lowered health, owing to the poverty it entails, the direct and indirect temptations it creates, the self-indulgence it fosters in a variety of forms. It were easy to point this moral with many a sad tale. The story of every great epidemic — the plague, the cholera, yellow fever — is dark with histories of human baseness. But there are, in our vast cities, influences more or less capable of remedy, which cause no death and put none at once to bed, and which, nevertheless, entail on communities lowered conditions of health, affect the enterprise and spirits of men, and morally and mentally depress, so as in subtle ways to cause degradation, desire for alcohol, and degenerative changes. — *S. Weir Mitchell, M. D.*

"I see they have started another lodge of the Improved Order of Red Men in our village."

"Yes; my husband has joined it. But that's not the kind of Order needed in our neighborhood."

"No?"

"No; what is wanted is an improved order of white men." — *New York Press.*

THE MUSCLES.

THE 500 muscles which compose the fleshy part of the body are among the most useful as well as the most interesting parts of the body. In a general way they may be said to be useful, in the first place to round out the form and render it symmetrical; secondly, to stay the skeleton, to support and hold its several parts together. For example, we have the ribs all connected by means of muscles, and in the upper part of the body, they connect the shoulder blades for the purpose of holding them back. One set of muscles is attached to the spine; underneath these are smaller muscles which connect the shoulder blades with the spine and hold the shoulders back. Without the support of these, the shoulders would strike the back. We also have muscles for the purpose of balancing the head upon the trunk, keeping the head in an erect position. We have also useful muscles to support the spinal column in its proper form. Without the firm fastenings which hold the vertebræ of the skeleton together, the different parts of the vertebræ would glide into a shapeless mass.

Another very useful purpose of the muscles is to balance the body upon the pelvis. The head is erected upon a pedestal, balanced by the muscles of the trunk. The muscles serve the body by acting upon the skeleton very much as do the ropes upon the masts and spars of a ship.

Another general purpose of the muscles is to aid in inclosing the cavities of the chest and abdomen. Muscles are the means by which the abdominal organs are held in position. The principal part of the abdominal wall is composed of muscles; the muscles also fill in the spaces between the ribs. These muscles thus furnish support, not only for the bones, but to important internal organs.

But the great purpose, and the special purpose of the muscles, is motion. Before we can understand this function of the muscles, we must learn something of motion in its simplest form. The simplest manifestation of motion is entirely independent of muscles. If we were to study the pond amœba,—a curious protoplasmic creature which you can find in stagnant pools, and which may be cultivated by the aid of a little hay and stagnant water,—by examination under a microscope, you would find a curious little mass of transparent jelly. When the amœba is quiet, it assumes a round form; but when active, you may see this little mass of transparent matter "putting out a foot," as the biologists say, and moving off. This may be repeated, until the little creature has transported itself from one point to another. The amœba has power to move in any direction; it has the power of motion in every part of itself; it has such facility for motion that it apparently has no definite purpose in moving, for any part of it may move in any direction at any time; it has a sort of indefinite instinct to move.

Rising a little higher in the scale of being, we find a curious living cell called the "ciliated cell," which is very curiously constructed. These cells cover the mucous membrane of the air-passages; they are conical in shape, and attached by their apices, each one of them bearing a large number of minute hairs. A large number of these cells massed together, when examined under a microscope, present the appearance of a field of grain in motion.

In the ciliated cell the power of movement is wholly confined to the cilia, or hairs. This is motion specialized, a special organ endowed with power of movement for a definite purpose. If the hairs are separated from the cell, they lose their power of motion; but we may cut off a portion of the cell,—a

very small fragment with the cilia attached, — and they will still retain their power of motion. These curious cells are found in the respiratory organs of all animals — fish, frogs, etc. It is by means of these cells in this class of animals, that currents of air and water pass out and in the passages of their breathing organs. The movement of the hairs is constantly in the same direction. A current of mucus is thus maintained in an outward direction toward the mouth. The purpose of this current is to carry the mucus which is constantly accumulating in the air-passages, out of the throat, and to carry along with it the particles of dust which have become entangled in it.

It is possible to watch the work of these cilia, either in mass or individually. When fully alive, the movements of the cilia are so rapid that it is difficult to follow them with a microscope; but by putting a little dust in the back part of the throat of a frog, and then watching it carefully, you may see this dust gradually ascend; and it is a curious fact that it ascends spirally, instead of directly. There seems to be a considerable lifting power on the part of these cilia; one of them catches a particle of dust and tosses it to another, and that one moves it along to another, and so the dust is carried along from the lower passages of the throat to the upper, until it is thrown out. It is upon this principle that phlegm is raised. But sometimes a person has chronic inflammation in the throat, and all these cilia are swept away by the inflammation, and as a result the individual loses the ability which he formerly had, of raising these matters, and the lungs finally become filled up with them. Particles of dust are carried from the outer to the inner corner of the eye by the same means.

The vitality of the cilia is wonderful; they have been found alive in the air-passages of human beings who had been dead more than two days, the cilia being still active and at work. This is an evidence that tissue death does not occur at the same time with the death of the body.

When we go up a little higher in the scale of being, to muscles, we find a cell in which the power of motion is highly developed. The whole cell has the power of motion, and not simply a portion of it, as in the case of the ciliated epithelium. The amœba contracts in every direction, but the muscle-cell has power of motion in only one direction.

Now let us study a muscular fiber. If we take a section of muscle fiber from a frog's leg and put it under a microscope while it is still alive, it is very difficult to see it, for it is almost transparent so long as it remains alive. If it were not for the blood corpuscles which are floating about through it, it would be absolutely transparent. The muscles of insects, which have a colorless blood, are really transparent. This transparent muscle fiber, when carefully examined, is found to be jelly-like in character, similar to the amœba. We know this from two very interesting circumstances: one is, that when a galvanic current is applied to the muscle fiber, the positive pole being applied to one end and the negative pole to the other, a current may be seen passing from the positive to the negative pole. The current of electricity sets up a movement in the fine granules of the cell, and a stream can be seen moving from one end to the other of the fiber. But still another observation has been made as to the jelly-like condition of the muscle fiber. There is a curious parasitic worm which sometimes takes up its abode within the muscle fiber, and may be studied in the fiber under the microscope. It has been observed that when this worm drags itself along through the muscular fiber, it leaves no opening behind it; the substance closes up behind, just as any viscid fluid would do.

It is important to keep in mind the fact that the muscle is really a live cell. The muscle fibers are usually from an inch and a half to three inches in length; are tapering at the ends, somewhat wedge-shaped, and in the case of a long muscle, the ends overlap and interlace, and then are joined together by a soft cement, and in this way the muscle is pieced out. Every muscle fiber bears on its surface one or more nuclei, which are the centers of nutrition for the muscle. It is through the influence of this nucleus that the muscle fiber grows and makes repairs. The nucleus is the vital center of the fiber.

Every muscle fiber receives impulses from the nerve centers which control the muscle by means of a nerve fiber, through which it is stimulated to activity.

One of the most interesting questions which arise in regard to the properties of muscles is, What is the source of muscular power? It is found by careful study of these curious structures, that they have the power of storing up within themselves two things, glycogen and oxygen. Glycogen is one of the substances stored up by the liver. It is found that the muscles store up about as much glycogen as does the liver. The liver converts the sugar, starch, and other food substances of like nature into glycogen, at the same time giving out portions of sugar which have not been formed into glycogen or have been reformed from it. The muscle seems to have the

same power to convert this sugar or similar substances found in blood into glycogen, and of storing it up in its structure. At the same time the muscles store up oxygen. The oxygen taken in by the lungs is absorbed by the blood, carried by the blood corpuscles to the muscles, and is incorporated into the substance of the muscle fiber, where it is brought into close contact with the glycogen, and through combination with it, ultimately becomes a source of muscular power.

(To be continued.)

WALKING.

(Concluded.)

THE only indispensable requisite for walking is time; and the end in view warrants our making time for it, if we haven't got it on hand. An hour is very much better than nothing; two hours are a fair allowance, if diligently employed; four hours are a fortune; a day is mere luxury. As to a week or a month, they are equivalent to a new birth. All this is understatement, as those who know walking, know. Having got your time, be it little or much, add a broad-soled, low-heeled, familiar pair of shoes, and put on woolen clothes, and you are off. It is a good plan to accustom yourself to walking without a hat; and a stick, not two heavy nor too light, and with a hooked handle that accommodates itself easily to the hand, is always an agreeable companion. If your feet blister easily, rub them with soap before starting, and draw your socks over the soaping; or you may harden them by pouring whisky into your shoes. But a good shoemaker and a little practice are better remedies than either. Stride out to your full measure, but don't try to go beyond it; and try not to fall short of it as you go on. Keep the knees as straight as you can conveniently, and this will oblige you to rise on the ball of the foot behind, at each step. The calf of the leg is a valuable element in walking, and yet many walkers, by throwing their weight upon the knees and the muscles of the front of the upper leg, lose the push and spring of the calf altogether. Such men habitually stand with both knees bent, like a "sprung" horse, and only straighten the knees by an effort. They do not make a good appearance in knickerbockers, and would have been badly off in the days before trousers. But it is never too late for them to reform, if they have the will and the persistence.

The arms should swing freely, and the body should poise itself lightly on the hips, allowing itself to be carried by the legs, and not hampering their free movement. The head should be up, and the chest expanded; breathe deep and breathe slow. Few people walk right; yet it is an easy thing to learn, and when it is learnt you can walk farther, faster, and more enjoyingly than if you do it wrong. On prolonged tramps, you may keep off fatigue by grouping your steps, so to speak: take them by threes or fours, instead of regular alternation. It should never be necessary to put the feet in water during the journey; that would mean that your shoes were two small. If your clothes are woolen, you need not be afraid to sit down and rest. Refrain from drinking at every roadside spring; and so arrange matters that you will never be obliged to overtax your strength. After you are thoroughly fatigued, every further step undoes some of the good that the walk, previous to that point, has done you.

At the rate of four miles an hour, any sound man may, in a few days, attain the power of walking without undue fatigue twenty-five miles a day all the year round. Before the year is over, he will find an occasional stretch of forty or fifty miles anything but disagreeable; and he will often maintain a speed of five or even six miles an hour, for hours at a time, without much trouble. More than this — much more — is done; but I am disposed to regard anything like seven or eight miles an hour as overdoing. It is tremendous exercise, to be sure; there are few exercises more severe than the fast walking of our amateur and professional pedestrians. Every muscle, from the back of the neck to the arch of the instep, aches from the exertion; and the "wind" is taxed to its utmost. But, when all is done, it is absurd, unnatural, and awkward.

Whoever sees for the first time a walking race cannot help laughing; the appearance of the contestants is nothing less than ridiculous. Their bodies and legs are rigid; they seem almost to lean backward; their arms, bent sharply at the elbows, saw backward and forward across the chest; there is a perverse conscientiousness about their whole aspect, as if they were (as in fact, they are) straining every nerve to get ahead, and yet had entered into an insane compact not to employ the natural and obvious means of doing so. Plainly they ought, by every law of reason and expediency, to run; but the agreement is that they must walk. The progression must be from heel to heel, and one foot must not leave the ground until

the heel of the other is planted on it. I see no sense in this : it is ugly to look at, irksome to do, exasperating to think of, and consequently and intrinsically it is artificial and useless. It is a growth of the last few generations, and may very likely pass away presently. We try everything; but, as time goes on, we discard whatever does not conform to common sense and profit. The wise man, if he wants to go fast, runs; if he doesn't, he walks; but to force the characteristic method of going slow into competition with the characteristic method of going fast, is a piece of nonsense, and whatever specific muscular development it enhances, may be acquired just as well in other and legitimate ways.

But, apart from this feverish and frantic excess, walking is an unmitigated blessing, and we can hardly get too much of it. It is the safest and most spontaneous, the most hygienic of all forms of exercise. It is also the most readily available, the most easily learned, and the cheapest. To row requires special skill, a boat, water, and the luck to escape swamping; to box is to run a risk of broken fingers and crooked noses; to swim taxes the vitality and opens the way to drowning and sharks. But the man who walks is right in all respects. He is doing what all mankind must do, from the earth to Arcturus; and nowhere, from Arcturus to earth, would he find a surer bond of sympathy between himself and his fellow-man than the taking a walk with him. Man has been called the laughing animal, the cooking animal; but above all he is the walking animal. He is the only creature that voluntarily, regularly, and continuously can put one foot before the other, mile after mile, from a given starting point to a predetermined goal.

Thoreau, in his remarks about walking, maintains that one ought to have no definite end or aim in view, nor any specified measure of time. But this was merely a piece of Thoreau affectation derived from Emersonianism, and spoilt in the derivation. To walk as he suggests, is to return to mere animalism, — to abrogate the human faculty, and to miss the best pleasure of the exercise. Man must have a purpose and a hope in order to compass an achievement. Only an idiot or a madman could walk on the Thoreau principle; certainly Thoreau himself never practiced what he preached. He was one of the most self-conscious of men; he always knew where he was going, and why; and he wrote it all out after he got home. I defy any one, with brains in his head and a will in his soul, to blunder about without an object, and call it walking. Walking means infinitely more than that. It is the physical manifestation of a spiritual principle,— the principle of progress. It is the symbol of emotion directed and controlled by reason; it is a science first, and then an art; and it is characteristically and thoroughly human.

America is supposed to be in the van of civilization. But, so far as my observation goes, the mass of our population walk less than the French, German, or English. In the country, every farmer's boy who wants to go a half mile "hitches up," instead of using shank's team; and plows are now made which carry the plowman instead of compelling him to follow. In cities, people will, on the flimsiest pretext, jump on horse cars, or clamber up to the elevated trains, and sit or stand breathing foul air, when they might have been rejoicing in the freedom of heaven and earth. Our forefathers had good legs, but ours are not so good. A nation to be a great nation, should be well set on its pins. The English are, in this respect, the best equipped of the European peoples. They love walking and pursue it. We are much better than we were twenty-five years ago; but we have much to do yet. When Edward Payson Weston began his famous pedestrian tours, nearly a generation since, his feats were a revelation to most people of what legs can do. After wonder came imitation; and to Weston may be given the credit of having done more for walking than any living man. He even went over and showed the Britishers things they had never seen before.

We do not need to walk a hundred miles in eighteen hours, or five hundred and fifty in six days; but we can each do our reasonable stint; and such a practice, made universal, would carry us further toward real prosperity and happiness than all Jay Gould's railroads. — *Julian Hawthorne, in Lippincott's Magazine.*

REACHING "HIGH C." — An exchange relates the following amusing incident: "Little Ethel often heard music talked about at home, so that she knew that 'high C' meant one of the upper notes on the musical scale, within the compass of the human voice, but so high that some singers could not reach it. A few weeks ago, she went into the country for a visit. On the morning after her arrival at the farm, she got into the chicken yard, where she caused great commotion, the hens cackling and the roosters screeching.

"'Oh, I've had a lovely time playing tag with the chickens!'" she told her mother, and she added, 'I 'most know that gray rooster went up to high C!"

AN IDEAL BODY, AND HOW TO CLOTHE IT.

ONE must learn to recognize beauty. Most eyes are untrained. A masterpiece of art is meaningless to the uncultivated eye. Half a lifetime may be spent in learning what to look for, to distinguish what is essential, what is characteristic, and to eliminate the rest.

The world, blinded by custom and prejudice and thirsting for novelty, ignores real or ideal beauty, satisfying itself with fashion, adhering to one new form until wearied, then thoughtlessly accepting another, only to sigh for a fresh change, and to laugh over the last caprice. Fashion is not beauty. Fashion is fleeting; beauty is eternal, the same through all ages. The essential characteristics which make up beauty never change. Details may vary and be beautiful according to circumstances, but certain grand principles of art are fixed. Certain standards of beauty may be relied upon. One need not be swayed by the fancies of one person, nor by the superficial theories of another. Good taste is based upon the knowledge of these principles.

Beauty of the human form is to-day exactly what it was in ancient Greece; it is the same through all the centuries, however blind we are to its characteristics through ignorance. The consensus of ages is a true verdict, and classic forms become safe models. Greek sculpture was wrought when the body received its highest cultivation, and was so beautiful as to be called divine.

This sculpture should be carefully and continuously studied, as well as pictures of good figures. They are to be made familiar that one may learn *why* they are good, *why* they deserve admiration. Most people fancy they admire these classic models, but it must be in imagination only, else why should they allow themselves to exemplify false standards of form, and positively distort their own God-given bodies?

Searching for the highest standards of human form, we discover that manly beauty and womanly beauty differ essentially. It is agreed that the type of manly proportion includes a comparatively large head, wide shoulders rather square, a torso tapering to the pelvis; while the whole may be seven and a half heads in height, or an additional half head added to the length of the legs, giving a particularly elegant figure.

On the other hand, fine proportions for a woman are a small head, shoulders rather sloping and narrow, the torso full and widest at the hips; while the front line from the sternum over the abdomen should show first a gentle, and then a full outward curve.

The conventional figure of the day is at variance with this type. Every effort is made to imitate masculine characteristics. The shoulders are thrust up high and square, or made to appear so; the torso is made to taper in; and everything conceivable is done to make the waist look small. The front line is forced to take an inward curve below the bust, and the side lines, to form an awkward angle, in the hollow of which voluminous skirts are hung.

One should study sculpture with the new knowledge of these proportions most thoughtfully, till the rhythm of the lines has fastened itself upon the memory. Studying the pictures of the best artists of every age, we shall find these principles everywhere demonstrated.

The charm of womanly proportion is in the long curve from armpit to ankle, which is so different from the beauty of a manly figure. The depression at the so-called waist line — only the meeting of two large muscles, which in a beautiful woman should be slight — would better be ignored in the clothing, for the sake of the greater beauty of the whole sweep.

It is to be understood that the long curves are made up of shorter contours, one gently melting into another. A form made up of graceful sweeps alone would be a weak, nerveless, insipid thing.

These proportions should be so understood, and so thoroughly appreciated, as to be always in mind, else a beautiful human form will not be recognized. Use physical exercises to attain the perfection of

these curves. Hang pictures showing them, where they may grow into your thoughts.

A knowledge of these primary truths will assist in the making of gowns. For instance, to preserve the beauty of the front line of a woman's figure the lesser beauty of the curve of the spine may be sacrificed. Any garment snug enough to touch the backbone down a good part of its length will press the soft front line out of shape.

An artist thoroughly in harmony with classic standards said a few days ago, "I have just seen a conventionally dressed woman who looked beautiful to me. Now what is the matter with me?"

That such a one should have received pleasure under the circumstances may be because conventional figures often have the same charm found in the symmetrical and elegant lines of ornament, or in those of a vase, a newel-post, or a turret. There is a desirable elegance in length or height. Slender figures may attain this excellence. The lines of a stout figure may even impart a satisfaction allied to that which we take in the form of a jug or a bottle.

All this may be pleasing or otherwise, but such an effect is not human. Smooth, sheathlike garments suggest the enamel or glaze of pottery. They may be beautiful in color and texture, at the same time that they are wholly unsuited to the undulating motion of living beings. They are in every sense opposed to the necessary freedom of bone and muscle. The soul needs the freest, most elastic environment to encourage its full expression. Every means should be at hand to facilitate that expression, every avenue opened, every stiff, inflexible restraint removed, every intrusive restriction put out of the way. — *Mrs. E. L. S. Adams, in Harper's Bazar.*

Long Skirts as Germ Carriers. — Prof. Samuel G. Dixon, M. D., of the Academy of Natural Science, Philadelphia, has found that women's long dresses make excellent germ carriers, and that by this means consumption germs may be, and no doubt are, scattered broadcast through the country. This is what the Doctor says: —

"In walking along the streets we constantly see a woman's dress wipe up portions of sputum from our pavements and the floors of our railway stations. *From one of these dresses dragged over the streets a few times, I was able to demonstrate the presence of seven tubercle bacilli on an inch microscopic slide on which a little dirt off a dress was dusted!*"

Too Great Punishment. — A woman writer in a Southern paper humorously asks some one to "catch the idiot who jokes about the way women throw a stone, and fasten him inside a sixteen-inch corset with a tailor-made basque over it, tightly buttoned from waist to chin." She says, "He might throw stones at us all day under those circumstances. We don't believe he could hit once."

The Relation between Motherhood and Hygienic Dress. — Mrs. Annie Jenness Miller says: "In regard to motherhood, I want to say that if a woman receives her holy commission as she should and dresses healthfully and eats properly, it is the sweetest and grandest experience which a woman can know. It will broaden and ennoble her life in every right direction. I have so recently passed through the hallowed experience that it is all fresh to me. I have a babe three months old, so strong and healthy that it does not fulfill any of the conditions of ordinary babyhood. It lifted up its head when only two hours old, and when three weeks old would turn from its side to its back at will, entirely unaided. When six weeks old, it lifted its body into a sitting position, leaning on one elbow. The child before it was born was given every favorable condition for perfect development. A woman who cares for herself and the future of her child by dressing loosely and hygienically, will not be broken down in health by bearing children."

"The Scavenger Brigade." — The following is from the Hartford *Times*: —

"Lately, two men engaged in smoking and chewing tobacco were expectorating and using generously the sidewalk as a cuspidor. A large-sized lake was formed, and the writer was wondering what would become of it when a little lady with a trailing robe of velvet gayly swept away with half, carrying her head thrown back in haughty triumph. A second member of the 'scavenger brigade' carried off the rest, and the landscape was clear."

The *Church Union*, referring to the grotesque figure produced by wearing the long-waisted corset, says: —

"It is perfectly comical to see women walking along the street, who are longer from the top of their heads to their hips than they are from their hips to the ground. And this is not the result of malformation, but of a mad attempt to have what they erroneously suppose is a good figure. The lack of a sense of proportion is the cause of more crimes against good taste than the world dreams of."

THE INFLUENCE OF PICTURES AS TENDING TOWARD VICE.

BY MRS. E. E. KELLOGG.

BOTH books and pictures exert a powerful influence upon character, especially in early life. How great is this influence the majority of parents never stop to think. Before their little ones are old enough to read, parents provide them with picture-books, and often permit them without restraint to see and examine any and all pictures which come under their notice, appearing to think that pictures are harmless, no matter what is the scene represented. But pictures are not always harmless. Many a child has had his first lesson in wrong-doing from the observation of pictures portraying wrong actions. A father in speaking of a child once said, "He is the least trouble of any child we have; he will take this book," showing a history of Europe, profusely illustrated, "and sit for hours amusing himself." The child's father thought it a very commendable trait, and so it might have proved had the character of the illustrations been different. But the most of the pictures upon which the child sat gazing for hours were representations of battles fought, of horrible crimes committed, of weapons of warfare, and similar subjects.

It was no surprise to me, when visiting that same home a few years later, I found that child to have developed a most belligerent disposition, ready to fight at the least provocation, and saying to his brothers and sisters without the least compunction, "I am going to make a sword of this stick, and I'll thrust it through you," or, "I'll beat you! I'll kill you if you do n't stop!" His young mind had dwelt on warlike subjects so much that his whole nature had become warlike. Doubtless his parents, if they thought of the matter at all, thought a history a very harmless book, and that no harm could result from looking at it. But pictures are powerful educators, and parents cannot too carefully guard their children in this direction. Teach them to reject as unfit for their attention coarse newspaper caricatures and advertising sheets, by providing them with something of greater worth. Teach them the difference between a fine engraving and a poor wood-cut; make them love beautiful pictures because of their greater worth as specimens of art, and they will have less inclination to stop and study the coarse, glaring, and often indecent show-bills that ornament the streets of our cities, and are among the many devices of Satan to lead the young to ruin; because such coarse, unnatural pictures will then arouse in them a feeling of disgust.

Parents do their children a greater wrong than they imagine when providing them with cheap picture-books such as are so common upon the counters of most book stores, full of colored pictures, glaring and inartistic, with almost no semblance to the real object they were made to represent. Most of these books have very attractive exteriors, but inside they are little better than worthless. Besides giving to the child false ideas of color and harmony, such books would seem to have a tendency to cultivate a liking for gaudiness and shoddy. The following story well illustrates a phase of this subject, and shows the immense educating power of pictures: —

A mother, who had given her two sons most careful training, was broken-hearted when, at the age of thirteen or thereabouts, both ran away and went to sea. In grief and astonishment she went to her pastor, and asked him what he thought could have been the reason of their behavior. He asked at once whether they had been accustomed to read books portraying a seafaring life, and the mother answered that while reading now and then a tale of travel and adventure, there had been no special stories of the sea. He continued to question her, however, and finally elicited the fact that an exceedingly fine and valuable painting of a ship in full sail upon the ocean — an heirloom in her family — had always hung in her boys' room. The scene was drawn to the life, and was so spirited and fascinating as always to attract notice. The picture had been the last thing their young eyes had rested upon at night and the first thing that met them in the

morning, and it proved an influence so strong that it finally had won both her boys away from their home.

Tobacco dealers realize the influence of pictures upon the young, and always include within a package of their wares a picture as an inducement to purchasers. This is a subject to be pondered well by parents, who should never give to their children pictures about which there can be a doubt as to their tendency for good.

RECOGNITION OF A GOOD WORK.—At a recent meeting of the National Christian League for the Promotion of Social Purity, in New York City, the following resolution was passed: "*Resolved*, that this League offer a vote of thanks to Dr. Parkhurst for the grand work being done by him in his personal investigation of crime; and also to the daily press, which has aided in creating public sentiment in favor of Dr. Parkhurst's heroic efforts toward reform in the seriously neglected department of social purity and morality in this metropolis. We earnestly urge upon every Christian worker and every moral citizen to co-operate with Dr. Parkhurst and his agents, in letting in the light on the dives and dens of immorality, from the lowest to the highest."

The above was published in all of the leading daily papers of New York, which, to their credit be it said, have with very few exceptions thrown the weight of their influence on the side of purity and Dr. Parkhurst, thus assisting him in his noble work. The members of his own church have also, it seems, very generally supported their pastor in the position taken by him.

AN important feature of the Y. W. C. A. work in Chicago is its depot service, under the charge of Mrs. Dennis, matron of the Strangers' Home, some member of which meets homeless and friendless women who are strangers in the city, when they arrive at the railway depots, and provides for them.

AMERICAN MORALS.—It is the theory of the ascetic school that luxury begets vice. It may be held with almost equal force that necessity promotes virtue. But when luxury is the direct reward of industry and knowledge, the cause of good morals should be safe in its hands. It is bequeathed and accidental luxury that human nature falls prey to. According to the ascetics, America should to-day be the most immoral nation in all history. Perhaps she would be if her luxury were combined with sloth, instead of with almost unparalleled industry and energy. No country ever before enjoyed such marvelous fruits of civilization so bountifully bestowed.

We have reached almost the end of a generation of peace. Its material and intellectual achievements are the greatest marvel in history. Its religious, or rather theological change and development have been correspondingly rapid. But what has been the moral record? The period has almost marked an epoch in all things else. It cannot be honestly said, I fear, that virtue has marched on with the same giant strides.—*H. R. Chamberlain, in Chautauquan.*

WHAT SOCIETY OWES TO AN HONORABLE MAN.—I never see an honorable man upon the street without thinking how much we owe to him for simply being what he is. The character and habitudes of such a man bring more protection than police and courts can ever give; bring safeguards that watchman and burglar alarm could never render us. The clear eye, the untainted breath, the clean hand, the modest demeanor, the chastity of spirit of such a man stand as a barrier between the home and its greatest enemy, and deserve the honest homage of every woman's heart. Such a man makes it easier for every mother to bring up her boy in the tempted years of the first and second decades, for the very atmosphere he breathes is one of purity, of manliness and self-restraint.—*Frances E. Willard, in the Arena.*

EFFECT OF ASSOCIATION.—Dr. Talmage says: "Let no young man or woman go in a social circle where the influences are vicious or hostile to the Christian religion. You will begin by reproving their faults and end by copying them. Sin is contagious. You go among those who are profane, and you will be profane. You go among those who use impure language, and you will use impure language. Go among those who are given to strong drink, and you will inevitably become an inebriate. There is no exception to the rule."

THE HALF-DIME NOVEL.—An exchange gives an account of a twelve-year-old boy in Newark, N. J., who, a week or two ago, committed an atrocious murder for the purpose of robbery, lying in wait in a hall for an Englishman and beating him on the head with a club. He confesses to the murder, and does not seem to see that there is anything particularly bad in it. Among his belongings was found a half-dime novel entitled, "Flipper Flyn, the Street Patrol; or, Knocking out the Kidnappers," and an Englishman is killed in the first chapter.

BLOOD PURIFIERS.

THERE is, perhaps, no class of nostrums more widely used than the various patent medicines recommended as "blood purifiers." The popular notion that some bitter or noxious drug, when swallowed, becomes instantly possessed of some miraculous property by which it enters the blood and drives out impurities from it, is the capital stock upon which the manufacturers of these remedies carry on their business. Unfortunately, this erroneous idea is deeply seated in the popular mind, as is seen by the vast consumption of decoctions of willow bark, wormwood tea, and infusions of various roots and herbs, especially in the springtime, by people who undertake to serve themselves in the capacity of physicians. The notion that the blood can be purified by putting something into it to neutralize impurities, is as absurd as would be the attempt of a housekeeper to render her linen snowy white by sprinkling upon it a few drops of some magic lotion guaranteed to be "death on dirt." The soiled garment must be cleaned by getting something out of it, not by putting additional impurities upon it. Precisely the same thing may be said of the blood. The only satisfactory mode of purification must be found in the employment of such means as will aid the natural purifying organs in eliminating the poisons or clogging substances which render the blood gross and impede the vital activity.

As the best means of destroying the popular appetite for these so-called "blood remedies," of which the name is legion, we present herewith the formulæ of a few of the most popular ones, as furnished by various authorities believed to be reliable : —

Bull's Blood Syrup. — Iodide of potash 12 dr., red iodide of mercury 2 gr., tincture of poke root 3 dr., comp. syrup of stillingia 6 oz., simple syrup, to make 1 pint.

Clark's Blood Mixture. — Iodide of potassium 64 gr., chloric ether 4 dr., liquor potash 30 drops, water 7½ fl. oz. Caramel to color.

Cuticura Resolvent. — According to the St. Louis *Druggist*, this preparation is said to be: Aloes, Socot. 1 dr., rhubarb, powdered, 1 dr., iodide potass. 36 gr., whisky 1 pt.

Syrup of Stillingia Compound. — Fl. ext. stillingia comp. 1 fl. oz., fl. ext. corydalis 1 fl. oz., fl. ext. blue flag ½ fl. oz., fl. ext. elder flowers ½ fl. oz., fl. ext. prince's pine ½ fl. oz., fl. ext. prickly ash berries ¼ fl. oz., fl. ext. coriander ¼ fl. oz., sugar 14 oz., water sufficient to make 1 pt.

Hartley's South American Cure. — This nostrum, which the manufacturers claim to be composed of roots, herbs, seeds, barks, and flowers growing exclusively in South America, was found by *New Idea* to be composed of "fluid extract of rhubarb 8 parts, fluid licorice and anise each 2 parts, fluid capsicum ⅓ part, fluid aloes ⅙ part, alcohol 6 parts, water enough to make 32 parts, to which a small percentage of sodium bicarbonate is added." This is a fair sample of the composition of remedies which are claimed to be made of choice foreign herbs.

Hunter's Red Drops. — Corrosive sublimate 10 gr., muriatic acid 12 drops, compound spirits of lavender 1 oz.

Dr. Radway's Renovating Resolvent. — Potassium iodide 1.5 grm., con. sarsaparilla decoction 15 grm., bitter almond water 10 grm., syrup 30 grm., Parrish's simple elixir 90 grm., distilled water 250 grm., caramel sufficient to color.

Elixir of Life. — Powdered rhubarb, powdered ginger, powdered aloes, powdered gum myrrh, powdered cayenne, powdered saffron, powdered sassafras bark, powdered golden-seal root, brandy or whisky.

Perry's Compound Sarsaparilla Blood Purifier. — Turkey-corn root 2 lb., stillingia root 2 lb., sarsaparilla root 2 lb., yellow-dock root 2 lb., sassafras bark 1 lb., simple syrup 2 gal., diluted alcohol 32 pints, iodide potassa 2 lb., water sufficient to make 6 gal.

Jayne's Alterative.— Tartar emetic 4 gr., spirits of camphor 1 fl. dr., fluid extract of ipecac 4 drops, laudanum 2 fl. dr., tinct. of lobelia 1 fl. dr., syrup of tolu 12 fl. dr., tinct. of digitalis 1 fl. dr., syrup squills 2 fl. oz.

Mother Siegel's Syrup.— Conc. decoction of aloes (1 to 4) of drops, borax 1.3 grm., capsicum, powdered, 0.13 grm., gentian, powdered, 2.3 grm., sassafras oil 0.3 grm., wintergreen oil 0.12 grm., rectified spirit 7.5 grm., fluid extract dandelion 7.5 grm., syrup 125 grm.

August Flower.—Rhubarb, golden seal, cape aloes, peppermint leaves, carbonate of potassa, capsicum, sugar, alcohol, water, ess. peppermint.

Laville's Gout Cure.— Quinine 7.7 gr., cinchonine 9.3 gr., colocynthin 3.8 gr., lime salts 7.6 gr., coloring matter 4.6 gr., alcohol 3⅓ fl. dr., water 2⅓ fl. dr., port wine 1234 fl. dr.

MRS. HARRIET HUBBARD AYER'S NOSTRUMS.

No more shameless imposition has ever been perpetrated upon the public than are the various nostrums manufactured and so extensively advertised and sold by a party styling himself or herself Mrs. Harriet Hubbard Ayer. We say "himself," for it is not always possible to tell the sex of the individuals engaged in charlatanry by the name, as it is not an infrequent occurrence that a man assumes a feminine trade name, or a woman a masculine cognomen, as a means of more perfectly concealing his identity. It has been said, for instance, that the famous "Mrs. Winslow," of soothing-syrup fame, is a young man possessed of more enterprise than conscience, and that the notorious "Lydia Pinkham" is also an individual of the male persuasion.

But to return to Mrs. Harriet Hubbard Ayer, the manufacturer of the so-called Recamier remedies, which are guaranteed to be harmless, efficient, and of royal pedigree, Mrs. Ayer claiming that she obtained the recipe for her cosmetics from a French countess, a relative of the celebrated Mme. Recamier.

The poisonous character of these remedies will be instantly recognized by a mere glance at their chemical constituents, which will also disclose the fact that the only thing remarkable about them is the brazen impudence with which they are presented to the public as new discoveries, or novel preparations. Corrosive sublimate is the active ingredient of a large share of the cosmetics and lotions of various sorts which are offered the public, and which are uniformly recommended as wholly harmless and innocent in character.

Recamier Balm.— A solution of corrosive sublimate with a little oxide of zinc. Costs about ten cents; sold at $1.50.

Recamier Cream.— According to the *Western Druggist*, the following is the formula: Oxide of zinc 2 oz., glycerine 6½ dr., water 1 dr., spirits of rose 1 dr.

Of the two formulæ given above, the first is deadly poison, and added to a piece of bread and butter will make an excellent rat poison. A small amount of the lotion, if swallowed, would produce death, or if allowed to get into the eye would produce a serious inflammation.

The second is not poisonous, but is a cheap mixture which could be easily compounded by any druggist at an expense not to exceed a few cents.

But the worst of the imposition of which Mrs. Ayer is guilty, is embodied in her so-called "Ayer's Vita Nuova" (New Life). The title of this medicine naturally conveys the impression that it will be found a means of improving the strength and vigor. It is thus described by the manufacturer: "A life-giving and health-renewing cordial and tonic. A positive cure for the opium and alcohol habits. Dose: three tablespoonfuls three times a day. In addition to this, it can be taken as necessity requires, after any unusual labor, mental or physical. Price, $1 a bottle. It creates no craving, and can be left off at any moment without the slightest desire for it."

This nostrum is guaranteed to be positively free from alcohol and narcotics. According to the analysis published in the *Druggists' Circular*, it contains nearly 20 per cent of alcohol, and large quantities of cocaine, one of the most powerful and deadly narcotics known. The manufacturers of this nostrum have deliberately set themselves about fastening the cocaine habit upon hundreds of thousands of persons. A more diabolical scheme could scarcely be conceived.

A KEELEY-CURED DRUNKARD. — A letter recently received by the editor from a former patient, remarks: "I seldom apologize for a letter, but this letter tells you of its own accord that the writer is slightly nervous. The cause is the second debauch of a Keeley-cured drunkard, not in my own family, thank God! but right next door, — a young man whose groans are heart-rending."

GOOD HEALTH
J. H. KELLOGG, M. D. EDITOR.
BATTLE CREEK, MICHIGAN.

IRREGULARITY OF MEALS A CAUSE OF CONSTIPATION.

JUDGING from the vast quantity of "Little Pills," "Liver Regulators," "Purgative Pellets," "Liver Tonics," and other nostrums sold under various titles more or less suggestive of their supposed efficiency as laxatives, or peristaltic persuaders, intestinal inactivity, or constipation of the bowels, must be an exceedingly common condition in this and most other civilized countries.

Among the leading causes of this condition must doubtless be enumerated a concentrated, over-stimulating, or clogging diet, as in the excessive use of flesh foods, the use of condiments, and similar dietetic errors. Sedentary habits of life, or insufficient physical exercise, is certainly properly chargeable with a large proportion of cases of bowel inactivity.

There is, however, another cause for intestinal irregularity or inactivity, which is, we believe, a most potent one, and the importance of which has, perhaps, to a considerable degree been overlooked; namely, irregularity in the hours of eating. It might be supposed that no harm would result from taking meals at irregular hours, provided consecutive meals were not taken at too short intervals. So far as the stomach is concerned it would seem that no great injury would result from such irregularity, although it must not be forgotten that the stomach, like all other organs of the body, naturally requires a certain rhythm in its activity. In other words, when the meals are taken regularly at given hours, the stomach is at those hours prepared for the reception of the meal, and it may reasonably be supposed to be better prepared at those times than at others.

The greatest evil, however, resulting from irregular meals, is due to the disturbance in the rhythmical movements of the alimentary canal. The length of time required for the digestion of a meal, or rather for the passage of a morsel of food from the stomach to the large intestine, is about fourteen hours. After the food reaches the large intestine, it remains several hours longer, during which time the digested portions are gradually absorbed, the indigestible and excretory portions being left behind in a semi-solid mass. The contents of the large intestine are naturally expelled from the body at least once in twenty-four hours. The natural rhythm of the alimentary tract seems to correspond with that of the daily meals. The first meal of the day taken into the stomach sets up active contractions of this organ, which are communicated to the small intestine, and thence propagated downward. At the end of three or four hours, these movements become so active that the contents of the stomach are carried into the small intestine. When dinner is taken, renewed peristaltic activity is set up, by which the food is moved farther along, and finally discharged into the large intestine, where it is detained for the complete absorption of the digested portions during the night.

The breakfast of the day following again starts the peristaltic movement, which affects not only the stomach and the small intestine, but the large intestine as well, and results in the unloading of the fæcal matter, which by this time has reached the lower portion of the colon. It is for this reason that with the majority of persons, the usual time for the daily movement of the bowels is soon after the morning meal. With some persons the intestinal activities set up by the effort to rise upon the feet in the morning, is sufficient to induce a movement of the bowels before breakfast. Each individual is a law unto himself in regard to the exact time when the unloading of the bowels should take place. This time, whatever it may be, must be regarded and respected as the result of physiological periodicity which cannot be ignored without injury. Many persons have become habitually constipated

simply through a disturbance of the natural regularity, either by the taking of meals at irregular hours, or by neglecting to respect the natural promptings to the emptying of the colon. When nature's demands are not promptly obeyed, the frequent result is a reversed movement by which the fæcal matter is returned to a higher point in the bowels, so that the desire for evacuation disappears. In the meantime the absorption of fluid from the fæcal mass continues, so that it becomes unnaturally hardened, and thus its expulsion becomes difficult or impossible without mechanical assistance.

The evils which arise from habitual constipation are grave and manifold. Thousands of persons are constantly living in a state of chronic poisoning through the absorption of the retained fæcal matters. These are the individuals who furnish such glowing tributes of praise for Dr. Hall's so-called Health Secret, which consists solely and simply in the information that it is possible to evacuate the bowels by means of a large warm water enema. Temporary relief is obtained by this means, but for permanent relief, the causes must be removed. The expedient of an enema or laxative, if too frequently resorted to, results in aggravating the disorder instead of removing it.

EFFECT OF VINEGAR UPON DIGESTION.— Modern laboratory investigations are bringing into question the propriety of using as food numerous articles which have almost universally been accepted as harmless or useful articles of food. Dr. Roberts showed, long ago, that tea and coffee hindered digestion. Condiments have been interdicted in consequence of the irritating effect upon the stomach and kidneys. The microscopists have discovered that the eels of vinegar sometimes take up their abode in the alimentary canal as parasites, and become a source of irritation and disturbance to the digestive organs ; and now, according to Virchow's archives, John has been investigating the influence of acids upon salivary digestion, or the conversion of starch into sugar, and the fact has appeared that acetic acid connected with tartaric and oxalic acids, very materially hinders this portion of the digestive process. It is worthy of note, as being in the line of scientific progress, that many of the most skillful *chefs* are substituting, in their culinary processes, lemon juice for vinegar, thus avoiding at once both the wriggling eels and the mischief-making acid.— *J. H. K. in Bacteriological World and Modern Medicine.*

COMPARATIVE ANATOMY AND VEGETARIANISM.— Any student of comparative anatomy who is interested in vegetarianism will be constantly and forcibly struck by the convincing evidences which he finds of the analogy between the human structure and that of those animals which subsist upon a non-flesh diet. For example, the sense of taste, which evidently would be of small use to a purely carnivorous animal, as there is no great variety in the flavors of flesh, which, besides, is usually swallowed so rapidly by a carnivorous animal that there is scarcely time for any appreciation of its flavor, is very little developed in this class of the animal kingdom. The mucous membrane covering the tongue of the lion, the cat, and most members of the feline species, is for the most part horny and well adapted to the purpose of removing from the bone the last fragment of adhering flesh, and the nerves of taste are very few and slightly developed. The very contrary of this is found to be true, however, in man, in the anthropoid apes, and in those classes of herbivorous animals which chew their food for some length of time.

One of these curious, because seemingly unnecessary, organs in the human body, is the *appendix vermiformis* (about as large as the little finger), located at the lower end of the *cæcum*, or first part of the large intestine. This curious appendix is found only in man, the orang-outang (an animal closely allied to man), and the wombat, which like man and the orang-outang, is naturally vegetarian in his habits. Other animals have a *cæcum*, but no other animals have the *appendix vermiformis*.

Many affinities are found between man and animals of the strictly frugivorous or vegetarian classes, but the human race does not present a single characteristic feature shared alone by carnivorous animals.

DANGEROUS PETS.— A French authority declares that at least 30 per cent of all cases of infectious disease are due to the transmission of the contagious element by cats and other household pets.

DANGEROUS USE OF COCAINE.— The wide notoriety which has been given to this drug and its well-known pain-destroying properties, have led to its quite free use by the laity, a fact greatly to be regretted, as the use of the drug not infrequently becomes an inveterate habit. Even when its use is so distinctly local as in case of nasal catarrh or toothache, the remedy is a dangerous one, and should never be used except under the advice of a physician, and then with great care.

PUBLIC BATHS. — We are glad to note the success which has attended the establishment of the People's Bath, established by the New York Association for Improving the Condition of the Poor. The report of the management shows that nearly 5000 baths were taken in May, an average of nearly 200 baths daily. There should be a similar institution in every large city. The beneficent results from such establishments can scarcely be estimated. That cleanliness is next to godliness, one of Wesley's most frequently quoted sayings, is generally admitted. We go farther, and assert that cleanliness is a part of godliness, and hence insist that public baths are just as necessary for the moral as well as the physical good of the community as are public schools and churches.

ETHER DRINKING IN RUSSIA. — According to the New York *Medical Journal*, ether drinking has become so prevalent in certain portions of Russia that the government has found it necessary to prohibit the free sale of ether and of some of its compounds, in order to control the spread of the vice. Similar legislation has been adopted in Ireland, and with the effect of suppressing, to a large extent, the extension of ether drinking in the last-named country, where it was so prevalent in some districts several years ago. While visiting there, Dr. B. W. Richardson asserted that on approaching a village in which ether drinking was very prevalent, he was able to detect the presence of ether at a distance of more than a mile and a half.

DEATH FROM TEA DRINKING. — The *British Medical Journal* calls attention to the recent death of a boy aged seven years, in which the coroner's jury pronounced the cause of death, "Shock produced by drinking hot tea."

That this circumstance ought to be sufficient demonstration to convince the most skeptical of the poisonous properties of tea, and that a large portion of the inhabitants of civilized countries, as well as of such half-civilized countries as Japan and China, are suffering from chronic theine poison, we have no doubt. Dr. Bock, of Leipzig, suggests that the characteristic petulance of the Chinese is the result of their addiction to the use of the fragrant herb. Dr. Morton, of Brooklyn, as well as other eminent physicians have repeatedly called attention to the relation between tea drinking and the fashionable nervousness of American women. Notwithstanding these facts, the editor of the *British Medical Journal* intimates that the cause of death in the case of the boy referred to, was tannin rather than theine. That a drug so little poisonous as tannin should produce a fatal effect in the comparatively small dose in which it would be taken, even in strong tea, is scarcely credible. Certainly it is far more rational to believe that the cause of death in the case cited was theine rather than tannin, as it is well enough known that theine is a poisonous drug, even in small doses; 7½ grains will kill a cat, an animal whose tenacity of life is proverbial.

Lehman, the eminent physiological chemist, describes the effects of caffein, a substance identical with theine, as follows: "A quantity from 2 to 10 grains will produce the most violent excitement of the vascular and nervous systems, palpitation of the heart, extraordinary frequency, irregularity, and often intermission of the pulse, oppression of the chest, pains in the head, confusion of the nervous system, singing in the ears, scintillations before the eyes, sleeplessness, and delirium." Prof. Lehman obtained these results in experiments upon himself and his pupils. He states that five persons, one of whom was Prof. Buchheim, after taking from 5 to 10 grains of caffein, were unfit for any business during the next day.

When it is remembered that good tea contains sometimes as much as 6 per cent of this poison, so that an ordinary cup of strong tea may contain as much as five grains of this poisonous drug, or even more, approximating the quantity which produced the poisonous effects noted by Prof. Lehman, it will readily be appreciated that a person might easily be poisoned by drinking, in rapid succession, two or three cups of strong tea, or even of tea of ordinary strength. The idea that the poisonous properties of the tea are due to some error in the mode of making it, is a mistake.

GOAT'S MILK. — The great prevalence of tuberculosis among cows, and the consequent danger of contamination with this disease through the use of milk, has given, recently, prominence to the fact that goat's milk is not subject to tuberculosis, and hence the danger attending the use of cow's milk does not exist when goat's milk is employed. Milk of the ass has also been recommended for the same reason, but goat's milk is evidently, on many accounts, preferable to that.

M. Nocard, an eminent French authority, is quoted as saying that out of the many thousands of cows, goats, and kids slaughtered at Paris every spring, the meat inspectors have failed to discover a single case of tuberculosis. Of course cow's milk may be rendered sterile and free from danger by boiling, but

one does not relish the idea of using milk from diseased animals, even if the germs be dead. It is quite possible that goat's milk may come into general use within the next decade.

TESTS FOR ALUM AND AMMONIA IN BAKING POWDERS. — We are not at all interested in defending the so-called "pure baking powders," although doubtless they are, to some degree, less harmful than those containing alum and ammonia : nevertheless, in order that our readers may be able to convince themselves of the fact that very few of the baking powders in the market can claim innocence as regards the presence of these exceedingly harmful chemical substances, alum and ammonia, we publish the following simple tests for determining the presence of these chemical substances, which we quote from the *Sanitary Era* : —

"Take your baking powder, — no matter what its professions or pretensions, — and boil up thoroughly a spoonful of it in a spoonful of water previously heated. Careful attention to the odor of the steam will reveal whether there is ammonia or not in powder. The 'absolutely pure' alum powders readily betray themselves by non-effervescence in water. The alum phosphate powders may be detected by charring till black, then stirring in a little water with a bright silver spoon, which will soon be tarnished by the sulphur in the alum ; and if a little vinegar be added to the solution, it will give off a rotten-egg smell — sulphureted hydrogen."

UTILITY OF THE SALIVARY GLANDS. — That the salivary glands are of very little use to the average American who bolts his food, is a fact that must be at once admitted ; but that the salivary glands are intended by nature for special use in connection with the food, is shown by the fact that although present in man and most other animals, they are lacking in the whale and the seal, both of which belong to the mammalia, but catch and eat their prey under circumstances which evidently render salivary glands unserviceable.

The role of the saliva, and hence of the salivary glands, in the process of digestion, assumes greater importance as this interesting vital process is better understood. The physician who laughed at a gentleman for slowly sipping a glass of milk, or, as he said, "chewing it so as to facilitate the digestion," was evidently not familiar with the most recent discoveries relating to digestion. Saliva is necessary, not only for the digestion of starch (which of course is absent in milk), but most of all as a stimulus to the peptic glands, through the influence of which they are induced to secrete the proper quantity and quality of gastric juice required for the digestion of milk.

It is interesting to note that in the horse, sheep, and ox, an extra pair of salivary glands is provided, which fills the space under the arch just below the eye, and even extends behind the eyeball.

THE DRINKING HABIT. — Without doubt the copious use of water so common in most countries, is in some degree a habit, and one long believed to be a wholesome habit. Nevertheless it is true that robust health may be enjoyed without the frequent use of liquid in any form. The writer has frequently relinquished water drinking, or the drinking of liquid of any sort, for months at a time, the only fluid taken being that which was in fruits. A traveler in the desert meeting an Arab on a hot day, offered him a drink from his water bottle, and was much surprised to hear the reply, "It is not my day to drink ; I drank yesterday." The Arab like his camel frequently goes for days without taking water ; he finds it advantageous to cultivate the ability to resist the clamorings of thirst. It is asserted that in a waterless region in France, a race of animals has been developed which do not drink ; even the sheep, feeding upon the fragrant herbs of that region, have no occasion for drink, and the cows seldom take water. It is claimed that Roquefort cheese is made from the milk of these non-drinking cows.

"TROTTING" CHILDREN. — The *Church Union* has the following on the practice of trotting a child on the knee of the mother or nurse, which, though it has the sanction of long practice, has not the sanction of common sense, and should never be indulged in, especially with infants. It says : —

"Treating the adult body in the ratio of corresponding strength, the exercise would be about equivalent to being ourselves churned up and down on the walking beam of a good-sized steam engine !"

ANOTHER DEATH FROM THE CIGARETTE. — The fourteen-year-old son of ex-Senator Livingston, of Oregon, recently died near Pomona, Cal., from cigarette smoking. He smoked forty-five cigarettes daily, and sometimes twice that number.

TRAINERS say that when dogs are fed upon oatmeal and cornmeal as an almost exclusive diet, they are brighter and have a keener scent. They are also more docile.

To Cure Stammering in Children. — Stammering is a peculiar nervous affection which is sometimes congenital, but is not infrequently acquired by imitation. Its cure, to be thoroughly successful, should be begun as early as possible. It is hardly possible to thoroughly cure this disorder when it has become a life-long habit. Mr. E. Eck, a teacher, and himself once a stammerer, writing in the Brooklyn *Medical Journal*, makes several excellent suggestions respecting the prevention and cure of this malady, and describes the following as the method of training which he employs in his school : —

"Let the child stand passively erect, hands hanging loosely ; let it inhale slowly through the nostrils, filling the lungs ; then let it exhale quietly through the mouth. The child should not raise its shoulders. Repeat this exercise, increasing the breathing. If dizziness ensue, discontinue for a while. The same exercise again, with its hands on the hips. After inhaling let it sound the vowel *a* as long as possible.

"Then *a e* with one breath.

"Then *a e i* with one breath.

"Then *a e i o* with one breath.

"Then *a e i o u* with one breath.

"Combine vowels with consonants ; for instance :

"*A*d*a*, *O*d*o*, *E*d*e*, *I*d*i*.

"*A*d*e*, *O*d*i*, *E*d*a*, *I*d*e*.

"d*A*, d*O*, d*E*, d*I*.

"*A*m*a*, *O*m*o*, *E*m*e*, *I*m*i*, etc., etc.

"The vowel is the carrier of the syllables or words, therefore no stress on consonants. Then we may proceed with more difficult words, speaking them slowly and distinctly.

"After having reached this point, we form small sentences, speaking word after word in a long-drawn manner, as : —

"*G*o*o*d m*o*rning.

"*G*o*o*d n*i*ght, d*e*ar m*a*mm*a*.

"In those cases where the habit is inveterate, specal instruction will be necessary, in addition to the exercises given."

Mr. Eck adds very wisely that parents should never speak sharply to stammering children, as the nervous start born of fear is one of the most potent means of aggravating the disorder.

Chronic Itching. — No minor affection is more troublesome to a sensitive patient than chronic itching, especially of certain parts of the body in which the skin is thin and highly sensitive. Sometimes the whole body is affected. The disease is often due to vegetable parasites, which must be destroyed before a cure can be effected. Not infrequently the itching continues even after the exciting cause has been removed. The following are a few of the most useful remedies for this condition : —

Warm vapor baths, not excessively hot, followed by tepid shower baths.

A starch bath, made by mixing with the water of a common bath, a half pound of ordinary cornstarch which has been carefully boiled and properly thinned.

A vinegar bath, consisting of an ordinary bath to which has been added a quart of vinegar. The vinegar and starch baths may be combined to advantage in some cases.

If the disease is confined to a small area, the part may be bathed with very hot water.

Any one of the following substances may be added to the hot water, in the following proportions : Carbolic acid, 1½ drams to 3 drams to the quart; chloral, 1½ drams to 8 drams to the quart; bichloride of mercury or corrosive sublimate, 15 to 30 grains to the quart ; vinegar, 2 to 4 ounces to the quart ; camphorated alcohol, 1 part ; water, 2 parts ; carbonate of soda, 2 to 4 drams to the quart.

Menthol liniment is an excellent remedy for itching when the skin is not broken.

After the application of any lotion, a powder should be dusted upon the affected parts, especially if the surface is red and irritated, or a pomade may be applied. The following are excellent powders for this purpose :—

Salicylic acid, ½ dram to 1½ drams; starch, 6 ounces. Sub-carbonate of bismuth, 1 part; oxide of zinc, 1 part; starch, 4 parts.

An excellent pomade is made by mixing equal parts of vaseline and oxide of zinc, to which various substances may be added. The following are some of the most useful, used in the proportions named: Menthol, 1 per cent; carbolic acid, salicylic acid, or salol, 5 per cent.

Here is another excellent pomade: Sub-nitrate of bismuth, 4 drams; menthol, 10 grains; vaseline, 1½ ounces.

The following is also a useful prescription: Tartaric acid, 2 parts; carbolic acid, 1 part; essence of peppermint, 1 part; vaseline, 60 parts.

In many cases, an excellent mode of treatment is to cover the affected surface lightly with one of the above ointments, and then apply a powder freely. The parts should first be thoroughly bathed with one of the lotions mentioned.

In most cases of itching, great relief will be obtained by the exclusion of air. An impermeable covering of some sort should be used in severe cases. After the application of the ointment and the powder, the part may be covered with gutta-percha tissue, oil-silk or muslin, or rubber cloth. If preferred, a glue consisting of glycerine, gelatine, and oxide of zinc, may be painted on.

All cases are not relieved by the same treatment, but nearly all cases will yield to some one of the above-mentioned remedies.

Recovery from Consumption.— Persons often ask, "Can a patient who has once been seriously affected by this disease, recover by the use of any known means?" We unhesitatingly answer, Yes, as we can to-day point to a considerable number of persons who are alive and apparently enjoying good health, whose cases were at one time considered almost absolutely hopeless in consequence of the advanced state of the tuberculous disease from which they were suffering. In each of these persons a considerable area of lung-tissue had been affected by the disease. According to Prof. Brouardel, an eminent Parisian physician, a large proportion of persons affected by tubercular disease of the lungs recover. This eminent pathologist states that he has found evidence of crude tubercle in the apex of the lungs of sixty per cent of those persons over thirty years of age, on whom he has made *post mortem* examinations on account of their having died a violent death. In these cases, of course, the area of the lung affected by the disease was small, the malady not having advanced sufficiently to interfere with the functions of the lungs, or to affect the system at large. The important thing in this disease, is to discover its presence while the morbid process is still limited to a small area. This can only be done by a most critical examination by an expert physician.

Lænnec, the great French physician who laid the foundation for the modern science of physical diagnosis by which disease of the lungs is studied, asserted that a patient does not die of his first attack of tuberculosis, and other eminent physicians have recognized what is known as the pre-consumptive period, during which the patient, although his lung may be considerably affected, still seems to enjoy good health, presenting no other symptoms than a slight cough, a little debility, and slight shortness of breath.

Hot Water in Erysipelas. — A writer in the *Medical Summary* recommends hot water in erysipelas, claiming it to be almost the specific of this disease when occurring as a local malady. We have used hot water in various forms as a remedy for erysipelas, and for nearly twenty years have found it exceedingly valuable. When there is much local heat, it is useful, however, to alternate the application of hot water with cold compresses. The plan we have found the most successful is to proceed as follows: —

At the beginning of the disease apply cloths wrung out of cold water, or even an ice bag protected on the surface with dry flannel. When the ice bag is employed, remove the cold compress once in every two or three hours, and apply fomentations from twenty to thirty minutes. When the heat and redness has somewhat diminished, the applications of heat are made more frequent, so that a day or two after the onset of the disease the cold applications may be discontinued and heat applied continuously, either in the form of fomentations frequently removed, hot poultices, or rubber water bottles filled with hot water and covered with a moist flannel.

For Sore Nostrils. — Apply to the irritated surfaces an ointment consisting of equal parts of sub-nitrate of bismuth and white vaseline.

CANKER IN THE MOUTH.— This somewhat troublesome affection is always an indication of a disordered state of the stomach. It is usually due to an abnormal secretion of acid in the gastric juice. A radical cure can, of course, be effected only by a cure of the stomach affection, but temporary relief may be obtained by the use of a variety of simple remedies, the most thoroughgoing of which is touching the ulcerated surface with a solid stick of nitrate of silver, or with a strong solution of nitrate of silver by means of a camel's-hair brush. Equal parts of sulphur and carbonate of soda, well mixed, is also a useful application.

THE PINEAPPLE AS A DIGESTIVE.— Among the most wonderful discoveries of recent times is the effect of various vegetable products possessing digestive properties of an active character. The digestive property of the papaw has long been known and utilized. More recently it has been ascertained that the juice of the pineapple contains a very important digestive property, which is capable of digesting albumen and allied substances, not only in acid, but in nutritive alkali media, which gives to it the combined properties of the gastric juice and the pancreatic juice. It is quite possible that this excellent fruit may be found a valuable aid to digestion. It should be remembered, however, that the coarse pulp is wholly indigestible, and that only the juice should be swallowed. It should be taken, of course, only at mealtime.

NUTMEG POISONING.— Cases are not infrequently reported in which children, and sometimes grown persons, are poisoned by the free use of nutmegs, it not being generally known that this article of common household use is really a deadly poison. This is true, in fact, of most common condiments; but the misuse of these articles, such as pepper, capsicum, etc., are so obnoxious to the taste, excepting when taken in very minute quantities, that the consumer is warned in a very positive manner before he has had an opportunity to do himself serious injury. This is not the case, however, with nutmeg. This nut, which contains a poisonous principle of a very deadly character, may be consumed without inconvenience, in quantities sufficient to produce fatal consequences; and it is surprising, not that death occasionally occurs from its use, but that deaths are not more frequent. A fatal case has been recently reported in which a boy of eight years fell into a comatose condition after eating two nutmegs, and died within twelve hours.

HEAT AS A REMEDY FOR ECZEMA. — Eczema, moist tetter, or saltrheum is one of the most troublesome of skin infections, not infrequently defying skillful medical treatment for years. Sufferers from this affection will be glad to know that one of the best means of relieving the intolerable itching which accompanies it is a simple remedy which is always accessible, namely, the application of heat. Hot water applied at a temperature as high as can be borne without actual injury to the skin, is an almost certain remedy to relieve the intolerable itching. The parts should never be scratched or rubbed so as to increase the irritation. Simply holding the affected part near the fire of an open grate, gradually approaching more and more close until the degree of heat becomes almost painful, is another means of applying the same remedy.

FOR RHEUMATIC PAINS.— There is no better remedy for the relief of rheumatic pains in the joints or other portions of the body, than hot applications. Flannel cloths dipped in very hot water and wrung as dry as possible should be applied to the parts, and the whole enveloped in a thick, dry flannel cloth to retain the heat. The application should be renewed every five or ten minutes. The application of ground mustard in the proportion of a tablespoonful to the quart of water, increases the effect of the heat. A teaspoonful of turpentine sprinkled upon the fomentation just before it is applied, or a cloth saturated with a solution of one part turpentine to two or three of alcohol, applied over the affected part and covered by the fomentation, is also a means of intensifying the effect of the fomentation.

The various liniments used for rheumatism have little or no curative value, although some are useful for the relief of pain. One of the best is a simple preparation consisting of equal parts of olive oil and oil of wintergreen. It should be applied carefully, however, as the pure oil of wintergreen is quite a vigorous irritant. Menthol liniment is also a useful application.

CAMPHOR FOR A COLD IN THE HEAD.— *L'Union Medicale*, a leading French journal, recommends camphor as a remedy for cold in the head. A teaspoonful of camphor is added to a pitcher of boiling water. The large end of a paper cone is placed over the pitcher, the nose of the patient being placed in the small opening. The camphor vapor rising from the water should be inhaled five or ten minutes. The remedy should be repeated every two or three hours until the coryza is relieved.

ANSWERS TO CORRESPONDENTS.

HOW TO SEND WATER FOR ANALYSIS.—Mrs. M. E. S., D. C., asks for information how to forward drinking water for analysis, how much to send, with all particulars.

Ans.— The water should be put into a clean jug, a new bottle, or a new fruit can, and should be carefully packed in a box with excelsior and sent by prepaid express. Great pains should be taken to seal the receptacle perfectly.

PHYSICAL DEVELOPMENT.— A querist signing himself "Physical Culture," writes thus: "Will you kindly suggest what exercise is specially adapted for developing the forearm? also what for filling out hollows above the collar bone?"

Ans. — All exercises in which the fingers are used are useful for developing the muscles of the forearm. Hollows under the collar bone are usually the result of a relaxed condition of the muscles of the upper part of the back, which are connected with the shoulder blades. Development of these muscles will draw the shoulders back and thus cause the hollows referred to to disappear. The muscles of the chest are developed by exercises which bring the whole arm into use, such as swimming, climbing, bicycle riding, etc.

OIL RUBS — BRAIN STRENGTHENERS, ETC.— A correspondent signing himself "Zeta," asks: "1. What benefit does the system derive from daily or semi-weekly anointing or rubbing with oil, especially in the case of men past middle life? 2. Which is more beneficial, the finest vegetable oil, or vaseline? 3. When a great deal of mental work is being done by a man past middle age, would it help to sustain, if not increase his mental powers, to use an occasional phosphorus pill, or other so-called brain strengtheners, such as iron, strychnine, etc.? 4. How often should he take these with profit?"

Ans.— 1. The application of oil to the skin with friction is beneficial chiefly through the influence of the rubbing. The oil itself is not absorbed as a food. 2. There is probably little or no difference in the effect of fine vegetable oils or the finest varieties of vaseline. 3. Phosphorus does not feed the brain. Strychnine is simply a stimulus, and not a brain food. Stimulants do not strengthen parts which are weak, but cause them to become further exhausted by exertion. 4. We do not approve of the use of these remedies by persons who are habitually overworked. Rest is the proper remedy.

TREATMENT FOR EPILEPSY.— Miss C. M D., Ind., writes concerning her young brother, between eleven and twelve years of age, who has epileptic fits, and asks for advice as to home treatment.

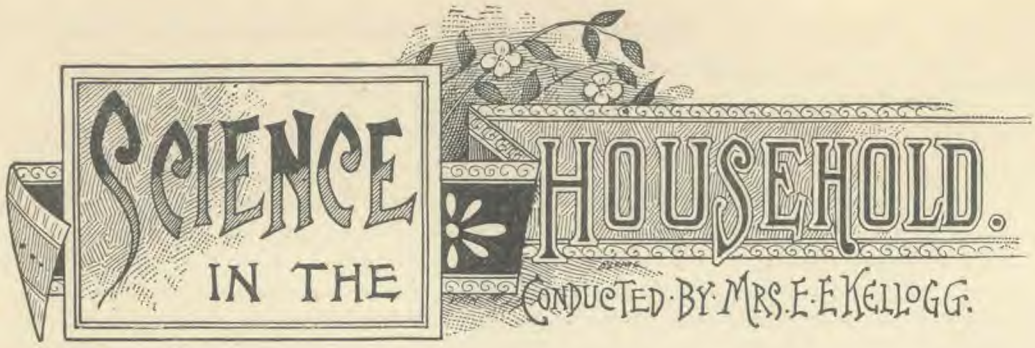
Ans.— This disease is too serious a malady to be treated successfully at home, in many cases. However, in some cases the symptoms may be greatly ameliorated, and sometimes a cure may be effected by careful attention to regimen and the employment of some simple home treatment such as is recommended in the "Home Hand-Book of Domestic Hygiene and Rational Medicine," published by the Good Health Pub. Co., to which we refer our correspondent, the treatment of this disease being too lengthy for answer in this department.

THE BURNING OF DUST — FOOD VALUE OF CELERY, ETC.— A. H. N., Canada, asks: "1. Does the burning of dust swept from the carpet or floor give rise to disease? 2. What is the value of celery as a food? 3. Have cucumbers any food value? 4. Should they be eaten green, or ripe? 5. Should pickles of any kind ever be used?" This correspondent also asks for a classified table of such foods as should be eaten together.

Ans.— 1. No. 2. The nutritive value of celery is very small, only 14.5. It is valuable, however, as an appetizer, and in some cases by giving necessary bulk to the food. 3. Almost the same may be said respecting cucumbers as has been said in regard to celery. The nutritive value is 4. 4. Green cucumbers are easily digestible if properly prepared, and eaten without salt or vinegar, which render them hard of digestion and unwholesome. We have had no experience as regards ripe cucumbers. 5. No. For classified tables of foods, we must refer the subscriber to "Science in the Kitchen," published by the Good Health Pub. Co., price in oilcloth, $2.90; muslin, $3.25.

CARE OF THE TEETH.— E. G., Ill., asks: "To keep the teeth in good condition, is it necessary to use any tooth powders or pastes, or is water sufficient?"

Ans.— Pure water and a good brush are the only things absolutely necessary for keeping the teeth in a wholesome condition when the digestion is good, and the teeth have once been thoroughly cleaned. A little fine soap or soda is useful in acid conditions of the mouth; and a powder, such as precipitate of chalk, is valuable when the teeth have been neglected.



CANNING FRUIT.

CANNING consists in sealing in air-tight cans or jars, fruit which has been previously boiled. It is a very simple process, but requires a thorough understanding of the scientific principles involved, and careful management, to make it successful. The result of painstaking effort is so satisfactory, however, it is well worth all the trouble, and fruit canning need not be a difficult matter if attention is given to the following details : —

Select self-sealing glass cans of some good variety. Tin cans give more trouble filling and sealing, are liable to affect the flavor of the fruit, and, unless manufactured from the best of material, to impair its wholesomeness. Glass cans may be used more than once and are thus much more economical. Those with glass covers, or porcelain-lined covers, are best.

Select only the best of fruit, such as is perfect in flavor and neither green nor overripe. Fruit which has been shipped from a distance, and which is consequently not perfectly fresh, contains germs in active growth, and if the least bit musty, it will be almost sure to spoil, even though the greatest care may be taken in canning.

Cook the fruit slowly in a porcelain-lined or granite-ware kettle, using as little water as possible. It is better to cook only small quantities at a time in one kettle. Steaming in the cans is preferable to stewing, where the fruit is at all soft. To do this, carefully fill the cans with fresh fruit, packing it quite closely, if the fruit is large, and set the cans in a boiler partly filled with cold water, with something underneath them to prevent breaking,—muffin rings, straw, thick cloth, or anything to keep them from resting on the bottom of the boiler (a rack made by nailing together strips of lath is very convenient) ; screw the covers on the cans so the water cannot boil into them, but not so tightly as to prevent the escape of steam ; heat the water to boiling, and steam the fruit until tender. Peaches, pears, crab apples, etc., to be canned with a syrup, may be advantageously cooked by placing on a napkin in a steamer, over a kettle of boiling water until tender, then dropped into the boiling syrup.

Cooking the sugar with the fruit at the time of canning, is not to be recommended from an economical standpoint; but fruit thus prepared is more likely to keep well than when cooked without sugar ; not, however, because of the preservative influence of the sugar, which is too small in amount to prevent the action of germs, as in the case of preserves, but because the addition of sugar to the water or fruit juice increases its specific gravity, and thus raises the boiling point. From experiments made, I have found that the temperature of the fruit is ordinarily raised about 5° by the addition of the amount of sugar needed for sweetening subacid fruit. By the aid of this additional degree of heat, the germs are more certainly destroyed, and the sterilization of the fruit will be accomplished in a shorter time.

Use the best sugar, two tablespoonfuls to a quart of fruit is sufficient for most subacid fruits, as berries and peaches; plums, cherries, strawberries, and currants require from five to eight tablespoonfuls of sugar to a quart. Have the sugar hot, by spreading it on tins and heating in the oven, stirring occasionally. See that it does not scorch. Add it when the fruit is boiling. Pears, peaches, apples, etc., which contain a much smaller quantity of juice than do berries, may be canned in a syrup prepared by dissolving a cup of sugar in two or three cups of water. Perfect fruit, properly canned, will keep without sugar, and the natural flavor of the fruit is more perfectly retained when the sugar is left out, adding the necessary amount when opened for use.

If the fruit is to be cooked previous to being put in the cans, the cans should be heated before the introduction of the fruit, which should be put in at a boiling temperature. Various methods are em-

ployed for this purpose. Some wrap the can in a towel wrung out of hot water, keeping a silver spoon inside while it is being filled; others employ dry heat by keeping the cans in a moderately hot oven while the fruit is cooking.

Another and surer way is to fill a large dishpan nearly full of scalding (not boiling) water, then gradually introduce each can, previously baked, into the water, dip it full of water, and set it right side up in the pan. When everything is in readiness, the fruit properly cooked, and *at a boiling temperature*, turn one of the cans down in the water, roll it over once or twice, empty it, and set in a shallow pan of hot water; adjust the funnel, and then place first in the can a quantity of juice, so that when the fruit is put in, no vacant places will be left for air, which is sometimes quite troublesome if this precaution is not taken; then add the fruit. If any bubbles of air chance to be left, work them out with a fork or spoon handle, which first dip in boiling water, and then quickly introduce down the sides of the jar and through the fruit in such a way that not a bubble will remain. Fill the can to overflowing, remembering that any vacuum invites the air to enter; use boiling water or syrup when there is not enough juice. Skim all froth from the fruit, adding more juice if necessary; wipe the juice from the top of the can, adjust the rubber, put on the top, and screw it down as quickly as possible. If the fruit is cooked in the cans, as soon as it is sufficiently heated, fill the can completely full with boiling juice, syrup, or water; run the handle of a silver spoon around the inside of the can, to make sure the juice entirely surrounds every portion of fruit, and that no spaces for air remain, put on the rubbers, wipe off all juice, and seal. — *Mrs. E. E. Kellogg, in "Science in the Kitchen."*

SOME SEASONABLE RECIPES.

To Can Gooseberries. — Select such as are smooth and turning red, but not fully ripe; wash and remove the stems and blossom ends. For three quarts of fruit allow one quart of water. Heat slowly to boiling; cook fifteen minutes, add a cupful of sugar which has been heated dry in the oven; boil two or three minutes longer, and can.

To Can Strawberries. — These are generally considered more difficult to can than most other berries. Use none but sound fruit, and put up the day they are picked, if possible. Heat the fruit slowly to the boiling point, and cook fifteen minutes or longer, adding the sugar hot, if any be used, after the fruit is boiling. Strawberries, while cooking, have a tendency to rise to the top, and unless kept pushed down, will not be cooked uniformly, which is doubtless one reason they sometimes fail to keep well. The froth should also be kept skimmed off. Fill the cans as directed in preceding article, taking special care to let out every air-bubble and to remove every particle of froth from the top of the can before sealing. If the berries are of good size, they may be cooked in the cans, adding a boiling syrup prepared with one cup of water and one of sugar for each quart can of fruit.

If after the cans are cold, the fruit rises to the top, as it frequently does, take the cans and gently shake until the fruit is well saturated with the juice and falls by its own weight to the bottom, or low enough to be entirely covered with the liquid.

To Can Raspberries, Blackberries, and Other Small Fruits. — Select none but good, sound berries; those freshly picked are best; reject any green, overripe, mashed, or worm-eaten fruit. If necessary to wash the berries, do so by putting a quart at a time in a colander, and dipping the dish carefully into a pan of clean water, letting it stand for a moment. If the water is very dirty, repeat the process in a second water. Drain thoroughly, and if to be cooked previous to putting in the cans, put into a porcelain kettle with a very small quantity of water, and heat slowly to boiling. If sugar is to be used, have it hot, but do not add it until the fruit is boiling; and before doing so, if there is much juice, dip out the surplus, and leave the berries with only a small quantity, as the sugar will have a tendency to draw out more juice, thus furnishing plenty for syrup.

Raspberries are so juicy that they need scarcely more than a pint of water to two quarts of fruit.

To remove ink spots, a housekeeper gives the following advice: "Put the article stained, over a warm flat-iron, stretch it well, then squeeze a few drops of lemon juice on it, and the spot will disappear at once. Wash immediately in cold water."

The grand duchess of Baden, daughter and sister of emperors, is at the head of a hospital, a cooking school, a training school for servants, a school of art for women, and a mending school, at which little children are taught to mend their own clothes.

LITERARY NOTICES.

"JAMES RUSSELL LOWELL."—An address by George William Curtis. With illustrations, including several portraits of Mr. Lowell. Small 16mo, cloth, ornamental, 50 cents ("Harper's Black and White Series"). This address was delivered at the Brooklyn Institute, on the 22d of February, 1892. The matchless quality of Mr. Curtis's oratory is so universally known and admired that no higher commendation of the volume is possible than the presence of his name on the title page.

THE contents of the *Arena* for June embraces science, history, ethics, economics, politics, literary criticism, education, psychic science, and fiction. Among the contributors are Professor A. E. Dolbear, Rev. Minot J. Savage, B. O. Flower, Louise Chandler Moulton, Rabbi Solomon Schindler, Frederick Taylor, F. R. G. S., Hamlin Garland, etc. A paper by the editor, which will be interesting to social reformers, is "The Ishmaelites of Civilization, or the Democracy of Darkness." It is a thrillingly vivid picture of the criminal poor, and abounds in thought which will prove suggestive and valuable to philanthropists. Arena Pub. Co., Boston.

"HARMONIZED MELODIES" is the name of a new volume of songs published by F. Trifet, 408 Washington St., Boston, Mass. It is a collecton of 400 of the best of the new and old songs and ballads which have attained more than a mere passing popularity. The volume is full of material for many an evening's entertainment at the fireside or in social gatherings, and gives the words and music, all the parts complete, arranged by Charles D. Blake, the well known Boston composer, for the very low price of 60 cents.

SCIENCE IN THE KITCHEN.—By Mrs. E. E. Kellogg, A. M., 600 pp. Illustrated. Price, in oilcloth, $2.90; muslin, marbled edges, $3.25. Good Health Publishing Co., Battle Creek, Mich.

In order to keep pace with the hygienic movement throughout the country, as relates to dietetics, a work of precisely this kind was needed; and indeed, this individual work has been for some time eagerly looked for by thousands. That it fills the measure of need in this direction none can gainsay, for it is a model cook book of the new *régime*, and represents a new system of healthful cookery, of which Mrs. Kellogg is the originator, whereby the greasy-made dishes of the dyspeptic era become a thing of the past, and simple and nutritious foods — the pristine Edenic menu — in harmonious, palatable, and ever-varying combination, take their places upon our tables. The work is the embodied result of the scientific investigation and experimentation carried forward by its author through a period of years, in her superintendence of the *cuisiné* of an immense health institution, rarely ever with less than five or six hundred inmates. Thus every one of its recipes — over eight hundred in number — has been carefully tested, and may be entirely relied upon. And lastly, what a busy housekeeper will perhaps appreciate as much as anything in the book, is *a year's bills of fare*, ready always to answer satisfactorily that oft-recurring question in the household, What shall we have for dinner?

"PRAY YOU, SIR, WHOSE DAUGHTER?"—By Helen H. Gardner, Arena Publishing Co., Boston. Price 50 cents. This is far more than an intensely interesting work; it is a brilliant appeal for justice and purity; a protest against one of the most glaring crimes which blisters the brow of nineteenth-century civilization. It is pure, wholesome, and inspiring. If the white-ribbon army should make it the "Uncle Tom's Cabin" of their noble crusade, it would accomplish a great work for social purity, since the cardinal thought of the book, from the side of utility, is the picture of the crime against girlhood, tolerated by our present "age of consent" laws.

THE *Literary Century* is the excellent and suggestive title of a new magazine just started at Ann Arbor, Mich., Miss E. Cora De Puy, formerly of the Detroit *Evening News*, and latterly special correspondent of the N. Y. *Journalist*, editor and publisher. It is devoted to literature, science, art, travels, biography, and current history; and its founder, a plucky Michigan woman of fine ability and years of journalistic training, proposes to make it the best $1 monthly in the field. A fact promising much toward the ultimate accomplishment of this purpose is that amidst the many readable and well-written articles with which the first numbers (May and June) are filled, those coming from the editor's own pen are best of all. A good editor must be greater than his periodical. A novel feature of the venture, which is of great interest to poor students, is the giving of a scholarship in any school or college in the United States or Canada, in return for subscriptions, by a system of returnable coupons. $60 in cash prizes is also offered. $1 per year. Address, the *Literary Century*, Ann Arbor, Mich.

PUBLISHERS' DEPARTMENT.

MR. and Mrs. Melvin A. Root, of Bay City, who entertain a lively interest in all needed reforms which affect the health and happiness of mankind, recently occupied a regular morning lecture hour, at the Sanitarium, the former speaking upon health and the latter upon equal suffrage. Mr. Root told the marvelous story of his return to health and vigorous manhood after four years of helpless, and apparently hopeless, invalidism, being given up by the physicians. It was strong will-power, hope, and hygiene that did it, and he specially urged that hygiene should be thoroughly incorporated into our manner of life, not merely as a temporary means while taking treatment, but as the foundation-stone of health and purity of life, and that bad habits of eating and drinking, together with all other bad habits should be abandoned forever.

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THE popularity of the foods manufactured by the Sanitarium Food Company is becoming so great, resulting in a constantly increasing demand, that it has become necessary to double the force of workmen employed, besides adding to the steam power to drive the various machines employed in the several processes. Sanitarium food preparations are unquestionably superior to any other similar foods offered in the market. The price charged is moderate, and a fact which should be valued above all others, is, that the foods are exactly what they claim to be.

A lady missionary in Burmah, who has recently received a supply of these foods, writes in glowing terms respecting their utility in that climate. They bore the long voyage without deterioration, and their use in that hot and unhealthful climate is found to be a most efficient means of preventing disease. This lady, formerly an invalid, is now, from the use of these foods, enjoying excellent health, and, taking a supply of Sanitarium foods with her, she frequently makes journeys of six weeks or more into the jungles of that country without the slightest impairment of health. She writes that "the natives like the foods," which we consider a good recommendation of them, as the palates of unsophisticated peoples are really a better judge of a good thing in the line of foods than are those of gormands who have been accustomed to the unwholesome dietary presented by the bills of fare of our hotels and boarding-houses; nevertheless the manufacturers of these foods contrive to render them so toothsome, inviting, and palatable, that the taste does not have to be educated to like them, for they "take at first sight." Where once they have been introduced, a permanent demand is created for them. Granola, zwieback, wheatena, whole-wheat wafers, and gofio, are among the very best foods for hot weather. Any one who will make a free use of these articles during the heated term, and will avoid the use of such unwholesome substances as cheese, pastry, pickles, heavy meats, etc., need have no fear of hot weather diseases. Using these foods, one would be perfectly safe, even in a cholera season, provided he would only take the trouble, in addition, to boil all the water he drank, and to use no milk which had not been sterilized.

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A CARLOAD of young men and women left Battle Creek for Colorado, Montana, and other Western States a few days ago, prepared to introduce GOOD HEALTH and other health literature. The enthusiasm manifested by these young people, and the unusual ability and intelligence which they bring to the work, render their success certain. The publishers of GOOD HEALTH expect the circulation of the journal to be increased several thousand as the result of these enthusiastic agents, who engage in the work not only as a means of money making, but as a missionary effort in the interest of public enlightenment upon subjects of overwhelming interest and importance.

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THE Managers of the Sanitarium regret to be obliged to state that the announcement made that baths would be conducted under the management of this Institution at Bay View, Michigan, in connection with the Assembly to be held at that place the present season, was premature. It was found impracticable to undertake the enterprise, at least at present. This announcement is made for the information of those who may be planning to visit Bay View with the expectation of receiving Sanitarium treatment.

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SANITARIUM PICNIC AT GOGUAC LAKE.—The 15th ult. was perfect in June loveliness, and about three hundred and twenty-five of the Sanitarium family, guests, and employees, enjoyed a picnic at Lake Villa, on the Sanitarium grounds at Goguac. Everything possible was done to contribute to the happiness and comfort of the guests. A small steamer and a number of row boats were at their disposal, hammocks and cots were ranged along the bluff overlooking the lake, and the dinner, which is always supposed to be a prominent feature of a picnic, was one of the Sanitarium best, freshly cooked, and served as usual in courses. The Review and Herald brass band discoursed fine music, a quartette from the Tabernacle choir sang several selections, as did also a Sanitarium quartette; Miss Evelyn Mc Dougal gave two readings, and Mrs. Stuttle one. Additionally, Dr. Cowan, from Tullahoma, Tenn., Chancellor Everest from Hutchinson, Kans., and Mr. Stearns from Minneapolis, Minn., made short and relevant addresses, as representatives of three great sections of the country. Among other things, Dr. Cowan said: —

"At summer resorts and other institutions, I have frequently had occasion to express my thanks for attentions, but among all festivities, I never witnessed one more pleasant or where more was done for the comfort and happiness of the guests. Invalids were present who might be supposed to be self-centered, but everybody seemed to vie with everybody else in contributing to the sum total of enjoyment. I do not desire to appear fulsome, and I only express my honest appreciation when I say of the Sanitarium, that from Dr. Kellogg down to the nurses and attendants, I have never seen such perfect attention in my life. All the departments of service are admirably filled. When I go away from here, my report will be like that of the Queen of Sheba after her visit to Solomon — 'The half was never told.' I think each of us should bear upon our hearts the petition that God's blessing shall be continued to this institution and the grand work which is being done here for the invalids of the country, and God will certainly continue to bless and prosper the men and women who honor him and keep his commandments."

Chaplain Mc Coy responded very feelingly on behalf of the management. He said that their object was the benefit of humanity, and that from highest to lowest, he felt that when each one was doing all he could, they were doing *nothing but their duty;* that the object of the institution was educational, not merely to serve as a hospital and resort, but to teach men and women how to live so as to make the most of their lives.

Altogether, the occasion was voted a very felicitous one by all, not only at the time, but Dr. Cowan and others called a meeting of the guests in the parlor the following morning, and in very complimentary speeches, tendered the Sanitarium Managers a formal expression of thanks.

DR. CHAS. H. SHEPARD, who has a large Turkish Bath in Brooklyn, N. Y., and Dr. T. D. Crothers, who is in charge of the inebriate asylum at Hartford, Conn., and Dr. Isaac N. Quimby, of Jersey City, N. J., all of whom were in attendance upon the recent session of the American Medical Association in Detroit, spent a few days as guests of Dr. Kellogg at the Sanitarium, before returning East. On the evening of the 11th inst. the three visitors made short addresses in the Sanitarium audience room; Dr. Shepard's topic was "Ancient Baths," Dr. Crothers aired the "Keeley Cure," and Dr. Quimby discussed "Patent Medicines."

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MISSIONARIES AT THE SANITARIUM.—Rev. and Mrs. Joseph E. Walker, who have devoted twenty years of their lives to foreign mission work in China, were recent guests of the Sanitarium. They were stationed for four years at Foo-Chow, China, and afterward opened a new station at Shaowu. Mr. Walker made an address a few evenings since, in the gymnasium, in which he gave graphic pictures of the lives of the almond-eyed Celestials, and of the difficulties which the missionary must meet, first, in mastering the language, and then in breaking through the crusts of superstitious customs and traditions, to plant the seeds of the gospel of Christ. Both Mr. and Mrs. Walker are considerably impaired in health, from the arduous toil and hardships which have been theirs, yet they hope to recuperate sufficiently to return to the land of their adoption in September. They were sent out by the American Board of Foreign Missions.

Mr. Walker was born in Oregon, his father and mother being early missionaries to the Indians. They started for that field on their bridal trip, and were in the saddle one hundred and twenty-nine days, between the Missouri River and Walla Walla, their destination. They set out from near Portland, Me., but made use of such public conveyances as the country afforded in 1838, until they reached the Missouri River.

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MISS EVELYN MC DOUGAL, teacher of expression and physical culture in Hillsdale College, has been spending the winter at the Sanitarium, for the purpose of recuperating her health. By special request she kindly gave an evening recently to entertaining the guests in the parlors, with readings and recitations. Her range of selections is wide and the tone elevating, with just enough of the humorous intermingled for spice. She is a most graceful reader, possessed of the rare art of natural expression. Miss Mc Dougal is a graduate of Mrs. Edna Chaffee Noble's School of Elocution, in Detroit, and is certainly a credit to her deservedly popular teacher. While taking treatment she has been teaching classes in elocution in the Health and Temperance Training Course and also among the nurses. Patients often require reading from their attendants, and so it is thought advisable to have elocutionary drill included in this course. Miss Mc Dougal is one of the instructors in the Bay View Chautauqua Assembly, and expects to spend the coming season in that work as formerly.

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G. WHARTON JAMES, F. R. A. S., of London, but later of Chicago, recently spent about two weeks as the guest of the Sanitarium, during which time, he favored the guests with four of his noted stereopticon lectures; viz.: "Picturesque Palestine," "Darkest Chicago," "World's Fairs," and the "Land of the Pharaoh's." He has been for years an extensive traveler, has collected twelve thousand different slides, and is ready with numerous lectures on scientific, literary, or historical subjects. From here he goes to California, where he has lecture engagements, and will take the opportunity of collecting views of the Yosemite and other picturesque portions of the Southwest. He has been associated with different departments of mission work in Chicago, and knows well the dark spots which he sets forth of that city, and the means which are being used to lighten their darkness.

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And the fields are rich with the golden grain;
Where the schooner plows through the prairie seas,
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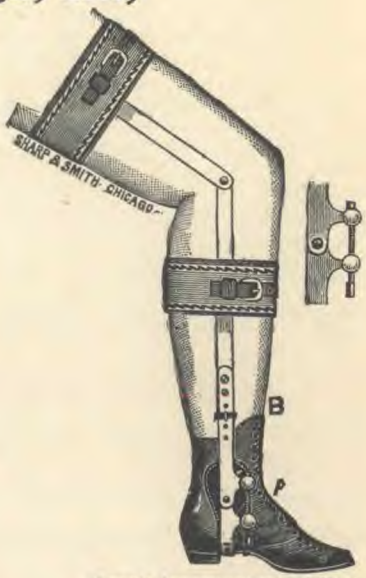

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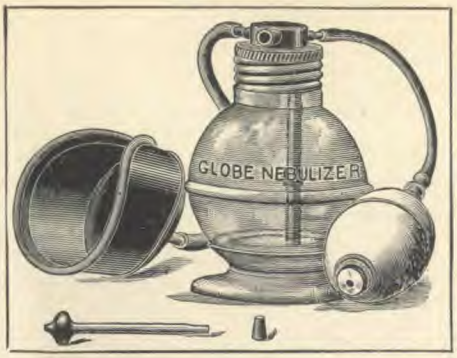

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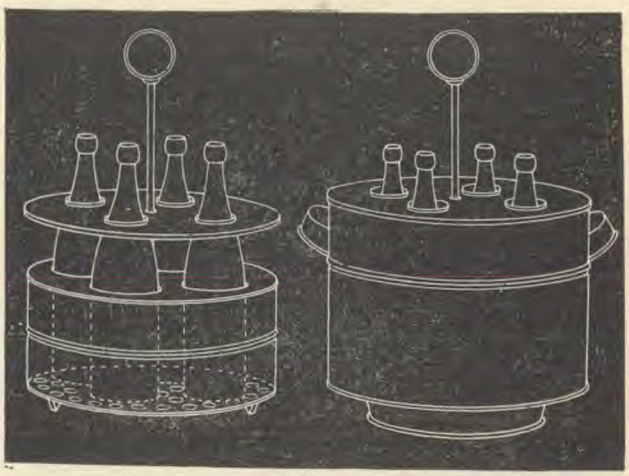

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Between CHICAGO and St. Paul, Minneapolis, Duluth, Council Bluffs, Omaha, Sioux City, Denver, Portland, San Francisco, and the Principal Cities of the WEST and NORTHWEST.

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W. A. THRALL, *Gen'l Pass. and Ticket Agent.*

MICHIGAN CENTRAL

"The Niagara Falls Route."

Corrected June 12, 1892.

EAST.	† Day Express.	*N. Shore Limited.	*N. Y. Express.	*N. Fall's & Buffalo Special.	‡ Night Express.	†Detroit Accom'n	* Atl'ntic Express
STATIONS.							
Chicago	am 9.00	pm 12.20	pm 3.10	pm 5.02	pm 9.20		pm 10.10
Michigan City	11.05	2.05	4.56	6.45	11.13		am 12.25
Niles	pm 12.35	2.57	5.48	7.38	am 12.25		1.45
Kalamazoo	2.05	4.00	7.04	9.00	1.57	am 7.10	3.37
Battle Creek	2.45	4.30	7.37	9.29	2.35	7.55	4.25
Jackson	4.30	5.38	8.52	10.42	4.05	9.45	6.25
Ann Arbor	5.25	6.27	9.45	11.27	5.38	10.47	7.47
Detroit	6.45	7.25	10.45	am 12.30	7.10	11.55	9.20
Buffalo		am 3.00	am 6.25	7.35		pm 7.55	pm 5.00
Rochester		5.50	9.55				
Syracuse		8.00	pm 12.15				
New York		pm 3.45	8.50				
Boston		6.05	11.05	pm 6.15			

WEST.	† Mail.	† Day Express.	*N. Shore Limited.	* Chicago Express.	†Kal. Accom'n	*Pacific Express.	* Chic. Special.
STATIONS.							
Boston		am 8.30	pm 2.00	pm 3.00		pm 6.45	
New York		10.30	4.30	6.00		9.15	am 8.30
Syracuse		pm 7.30	11.35	am 2.10		am 7.20	
Rochester		9.35	am 1.25	4.10		9.55	
Buffalo		11.00	2.30	5.10	am 8.45	11.50	pm 7.45
Detroit	am 8.20	am 7.40	9.05	pm 1.20	pm 4.45	pm 9.00	am 2.15
Ann Arbor	9.37	8.39	9.59	2.19	5.50	10.27	3.07
Jackson	11.30	9.40	10.58	3.17	7.15	am 1.01	4.00
Battle Creek	pm 1.05	10.45	pm 12.02	4.35	8.47	1.20	4.59
Kalamazoo	2.05	11.30	12.19	5.05	9.45	2.18	5.35
Niles	4.00	pm 12.35	1.48	6.17		4.15	7.00
Michigan City	5.20	1.55	2.45	7.20		5.35	8.13
Chicago	7.35	3.35	4.30	9.00		7.55	9.55

*Daily. †Daily except Sunday. ‡Except Saturday.

Acc mmodat on Mail train goes East at 1.05 p. m. daily except Sunday.
Night Express goes West at 12.05 a. m. daily except Monday.

Trains on Battle Creek Division depart at 8.03 a. m. and 4.35 p. m., and arrive at 11.40 a. m. and 6.45 p. m. daily except Sunday.

O. W. RUGGLES, General Pass. & Ticket Agent, Chicago.

GEO. J. SADLER, Ticket Agent, Battle Creek.

CHICAGO & GRAND TRUNK R.R.

Time Table, in Effect June 26, 1892.

GOING WEST.						STATIONS.	GOING EAST.				
p m	p m	a m	p m					a m	p m		
7.15	3.00	11.00	7.00	.....	.....	.....Boston.....	.....	7.00	8.00	9.25	.....
a m	p m	p m	p m					p m	a m	p m	
9.45	5.00	6.30	8.00	.....	.....	.....New York.....	.....	9.55	7.40	5.07	.....
a m	a m	a m	p m					a m	p m	a m	
12.10	6.20	6.25	1.00	.....	.....	.....Buffalo.....	.....	8.40	5.50	4.20	.....
a m	a m	a m	p m					a m	p m	a m	
1.35	7.45	8.00	2.45	.....	.....	....Niagara Falls....	.....	7.30	4.10	3.10	.....
a m		p m	noon						a m	p m	
8.30	.....	3.00	12.00	.....	.....	.....Boston.....	.....	8.05	9.50	.....	.....
a m	p m							p m	a m		
9.30	8.40	.....	.....	.....	.....	.....Montreal.....	.....	8.00	7.00	.....	.....
p m			p m					a m	p m		
11.30	.....	.....	1.00	.....	.....	.....Toronto.....	.....	8.35	5.25	.....	.....
			p m				p m		a m		
.....	.....	.....	8.00	.....	.....	.....Detroit.....	9.25	.....	7.45	9.25	.....
Day Exp.	B. C. Pass.	Lmtd Exp	Pacific Exp.		Mail Exp.		Mail.	Lmtd Exp.	Atlts Exp.	Day Exp.	Frt. H Pass.
am	pm	pm	pm	.....	am	Dep. Arr.	pm	am	am	pm	am
.....	3.44	.....	.....	.....	6.19	.....Port Huron.....	10.01	.....	.....	.....	12.10
6.50	3.49	12.22	8.40	.....	6.25	.Port Huron Tunnel.	9.56	12.35	7.30	8.50	12.05
8.05	5.10	1.27	10.07	.....	7.49	.....Lapeer.....	8.15	11.20	6.15	7.35	10.45
8.35	5.47	1.55	10.47	.....	8.35	.....Flint.....	7.30	10.47	5.40	7.05	10.05
.....	4.05	.....	8.00	.....	6.50	.....Detroit.....	9.25	.....	7.45	9.25	11.50
7.15	4.40	.....	8.25	.....	7.15	.....Bay City.....	8.37	.....	7.15	8.37	11.30
7.50	5.17	.....	9.00	.....	7.50	.....Saginaw.....	8.00	.....	6.40	8.00	10.43
9.05	6.50	2.22	11.20	.....	9.35	.....Durand.....	6.50	10.20	5.03	6.35	9.30
10.02	7.55	3.07	12.20	.....	10.40	.....Lansing.....	5.10	9.30	4.00	5.40	8.20
10.29	8.30	3.34	12.52	.....	11.15	.....Charlotte.....	4.34	9.01	3.25	5.13	7.47
11.15	9.25	4.15	1.50	.....	12.25	....BATTLE CREEK....	3.40	8.20	2.40	4.30	7.00
11.53	pm	.....	2.35	.....	1.08	.....Vicksburg.....	2.33	7.40	1.48	.....	am
.....	.....	.....	.....	.....	1.19	.....Schoolcraft.....	2.21	.....	.....	.....	.....
12.40	.....	5.45	3.30	.....	2.06	.....Cassopolis.....	1.29	6.58	12.45	3.07	.....
1.30	.....	6.20	4.10	.....	2.50	..... South Bend.....	12.45	6.20	12.00	2.35	.....
2.45	.....	7.35	5.45	.....	4.30	.....Valparaiso.....	11.10	5.00	10.30	1.20	.....
4.50	.....	9.30	8.00	.....	7.00	.....Chicago.....	8.40	3.00	8.15	11.25	.....
p m	.....	pm	am	.....	pm	Arr. Dep.	am	pm	pm	am	

Where no time is given, train does not stop.
Trains run by Central Standard Time.
Valparaiso Accommodation, Battle Creek Passenger, Port Huron Passenger, and Mail trains, daily except Sunday.
Pacific, Limited, Day, and Atlantic Expresses, daily.
Meals served in C. & G. T. Dining Cars on all through trains.

W. E. DAVIS, *Gen. Pass. and Ticket Agt., Chicago.*

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Oatmeal Biscuit	12	White Crackers	10	Wheat Granola (bulk 10)	12
Medium Oatmeal Crackers	10	Whole-Wheat Wafers	10	Avenola (bulk 10)	12
Plain Oatmeal Crackers	10	Gluten Wafers	30	Granola (bulk 10)	12
No. 1 Graham Crackers	10	Rye Wafers	12	Gluten Food No. 1	50
No. 2 Graham Crackers	10	Fruit Crackers	20	Gluten Food No. 2	20
Plain Graham Crackers, Dyspeptic	10	Carbon Crackers	15	Infant's Food	40

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