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INTERNATIONAL HEALTH STUDIES.

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

40.—The Bermudas.

IN the palmy days of the Rhenish watering places, when every mineral spring with a hotel and a couple of dramshops had a "hazard hell" of its own, an English traveler advanced an ingenious theory to account for the powers of endurance manifested by the professional gamblers, who would stick to the green tables all night, trying an elaborate "system," and at 10 A. M. were at it again as if nothing had happened.

"It seems a wonder," he says, 'how they contrive to replenish their coin-bags; but from a physiological point of view their persistence is perhaps less miraculous. Excitement keeps them from eating; and gluttony is at the root of nine tenths of our debility and disease."

In a similar way, I think, we might explain the paradox that sea voyages were now and then successfully prescribed for consumption and other chronic disorders. The patients passed their nights in a floating Black Hole of Calcutta, the unnatural motion convulsed their bowels to the bottom of the small intestines, the bill of fare was atrocious; but all those things combined to moderate their appetite, and the expurgation and protracted inactivity of the digestive organs gave nature a chance to effect long-postponed restorative operations of her own.

The patients themselves were apt to ascribe their recovery to the sea air, but it is a curious fact that on their disembarkation at some sea-breeze swept coast resort, their troubles generally re-appeared, in spite of food, vegetables, and spacious bedrooms. Coast swamps, insect plagues, or the tedium of primitive health resorts had then to bear the blame of the relapse; but the truth seems to be that the remedial influence of ocean air has been considerably overrated. It is purer than city air by about as much as distilled water is purer than sewer water; but spring water is preferable to either, and just as certainly forest air is healthier than town air or sea air. During ages, compared with the duration of which the era of marine navigation is but of yesterday, the lungs of our ancestors adapted themselves to the balmy air of the primitive forests, saturated with vegetable perfume and oxygen, and still recommending itself to our instincts so forcibly that even old sailors confess to a sort of land home-sickness, when the night wind comes charged with the fragrance and the greetings of some forest-clad coast range of the tropics.

Still, the firm belief in the remedial virtues of salt-water air may have the efficacy of other faith cures, but in such cases the patients should at least give themselves the benefit of an ocean resort blest by a genial climate and the absence of malaria and mosquitoes; and in all those respects the advantages of the Bermuda archipelago cannot be easily rivaled.

The Bermudas, or Sommer's Isles (*Sommer Inseln, i. e.*, "Summer Islands," some German geographers call them by an odd, but pretty misconstruction of etymology), rise from the deep Atlantic at a distance of more than six hundred miles from the nearest coast, about midway between the West Indies and the Azores, and almost exactly under the parallel of Madeira. The climate of the latter island, at the time of its discovery, must have justified the conjecture of its identity with the "Western Isle of the

SIFTING ARROWROOT.

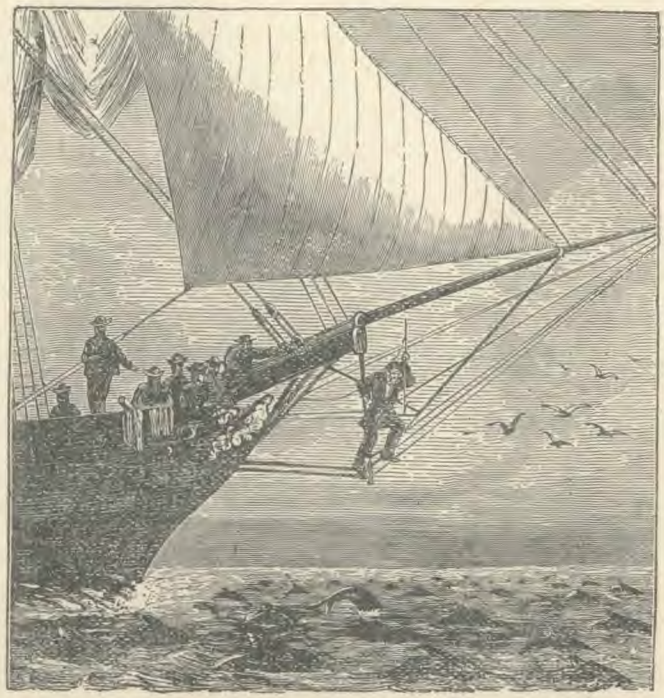
Blest," but since the disappearance of its forests the summer heat becomes often oppressive, and is frequently aggravated by fire winds from the African deserts.

The climate of the Bermudas runs no risks from such neighborhoods. The nearest mainland is the pine-covered coast of the Carolinas; the east wind from the furnace of the Sahara is tempered by an intermediate sea of three thousand miles, and the distance from the Florida swamps is at least twelve hundred miles.

The Bermudas have no swamps of their own. The entire archipelago consists of coral islands with a soil so porous that it absorbs moisture like a sponge, and the shores of every village and fishermen's hamlet are swept by the strong tides of the Atlantic. There are no "inland" districts. The archipelago consists of nearly five hundred different islands, but the largest is only fifteen miles long by two wide, and the great plurality are mere reefs, just broad enough to support a fringe of vegetation, and with the aid of careful tillage, a patch of garden land. In proportion to the limited width of the island the shores rise rather abruptly; there is no room for the accumulation of pools or bilge water, and the residents even of the main isle (Bermuda proper) could not breathe purer sea breezes if they were living upon a ship, or rather, an airy raft anchored in mid-ocean.

The contrasts of the summer and winter climate are remarkably small. Between New Years and the middle of April, the mercury ranges from 60° to 65°; between May and December, from 70° to 78°. Eighty-five degrees Fahrenheit in the shade is a maximum rarely exceeded; during a residence of several years, the naturalist, Matthew Jones, recorded only one light frost—a phenomenon which the oldest natives had witnessed only twice before, at intervals of ten to fifteen years. Madeira, indeed, is frost-proof, but under the same parallel (32° N.) even the coast towns of the American mainland experience considerable blizzards, and five hundred miles farther south, in Florida and Texas, snow storms are by no means unknown.

The question, however, remains, whether a very uniform, especially a uniform and humid climate can be considered propitious to the cure of lung disorders. The opinion of our ablest pathologist does certainly not encourage that belief, and the stimulus of an occasional hard frost seems preferable to the languid summer atmosphere of a Southern coast resort. After collecting an immense amount of sanitary statistics, Dr. Chas. Deniron (the compiler of elaborate climatic charts for all parts of the United States) comes to the conclusion that the best lung sanitaria can be found north of the fortieth parallel, and at a distance of at least two hundred miles from the sea. "Many physicians," he says, "who have hitherto recommended equable climates for those classes of consumptives which can be benefited, have lately learned that variability is often to be preferred, as this quality pertains particularly to stimulating and cool climates,



HARPOONING PORPOISES.

while equability generally accompanies enervating warmth, coupled with injurious dampness of atmosphere."

Still the prospect of a year's sojourn in a country of perpetual spring has great attraction for the martyrs of our Northern blizzard climates, and in

LOADING CARGO.

the course of the last twenty years the Bermudas have been patronized by numerous health seekers from New England and British North America. Port Hamilton, the capital of the archipelago, has become quite a health resort, and the classes of patients most likely to be benefited by the change are sufferers from asthma and certain forms of dyspepsia. Consumptives, on their arrival from the bake-oven and mosquito districts of our Northern seaboard (where summer is often much more oppressive than farther south), are apt to experience a temporary relief; but in the long run an inland health resort with endurable summers, and dry-cold, bracing winters would have been more propitious to the chance of a permanent cure.

As a pleasure resort the Bermudas can claim decided advantages over the primitive watering places of the West Indies. Steamers from New York, Boston, and Halifax bring cartloads of mail, including the latest newspapers of two continents, and the caterers of the Hamilton restaurants are well supplied with all the luxuries of the East American markets. Fishing and shell-gathering parties can hire boats at a few shillings a day—the waterways of the intricate archipelago being about as numerous as those of Venice; and at low tide the coral reefs form natural bridges between many of the larger islands, and naturalists can visit the sea-bird resorts of Cooper's Cove and the tortoise lands of David's Island. When Sir George Sommers was shipwrecked here, in 1609, he found only three indigenous mammals, bats, rats, and cats, — the latter probably descendants of the four-legged survivors of some former shipwreck. A few years after, the archipelago was settled by Virginian colonists, who introduced a few domestic animals, but the number and variety of land birds is surprising, considering the distance of the island group from the next mainland. They include four species of owls, eight of hawks, twenty-three of song birds, besides crows, woodpeckers, and starlings.

At the time of its discovery the archipelago could boast stately forests of pine and cedar trees, fine groves of which still remain; tropical fruits thrive well, and on the main island there are fine sugar-cane fields, but the main industry is the culture of arrowroot. Hundreds of acres — often on islands that support no other form of vegetation — are covered with the hairy leaves of the *Maranta arundinacea*, which here grows to a perfection attained at no other part of the Western Hemisphere. The collection of the roots and the grinding and sifting of the starch involves an amount of labor rather justifying the high price of the article, though there can be no doubt that the nutritive properties of arrowroot have been preposterously overrated. A careful analysis of the best variety proves that the root contains 65 per

A SUGAR PLANTATION.

cent of water, and from 20 to 30 per cent of starch — the rest being woody fiber and a minimum (often less than one per cent) of albumen. Arrowroot has, in fact, been successfully imitated by a mixture of rice and potato starch, and the only parallel to the delusion of the *Maranta* enthusiasts is perhaps that of the Chinese ginseng worshipers or the bird'snest eaters of Siam and Canton, where eighteen dollars a pound are frequently paid for a gelatinous, insipid substance about as nutritious as five cents' worth of hard boiled eggs.

The peaches of Bermuda are unrivaled for size and flavor, and a specious pathological argument has been founded on the circumstance that the trees (peach and plum trees) are remarkably free from the parasites which attack the orchards of many of our Southern States. The same sea air that kills orchard insects, it has been suggested, may expurgate the minute foes of the human organism, — lung microbes for example, — and thus be used as a good substitute for the medicated vapors of the inhalation quacks. The substitute would certainly be the less harmful alternative, but, alas for the fallacy of consumption panaceas, peaches and plums are equally free from parasites in the orchard districts of Delaware, New Jersey, Northern France, and other regions that have never claimed an exceptional immunity from pulmonary diseases.

The Bermudas are specially popular as a summer resort but for sanitary purposes their winter climate would perhaps be preferable. It is more bracing and pleasant than that of the West Indies, and very rarely too cold for comfort in outdoor sports, fishing, for example, being never more attractive than in December, when the finny tribes of the Virginia coast waters migrate in myriads to the next warmer clime.

That the Bermudas enjoy a temperature much milder than the average of the same latitude is proved by the curious fact that corals are here found farther north than anywhere else on this globe. Ages ago, when the Northern Hemisphere was warmer, they seem to have had one of their strongholds in this part of the Atlantic, and submarine coral reefs are found at a considerable distance from the archipelago. The attempt to remove the more dangerous of these reefs, incidentally revealed the circumstance that the whole island group is slowly subsiding, and during a former geological period may have rivaled in extent the coral coliseums of the South Sea. Similar changes of elevation have been observed on the coast of Chili, in Western Norway, and in the German Ocean, where the island of Heligoland has now dwindled to a mere rock, just large enough for a small watering place, a few fishermen's huts, and a light-house, though unquestionable historical records prove that there was a time when it contained several good-sized towns and numerous villages, most of them with an extensive area of pasture lands.

(To be continued.)

A Test of Oatmeal Water.—The popular idea has been that human strength could be better maintained under great stress of labor by the use of alcohol than otherwise, and notwithstanding the arguments to the contrary, the prejudice still exists. But one fact is worth any number of arguments. It was recently ordered that the gauge of two hundred miles of the Great Western railway of England should be changed, and to do the work in the shortest possible time, five thousand men were set to work, and performed the task by working thirty-four hours out of forty-eight. Instead of "bracing" them up with beer, as is common under similar circumstances, the managers fed their men oatmeal water. The *Western Morning News* (Iowa) states the facts in the following paragraph : —

"Over two hundred miles of broad gauge railroad had to be transformed to narrow dimensions in the shortest possible time, and with the greatest possible care. To accomplish the work nearly five thousand men were employed, and they worked two successive days of seventeen hours each, with only short intervals for meals. The strain on the men was exceptional, yet not beer but oatmeal and water was provided by the railway company. Testimonials to its refreshing, thirst-quenching, and sustaining power were heard on every side. This triumph of oatmeal water over beer should not pass unnoticed. Will farmers and other employers take cognizance of the explosion of the idea that beer is more sustaining than any other beverage?"

It is computed that twenty-two acres of land are needed to sustain a man on flesh meat, while the same amount of land under wheat feeds forty-two persons; under oats, eighty-eight persons; under potatoes, Indian corn, and rice, 176 persons; and under the plantain, or bread-fruit tree, over 6000 persons.

THE LIMIT OF HUMAN LIFE.

We translate the following from an excellent work entitled, "*Les Moyens de Vivre Longtemps*" (The Means of Promoting Longevity), by Dr. Saffray, of Paris.

Reflecting upon the brief duration of life for the majority of men, Seneca formulated this conclusion: "Man does not die: he kills himself." The philosopher meant by this remark, that we very rarely obtain the limit at which death becomes the fatal consequence of the law of our organization; that we abridge the number of our days by failing to conform to the laws of our terrestrial life.

It is the fashion at the present time, to seek to find in material facts, an explanation of the great problems which relate to the nature of man, to his place in the world, and to his destiny. One has said: "It is the lack of nourishment which prevents man from multiplying more rapidly, and which reduces the average length of life;" and as this idea has been seriously presented and supported by many figures, the majority of those who are interested in this question have accepted the theory as satisfactory, and closed the debate. All is for the best; man will continue to kill himself, etc., but at least he will have the satisfaction of knowing why, and will understand that he is condemned by Providence to die of hunger.

It is a strange thing that those who present this discouraging prospect in a formula so specious in its pretensions, do not even suspect that they furnish an excellent argument against their own doctrine, and confirm the aphorism of the Latin philosopher. If man dies only by hunger he is a voluntary suicide, for there is no deficiency of food. What would you say of a man who would shut himself up in a chamber and allow himself to die of hunger, saying, "I have nothing around me which can nourish me. I will then submit to die of starvation, the fate imposed upon all humanity."

Those who explain and excuse the short duration of human life by the lack of the means of subsistence, reason no better. We die prematurely, but it is not a consequence of the order established by Providence. It is the result of our ignorance, of our passions, of our vices. It depends, then, upon us to put an end to this wholesale suicide, and to prolong our life to its natural limit. But can we know its limit? Can science or observation determine it? Daily experience and scientific facts furnish us the *data* for an answer to this question.

It is our own fault if we are obliged to complain of the brevity of life, for man is one of those animals intended for great longevity. Fish and birds are, however, more favored than mammals. An eagle has been known to live to the age of 103 years, a corbeau to 108 years, a paroquet to 120 years, an ordinary bird may live a century, a swan may live to a much greater age; it is believed that it may attain to 200 or even 300 years. In 1792, there was sent from the Cape of Good Hope to London, a falcon carrying a collar upon which was written: "To his Majesty James, King of England, in the year 1610." There had thus elapsed 182 years since its first captivity.

Eels attain to the age of 60 years. Buffon caught some carps aged more than a century and a half. There was caught in Germany, a brochet which carried a copper ring indicating that it had been placed in the stream 261 years before. It measured 19 feet and weighed 350 pounds. This remarkable fish had not, however, attained its growth, for fish of the same species have been taken which weighed 1000 pounds. It has been supposed that the gigantic whales which are sometimes encountered at the North Pole attained the age of nearly 1000 years.

The life of mammals is generally short. It is difficult for us to appreciate the exact normal duration of life, because the domestic state changes the temperament of animals and their conditions of life. The rabbit and the cochong of India live in the neighborhood of 7 years; the squirrel and the hare, 8; the cat, from 9 to 10; the dog, from 10 to 12; the ox, from 10 to 18; the donkey and the horse, from 25 to 30; the lion, from 30 to 40; the elephant attains to nearly two centuries.

Such are the averages which result from the most exact observations, but one observes very numerous exceptions. Buffon recounts the history of a horse, which, at the age of 50 years, when harnessed, performed his ordinary work. The museum at Manchester possesses the head of a horse which passed 62 years. In 1862, there died in England, the oldest cavalry horse in Europe, named "Bob, the Crimean." He commenced his service in 1833, was transported to the Crimea; he engaged in the memorable charge of Balaklava, and took part in the battles of Alma and Inkermann. After this good service, the State provided him with an honorable retirement.

Among elephants also, there are those which must surpass the ordinary limit, and there is reason for believing that they may attain 400 years. Thus, when Alexander had vanquished Porus in a battle of which Lebrun has immortalized the memory, the Macedonian who had royally treated his brave adversary, consecrated to the sun the elephant which he rode during the combat, and set him at liberty after having attached to him a collar bearing a commemorative inscription. Three hundred and fifty years later this historic animal was found, carrying his certificate of age.

It is necessary, then, to admit that among mammals, some individuals reach double the common length of life, but no one has yet discovered the true conditions which produce this abnormal prolongation of their existence, while natural history furnishes a rule sufficiently exact to determine the duration of life under ordinary circumstances.

During the youth of animals, the long bones of the limbs are not of one piece; their large extremities, called *epiphyses*, are separate, becoming united to the shaft of the bone little by little, keeping step with the progress of general development, complete union taking place only when the individual reaches adult age and ceases to grow in height. The union of the *epiphyses* takes place at the age of 8 years in the camel, which lives to 40 years; at 5 years in a horse, which reaches in the neighborhood of 25 years; at 2 years in the dog, which lives from 9 to 12 years; it is not yet complete at 40 years in the elephant, which lives more than two centuries.

From these facts it may be concluded that the greater number of mammals live nearly five times the length of time occupied in growth. Applying this rule to man, it is found that his growth continues until the twentieth year, and the natural term of his life is then 100 years; and, as the extra normal life may exceptionally equal the normal life, the extreme limit of human life would be 200 years. This mode of reasoning is certainly not scientific, but it agrees with the results of observation, for it must be admitted that man, living according to the laws of nature, is intended for a career of a century.

Physiologists have collected a large number of authentic cases of longevity. A German physician gives in the following table the results of his observations. He has verified cases of this sort as follows: —

From 100 to 110 years, 1000 cases; 110 to 120, 60 cases; 120 to 130, 29 cases; 130 to 140, 15 cases; 140 to 150, 6 cases; 169, 1 case.

Easton, an English writer, furnishes the following more complete list: —

From 100 to 110 years, 1310 cases; 110 to 120, 277 cases; 120 to 130, 84 cases; 130 to 140, 26 cases; 140 to 150, 7 cases; 150 to 160, 3 cases; 160 to 170, 2 cases; 170 to 185, 3 cases.

Making allowance for some errors in these tables of extraordinary longevity, we see that every one has a right to hope to much exceed a century.

Without going back to patriarchal times, we find in the history of all countries some men who have lived to a very great age.

Two of the philosophers of Greece lived a century. Democritus, the friend of nature, died at 109, smiling, as he had lived. Fabius, "The Temporizer," thus surnamed because of his prudent tactics against Hannibal, held death at bay as he had retarded the march of the Carthaginians, and only yielded after having accomplished his ninetieth year. Rome saw appear upon the stages of her theaters an actress aged 104 years, and another, who, having made her *debut* at 12 years, still filled her role 100 years later. A French *danseuse* who emigrated to the United States at the time of the War of Independence, died in 1861, at the age of 111 years, surrounded by more than 100 grandchildren and great grandchildren.

One of the most curious cases of longevity, in circumstances the least favorable, is that of the veteran Mittelstedt, who died in 1792, at the age of 112 years. During his military career of 67 years, he was present at 17 pitched battles, received many wounds, and was made prisoner by the Russians after having had his horse killed under him. He had already been twice a widower, when in 1790, in his 110th year, he married a young woman. A short time before his death, he was able to walk a distance of several miles.

England furnishes a number of cases of longevity. A certain Effingham, born of a poor family of peasants, a soldier for many years, then earning his living by common labor, exceeded the age of 140 years without disease, and almost without having known sickness.

Thomas Parr was yet more highly privileged. He was also a poor peasant, living by the work of his hands. The history of his life presents nothing of special moment during its first 120 years, after which he re-married, taking a young widow with whom he lived happily. His natural vigor was well preserved; he was able to do all the work of his house. He lived thus happy and ignorant, to the age of 152 years; but then the Count of Surrey discovered him while visiting his domains, and, with the object of

gratifying a foolish vanity by making a parade at London of his venerable tenant, he drew him to the capital in a cab, escorted by one of the daughters of Parr, who rode upon a horse and diverted the old gentleman during the journey.

Charles the First wished to see this senior of his subjects, and amiably remarked to him: "You have arrived at an age almost improbable, but what have you done more than other men?" To which the centenarian replied humbly: "I have done penance longer." The king treated sumptuously the brave man, who, compelled to change his sober and peaceable habits, fell sick and succumbed, not to an old age, as the autopsy proved, but to indigestion. If he had done nothing more than other men during his life, he was, after death, the object of extraordinary distinction which nothing justified, being buried in Westminster Abbey, reserved for the sepulcher of the sovereigns and great men of England. The same privilege was not accorded to Henry Jenkins, who died in 1743 at the age of 169 years, but a monument was erected to him by means of a subscription, this marvelous old man having been called to testify in court at the age of 140 years. To the end of his career, he lived the life of a fisherman, and died without knowing infirmities.

The Norwegian Draakenberg, after having embarked as a cabin boy, served in the Royal Fleet to the age of 90 years, of which fifteen were passed as a prisoner on the Turkish galleys. After retiring at the age of 111 years, he married a woman 60 years of age. He himself died at the age of 146 years, with the surname of "The Old Man of the North." He had a happy contemporary among his countrymen, Joseph Surrington, who, having reached the age of 160 years, and believing his end approaching, gathered about him his family, his third wife still young, and his sons, of whom the youngest was 9 years of age, and the oldest 103. In the full possession of his faculties he divided his property, and the next day expired without suffering.

The village of Tours possessed, in 1802, a veteran named Thurel, born in 1698. Enlisting in 1716, he had continued to serve as a simple soldier, and in his long career under three kings and under the Republic, he had received many bullets and not a few saber cuts, in spite of which, however, he enjoyed good health.

There was seen at the Exposition of Fine Arts, in 1870, a tableau in which figured 255 personages painted by Byron Waldeck, aged 106 years. This robust old man died in 1875. He had preserved all his vigor, and daily made a promenade upon the boulevards.

In September, 1872, there died at the *Petit Bicêtre*, a man named Odiot, an ancient sailor and soldier, whose voyages and adventures had not prevented him from exceeding a century by two years.

HEALTHY HOMES.

UNTIL very recent years the greatest ignorance prevailed, among all classes, in regard to the laws of health. Terrible epidemics came and swept away their millions, but the survivors looked upon them as inevitable events sent to punish a wicked world, or as a scourge that no human foresight could foresee or ward off. In the fourteenth century the "black death" destroyed a quarter of the inhabitants of this country, and it is estimated that Europe lost forty million of its inhabitants, and China thirteen million.

The army of Henry the Seventh left in its wake the "sweating sickness," and if half the population of a town through which it passed on its desolating way escaped, the remainder were well satisfied. The great plague of London destroyed 7165 in one week, and 68,500 died of it altogether, and this when the population of London was not much more than a twentieth part of what it is now. Europe is now nearly free from these devastating epidemics, but these diseases are still propagated from hotter climates, such as Egypt, where overcrowding, filth, dampness, and putrefaction, aided by a humid atmosphere, give them a congenial breeding-place.

One need not wonder that in the Middle Ages England suffered from these scourges. The houses then had no means of ventilation. The floors of rooms were covered with rushes, which were constantly put on fresh, without removing the old, which became impregnated with filth, bones, etc., — for our forefathers ate with their fingers, — and thus the occupants inhaled noisome vapors, while clothing was seldom changed, and soap and cleanliness were looked upon as almost dangerous. A foreign physician (Erasmus) writing to Cardinal Wolsey's doctor, comments upon the continual plagues affecting England, and attributes them to the disgustingly filthy habits of our forefathers. How long is the reproach to continue? Two hundred years ago, the mortality in London was 80 per 1000, now it is 23; and when the causes of disease and death are better understood by the spread of knowledge and hygiene, there

is no reason why it should not be reduced in London (and even in country districts, where it averages 15 or 16 per 1000) to half what it is at present.

The Jews, owing to the elaborate directions contained in the Mosaic law, are remarkably healthy, long-lived, and free from epidemic disease. Moses was a thorough sanitarian, and laid down stringent regulations as to food, drink, isolation of the sick, and personal cleanliness, regulations which are observed to this day. It is a pity that Christians, who look down upon this despised race, do not try to emulate at least their virtues in regard to morality, decency, and cleanliness.

It is a common observation for people to declare that certain localities do not agree with them; in most cases it would be far more true if they said *the house they live in* did not agree with them, and far more wise if they set to work to discover the cause. If the occupier of a dwelling knew there was a barrel of gunpowder near the kitchen fire, the probability is that he would have it removed; but the same individual may have a leaky drain or a badly-constructed water-closet in his house — far more dangerous than a barrel of gunpowder — and may be too apathetic to attend to it, until some day, fever in one of its varied forms comes and sweeps its victim or victims away, and Providence is blamed for the ignorant, careless, and filthy habits of the owner or occupier.

Ventilation of living rooms and bedrooms is another important matter; and in building new houses every room should contain a fire-place for this purpose if for no other. But of so little value is ventilation considered by some persons that it is by no means unusual to find the chimney blocked with a sack of straw, or the fire-place pasted over. It is useless to tell people who do this to open bedroom windows during the day, to throw back the bed linen in the morning for a few hours; such small details, which so materially conduce to robust health, are beneath their notice. When disease comes, brought on by their own carelessness, ignorance, and dirty habits, they piously (!) attribute it to the will of God, as their forefathers did plagues and other pestilences due to their filthy habits. — *Dr. N. E. Yorke-Davies, M. D.*

IS OLD AGE INEVITABLE?

To this question I would reply, Only in a sense. All created things are subject to a law of evolutional change. Even the stars grow old. Some of these heavenly bodies have spectra which indicate that they are in the early adult and most persistent stage of stellar life. Others in what is called the solar condition present appearances which prove them to have attained to full maturity. And others again tell by the constitution of their rays that they are in advanced old age and approaching extinction; and, by the way, it is curious to note that the young stars are white, and those that have passed their best, orange and red in color; whereas amongst human luminaries whiteness is a sure sign of antiquity, and an orange or red tinge the prerogative of a sanguine variety of youth. . . . But, however this may be, there can be no question that all high multicellular forms of plants and animals with well-differentiated organs are born with the germs of death in them, and by a physical necessity of their nature pass through certain phases of life.

In the human being the metabolic activity of the body, which at first is sufficient not only to cover daily waste, but to build up new material, a little later is equal only to balance the physiological requirements of the system, and at last is too much reduced even to sustain in its entirety the existing frame. Thus we have three great epochs in human life, one of growth, one of equilibrium, one of decline; and it is the last of these which, strictly speaking, constitutes old age — the old age which is inevitable, but which, as regards its duration and characteristics, is something very different from what is generally understood by the term. Pythagoras used to divide the life of man into four equal parts. From the first to the twentieth year he called him a child: from the twentieth to the fortieth a young man; from the fortieth to the sixtieth a man; from the sixtieth to the eightieth an old man — a man finished; and after this period he reckoned him no more among the living, let him attain to what age he might. Shakespeare, more discriminating than Pythagoras, distinguished seven ages in the life of man, but his division is conventional rather than scientific, and with reference to that stage which most nearly corresponds with old age he has fallen into an error, which has stamped itself upon stage representations of old age ever since his time, and so has become part of the popular conception of that period of life. As Dr. Buzzard has acutely pointed out, the alteration in the voice which he ascribes to the lean and slippered pantaloon —

"His big manly voice,
Turning again towards childish treble, pipes
And whistles in his sound,"

is by no means a frequent concomitant of old age, and is indeed only encountered then when *paralysis agitans* is superadded to senile decay. Shakespeare evidently took as his model some old man of his acquaintance affected by that disease, and has by his stupendous authority imposed on us an ideal of senility that is radically wrong, for the shrill, quavering voice and trembling muscles that characterize it have nothing to do with old age pure and simple — the old age that is inevitable. And so it is with many other features, and these mostly features of a distressing character, which are prominent in the picture of old age that we form in our mind's eye, and which, indeed, are in constant association with it as we see it around us. They betoken pathological changes which occur at an advanced period of life, but they are in no way essentially connected with the normal decay of man's powers.

It is of course in the autumn of life that "wild oats" ripen and come to fruition. Then it is that the heaped-up follies and prodigalities of youth and manhood weigh heavily upon the wearied pilgrim and bow down his pithless back. Then it is that conscience, when there is one, plagues; that the dregs of heredity are seen in the nigh-exhausted chalice; that the over-strained machinery breaks down, and the postponed penalties of all the physiological transgressions, great and small, which in our artificial social existence we are constantly committing, must be paid.

A whole host of ailments, debilities, incapacities, and disorders undoubtedly attend and embitter old age as we are familiar with it, but I wish to impress on you the truth that a large proportion of these are in it, but not of it, and that the old age that is inevitable is by no means as objectionable a state as that which is prevalent. — *Sir J. Crichton Browne, M. D.*

HOW TO LIVE IN HEALTH.

BY HELEN L. MANNING.

It goes without saying that the first requisite for happiness and usefulness is health. People adapt themselves to their condition so that a certain degree of happiness and usefulness is attained by many who are invalids or semi-invalids, but it is to be doubted if ever the highest degree of either is possible without a sound physique. So many days are wasted and so many powers lie dormant because of the weakness and disease in the subjects themselves, and more than this, the time and strength of others who must care for the sick are turned into fields which are not productive — often being postively diverted from nobler channels. Christian graces may thrive and even blossom into rare loveliness in the atmosphere of the invalid's chamber, but it must be in spite of ill-health, not because of it.

"The longer I live," says Sydney Smith, "the more I am convinced that half the unhappiness of the world proceeds from little stoppages, from a duct choked up, from food pressing in the wrong place, from a vexed duodenum or an agitated pylorus. My friend sups late; he eats some strong soup, then a lobster, then a tart, and he dilutes these esculent varieties with wine. The next day I call upon him. He is going to sell his house in London and retire into the country. He is alarmed for his oldest daughter's health; his expenses are hourly increasing, and nothing but a timely retreat can save him from ruin. All this is the lobster; and when over-excited nature has had time to manage this testaceous incumbrance, the daughter recovers, the finances are in good order, and every rural idea is effectually excluded from the mind. In the same manner old friendships are destroyed by toasted cheese; and hard, salted meat has led to suicide. Unpleasant feelings in the body produce corresponding sensations in the mind, and a great scene of wretchedness is sketched out by a morsel of indigestible and misguided food."

The above is no figment of poetic fancy, but a plain and solemn truth, which the scientific physician who has made thorough study of dietetics, will confirm. What we eat, and when and how we eat it, become, then, questions of as grave importance as any in political economy. He who would dedicate his energies to usefulness, mental or physical, must conserve his vital powers. If he would work with a clear head and steady hand, he must use only what is required of digestive vigor to maintain his physical poise. The gratification of appetite is never the first requisite with a man or woman of noble purpose. Further, a healthy, unperverted taste needs no pampering. Physical exercise, plenty of pure air, and light, comfortable clothing will give splendid relish to the simplest fare. Persons of sedentary habits need to be more abstemious than those who are working hard in the open air.

To be temperate in eating and drinking, is to live

in health and to live well. With long-established social traditions to contend with, it requires no small courage to set before one's family and guests, simple, nutritive food, wholesomely prepared, and to suffer being called "odd" or a "crank" because one refuses late suppers, ice cream, and confectionery. But in the long run, your physical uprightness will be amply rewarded. You will be able to work clearly, continuously, and well, and barring accident, reach the richly ripened old age which crowns a virtuous life. Let, then, your first duty be the upbuilding of a sound physical frame and its maintenance in a healthy equilibrium by strict obedience to the laws of hygiene.

SQUINTING BRAINS.

ALL of our brains squint more or less. There is not one in a hundred, certainly, that does not sometimes see things distorted by double refraction, out of plumb or out of focus, or with colors which do not belong to them, or in some way betraying that the two halves of the brain are not acting in harmony with each other. You wonder at the eccentricities of this or that connection of your own. Watch yourself, and you will find impulses which, but for the restraints you put upon them, would make you do the same foolish things which you laugh at in that cousin of yours. I once lived in the same house with the near relative of a very distinguished person, whose name is still honored and revered among us. His brain was an active one, like that of his famous relative, but it was full of random ideas, unconnected trains of thought, whims, crotchets, erratic suggestions. Knowing him, I could interpret the mental characteristics of the whole family connection in the light of its exaggerated peculiarities as exhibited in my odd fellow-boarder. Squinting brains are a great deal more common than we should at first sight believe. Here is a great book, a solid octavo of five hundred pages, full of the vagaries of this class of organizations. I hope to refer to this work hereafter, but just now I will only say that, after reading till one is tired the strange fancies of the squarers of the circle, the inventors of perpetual motion, and the rest of the moonstruck dreamers, most persons will confess to themselves that they have had notions as wild, conceptions as extravagant, theories as baseless, as the least rational of those which are here recorded. . . .

Whether we shall ever find the exact position of the idiotic center or area in the brain (if such a spot exists) is uncertain. We know exactly where the blind spot of the eye is situated and can demonstrate it anatomically, physiologically. But we have only analogy to lead us to infer the possible or even probable existence of any insensible spot in the thinking center. If there is a focal point where consciousness is at its highest development, it would not be strange if near by there should prove to be an anæsthetic district or limited space where no report from the senses was intelligently interpreted. But all this is mere hypothesis.

There is a great good to be got out of a squinting brain, if one only knows how to profit by it. We see only one side of the moon, you know, but a fellow with a squinting brain seems now and then to get a peep at the other side. I speak metaphorically. He takes new and startling views of things that we have always looked at in one particular aspect. . . .

Are not almost all brains a little wanting in bilateral symmetry? Do you not find in persons whom you love, whom you esteem, and even admire, some marks of obliquity in mental vision? Are there not some subjects in looking at which it seems to you impossible that they should ever see straight? Are there not moods in which it seems to you that they are disposed to see all things out of plumb and in false relations with each other? If you answer these questions in the affirmative, then you will be glad of a hint as to the method of dealing with your friends who have a touch of cerebral strabismus, or are liable to occasional paroxysms of perversity. Let them have their head. Get them talking on subjects that interest them. As a rule, nothing is more likely to serve this purpose than letting them talk about themselves; if authors, about their writings; if artists, about their pictures or statues; and generally on whatever they have most pride in and think most of their own relations with.

Perhaps you will not at first sight agree with me in thinking that slight mental obliquity is as common as I suppose. An analogy may have some influence on your belief in this matter. Will you take the trouble to ask your tailor how many persons have their two shoulders of the same height? I think he will tell you that the majority of his customers show a distinct difference of height on the two sides. Will you ask a portrait painter how many of those who sit to him have both sides of their faces exactly alike? I believe he will tell you that one side is always a little better than the other. What will your hatter say about the two sides of the head?

Do you see equally well with both eyes, and hear equally well with both ears? Few persons past middle age will pretend that they do. Why should the two halves of the brain not show a natural difference, leading to confusion of thought, and very possibly to that instinct of contradiction of which I was speaking? A great deal of time is lost in profitless conversation, and a good deal of ill temper frequently caused by not considering these organic and practically insuperable conditions. In dealing with them, acquiescence is the best of palliations, and silence the sovereign specific. — *Dr. O. W. Holmes.*

COLD AIR NATURE'S PANACEA.— Medical statistics, read aright, might even now make it doubtful if smallpox, cholera, and yellow fever combined have proved half so destructive of human life as a delusion which a hygienic reformer describes as the "Cold Fallacy," — the habit of ascribing all sorts of ailments to the influence of a low temperature. The air of the outdoor world, of the woods and hills, he says, is, *par excellence*, a product of nature, and therefore, the presumptive cause of innumerable evils. Cold air has become the general scapegoat of sinners against nature. When Don Juan's knee-joints begin to weaken he suspects himself of having "taken cold." If an old glutton has a cramp in the stomach, he ascribes it to an incautious exposure on coming home from a late supper. Toothache is supposed to result from "draughts"; croup, neuralgia, mumps, etc., from the "raw March wind." When children have been forced to sleep in unventilated bedrooms till their lungs putrify with their own exhalations, the *mater familias* reproaches herself with the most sensible thing she has been doing for the last hundred nights — "opening the windows last August, when the air was so stifling."

Even old-school physicians begin to suspect that "the danger of cold air currents has been greatly overrated;" but what if the demon of popular delusion should turn out to be not only a harmless sprite, but a minister of mercy — the most harmless as well as the most powerful disinfectant, and nature's panacea for the disorders of the human organism?

Is time preparing the way for that truth by halfway discoveries?

Priessnitz, the founder of hydropathy, managed to cure obstinate cases of dyspepsia by cold shower-baths; but it is highly probable that the same purpose could be attained in a more natural and much less disagreeable manner, by the inhalation of fresh, cold air.

Mountaineers and the natives of high latitudes are almost indigestion proof, but dyspeptics can save themselves the trouble of a trip to the Norwegian highlands by the simple plan of sleeping snugly covered in the immediate neighborhood of a wide-open window, and imbibing large draughts of the cool night air. In cold weather a few hours will thus suffice to stimulate the torpid organism; but even in midsummer each night can be made to undo the mischief of the preceding day. So far from being unpleasant, that method of refrigeration can become a positive luxury; each lungfull of cool air revives the languid system, as cold water refreshes the parched palate. — *Felix L. Oswald, M. D.*

WATER THE BEST DRINK.—The man who drinks freely of alcholic drinks becomes prematurely old, and shows deterioration of his tissues. Alcohol is the great degenerator of the tissues. When he should be a man in the prime of life, he is an old man. He becomes decrepit in thought and motion, and that love of life which might be perhaps increased as he goes on in years is rendered hopeless, and then comes despair. Every man is safest if he never indulges in that variation of nature from water, which was implanted in the whole animal world. You may make water more palatable by the addition of fruit juices, but there must be no poisonous or deleterious addition to the drink which goes to assist in the construction and activity of the body; our thirst must be slaked with that drink which the great Chemist raises from the ground, from the lakes and the rivers, expands into clouds, allows to distill down from the mountains back again into the streams, and keeps up for us a current of living water, which, like life itself, it is his blessing to bestow. — *Dr. B. W. Richardson.*

MME. PATTI, the famous prima-donna, takes no special measures for the purpose of maintaining or prolonging the power of her magnificent voice, but relies solely upon those natural agencies which promote the general health: Simple food, pure air, and plenty of outdoor exercise. A large portion of each day is spent in riding or driving in the mountain roads in the vicinity of Craig-y-Nos, her palatial country home in Wales. She has, as might be expected, a good, healthy appetite, excellent digestion, and now at middle age, has, it is said, still the soft, peachy complexion of a young girl.

THE MUSCLES.

EVERY housewife knows that in baking powder she has substances which may give off a gas, and which under certain circumstances may exert considerable force. Suppose we put some baking powder into a bottle, then pour some water into the bottle and cork it quickly; what would happen to the bottle?—The cork would be blown out, or the bottle would burst unless it were a very strong one. Why?—Because power has been generated by the combination of the substances which compose the baking powder. Baking powder is made of carbonate of soda and tartaric acid, and these combine and liberate carbonic acid, and so develop force. It is this evolution of gas which raises the bread, as you know. Now why does not the tartaric acid and the carbonate of soda combine in the baking powder?—Because the manufacturer puts in some starch, and the thin particles of starch separate them, and keep them separate until water is added, and then the combination and the evolution of power takes place.

We have another illustration of the same thing in gunpowder, only a little more complicated. When gunpowder is ignited, it burns very quickly. A pound of charcoal when made up into gunpowder, will burn much more quickly when put into a fire, in a stove for example, than when put into the stove in the form of charcoal. If you should light the charcoal, it would be very slow in burning; perhaps a pound of charcoal would be an hour in consuming, while the same pound of charcoal when made up into gunpowder would be consumed in a very small fraction of a second. What makes the difference? Charcoal in its natural form is a solid mass, and when it is ignited, only that portion which comes in contact with the external air can combine with the oxygen; the portion of the charcoal which is within the mass does not come in contact with the external air, and consequently it cannot combine with the oxygen, and therefore it cannot burn. Now in the case of gunpowder, we have the charcoal all ground up into fine particles, and then we have mixed with it substances in which there is a large amount of oxygen stored up, and thus we have oxygen mixed all through the charcoal, and alongside of every particle of charcoal are some atoms of oxygen ready to combine with it, when the conditions favorable for combustion are supplied. Thus the combustion takes place suddenly, and so we have an explosion.

Now we have the same thing in the muscle. We have the glycogen stored up, and glycogen is a combustible substance; it is capable of producing heat and force, just as the baking powder and the gunpowder do. The muscle captures the oxygen from the blood and stores it up in itself right beside the glycogen, so it is there all ready for use. In this way the muscle stores up force, just as we have energy stored up in the gunpowder and the baking powder. Now what is necessary for the evolution of this force? It is only necessary that we should have the conditions supplied which will cause the glycogen and the oxygen to combine, and then we are certain to have an evolution of power. In order that this should take place, it is necessary that the muscular fiber should possess a certain peculiar property, and that property is called *irritability*. This property of the muscle, which is called muscular irritability, the power by which the muscle is stimulated to contract, exists really in a condition of the muscle which, when produced, causes a combination of the oxygen with the glycogen.

The susceptibility of the muscle to the production of this condition is its irritability. Muscular

irritability is manifested by contractility whenever the conditions are brought about which cause the oxygen and the glycogen to combine.

There are various means by which muscular irritability may be excited, or muscular contraction produced. One of the simplest is percussion of a muscle or of a tendon connected with it. This mode of causing muscular contractility may be illustrated by a simple experiment. A man sits down and crosses one leg over the other. When I strike the front part of his leg, just below the knee cap, his foot kicks. This is not a voluntary kick, but an involuntary movement which it would be somewhat difficult for him to prevent. The muscular contraction is produced by the blow upon the tendon of the large muscle of the thigh, which passes over the knee, by the contraction of which the foot is thrown forward. The light blow upon the tendon of the muscle causes the oxygen and the glycogen of the muscle to combine, and by that means we have muscle power exhibited.

A sudden application of heat will also cause the muscle to contract. We see that in a very curious way in the "goose flesh" which appears upon the skin; the skin has muscles in it, and when one puts his hand into very hot water, you will notice this "goose flesh" appearance upon the hand. This is due to the sudden contraction of the muscles of the skin, which puckers up the hair follicles, making the hair literally stand on end. Any muscle will contract by the application of heat. If the degree of heat is too great, there will be a stiffening of the muscle.

Electricity is another means by which muscles are made to contract. We do not know exactly how it acts, but we know that when electricity is applied to a muscle, it will cause it to contract.

One of the most certain and positive means of securing muscular contraction, however, is the natural method by which the muscle is made to contract by nerve impulses sent out by the nerve cells of the nerve centers, transmitted by the nerves to the muscle fibers. The whole muscle does not contract instantly, or all at once, as a rule. The wave of contraction starts at one end and travels to the other end, but so rapidly that you do not recognize any loss of time. This wave of contraction travels from about forty-five to fifty feet per second; we do not observe the time.

The muscles do not contract instantaneously, even when stimulated by the nerves. After they are stimulated by the nerves, by electricity, or a blow, there is a short pause which is called the "latent period," before the muscle contracts. This pause is usually about one one-hundredth of a second. If the slack of the muscle has been taken up, and it is all ready, the latent period is only about two and one half thousandths of a second; but if the muscle is not prepared, the latent period is about one one-hundredth of a second. Ordinarily this latent period is not observable, but when the muscle has been exposed to the action of cold, for example, the latent period is greatly increased. You know how it is when the fingers become numb, and the muscles do not readily act. It is not because they are stiff or frozen, — that is not the reason they are so slow and clumsy; it is because the latent power has been increased, by reason of the fact that the susceptibility of the muscles has been decreased by the low temperature, and it does not recognize the stimulant sent to it. Overwork, fatigue, has the same effect. When the muscles are fatigued, this latent period is greatly increased, and the muscles respond but slowly when the stimulus is applied. So, when one is tired, all his movements are slow; if he is greatly fatigued and exhausted, it is actually impossible for him to make a rapid movement, because the latent period is increased. If one undertakes to lift a very heavy weight or to undergo a great strain in lifting, the muscles seem to appreciate the fact that they are to make a great effort, and so it takes them some time to get ready for the effort; the latent period is increased by the weight to be lifted.

(To be continued.)

HEALTH AN AID TO MORALITY. — Vigorous health is conducive to good morals. If you want a boy to have good morals, the way to begin is to train his muscles. It seems to me that the training of the muscles of the boys and girls is one of the most important things that can be considered in this day and age of the world. If a child's muscles are quite thoroughly trained up to the age of sixteen or eighteen years, he is laying in a stock of mental, moral, and physical health that will last him a lifetime. It will be found of more value to him than if his father had left him half a million dollars. — *Sel.*

DON'T think that an occasional or even regular practice of gymnastics, is enough to correct defects of frame and figure. You must *live* the principles, all the time in attitude, carriage, right breathing, and nerve control. — *Myra Pollard, A. M.*

BE STRAIGHT.

THERE is every reason for maintaining an erect position in standing or walking, and of being straight even in a sitting position, but no reason can be brought forward why any one should be crooked, except that of natural or accidental deformity. It should be a matter of personal pride with every one to be straight, because by being straight one accepts that great privilege which God has given to humanity only; namely, the power to stand erect, man being furnished with a spine which, properly treated, serves as a column to support the body in an upright position, all the bones, joints, and muscles being arranged to make it possible to maintain this erect posture without fatigue.

A second reason why every one — boy, girl, man or woman — should try by force of the will to be straight, is that grace of figure and movement is impossible with a crooked, stooping body, which not only gives an appearance of ungainliness and awkwardness, but of positive stupidity and slowness of temperament, if not of extreme dullness and laziness amounting to sloth. It is quite possible, indeed it frequently happens, that where there is natural deformity of the spine, the intellect is exceptionally bright and quick, but it is very difficult, as a general thing, to associate a keen intelligence with deformity brought on by carelessness and sloth.

A third and most important reason why people should endeavor to be straight is for health's sake; because a body bent forward by the shoulders and mid-spine, causes compression of the vital organs, the true place to bend the body being the hips. Many persons do not know this, and consequently err ignorantly; instead of keeping the head erect and the shoulders well back and bending forward, when necessary, from the hips, they round their shoulders, crook their spines, and crane their heads and necks forward in a most ungainly manner, continuing this habit until by force of habit the position becomes natural.

With the majority of cases these deformities commence in early youth, the child acquiring a habit of lounging at desk or table with the head down, the shoulders rounded, and the spine curved outward, and as a consequence the stomach and abdomen drawn in and compressed. This habit indulged in through the child's growing years, causes ill health and consequent deformity. — *Domestic Journal.*

MODERN WASP WAISTS.

A STUDY of the matter of proportion in the human figure during the last fifteen years, led us long ago to the belief that the average civilized woman, at least in this country, has a waist too small for the rest of her body. We will not venture to say, as some irascible critics have said, that the narrow waists of our American women are productive of waspishness of temper, but we have demonstrated by a very careful study of the matter in hundreds of cases that smallness of waist in woman is a deformity, and is invariably connected with other deformities, such as prolapsus of the stomach and bowels, dilatation of the stomach, prolapsus of one or both kidneys, displacement of the womb, congestion and displacement of the ovaries, and other morbid conditions which grow out of those mentioned. It is a small waist which renders the American woman so much of an invalid, and so feeble, when compared with man, that she has come to appropriate without remonstrance the appellation, "the weaker vessel." What is the proper waist proportion? is a question which has been earnestly asked by those who are seeking through physical culture and the adoption of a healthful mode of dress, to acquire natural symmetry and proportion.

We have endeavored to solve this question by the study of the waists of peasant women and the women of savage or semi-savage tribes, and lastly by a careful study of the proportion of ancient statues of women. We made the basis of our study the relation of the waist measure to the height of the individual. This proportion is obtained by dividing the waist measure by the height, the result being the percentage of the height represented by the waist. In the Venus de Milo we find the waist to be 47.6 per cent of the height, while in the average American woman it is less than 40 per cent of the height, which means a difference of several inches. A woman five feet four inches in height, with the same proportions as the Venus de Milo, would have a waist measure of 30 inches. A waist 40 per cent of the height would be but 25.6 inches. The difference between these two measurements must show just the difference between robustness and abundant vitality, and weakness, suffering, disease, and inefficiency.

The writer has recently made some studies of the waist width, or breadth, in ancient models, and found the width of the trunk at its smallest part in the Venus de Milo to be 15 per cent of the height. In the Venus de Genetrix the percentage is slightly less, while in the Venus de Medici it is a little more than 15 per cent. The average of fifty American women taken without selection was found to be 14.5 per cent.

This fact confirms the previous observation made respecting the complete waist measurement, as there is found to be a constant relation between the width and the circumference of the waist. The longer we study this subject, and the greater the number of observations we are able to make, the more we become convinced that the small waist of the American woman, instead of being an element of beauty, as maintained by a gynecologist of some repute, at the last meeting of the American Medical Association (we are glad to say his remarks found no sympathy in the audience), is a serious deformity, the consequences of which are grave and far-reaching.

THE "MASTER TISSUES."—This is the term applied by Prof. Hartwell, Director of Physical Training in the Boston public schools, to the muscular and nerve tissues. Dr. Hartwell very truly says that "the chief function of all the other tissues of the body is to serve either as their purveyors or scavengers. The nervous tissue is the *masterful tissue* by reason of its animating and controlling influence upon all the other organs of the body. The main field of education is the nervous system, and at least three quarters of school instruction being directed, wittingly or unwittingly, to the development of orderly, purposive, neuro-muscular actions, we cannot escape the conclusion that systematic and well-directed exercise of the muscles is requisite for the maintenance of the health of the brain and for the development of its full powers. The structural integrity and functional power of the purveyor and scavenger tissues, are indirectly promoted by muscular activity; while the most important direct effects of muscular exercise are (1) the attainment or maintenance of normal size and strength by the master tissues, and (2) the acquirement of correct and economical habits of neuro-muscular action.

"The ends of physical training, then, are hygienic on the one hand and educational on the other. No comprehensive system of physical training can be considered safe or rational, in which these ends are not clearly recognized and intelligently provided for through the adaptation of its exercises to the varied and varying wants and requirements of the individuals to be trained, in respect to their sex, age, strength, mental capacity, and calling in life. The results which should be secured by such a system are briefly these: Erect and graceful carriage of the head and trunk; a broad, deep, and capacious chest, in which the heart and lungs, developed to their normal size and strength, shall have free, full, and regular play; square shoulders; a straight back; fully developed and well-rounded limbs; and the power to execute with ease, precision, and economy of force, such movements as are involved in the simpler exercises of strength, speed, and skill, and in ordinary gymnastic and athletic feats."

HEIGHTS.—Two or three years ago, Harvard University offered a prize to the man or woman who should show the nearest approach to physical perfection in proportion. The young woman who gained the prize was 25 years of age, 5 feet 5 inches in height, and weighed 130 lbs. The male winner of the prize was 6 feet 1 inch in height. Dr. Sargent gives the following table of average heights, which he prepared from the statistics of Dr. Weisbach, of Constantinople, who has measured hundreds of individuals of many different races.

	Feet.	Inches.
Henry C. Jackson, Maine	6	1
New Zealand Maoris	5	10⅞
Kafirs of Africa	5	10
Norwegians, average	5	9
Scotch, average	6	8½
Swedes, average	5	8
English and Irish, average	5	7⅝
Danes, average	5	7½
Germans, average	5	7⅛
Italians, average	5	6¼
French, average	5	6¼
Spanish and Portugese, average	5	6
Jews, average	5	3

WHEN the body is perfectly adjusted, supplied with force, perfectly free, and works with the greatest economy of expenditure, it is fitted to be a perfect instrument alike of impression, experience, and expression.— *W. R. Alger.*

THE rhythm of a perfect walk is not only delightful but restful; so that having once gained a natural walk, there is no pleasanter way to rest from brain fatigue than by means of this muscle fatigue.— *Annie Payson Call.*

THE EVOLUTION OF THE RAINY-DAY CLUB.

BY E. L. SHAW.

[Extract from paper read before the Michigan Woman's Press Association, at Bay View, July 21, 1892.]

TIMES have greatly changed for women during the last half century, and the narrow, contracted views held in the days of 1840–'50, seem meager enough beside the grand outlook of possibilities opening before her in the year eighteen hundred and ninety-two. In nothing is this difference more noticeable than in the matter of dress. We can scarcely realize how much freedom in dress the clamor of the minority has brought us,— what a shame that it should be only a minority! — until we come face to face with facts and figures or reminiscence. . . . Yes, martyrdom for the sake of clothes has almost gone out of fashion with women. . . . There is one belief left, however, for which the majority of us are still ready to do and die. The long skirts tangling about our feet, tripping us up, and dirty and inconvenient always, were long ago outgrown in the needs of this busy, bustling age, but somehow only a few of us seem to have found it out. It may be all very well for the woman of infinite leisure — *while* she has infinite leisure — to pose as a Greek statue, but it takes a good deal of time, and the modern American life is a life of many unforeseen ups and downs, and as like as not just as the average woman gets herself comfortably settled on her pedestal, Fate comes along, gives her a back-handed cuff, tumbles her off, and drives her out into the world to earn her own daily bread. Then she finds her classic, flowing drapery terribly in the way!

Among the experiences of my early childhood is a certain (to me) intensely interesting one in relation to long dresses. I was the youngest, and among my baby possessions which had descended to me by the kindly law of household entail, was a wooden doll. She was crude and homely in all unloving eyes, but was nevertheless to me as a gift from the gods. She was dressed of course in the costume of an ordinary woman in her best, and so saying I have little need to add that she wore a long, a *very* long dress. I loved that doll with my whole childish heart, and as such love is n't supposed to criticise its object, I think it must have been after one of her dear eyes got rubbed out, or the charms of her round, shiny head had slightly palled upon me by overmuch possession, that an unlucky joke of some of the family set me to thinking, and all at once I grew to have a suspicion about her. One fateful day, I remember, I explored the mysteries of her make-up. Was n't I both puzzled and disgusted when I discovered that the doll of my bosom had no *legs!* It was a great shock. But she was my very ownest own; I just 'pended on her you know, and I must love her, and I could n't if she was a horrid, abnormal thing! So I reasoned the matter out in this way. I just had to, you see, to make life bearable. Happily, in childhood's domain of "make-believe" all things are possible. I said to myself with baby logic, that women did n't any of them *look* as if they had legs any more than my dolly did, therefore what was true of her was probably true of them also. Having settled the question thus, I rested. I accepted my own dictum fully, but I was never done speculating about it. Were women created so different from little children? or did little girls lose their legs as they grew up? I invented no end of theories as to how they lost them. Did n't they miss them dreadfully? How, in fact, did they ever get along without them? My own free, nimble, little legs carried me to the remotest boundary of my world; carried me triumphantly over and through every obstacle in life,— so fast and so far,— O how could anybody ever do without legs! Then being quite a prankish, imaginative young individual, I would have special seasons of frightening myself. Belonging as I did to the legless sex, *I* should be certainly called upon sometime to give up *my* legs

too! But I was too healthy and happy; fancies however dire disturbed my peace only for the moment, otherwise I know I should have been afraid to grow up.

And with good reason. For alas and alas! my baby fancies about my doll were both portent and prophecy. For if I were not to be deprived of my legs entirely as soon as I grew to womanhood, I was to lose the free, untrammeled use of them, which amounts to much the same thing. If they were neither to be chopped off by the dreadful ax of some horrible ogre, nor to be painlessly eliminated by some natural process, they were still to be seized upon at a certain period by that implacable old tyrant, Custom, and so swathed and bandaged, so tied together with hoops, and so wrapped about with yards upon yards of cloth that a single free step would be impossible. No, I really do not think it would have paid me to grow up had I known that the physical freedom in which as a child I so reveled, and could hardly get enough of, must be sacrificed; that even my pet walk — a delightful sort of "lope" that made me the butt of endless jokes at home, but the envy of my playmates, would have to be forever given up; because, forsooth, as a woman I must never expect really to *walk* again; I must henceforth only waddle, or by way of variety, flounder and trip. . . .

Webster defines evolution as a "growth, a development," and this is what the rainy-day club is; a growth of the new phase of the dress movement. We who look with covetous eyes upon the fair proportions of the rainy-day dress, who so long these hot days to slide out of our horrid, sweltering, long dresses, and slip inside a light, cool, roomy suit with skirt reaching a trifle below the knee, being but women and, as I said before, in the minority, are fearfully timid. . . . Scarcely ten of us throughout the whole United States dare singly and alone to wear such a suit, even though our lives might depend upon it. But bless you! when there are a lot of us together, we are as brave as brave can be! It is this woful need of social support and countenance by poor Woman-afraid-of-her-shadow that has specially called out the rainy-day club.

The terms "rainy-day dress," "rainy-day club," are indeed happily chosen. They are in many ways specially adapted to help forward Woman-afraid-of-her-shadow in her sometime emancipation from long, tangling skirts, as no other like terms have ever been. These terms are newly coined for one thing; and women are notorious for liking even old things better when dubbed some new name. They are not shockingly abrupt and rudely suggestive of reform for another; but instead, wear a witching air of vagueness and indefiniteness, giving some scope to fancy — an atmosphere woman particularly dotes on. Best of all, though we join a rainy-day club, we do n't really stand committed to anything in particular — women do so hate *that!* We can wear the dress and not wear it; ignore it whenever and as much as we please, and yet still get the benefits of its blessed freedom of limb and muscle, every now and then, and that too in the company of scores of other women just as much afraid of anything really known as "dress reform" as we are.

There are infinite possibilities, too, in the rainy-day dress; possibilities for woman's deft and supple fingers to work out, with her intuitions of color and harmony and the marvelous taste which can throw a glamour over commonplace things. No short dress need ever be ugly *because* short; certainly never irredeemably so. Mrs. Ingersoll's suit and the Jenness Miller idea are capable of almost limitless variations.

The rainy-day club has possibilities too, more than at first appear. The club room may be made anything from a gathering place in which to knit, crochet, or comfortably to backbite our neighbors or the absent members, to a spot rich in influence and association, a nucleus of pure, elevating thought, a rich leaven of broadening culture for the community. None of us will be expected to drop our individuality as we do our long dresses, at the club threshhold, and the trend of the rainy-day club will be like that of any other guild,— in the hands of its members. . . . Every perfectly well woman is without any sort of doubt a *good* woman. It is partly, I am sure, because so many of us are filled with constant aches and pains that we are ever bitter, spiteful, or unsympathizing, as they sometimes say of us. But give us a loose, comfortable dress, with skirt ending just below the knee, or even just above the ankle, and it will do more toward making us large, sympathetic, and considerate to our fellows, than anything else in all the world. We shall have new heart, new courage, to put into life when we can move each limb freely. How should it be otherwise? When once women are recognized as bifurcated beings, their first impulse will be to get out of doors into the blessed air and sunshine, and walk, *walk* ceaselessly. There will be a delight in walking such as we have never conceived of. We shall then come into our own in many ways; into our lost heritage of health; and we shall literally walk off our aches and pains, and grow large, liberal, and above all, kindly and good-natured.

WHICH WAS THE BETTER WAY?

"O mamma!" cried little Harold Brandon, "you should have heard Dick Stuart; he's been telling such awful stuff — just horrid — he says —" and then followed a brief account of a profane and really disgraceful conversation he had heard, coming home from school a few minutes previous.

"Harold!" exclaimed his mother, with scarlet face, and eyes flashing with mingled pain and anger, "never let me hear you speak of such things again! It is terribly wicked of Dick Stuart, and you are a very naughty little boy to listen to him. You have grieved me greatly by your conduct."

"But, mamma, Dick says such things are true and —"

"Not another word, Harold! Dick is a wicked boy. You must never listen to him again. Good little boys never speak of, or listen to, such talk as that. Now run away to your play, but remember what mamma has told you."

Ashamed, although not exactly penitent, Harold ran out of the room. He was an honorable and dutiful little fellow, and he tried not to think of what Dick had said, but occasionally it occurred to him in spite of his efforts.

"I shall ask papa; he will tell me. Mamma always shuts me up so," he thought a little indignantly; but this hope was nipped in the bud.

Mr. Brandon returned to dinner soon after, and Harold followed him at once to the library, where his mother was still sitting. He was wondering how he could secure his father's undivided attention for a few minutes, when Mrs. Brandon exclaimed,—

"Henry, do you know your little boy has been very naughty? He has been listening to such horrid talk, and then came and repeated it to me."

She glanced at her husband as she spoke, with an expression her little boy thought meant a great deal more than her words. Mr. Brandon was a quiet man, absorbed in his profession, and with unlimited faith in his wife's ability to train up their child in the way he should go. He rarely interfered, and on the present occasion contented himself with saying: —

"That was very wrong, my boy. You must not listen to anything your mother or I would be displeased with; neither must you repeat such words."

Certainly, to his mother Harold never did. . . .

When Harold was twenty-seven, he fell in love with a beautiful girl of twenty-one, and was fortunate enough to win her affection.

One evening a month or two after their marriage he thoughtlessly expressed himself in a manner that made his young wife shrink from him in horror.

"You do not mean that? It cannot be possible that you really hold such views?" she said tremulously. And it seemed to him as he looked into her white, pained face, and dark, horrified eyes, that he had not meant it, although it had been one of his pet theories among men for years.

"No, no! I merely give you the side most men take."

"Never speak so again, Harold," she said earnestly. "Do not associate with men who are so immoral, for immoral they must be, at heart anyway, to hold such views. If — if you were to speak and think in that manner, it would almost kill me."

"If it did not kill her, it would at least slay her love for me to know me as I am. I must be careful and shun those hounds," her husband thought uneasily. The "hounds," as he called them, had been for years his dearest associates, and were considered very eligible young men by half the mammas in town, but Harold's mind was undergoing a great change. . . .

Years after, Harold Brandon was lying on the lounge in his wife's pretty sitting room one afternoon, suffering with a neuralgic headache. His wife was sitting beside him, smoothing his aching temples with a soft, almost mesmeric, touch. Just as she fondly hoped he had fallen asleep, the door was gently opened, and their only son, a bright, handsome lad of nine years, came on tiptoe across the room to her.

Grace glanced anxiously at her husband; his eyes were closed, and he seemed to be sleeping peacefully; he was not easily aroused; so she kissed little Earl and held a bright, whispered conversation with him.

"Mamma," he said presently, lifting a flushed, eager face to her fair, sweet one, "Joe Bruce is a very rude boy. He has been telling us such strange and wicked things."

Harold Brandon's eyes half opened, and he glanced from his wife to his child a little uneasily. They did not notice him; so he feigned sleep again.

"Would you like to tell me about it, Earl?" Mrs. Brandon inquired gently.

Earl looked at her doubtfully.

"Joe said if I asked you about it, you would punish me; I knew you would n't, mamma," he said, after a moment, and then he went on to tell her very much the same story his father had told his mother nearly thirty years before.

"O my dear little boy, I am grieved you have heard this," said his mother, tremulously, and she drew him closely into her arms as if to shield him from some evil. Looking up, Earl saw that her eyes were full of tears.

"O mamma, I am so sorry!" he exclaimed.

"Is there anything you would like to ask me about?" she inquired, gently.

"Yes." He asked her a question; she answered it wisely, in a way to satisfy his curiosity.

"You will not play with Joe Bruce or such boys, dear? Do not listen to such rough language. If you cannot help hearing, and anything excites your curiosity, do not repeat it to any one else, but come straight to me. If I cannot explain it, papa will, if you are old enough to comprehend. You know, Earl, there are many things in your books you are too young to understand, and there will be just as much you will hear outside, probably."

"Mamma, why does Joe Bruce speak so?" he asked, curiously.

"He must naturally be a bad boy, and he wishes to poison your mind as his own has been poisoned, I am afraid. You will remember, dear, and you will not listen to or repeat such language, unless, as I said before, you want to know what is true."

"Yes, mamma, I will try not even to think of it."

"You are mamma's own good boy. I am so glad my darling came straight to me with this poisonous stuff," his mother said. Then she kissed him and sent him away on some pleasant errand.

"Grace," Mr. Brandon said gravely, as the door closed after Earl. His wife started nervously; she had almost forgotten his presence.

"Oh were you listening?" she asked, distressedly. "Was it not painful, Harold? Our dear little Earl to hear that!"

"It will not hurt him with such a mother," her husband said quietly.

"Harold, what should I have done? You will know better than I, for you were a boy once yourself. Was I wrong in speaking to him as I did?"

"I think God gave you your intuition, dear," he said. "I went astray just where our boy stood a while ago. If my mother had talked to me as you just now talked to Earl, your husband would have been more worthy of you, Grace."—*Sel.*

ONE STANDARD OF MORALS.— The *Progressive Age*, Minneapolis, Minn., publishes the last annual report of the Maternal Hospital in that city, which shows that three fourths of the patients are unmarried mothers. In her report, the attending physician, Martha G. Ripley, M. D., says: —

"As it is within the province of the physician not only to point out the causes of disease, but to suggest preventive measures as well, your earnest attention is called to the greatest cause of such sad statistics as ours. That is, the different standard of morality for men and women. A young man may lead an impure and immoral life, and the world thinks little the worse of him. At the most he is but 'sowing his wild oats;' it is assumed that he will steady down; no one remembers it against him; while his partner in sin (though she may be his victim) is degraded for life, in the years past has had no refuge but the grave; and kind-hearted women who have attempted to shelter her and encourage her to lead a better life have been told that they were 'encouraging vice.'

"One way to purify the moral atmosphere is to exact the same standard of moral purity for men as for women. When the father of an illegitimate child is as much under the ban of good society as the mother, the time may come that we shall have 'reformatories for fallen men' as well as for fallen women. What should be the social standing of a young man who engages himself to several girls in the space of a couple of years, for the sole purpose, it would seem, of ruining them? Such is the record of one of our popular clerks. His victims were young, affectionate, and foolish girls. The warrants sworn out against him will prevent his carrying on the work here; but other girls are at his mercy elsewhere, and the law is inadequate to punish him. If, at the first offense, he had felt that the world would hold him responsible, as it does women, might not this have had a restraining influence?— It surely would."

KEELEY TRICKS.

THE *Bulletin of Pharmacy* calls attention to an announcement of a Medical Aid Association, said to have been recently organized in Chicago. The *Bulletin of Pharmacy* says: —

"This Association is ostensibly designed to supply the public with the services of the physician, druggist, and dentist, at cut rates, but it in reality offers such service as a premium for securing patrons for a Keeley Institute. 'For ways that are dark and tricks that are vain' this arrant quack, Keeley, is peculiar."

After a description of the plans of the Association, and the terms which offer medical advice to single individuals at fifteen cents per week, and families of twelve at fifty cents per week, smaller families in proportion, the advertisement of the Keeley Institute appears in the following paragraph: —

"The Medical Aid Association is desirous that all should know: (1) That a KEELEY INSTITUTE for the cure of drunkenness and the morphine disease is in successful operation, having been opened for patients March 15, 1892, as one of the departments of the Medical Aid system. (2) That this Institute is under the supervision of Dr. Keeley, and is the only Institute in Chicago having his approval or recognition. And that this Institution was opened and is operated for the benefit of those unable to attend the Dwight Institute, and in which patients are treated at absolute cost. (3) That citizens of Chicago graduating at this Institute are entitled to membership in the Medical Aid for themselves and families for one year from date of enrollment, and are entitled to all its benefits, and those outside of the city are entitled to the same privileges, except that they receive medical and surgical attendance at the main office of the Association only. We invite your earnest consideration of this matter in behalf of your fallen and unfortunate friends."

Any one who has a grain of common sense will recognize the wolf underneath the thin covering of wool afforded by the shallow pretense of philanthrophy. The rapid decline of public interest in this pretended panacea for drunkenness has led the managers of the shrewd scheme to adopt every possible means for perpetuating their business.

The Keeley enterprise would never have come into prominence, had it not been for the fact that the apparent cures effected by it have led many honest, intelligent people to give it their support.

The apparent success of the so-called, "double chloride of gold" cure for drunkenness has given rise to dozens of other gold cures and panaceas of different sorts.

That many persons have been cured, at least temporarily, by these various remedies, which seem to be about equally successful, cannot be accepted as evidence of the correctness or reliability of the method.

The difference between the Keeley cure of drunkenness and the rational cure is precisely the difference between high license and prohibition. It is a difference of principle.

The rationale of the Keeley cure is simply an overwhelming of the system with a poison still more potent than alcohol until the patient is made so sick from the effects of the strychnia and atropa — two of the most deadly of all known drugs — that he can endure no additional poisoning, not even that of alcohol.

The fact that his craving for liquor is at the time abolished, makes a powerful impression upon him, which is heightened by the assurance that the appetite is destroyed forever. This cannot be true, as there is no power in any drug to so suddenly change the condition of the body from one of disease to health, when the disease depends upon a morbid state of the vital structures of the body.

So long, however, as the individual maintains in

his mind the firm belief that he has lost his appetite for alcohol, he is safe — at least from this form of intoxication.

The moment he discovers the untruth of his fancied security, he is back in the gutter again.

The Keeley cure, as well as other similar cures, is an ingenious combination of mind cure with a powerful drug. The drug makes the patient sick and temporarily destroys his morbid craving, a result which the physician assures him is permanent, and which is permanent so long as he believes.

In Germany the same results have been obtained by confining the drunkard and supplying him with alcohol *ad libitum*, which is also a part of Mr. Keeley's method; but in the German treatment every article of food, as well as of drink, is flavored with alcohol. The result is the production of such an intense disgust for the stimulant that in a large proportion of cases a radical cure is effected.

I knew of a lady who cured her husband by locking him up with a keg of beer.

The Keeley method and all other medicinal methods, are as powerless to cure the vice of drunkenness as to cure theft, profanity, or any other vice.

As we have said before, if it were possible to convert man by means of a hypodermic syringe, the whole method of missionary work would be revolutionized. It would only be necessary to capture the heathen at home and abroad by force of strategy, then inject the proper kinds and doses of drugs suited to the different classes of moral maladies, and sin and iniquity of every sort would be promptly annihilated.

ANOTHER VICTIM OF CHRISTIAN SCIENCE. — We quote the following article, which speaks for itself, from the Cincinnati *Lancet-Clinic* : —

"The people of Ohio should require no stronger evidence of the crying need of more stringent laws regulating the practice of medicine in this State than that which has been made public in Cincinnati, during the past week. A coroner's inquest has brought to light the fact that a child of three years was permitted to suffer for more than a week, and finally died in convulsions, without a physician being called in, or any medicine being administered. This murderous neglect on the part of the parents of this innocent and helpless child, was not because they were not solicitous for its recovery, but because they were disciples of that abomination of abominations which parades under the misnomer of 'Christian Science.' An avowed exponent and leader of this deluded sect, which is neither Christian nor scientific, was consulted when the child was first taken ill, and for a week gave it what they term 'absent treatment.'

"Finally, the day before its death, the child's condition becoming alarming, the Christian Science woman visited it at its home and gave it different treatment (?). When asked at the coroner's investigation to explain the nature of this treatment, she replied that none but the initiated could comprehend it; it was a new kind of prayer which is "realizing the truth." She further stated that no other treatment than that given in this case is ever given by this sect in any case of sickness or injury. A broken arm or severed artery would be treated in the same manner, as they are not permitted by their method ever to touch a patient.

"And yet these people continue to trifle in this manner with human life, unmolested by the laws of this great State. The voice of protest should be raised all over the land, demanding statutes prohibiting men and women from engaging in any form of medical practice without first acquiring a thorough knowledge of the arts of healing as developed by the experience of centuries."

THE KEELEY CURE AND INTEMPERANCE. — Many temperance people have aided and encouraged the quackery carried on at Dwight, Illinois, by Dr. Keeley, with the supposition that his work was a valuable assistance to temperance reform; but a more careful consideration of the matter shows that his work and teaching have a direct tendency to increase intemperance. The Rockford *Saloonkeeper* asserts that "Keeley's method of treatment makes men more reckless about drinking," and adds, "I have heard several men say that if they got too far along, they could go down to Dwight and get placed on their feet again."

If, as Dr. Keeley says, drunkenness is not hereditary but is a cultivated habit, certainly the man who cultivates the habit is responsible; and how is it possible to assert that it is not a disgrace to him? A man whose moral perceptions are so obtuse that he is unable to recognize anything disgraceful in a drunken debauch, and who will teach such notions to men who need to be impressed with the awful criminality of their conduct, and the dishonor which it brings upon both them and their friends, certainly cannot be looked upon as a benefactor of humanity.

GOOD HEALTH
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BATTLE CREEK, MICHIGAN.

LIVE ANIMALS IN THE STOMACH.

THE editor of one of our most excellent contemporaries, the *Sanitary Era*, takes us to task for asserting, not long since, that "no case ever occurred in which there was a living snake or any other living reptile in any human stomach." We confess that this statement was somewhat loosely made. What we should have said, is, that no case ever occurred in which a living animal not belonging to the class of intestinal parasites, has continued to exist for any considerable length of time in the live human stomach.

To state this more explicitly: We are willing to stand by the idea expressed in the words quoted by the *Sanitary Era*, and our faith in this doctrine is not at all shaken by the case quoted by the *Era* from the *Medical World*. The case is described by a doctor, as follows: —

"During a fit of coughing, she (the patient) felt something come up in her throat, which she grasped, withdrawing a living crawfish, measuring four inches in length, and its claws, or pinchers, if distended, would measure four inches from tip to tip. Its color was a dark red, or garnet. It only lived a short time after being expelled. I have it in my office at present. It is quite likely that the woman drank this when it was quite small, or in an embryonic state, the source from which she obtains drinking water being very stagnant. Since its expulsion she is rapidly improving. She feels no more of the clawing and choking sensations."

There are several things very remarkable about the case above quoted: —

1. How could the patient have swallowed such an animal as a crawfish, even one quite small, without discovering that something had "gone wrong"?

2. Why did she not vomit the crawfish when it was swallowed? It certainly seems incredible that so large a crawfish could have been expelled through so small an opening as the esophagus.

3. Why did the crawfish die so suddenly after having gotten into the fresh air where it had a good chance to breathe? It would certainly seem strange that a crawfish which could stand the bad conditions of life afforded by a human stomach until it had acquired mature development, should have been so suddenly killed by a breath of fresh air. It is very much more probable that the doctor who related the incident was imposed upon.

An experiment not long ago made by an eminent physiologist, in our opinion sets this question forever and wholly at rest. The experiment was made upon a dog. A gastric fistula of considerable size was made. When the dog had fully recovered from the operation, the hind legs of a frog were passed from the fistula into the stomach, the frog being kept in position by a bandage. In the course of a few hours, the animal was removed, when it was found that his two hind legs had, during their sojourn in the stomach, been almost completely digested, showing most conclusively that the stomach is able to digest any living substance which is not provided with special means of defense against the corrosive action of the gastric juice.

So long as the crawfish was evidently not intended by nature to live in a human stomach, it is reasonable to suppose that the stomach possesses power to digest a live crawfish as well as a dead one. Certain it is that the stomach is capable of digesting itself, and frequently does so after death. It is not an uncommon thing to find the stomach perforated by *post-mortem* digestion. The ability of the stomach to defend itself against the corrosive action of its own digestive juices, is one of the marvels of physiology, but it is a property possessed only by a live

stomach and not by a dead one. If the stomach can digest a live oyster, stomach, liver, and body, why not a live crawfish as well?

We are in full sympathy with the earnest efforts of the *Sanitary Era* to encourage the use of pure drinking water, and the thorough filtration of all natural waters is a measure which we heartily approve. Nevertheless, we do not imagine that the swallowing of live crawfish and their subsequent development in the stomach is to be properly numbered among the dangers arising from the use of unfiltrated drinking water.

ASTONISHING MEDICAL ADVICE. — A hospital has recommended that women whose nerves are irritated by small worries should calm them by resorting to smoking "if their doctors recommend it." This suggestion has caused a protest prompted by horror or disgust that the fair sex should be recommended by medical authority to assume the pipe, the cigar, and the cigarette, which, for the most part in this country, have been monopolized by men, smoking by women being chiefly confined, as one writer well says, "to the fast and the loose."

Some voices have been raised in defense of the surgeon, however, Mr. James Payne maintaining that there is no more reason why men should have all the benefit of tobacco, than, as John Wesley observed, "that the devil should have all the best tunes." We rather agree with Mr. Payne. If tobacco is good for men, no reason can be offered why it should not be good for women also. Belladonna, stramonium, strychnia, opium, and even alcohol, as well as all other drugs, with the exception of tobacco, are prescribed for human beings without distinction of sex; why, then, does the doctor draw the line at tobacco? Is there any particular virtue or lack of virtue in man which renders him susceptible to the therapeutic influence of tobacco, which women do not share? If any such sexual peculiarity exists, it has certainly never as yet been pointed out in any scientific work on therapeutics. If the women have been unfairly treated by not being allowed to smoke when they feel nervous, when their husbands are given full liberty to do so, certainly the injustice ought not longer to exist. If tobacco-using is good for men, it is good for women also. Possibly the assumption of the pipe and the cigar by women, would be the best means of exhibiting to men the enormous filthiness, harmfulness, and costliness of the use of the weed. We are inclined to think that the item of expense would appeal powerfully to the average smoker. How many men who smoke half a dozen twenty-cent cigars per diem would be willing to supply their wives and daughters with an equal number of fragrant Havanas every day of the week? There is a recognizable relation between smoking and selfishness.

We have no fears that the advice of the hospital will be followed. The women of America are coming to recognize pretty unanimously the fact that tobacco is an enemy of the virtue of American women and of the home, and their voices are being raised in an outcry against this invader of the purity and sanctity of the household; and before many years, doubtless, her hand as well as her voice will rise in protest at the ballot-box, in the shape of prohibitive laws against this intolerable nuisance, the tobacco habit, the foreshadowing of which may already be recognized in the passage of laws prohibiting the sale of tobacco to young boys, and its use by pupils attending the public schools. — *Bacteriological World.*

COLA INTOXICATION. — Some years ago, two European scientists discovered that the cola-nut contains considerable quantities of caffeine, the active principle of coffee, together with theobromine, the toxic agent to which cocoa and chocolate owe their peculiar properties.

In its native country, this nut is used as an intoxicant, and the most absurd stories are told respecting its ability to assuage thirst, appease hunger, and greatly enhance the power of endurance.

A year or two ago, an experiment was made upon a French regiment for the purpose of testing the reputation of this drug for increasing the capacity for endurance of hunger and fatigue. The result, however, was very different from what was expected. The cola-nut was concealed in specially prepared biscuit, and the result was to throw the entire regiment into a state of intoxication resulting in boisterous and unruly conduct, the cause of which being brought to the notice of the French authorities, further experiment of the sort was prohibited.

The *Pharmaceutical Record*, although aware of these facts, devotes a special column to the cola-nut, having for its chief object, as stated, "To emphasize its qualities as an agreeable summer and winter beverage at the soda-fountain, since, in addition to its attributed properties of increasing the capacity to bear bodily fatigue, it allays the appetite and assuages thirst."

This is a fair sample of the value of the dietetic recommendations of many scientific authorities. The fact that the cola-nut will allay the appetite, or hunger, is an indication of the need of food. All the cola-nut is capable of doing, then, is to destroy the sensibility of those nerves which have charge of the function of warning the individual when he is in need of food.

The same is true as regards the effect of the cola-nut in allaying thirst. Thirst is an evidence of the need of fluid. When water is not taken in response to this demand, the blood becomes thick, the action of the various excretory organs is lessened, poisonous substances accumulate within the body, and the greatest mischief may result.

The only possible result from this sort of swindling of the body by putting its vital sentinels to sleep, is an irreparable injury. If the cola-nut possessed the power not only to appease hunger and allay thirst, but to furnish the material out of which the tissues might replenish themselves and repair the wastes resulting from work, it would be indeed a boon to mankind. But it is impossible to get something out of nothing. A pound of bones, muscles, or other tissues requires an equivalent amount of matter for its construction, and the principle involved in the use of coffee, tea, alcoholic drinks, beef tea, and other stimulants, as well as the cola-nut, is simply an attempt to impose upon the body a counterfeit, to make an appearance of strength pass for the real thing, to quiet the warning voices of the various danger-signals with which nature has supplied the system, by a narcotic influence, and thus lead the individual to exhaust his vital powers to a dangerous degree, and to neglect to take rest, food, drink, or other means of bodily renovation until recuperation may become impossible.

Arsenic in Apples. — The *Agricultural Times*, an English monthly, has recently created quite a sensation by calling attention to the fact that American apples are not infrequently dangerously contaminated by arsenic. The editor referred to says, "We have again and again inspected American apples, which we have ourselves taken from freshly opened barrels, and we have seen arsenic and lime adhering to the stem and skin of the fruit. Let any one doubting such statements as these put such an apple under the microscope, with the stem upward, and he will at once see the arsenic crystals on the fruit. Our critics talk as if we were suggesting some miraculous impregnation by the medium of arsenic. We are doing nothing of the kind; they are rather asking us to believe in a mysterious disappearance of arsenic and lime which has been poured upon the fruit wholesale in American orchards. Why should there not be arsenic upon American apples, we should like to know, especially as it is admitted beyond dispute that tons of arsenic are prepared and sold to fruit-growers throughout the fruit districts of the American Union for the purpose of saturating their apples with it?"

We have made no personal investigation of this matter, but it appears from the discussion which has been provoked by the allegation of the English editor that arsenical crystals are sometimes found adhering to the stems of apples, as the result of spraying the fruit with arsenical solutions to prevent the ravages of insects. It must be evident that unless thoroughly removed by washing the fruit, or by the use of some neutralizing solution, arsenic employed in this way upon ripe or unripe fruit must be a source of danger to life. It is hoped that some other means will be discovered for satisfactorily dealing with the insects which prey upon apples and other fruits.

The Mineral Springs Mania. — There seems to have developed during the last few years a natural mania for visiting mineral springs and consuming mineral waters. If mineral waters actually contained the ingredients printed upon the labels of their bottles, a *post-mortem* examination of the stomachs of some persons ought to show extensive mineral deposits of a most interesting and miscellaneous character. The idea that water contaminated with drugs of any description can be more beneficial to health than pure water, has no other basis than the popular superstition respecting disease, which regards it as a sort of morbid entity which is to be driven out of the body by means of noxious agents of some sort. What could be more potent as an exorcising agent than a good, strong mineral water, which has been aptly described by some one as "a smell of perdition and a taste of the sea"?

If any one is likely to get benefit from swallowing the miscellaneous assortment of drugs and minerals contained in average mineral water, how much more benefit might be obtained by indulging now and then in some such delectable beverage as the fluid extract of a drug store, a double distilled extract of a chemical laboratory, a diluted solution of a chemical works, or some similarly constituted miscellaneous assemblage of mineral agents? If mineral water is valuable to some persons because it contains a quantity of mineral substances in solution, the extract of a chemical laboratory would certainly be of

infinitely greater value, as the assortment would be more extensive. We once heard of a physician who kept in his office a jar, into which he emptied the remnants found in the bottles which his patients brought back to be refilled, and whenever he had a patient whose case was not clear to him, and he was not certain as to the nature of the disease, the doctor solved the knotty problem by filling a bottle for him out of this jar of remnants, feeling sure that whatever the disease might be, he would by this means provide his patient with a remedy certain to "hit the case." That he sometimes succeeded, was amply evidenced by the fact that now and then a patient died, — not, of course, from the effects of the medicine, but "by a mysterious dispensation"!

Mineral waters, with the liberal advertising and the deceptive claims made for them, have become so much in vogue, that in some families water which does not possess a strong saline taste and a distinct odor of decomposition, would be scarcely recognized as suited for human consumption.

It is certainly true that some persons are benefited by the use of mineral waters, but it is equally true that no person was ever benefited by mineral water who would not have been equally benefited by the use of an equal quantity of pure water, or of pure water with the addition of the particular chemical elements which were a suitable remedy for the case in question.

The character of a mineral water cannot be determined in all cases — we might say in quite a proportion of cases — by formulas printed upon the labels. Col. Robt. Ingersoll tells a story of an interview with a mineral water manufacturer who exhibited to him a handsome bottle bearing a beautifully printed label and the name of the spring from which the water was supposed to be taken. Col. Ingersoll incidentally inquired of his client where the spring was situated. "O," said the gentleman, "that has not been looked after yet. We have got the name, and we have got the label, and we have got the bottle; we can get the water anywhere!"

The Malaria Parasite. — It seems now to be pretty nearly settled that malaria is due to the invasion of the body by an animal organism which preys upon the white blood corpuscles. The blood of a person suffering from malarial fever, when examined under the microscope, distinctly shows these organisms in and about the white blood corpuscles, which seem to be disintegrated by them. The malarial organisms seem to be indigenous to certain localities, which are called malarious. This theory was first proposed a number of years ago and has been gradually gaining ground. It has not, however, until recently, been generally accepted, but seems now to be well established.

Tobacco Reform in the Khedive's Palace. — Mlle. Marie Negrier, a French lady, who has lived many years in Egypt, became quite intimate with the wife of the Khedive Tewfik Pasha, princess Eminah Hassem; she frequently called at the palace of the princess, and often had occasion to remark the presence of tobacco smoke in the saloons of her hostess. Mlle. Negrier took the liberty on one occasion to remark upon the evil effects of tobacco using, as the result of which the princess became enlightened, and the tobacco very quickly disappeared from her apartments. The above fact is stated on the authority of the *Journal de la Société contre de l'Abus du Tabac.*

Hysteria in the Cradle. — The *Medical Record* recently called attention to a paper read by Dr. Chaumier, of Tours, of the Academy of Medicine, Paris, on hysteria in infants, in which the writer records two hundred cases of hysteria in children under two years of age, and announces the belief that what ignorant nurses, mothers, and doctors have generally considered convulsions, tantrums, or bad temper, are nothing more nor less than attacks of hysteria. According to Dr. Chaumier, the symptoms of this disease in mild form in infants, are repeated and causeless attacks of anger, manifested by loud and angry cries. In more serious attacks, there is stiffness of the limbs, rigidity of the face, and sometimes trembling. In hysteria, babies will sometimes roll about the floor or bed, thrusting out the arms or legs without losing consciousness; others lose consciousness, the body becoming either rigid or lumpy.

Some very severe cases occur even among babies, the doctor finding that cradle hysteria is much more amenable to treatment than the drawing-room variety. We are inclined to think the doctor is right in this theory, having met several cases of hysteria in young girls, where the symptoms were unmistakable.

It is more than probable that a great measure of the peevishness and bad temper shown by young children is the result of physical conditions which are commonly overlooked. We have held this view for a great many years, and are glad to learn of the views entertained by Dr. Chaumier, which it is hoped will aid in working a much-needed revolution in the treatment of small children.

Constipation in Infants. — Mothers frequently ask the question, Doctor, what can I do to regulate my baby's bowels? The great prevalence of constipation in children is indicated by the enormous sales of "Castoria," and various other nostrums supposed to be especially good for "baby's bowels." Constipation is always an indication of some digestive disorder; the fault may be in eating; the food may be too concentrated; the milk may need to be diluted with lime water or barley water; the mother's bowels, as well as those of the child, may be too inactive through too little outdoor exercise. This is a very frequent cause of constipation in children. The cause, whatever it is, must be sought and removed. Two remedies are of great value for relieving constipation in children: —

1. Massage of the bowels; a gentle manipulation of the bowels either outside the clothing or next the skin, well lubricating the hand with oil or vaseline, will relieve the majority of cases of constipation in children, if applied for from fifteen to thirty minutes three times a day. The massage should not be applied in a haphazard way or at irregular intervals, but at regular times, which should be approximated as nearly as possible to the hours when the bowels of the child would naturally move.

2. Another remedy of equal value, especially in cases in which the constipation is due to excessive dryness of the fæcal matters, is a moist abdominal bandage. A napkin should be wrung out of tepid water and applied to the body, and covered with oiled muslin and a dry flannel sufficiently to keep it warm and retain the moisture. This should be worn during the night; dry bandages should be applied during the day. This remedy may be employed alone or in connection with massage of the bowels. By either one or both of the remedies mentioned constipation may be relieved in a great majority of cases.

Ear Discharges. — Nothing is more surprising than the way in which chronic discharges from the middle ear, or a chronic "running of the ears," as such cases are commonly termed, is neglected. We have not infrequently met persons who have been suffering from extensive discharges of this sort for so long a period as ten or fifteen years. Such persons seem to imagine that there is no other possible evil in this condition than the inconvenience which it occasions. No greater mistake could be possible. A writer in the *American Medical Journal* recently and aptly said that a person in such a condition was like a man with a charge of dynamite in his head, which might go off at any moment. Such cases should be submitted to careful examination by a good aurist, if they do not readily yield to the employment of such simple measures as thorough daily cleaning out at first with carbonate of soda, then with a saturated solution of boracic acid or a solution of peroxide of hydrogen. In some cases radical cures may be effected by carefully cleaning the ear with a little cotton wrapped around the end of a toothpick, and then packing it full of dry boracic acid.

How to Revive a Fainting Person. — First, do not offer brandy or any other medicine to the patient to swallow. The most important reason for this is that he is entirely unable to swallow, if he has already fainted. If he has not wholly fainted, something else very much more efficient may be done. In fainting, there is a weak action of the heart. What is required is that the action of the heart should be stimulated. Brandy does not strengthen the heart; it has the effect to weaken its action, consequently brandy and all other alcoholic liquors should be carefully avoided as a remedy in cases of fainting, and in all other cases in which there is supposed to be weakness of the heart. There are several ways of stimulating a weak heart, one of the

best of which is the application of heat over its surface. A few sips of hot water, hot tea, hot milk, or any other hot liquid will act as a powerful stimulant upon the heart. If a hot water bag is not used, a towel may be wrung out of cold water and thrown upon a hot stove, or wrapped around a hot stove-pipe for a few seconds, and it is ready for application. It is well to place a paper between the towel and the heated surface, to avoid soiling it. The hot towel may be slipped under the clothing and placed over the heart, and another may be applied to the back of the neck. Care should, of course, be taken to avoid injuring the skin, so before applying the towel to the patient it is well to test its heat by applying it to the face or bare arms.

Another excellent means of stimulating the heart, is percussion over the region of the heart; two or three smart slaps upon the chest with the hand will usually quickly revive the fainted person. Of course it will not do to strike the chest a severe blow such as a pugilist would strike with the intention of knocking his antagonist down; simply a smart slap which will cause the skin to tingle and will transmit a vibratory movement to the heart is what is required. Percussion of the face is sometimes useful in the same way. When hot water is accessible, it is a much better remedy than cold water as a means of stimulating the action of the heart, but a dash of cold water applied to the face or chest is often useful as a stimulant to the action of the chest, which reacts favorably upon the action of the heart.

THE COCOANUT CURE FOR TAPEWORM. — According to the English monthly, *Health*, Professor Parisi, of Athens, some time since called attention to the worm-destroying properties of the cocoanut when freely ingested. His attention was drawn to the subject from an accidental experience in his own case. It was while traveling in Abyssinia that one day he partook of a considerable quantity of the nut, sufficient to produce an attack of diarrhœa. After a while, much to his surprise, with one of these diarrhœal attacks there came away a complete tapeworm, head and all, and quite dead. After his return to Athens, he made some observations in this line of treatment, and reported an almost invariable success. In only one instance did he fail to secure the head. His method was to order the milk and pulp of one cocoanut to be taken in the morning, fasting, no purgation or cessation from business being required. Dr. Allison has reported a case where the use of male fern, oil of turpentine, and chloroform had successively failed to effect a complete removal of the parasite, but in which the patient by chance partook of a cocoanut, and soon after was relieved of a dead tapeworm with its head. Since then he has had occasion to prescribe cocoanut in this trouble, and has found it the pleasantest of all the worm-drugs, and one that does not require the administration of an aperient.

TO PREVENT CONTAGION. — Whenever a patient is suffering from scarlet fever, or indeed any other contagious disease, it is a matter of first importance to see that the disease does not extend to others. Indeed, there is reason for believing that the malignancy of infectious diseases may be greatly increased by the continued infection of the patient by himself.

It is, hence, of the greatest importance that thorough antiseptic and great precautionary measures should be taken from the very outset of an infectious malady. The first thing to be done is to secure complete isolation of the patient by continued quarantine.

2. Care should be taken to disinfect or destroy by fire or other means, everything capable of communicating the infection to others, such as clothes soiled by sputa or excreta, bowel discharges, etc.

3. There is good reason for believing that in cases of scarlet fever and diphtheria the infectious character of the disease may be greatly mitigated by the employment of antiseptics.

In the case of diphtheria the seat of the disease is in the throat. Peroxide of hydrogen and other antiseptics may be employed to keep the throat in as thoroughly healthful condition as possible, by destroying the microbes as fast as they are produced.

In cases of scarlet fever the source of infectious material is the skin, hence the importance of sponging the patient with suitable antiseptics from the very beginning of the disease, not omitting the application until the end of desquamation, or scaling.

Hydronaphthol dissolved in water in the proportion of one dram to the gallon, is an excellent remedy for this purpose. Antiseptic baths and alkaline baths are also useful for dissolving the dead cuticle and securing its early separation, before it becomes dried and capable of being thrown into the air in the form of fine dust.

POISONOUS FINGER NAILS. — The popular notion is that wounds made by the finger nails are especially poisonous, but it is not, however, because there is any poisonous property in the nails, but because the space beneath the nail — between it and the skin — is usually filled with microbes of various sorts. Examinations made in Vienna not long ago show more

than thirty different kinds of micrococci hidden beneath the nails. Spores of mold and various other microscopic organisms were also present. Surgeons found, long ago, that in preparing the hands for surgical operations great attention must be given to the finger nails, and especially the clearing away of particles of dirt hidden beneath them. It is not necessary to emphasize the need of a perfectly clean and wholesome condition of the nails, as it is apparent that unless this is done, every touch of the finger during a surgical operation, may leave behind it poisonous organisms which, in a favorable condition, may produce even deadly results.

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.

For Bed-sore.— As soon as redness or numbness of the surface appears in a spot subjected to pressure, apply hot fomentations for half an hour twice daily; afterwards apply alcohol, then rub the parts thoroughly with vaseline or olive oil.

Painful Toe. — This affection is usually due to prolonged standing or walking in tight boots. The pain is caused by a stretching and relaxation of the ligaments, causing partial dislocation of the last joints of the toes, in consequence of which the nerves are compressed, and pain is produced which is often quite severe. The pain often occurs suddenly, accompanied by a feeling of something giving way. The removal of the shoe or boot, and rubbing of the affected parts usually gives relief. Sometimes the dislocation is sufficient to be visible to the eye, in which case the bone should be carefully pressed back into place. This return to position is accompanied by a twinge of pain followed by immediate relief. This affection is usually relieved at once by the adoption of a shoe or boot with a broad sole and roomy toe.

Reaction in Cold Bathing.—The benefit derived from cold bathing is not due to the abstraction of heat, but rather to the stimulation of the nerve-centers through the action of cold upon the peripheral nerves, from which results the so-called reaction following the application. In many cases, however, especially neurasthenics, dyspeptics, and anæmic patients, a good reaction does not occur, and consequently the beneficial result desired is not obtained. The class of patients referred to, usually dread cold water, and if they can be induced to employ baths at all, except for purposes of cleanliness, insist upon a temperature so high that the effect is relaxing rather than tonic.

For many years it has been the writer's custom to employ in such cases, a warm bath just preceding the cold application. Persons who have a most inveterate dread of cold water, may be, in a short time, educated not only to tolerate but to enjoy applications of a temperature even 40° or 50° below that of the body. A convenient method is to administer a full bath with a temperature of 100° to 105° a few minutes before the application of the cold spray, douche, shower, rubbing, wet sheet, pack, or plunge, as the case may be. The higher the temperature of the warm bath, the lower may be made the temperature of the succeeding cold bath, and the more vigorous will be the reaction produced. It is important, however, to continue the cold applications a sufficient length of time to produce a strongly tonic condition of the bloodvessels of the skin, otherwise the patient will perspire so freely as to require a second cold application, which is not likely to be followed by so good a reaction as the first. — *Bacteriological World and Modern Medicine.*

Remedy for Burns.—An eminent German physician has recently recommended glycerine as the best of all applications for burns of whatever kind. As soon as possible, apply bandages saturated with glycerine. It is claimed that this application relieves the pain very quickly and secures rapid healing, the burned surface becoming covered with a sort of crust, protecting the sensitive surface beneath.

ANSWERS TO CORRESPONDENTS.

FISH EATING.- A correspondent asks: "As Christ in one of his miracles fed fish to the multitude, is not this a good argument in favor of flesh eating, or at least fish eating?"

Ans.— The Saviour wore sandals and a flowing robe, neither of which would be convenient nor altogether healthful in this country; and even in Palestine, modern customs as regards clothing would probably be found quite as convenient and healthful as those which prevailed 2000 years ago. So long as the Saviour gave no command as regards the eating of fish or flesh, we see no opportunity for building an argument upon a mere incidental example.

SYMPTOMS OF TAPEWORM.— J. H. writes, "How can I tell whether or not I have tapeworm? I have an immense appetite; it seems as if I could not eat enough, and yet I am *very* thin in flesh."

Ans.— In reply to the above and similar questions, we are frequently compelled to say that the only reliable symptom of worms is worms. Persons with tapeworm frequently expel from the body, with movements of the bowels, segments of the worm. The gelatinous or membranous looking material frequently expelled from the bowels in case of intestinal catarrh should not be mistaken for tapeworm or any other intestinal parasite. Segments of tapeworm which are frequently expelled are band-shaped bodies usually made up of several segments joined together. When first expelled, the segments may be seen to execute various movements, contracting and expanding.

GOITER.— S. T., Cal., inquires, "Is there any certain cure for goiter without resorting to the use of the knife?"

Ans.— There are different kinds of goiter, some of which may be cured by the application of electricity, others may be treated successfully by the surgeon's knife, while still others should be let alone.

LOSS OF STRENGTH — WEAK EYES, ETC.— Mrs. J. E. R., Wisconsin, writes thus: "I am thirty-three years of age, married, and have had three children. Am not sick, but seem to have very little strength or vitality. My eyes are so weak that I am hardly able to read or sew, and my memory continually fails me. Diet is mostly bread and butter, vegetables and fruit, with some grains. Would be glad to be told what to do for my general health, also for my weak eyes and failing memory. Would also ask, 1. Is boracic acid suitable to use in diseases like scarlet fever, measles, whooping-cough, etc.? 2. Are tomatoes injurious? 3. If not, should they be eaten cooked, or raw? 4. Would like some hints in relation to massage."

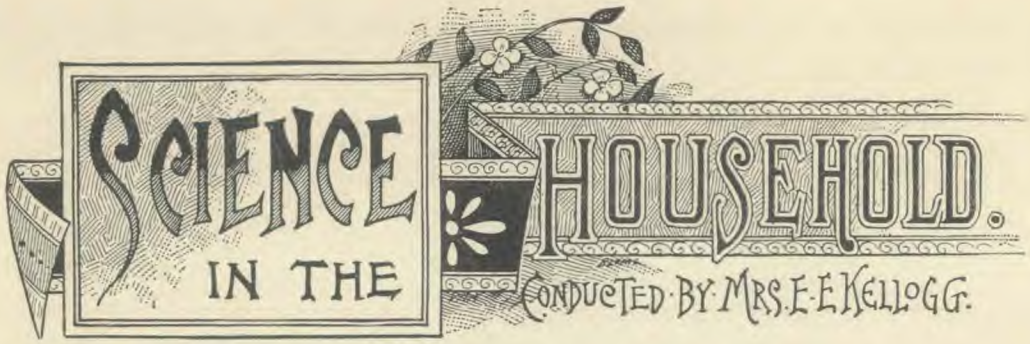
Ans.— You should consult an oculist respecting your eyes, and probably require a thorough course of treatment for the general upbuilding of the system. 1. Solutions of boracic acid are valuable as lotions to be used for the throat, eyes, and also for cleansing the ears when suppuration occurs in cases of scarlet fever. 2. Tomatoes are wholesome food. 3. They may be eaten either cooked or raw. 4. For instruction in massage, must refer you to the "Home Hand-Book of Domestic Hygiene and Rational Medicine."

CHRONIC CATARRH.— F. M., Illinois, inquires, "Is there any cure for catarrh of fifteen years' standing?"

Ans.— Yes; in some cases, however, something more than medicated applications are needed. It is not infrequently necessary to employ surgical means for the removal of the consequences of chronic nasal catarrh. In some cases also the natural structures of the nose have been so much modified by the disease that a cure, while possible, must be made perpetual; that is, the patient must continue the use of certain remedies as a daily routine. After many months, or perhaps several years, they may result in a practical cure.

DISINFECTION OF ROOMS.— Mrs. E. R., Wisconsin, asks, "When disinfecting rooms by means of sulphur fumigation, should pictures, organs, upholstered furniture, and such articles be removed?"

Ans.— In the disinfection of rooms everything which has been in the room during its occupancy by a case of infectious disease should remain during the disinfection; all pictures, upholstered furniture, organs, and similar articles, which are likely to be injured by a fumigation should be removed before the patient is put into the room. An organ would doubtless be utterly ruined by the fumigation, as would also an ordinary gilt picture-frame, as the sulphur fumes would attack the metal reeds, and would be likely to take all the gilding from the picture-frames. Such articles may be disinfected by other means, as for example, by wiping with a five per cent solution of carbolic acid or a 1–2000 solution of corrosive sublimate. Corrosive sublimate will discolor metal articles with which it is brought in contact; it can be used only for wood furniture or varnished surfaces.



FRAGMENTS AND LEFT-OVER FOODS.

ECONOMY, one of the cardinal principles of success in the details of housekeeping, as in all other occupations in life, consists not alone in making advantageous use of fresh material, but in carefully preserving and utilizing the "left-over" fragments and bits of food which accrue in every household. Few cooks can make such perfect calculation respecting the desires and needs of their families as to provide just enough and no more, and the improvident waste of the surplus thus prepared, is in many homes fully equal to one half the first cost of the meal. Scarcely anything need ever be wasted — certainly nothing which was at first well cooked. There are ways of utilizing almost every kind of cooked food so that it will be quite as appetizing and nutritious as when first prepared.

All left-over foods, as grains, vegetables, or others of a moist character, should be removed to clean dishes before putting away. Unless this precaution is observed, the thin smears and tiny bits about the edges of the dish, which become sour or moldy much sooner than the larger mass, are apt to spoil the whole. They should also be set on ice or be kept in a cool, dry place until needed. Left-over foods of any kind, to be suitable again for use, must be well preserved. Sour or moldy fragments are not fit for food.

If properly made from wholesome and nutritious material and well preserved, there are few other foods that can be combined into more varied and palatable dishes than left-over bread. To insure the perfect preservation of the fragments, the loaf itself should receive good care. Perfectly sweet, light, well-baked bread has not the same propensity to mold as a poorer loaf; but the best of bread is likely to become musty if its surroundings are not entirely wholesome. The receptacle used for keeping the loaves should be frequently washed, scalded, and well dried. Crumbs and fragments should be kept in a separate receptacle and as thoroughly cared for. It is well in cutting bread not to slice more than will be needed, and to use one loaf before beginning on another. Bread grows stale much faster after being cut.

Whole or half slices of bread which have become too dry to be palatable may be utilized for making zwieback. Broken pieces not suitable for zwieback, crusts, and trimmings of the loaf make excellent *croutons*, a most palatable accompaniment for soups, gruels, hot milk, etc. To prepare the *croutons*, cut the fragments as nearly uniform in size as possible, — half-inch cubes are convenient, — and place them on tins in a warming oven to dry. Let them become crisply dry and lightly browned, but not scorched. They are preferable to crackers for use in soups, and require so little work to prepare, and are so economical withal, that one who has once tried them will be likely to keep a supply on hand.

The crumbs and still smaller fragments may be utilized for thickening soups and for various dressings and puddings.

If crumbs and small bits of bread accumulate more rapidly than they can be used, they may be carefully dried, not browned, in a warming oven, after which put them in a mortar and pound them, or spread them upon a bread board, folded in a clean cloth, and roll them with a rolling pin until fine. Prepared thus, stored in glass fruit cans, and put away in a dry place, they will keep almost indefinitely, and can be used when needed. For preparing scalloped vegetables of all kinds, these prepared crumbs are excellent; they give a fine, nutty flavor to the dish, which fresh crumbs do not possess.

Left-over grains, if well kept, may be reheated in a double boiler without the addition of water, so as to be quite as palatable as when freshly cooked. Small quantities of left-over grains can be utilized for preparing various kinds of desserts, where the ingredients

require previous cooking. Rice, barley, pearl wheat, and other whole grains can be satisfactorily used in soups in which a whole grain is required; oatmeal, rolled oats, corn meal, grits, etc., with the addition of a little milk and cream, may be made into delicious gruels; they may also be used advantageously in the preparation of vegetable soups, many of which are even improved by the addition of a few spoonfuls of well-kept cooked oatmeal or rolled oats.

Left-over portions of most varieties of vegetables can be best utilized for soups. Cold mashed potato may be made into potato cakes.

Most cook books offer numerous recipes for croquettes, hashes, and fried dishes prepared from remnants of meat and fish, which, although they serve the purpose of using up the fragments, are not truly economical, because they are generally far from wholesome. Most fragments of this character are more digestible served cold as a relish, or utilized for soups and stews, than compounded into fancy dishes requiring to be fried and highly seasoned or served with rich sauces.

Small quantities of unsterilized milk or cream left over should always be carefully scalded, then cooled at once to a temperature of 60°, and put in a cool place, in order to keep it sweet and fresh until the next meal.— *Mrs. E. E. Kellogg, A. M., in "Science in the Kitchen."*

CONTRIBUTED RECIPES.

THE following recipes are contributed by members of the Sanitarium Cooking Class of 1890–'91:—

GLUTEN DRESSING.— Heat one cup cream and one cup milk to boiling and stir in four and one half tablespoonfuls of No. 2 prepared gluten. Cool to lukewarm, add one well beaten egg, salt to taste, turn into cups or pudding dish and steam until the egg is set. Cool and spread on bread as a relish.— *Mrs. W. H. Wakeham.*

NOODLE SOUP.— To one cup of sifted flour add two beaten eggs, mix thoroughly for five or eight minutes, and divide into four parts. Roll each part as thin as a knife blade and lay on a clean cloth near the stove to dry.

Do not allow them to become too dry, or they will be brittle and cannot be cut nicely. When dry enough so they will not stick together, take each piece separately, roll up into a roll, and cut into very narrow strips,— not more than one-sixteenth of an inch in width.

Shake these folded pieces out and allow them to dry still more. When quite dry, drop them into hot salted water and boil twenty minutes. Then add one quart of rich milk and one cup of cream. Heat thoroughly and serve. Salt may be added if desired. If you have rolled them thin, cut them fine, and have not mixed them too stiff, they will be tender, and each noodle will be separate from the others; but if not carefully divided before putting into the water, they will adhere to each other.— *Mrs. D. H. K.*

CREAM MOLD.— Heat one pint of milk to boiling point, add one half cup of sugar, two tablespoonfuls of ground rice or farina wet in a little cold milk, flavor with vanilla, stir until it thickens. When cool, add one half pint of whipped cream, and put the mixture into molds with a cavity in the center. When set, turn out, and have ready some prunes stewed (with a little water and sugar if they are not sweet prunes). Pile these in the center with a trifle of whipped cream on the top.— *Mrs. D. H. Kress.*

QUEEN PUDDING.— Heat one pint of milk, to which has been added two tablespoonfuls of grated cocoanut, to boiling. Remove the cocoanut by turning through a strainer. To this liquid add one half cup of sugar and one half cup of rolled wheat crackers, and let it stand on the stove for a few minutes, cool a few minutes, and add the beaten yolks of two eggs. Turn into a pudding dish, set inside a pan of hot water, and bake in a moderate oven until set— no longer. Beat the whites of the eggs to a stiff froth, add two teaspoonfuls of sugar, and spread on the top.— *Mrs. D. H. K.*

WHITENING LINEN WITH POTATOES.— A laundryman in the vicinity of Paris is said to have discovered a very ingenious method of cleaning linen without soap. He uses no soap, nor lye, nor chlorine, but replaces these substances by boiled potatoes, with which he rubs the linen. This curious process, it appears, is much superior to those hitherto employed, and the worst soiled cotton, linen, or silk, cleaned by this method, are made whiter than they could be by the use of an alkali. Brushes can be dispensed with, and well water be used.

MARION HARLAND says: "The foundation of a happy home is laid in the kitchen."

LITERARY NOTICES.

"TEMPERANCE WORK OF THE WORLD," by E. Cora De Puy, editor and publisher the *Literary Century*, Ann Arbor, Mich. An ably prepared work of between one and two hundred pages, containing a concise but comprehensive history of temperance work from the year 1629, down to the Michigan campaign of 1887, presenting undoubted facts and figures, thus making it an encyclopedia of information upon the subject. With portraits of many noted temperance workers: Dr. Benj. Rush, Dr. Lyman Beecher, John B. Gough, Frances E. Willard, Clinton B. Fisk, Geo. W. Bain, etc. Every person throughout the country needs to know what has been done in the cause of temperance. This little work answers the question fully. Invaluable for reference in the family, and should be in all libraries, upon all reading-room tables, as well as scattered by the thousand in W. C. T. U. work. Price, single copy, 30 cents. Write D. W. Grandon, Adrian, Mich., for special terms per 100 or 1000.

THE *Pansy* for August contains a comprehensive paper on Jean Ingelow, which will be read with pleasure and profit. It also gives a bright bit of American history under the title of "About St. Augustine," and has likewise a goodly number of short stories, poems, sketches, and verse. Pansy and Margaret Sidney furnish excellent chapters for the two principal stories. The illustrations are many and good, making a bright, attractive summer number, and an every way desirable magazine for old and young alike. Price $1 a year; 10 cents a number. D. Lothrop Co., publishers, Boston.

THE *Illustrated Christian Weekly* is published by the American Tract Society. This worthy paper is intended to counteract the influence of the sensational and corrupting pictorials so fatal among the youth of even good families. It is illustrated with the finest wood engravings, enriched by contributions from many of the best writers of the day, contains first-class stories for the youth, well-considered editorials for the thoughtful, and is a trustworthy outlook on the news of the day. $2.50 per year, postpaid.

THE *Quarterly Register of Current History* in the conception and plan of its contents, is absolutely unique in the journalistic field, and no intelligent idea can be had of its scope and purpose except by direct examination. The cream of the world's news is here given in readable and attractive style. All the lost threads of fact which the daily and weekly papers have brought to us, but which have disappeared, are here gathered up and put before the reader in their proper connections. No country is omitted, no important event of world-history is lost. Published at Detroit, Mich. $1 per year.

THE August *Arena* contains the second installment of Mr. Reed's "Brief for the Plaintiff" in the interesting discussion of Bacon *vs.* Shakespeare. Whatever may be said of the abstract merits of the case, no one can fail to be impressed with the ingenious and powerful array of evidence thus far adduced in behalf of Lord Bacon as the author of the plays. Other leading papers in the August *Arena* are by United States Senator James H. Kyle, Hon. Geo. Fred Williams, M. C., Hon. Wm. T. Ellis, M. C., Gail Hamilton, Mary A. Livermore, Louise Chandler Moulton, Helen H. Gardener, Frances E. Willard, Mrs. Gen. Lew Wallace, Frances E. Russell, and the editor of the *Arena*. In addition to these papers, there is a brilliant symposium on Women's clubs in America. The Arena Pub. Co., Boston.

Good Housekeeping for July opens the fifteenth volume of that admirable journal; and though a midsummer number, its generous table of contents will be found as interesting, as valuable, and as varied as ever. It deals not alone with the material interests of the household, but treats in its careful, thoughtful, and thorough way every subject of interest, from the management of the laundry, to the study of the servant question and the cultivation of a spirit of kindly helpfulness and consideration. There is no better or more welcome visitant in the household than *Good Housekeeping*. Clark W. Bryan & Co., publishers, Springfield, Mass.

PROF. DAVID P. TODD, of Amherst College, describes in the August *Century* an ascent of Fuji-San, the sacred mountain of Japan. His expedition was one of several which have been made possible by the bequest of a wealthy and eccentric Boston gentleman, who left a fortune of $200,000 to be employed in establishing and maintaining an astronomical observatory on some mountain peak. Experimental research has been conducted at high altitudes in different parts of the globe, in order to show the precise nature of the improved conditions of vision, and to ascertain the best location for the mountain observatory. The Century Pub. Co., New York.

PUBLISHERS' DEPARTMENT.

MICHIGAN WEATHER. — While nearly all the rest of the country has been sweltering under a scorching July sun, Michiganders have been blessed with cool and refreshing breezes and pleasant summer showers. There were two or three warm days about the time that people were dying at the rate of 50 per day, of sunstroke, in Chicago, but at no time was the weather here as hot as elsewhere. The air being kept in constant circulation, kept the temperature down by contact with a thousand little lakes and streams and the millions of forest trees, which exercise a cooling effect upon the atmosphere, by the evaporation of moisture from their leaves. Michigan has come to be known far and near as an unsurpassed summer resort.

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THOSE who are interested in the success of the Orphans' Home enterprise which has been previously mentioned in these columns, will be glad to know that the erection of the first building has already begun. The progress which has thus far been made in raising funds for this enterprise has more than realized the most sanguine expectations of the promoters of the work. The generous donation made by Mrs. Haskell, of Chicago, who placed in the hands of the Committee the sum of $30,000 for the erection of one entire building, has given an impetus to the enterprise which could not have been imparted in any other way. This gift by Mrs. Haskell was so unexpected that the Committee having the matter in charge was not merely surprised but fairly astonished at the unexpected generosity thus shown toward this beneficent work. Other friends of the enterprise are coming forward with generous donations, and it is to be hoped that in a short time another building for the accomodation of friendless aged persons may be begun. Plans for such a building are already in preparation, and there is an excellent prospect that within a year from the present time, two magnificent buildings, costing, when completed and furnished, not less than $40,000 each, will be in readiness for the reception of these two classes of most worthy and needy individuals.

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THE SANITARIUM AT THE WORLD'S FAIR.— In answer to the inquiries of many friends as to whether the Sanitarium will be represented at the World's Fair, we are glad to state that arrangements are being made for a fitting representation of this enterprise in connection with the World's Exposition to be held at Chicago next year. Arrangements will probably be made also by the Sanitarium Managers to establish a branch institution of some sort in the vicinity of the Exposition buildings, for the benefit of the thousands of old Sanitarium patients who will visit the Fair, and of the hundreds of persons who will need better medical care and attention than can be afforded by the hotels and crowded hospitals of the city.

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SOME VISITORS AT THE SANITARIUM. — The Sanitarium Managers have recently had the pleasure of a visit from Rev. H. W. Thomas, D. D. of Chicago, who spent a few days with his wife, who is a patient at the Sanitarium. During his stay, the Doctor delivered two eloquent addresses before the patients in the Sanitarium parlors, on consecutive Sunday evenings, and also delighted them with a pleasant and elevating address on the occasion of the picnic at Goguac Lake.

Judge N. W. Macy, some of whose friends have been former patients at the Sanitarium, is now spending a few weeks here, to obtain much-needed rest and relief from some chronic ailments, the result of long and arduous labor upon the bench. The Managers find the judge one of the most agreeable and appreciative of guests, and hope his stay at the Institution will be the means of invigorating him for his important work.

Dr. Lovewell, one of the leading physicians of Chicago, has recently been resting at the Sanitarium, much to the delight of patients and Managers, who are always glad to see the Doctor's pleasant face. Mental and moral sunshine are contagious. He will return to his duties, we trust, somewhat refreshed by his too short sojourn here, and we feel sure he will meet a warm welcome from his host of patients.

Prof. E. A. Moses, of St. Louis, who has for a number of years filled the chair of gynecology and obstetrics in Missouri College, is spending a short time at the Sanitarium, for rest and recuperation. The Doctor is much worn by many years of arduous professional literary work, and prefers the restful and wholesome life of the Sanitarium to the noise, bustle, and unwholesomeness of fashionable seaside resorts. The Managers are glad of the opportunity of making the Doctor's acquaintance, and hope to induce him to stay long enough to get a good rest.

Dr. A. M. Vail, of Iowa, is one of the company of pleasant medical gentlemen who are spending a part of their vacation at the Sanitarium, and to all who are acquainted with the Doctor it is unnecessary to say that his good-natured presence is everywhere a benediction to all those who come in contact with him. The Doctor's large experience, natural tact, and aptitude in his profession, have for many years led him in lines quite in sympathy with rational medicine as practiced at the Sanitarium. Such medical gentlemen are always welcome at the Institution.

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PICNIC AT LAKE GOGUAC.—The Sanitarium Managers tendered their guests another delightful picnic at Lake Goguac, on the 20th ult. Dinner was served to three hundred and twenty-five persons. To provide an elegant dinner for so many, means an immense amount of hard work in transportation and service, yet everything was arranged so systematically that things seemed to slide into place like clock-work. No formal program was attempted, although Miss Lemon, of Storm Lake, Iowa, favored the company with a fine violin solo, and Rev. Dr. H. W. Thomas, of Chicago, made a few felicitous remarks. But was it not enough to fill a day brimful of happiness to drink in the bracing air and the beauty of the lake in its primitive forest setting, to listen to the excellent music which the Review and Herald band furnished, to ride upon the lake in row-boats or steamer, to chat with friends or be silent, according to mood ?

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SCIENCE IN THE KITCHEN. — Mrs. Kellogg's new cook book is meeting with a warm reception everywhere. The publisher is already preparing a second edition of the work, which is likely to be wanted as soon as it can be gotten through the press. This work contains so many unique features that it is at once recognized as meeting a want which has long been felt, but has hitherto been unsupplied. It not only points out a better way in diet, but makes the better way practical by giving the reasons, and explaining the technical details which are necessary to success. Every practical housekeeper who has seen the book wants a copy at once. Local agents are wanted everywhere to introduce this work into every country throughout the English-speaking world. The book sells rapidly. As a specimen of work done by agents with this book, one agent took forty orders in one day ; another, twenty orders in one day. One agent who recently started out took three orders in half an hour.

APPRECIATIVE COMMENTS. — It is always pleasant for publishers and editors to know that their work is appreciated, hence we need not say that it is with pleasure that we reproduce the letters and testimonials for GOOD HEALTH, of which the following are a few extracts, which we dare to hope voice the sentiment of a large proportion of our subscribers: —

Valparaiso, Ind., Jan. 21, 1892.

An intimate acquaintance with GOOD HEALTH and the excellent work and influence of its editor, Dr. Kellogg, warrants me in unqualifiedly recommending it to young and old everywhere. Dr. Kellogg is an able and fearless man, laboring hard and accomplishing much for the upbuilding and purifying of our American people. M. E. BOGART, Ed. *Student.*

Goshen, Ind., May 16, 1892.

I have carefully examined the journal, GOOD HEALTH, conducted by Dr. J. H. Kellogg, and the book, "Monitor of Health," offered as a premium to subscribers. Permit me to say that in my opinion both these publications are worth ten times the price they are offered for. They will be a blessing to any family into which they come. . . .

I do not recommend every book I see, but *these are invaluable.*

Very candidly,

CHAS. C. ALBERTSON.

Tampa, Fla., Mar. 9, 1892.

To those interested, I would say that I have carefully reviewed the current number of GOOD HEALTH and can say that I am well pleased with it, and think it should find a place in every family. H. H. STEBBINS, M. D.

Tampa, Fla., Mar. 8, 1892.

I have perused GOOD HEALTH with no little interest, and believe it is a journal that will be read with profit by all classes. I find all the articles advocating hygienic and common-sense modes of dressing and living which will meet the approbation of all thoughtful readers. I can heartily recommend the journal, and wish it success. IDA F. BRUCE, M. D.

Muskegon, Mich., June 15, 1891.

The magazine, GOOD HEALTH, I would most heartily commend to any and every one at all interested in the questions of health and a true, pure life, and wish it were possible to place it in the hands of every young man, and am sure that he would receive nothing but benefit therefrom. The name of D. Kellogg is in itself a sufficient guarantee.

GEO. C. BUTTERFIELD, Gen. Sec. Y. M. C. A.

Tampa, Fla., Mar. 6, 1892.

I have carefully examined the copy of GOOD HEALTH and find in it many valuable articles. Oftentimes there may be found in one copy of such a journal an article worth the price of a whole year's subscription. I cheerfully recommend GOOD HEALTH. H. M. BRUCE, M. D.

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DOWD'S COMPLETE GYMNASIUM. — For several months an advertisement of an article bearing the above name has been appearing in our columns. We wish to call attention to the fact that although our contract with the advertiser has not yet expired, the advertisement no longer appears in our columns. Further comment is unnecessary.

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PREFACE AND REMARK. — Preface: To introduce by preliminary remarks. Remark: To bring to notice. — *Noah L. Webster.*

In other words, we wish to introduce to your notice, prefacing our remarks as above, the fact that by addressing the undersigned you can be furnished with the *lowest rates* and *best routes* to the Northwest, West, and Southwest. Maps, Pamphlets, and all information free. Harry Mercer, Mich. Passenger Agent, Chicago, Milwaukee & St. Paul Railway, 82 Griswold street, Detroit, Mich.

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MICHIGAN CENTRAL

"The Niagara Falls Route."

Corrected June 12, 1892.

EAST.	† Day Express.	*N. Shore Limited.	*N. Y. Express.	*N. Falls & 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	4.20		9.55	
Buffalo.....		11.00	2.20	5.30	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	8.59	9.59	2.19	5.50	10.27	3.07
Jackson.....	11.30	9.40	10.58	3.17	7.15	am 12.01	4.00
Battle Creek ..	pm 1.05	10.45	pm 12.02	4.30	8.47	1.20	4.59
Kalamazoo. ...	2.05	11.30	12.59	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.

Accommodation 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.

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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	.....	6.35	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.	Atlte Exp.	Day Exp.	Pt. 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	5.11	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	.....
1.20	.....	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.

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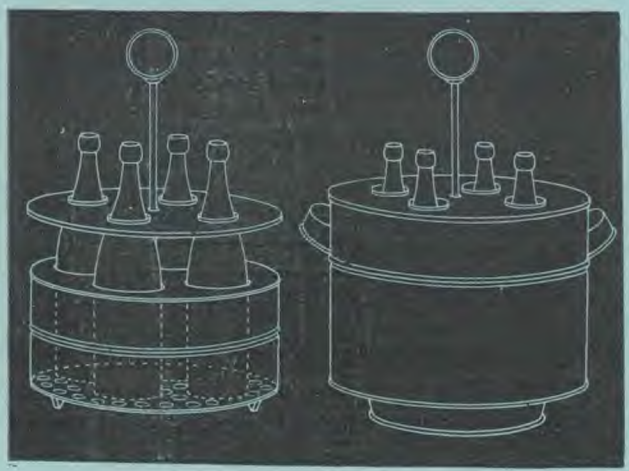

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IT WILL KEEP INDEFINITELY.

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