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J. H. KELLOGG M.D.

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SCIENCE in the KITCHEN

BY MRS. E. E. KELLOGG, A. M.,

*Superintendent of the Sanitarium Experimental Kitchen and Cooking School,
and of the Bay View Assembly Cooking School, Superintendent of Mother's
Meetings for the N. W. C. T. U., and Chairman of the World's
Fair Committee on Food Supplies for Michigan.*

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INTERNATIONAL HEALTH STUDIES.

BY FELIX L. OSWALD, M. D.

Author of "Physical Education," "The Bible of Nature," Etc.

42. — Newfoundland.

SIR RODERIC MURCHISON, in one of his geological pamphlets, astonished the colonists of New Zealand by informing them that the Creator had constructed their country for the special purpose of demonstrating the influence of evolution in certain rock formation.

If we could venture to credit nature with a similar interest in the doctrines of natural hygiene, we might assert that the island of Newfoundland had been created for the special purpose of demonstrating the fact that health is not incompatible with the most capricious changefulness of the weather, and that a low temperature can redeem the wettest climate on earth. The Romans called Ireland *Hibernia* ("Winterland") because its frequent showers resembled the winter rains of Italy, and it might have been worth knowing what they would have called Newfoundland. The annual rainfall varies from sixty to eighty-four inches, but those figures only faintly indicate the extreme humidity of the atmosphere and the dripping fog—something like a mixture of mist, rain, and sleet—that obscures the sun in June as often as in January. The southeastern peninsulas of the large island extend some four hundred miles farther east than any portion of our national territory, and almost reach the point where the Gulf Stream encounters the icy waters of the polar current, thus generating mists in masses equaled nowhere else on earth. Besides, the situation of the island, directly opposite the mouth of the St. Lawrence, exposes it to the strong effluent currents of the Canadian lakes, and adds to the extreme irregularity of the coast line.

The sea everywhere penetrates the land; there are eighteen large and scores of smaller bays, and the

interior is so studded with lakes that nearly a third of the whole area is covered with water. The south wind comes dripping with the warm moisture of the Caribbean Sea, the north wind brings down the snow storms of Baffin's Bay, but luckily prevails only from March till the end of June. As a consequence, the winters are mild; so much so, indeed, that plowing and ditching often can be carried on for weeks between Christmas and March.

But about the middle of April the polar current brings down whole sierras of icebergs; the St. Lawrence, too, bursts its winter fetters, and mountainous masses of drift ice are heaped up on the north and west coasts of the mist-ridden island. In July the everlasting sleet storms subside; the sun shines out now and then, and swarms of birds return from their winter exile; but two consecutive days of steady clear weather cannot be relied upon at any time of the year. Within two hours of a bright sunset a sea fog may obscure the sky all around, and before morning a gusty wind may dispel the mist only to condense the moisture in drenching showers. Clouds are nearly always in sight, and the foliage of the hill forests is hardly ever dry.

In the tropics a rain land of that sort would breed the deadliest diseases, and on the southwest coast malaria is not quite unknown, but farther north the polar air currents and the refrigerating influence of the ice drifts turn the scales, and the natives, in their weather-defying overcoats, are as free from chronic diseases as any settlers of British North America. The winter fogs and spring storms are rather afflictive, but the island from north to south enjoys a complete dispensation from the misery of a sunstroke season, and from July to the end of the



NATIVE OF CAPE BRETON, BELONGING TO THE ANCIENT TRIBE OF MICMACS.

short summer (about the middle of September) exactly agrees with the habits of Anglo-Saxon civilization, and it may be said that the year round, indoor life is compatible with comfort.

The winters are not all fog and drizzle, and during the prevalence of a three days' northwester the thermometer occasionally drops twenty degrees below zero; but fuel is cheap. A considerable portion of the interior is covered with forests. Under the same climatic parallels the coasts of Norway are clothed only with pine trees, with a copse of birch woods here and there, but America somehow or other manages to keep up its arboreal variety-shows to the borders of the arctic circle.

Besides the birch woods of the north coast, Newfoundland has extensive forests of fir, spruce, pine, larch, juniper, beech, and mountain ash. Hazelnut bushes abound, and in the frosty highlands considerable tracts are covered with a creeping shrub called "ground hemlock" in Canada. Bituminous coal has been found at various points of the Humber River Valley, but the fishermen of the south coast derive their chief supply of fuel from the inexhaustible masses of driftwood thrown up by every tide, and forming veritable hillocks in sheltered bays, where the breakers from the open sea can cross, but cannot readily recross the outer cliffs. Prof. William Carmack attempted to assort the component parts of a drift hill of that sort, and came to the conclusion that the entire east coast of the

American continent must have contributed to the variety of ligneous deposits.

Winter frosts have no terror for the inhabitants of a country so overblest with the sources of artificial heat; and famine, in the literal sense, is almost unknown, though bread corn has more than once become so scarce that the poorer classes had to dispense with the luxury of farinaceous food. Fish, however, can be caught within half a mile of almost every human habitation of an island as large as the State of Michigan, for the inland lakes, too, abound with finny tenants, and in the spawning season sea-fish of several varieties ascend the rivers for half a hundred miles. Ducks, geese, and divers are found everywhere, and the seal fisheries are almost as productive as those of Alaska.

Agriculture is limited by the shortness of the mild season (the word "summer" would be a misnomer), nevertheless, the settlers of the east coast raise considerable crops of potatoes, oats, barley, and turnips. Wild growing berries help to vary the bill of fare, and altogether the natives are better off than the colonists of the corresponding latitudes of British North America, Vancouver Island, perhaps, excepted. The horrible fuel-famines of Manitoba are wholly impossible; snow blockades are rare, and in the course of the last half century the population of the island has increased 300 per cent, having risen from 65,000 in 1840, to 220,060 in 1890.

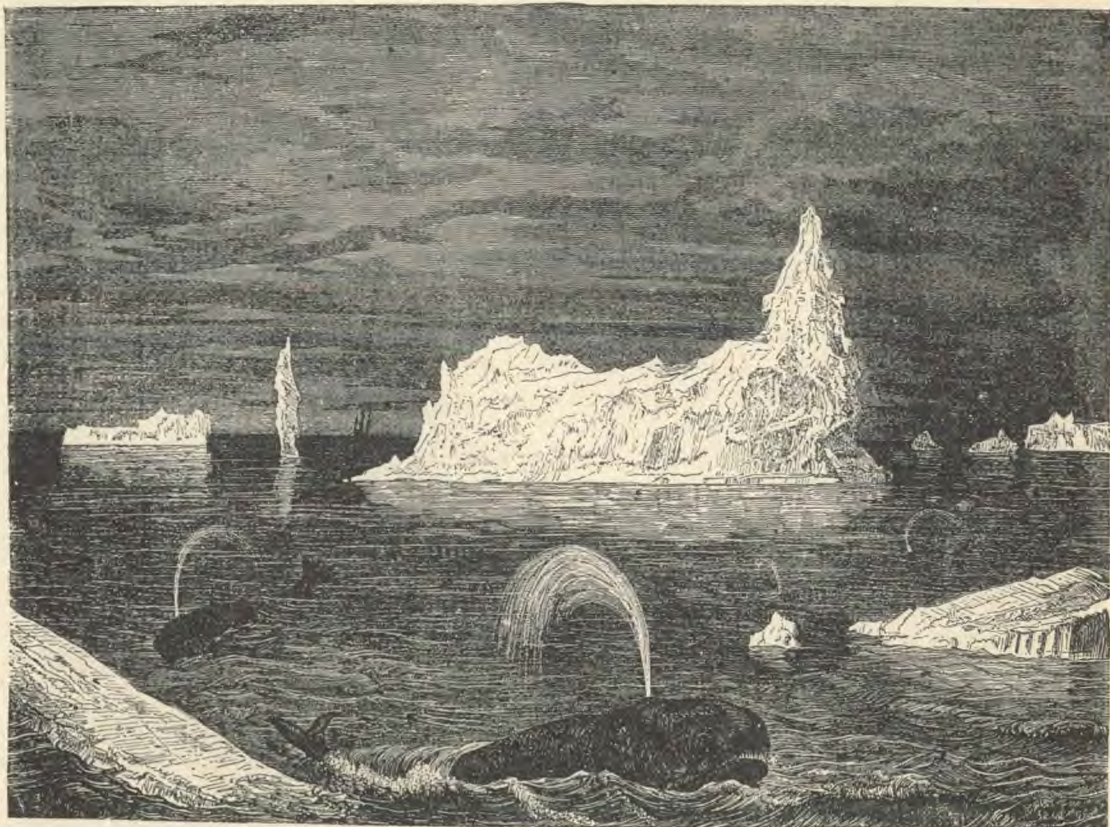
From a sportsman's point of view, Newfoundland offers more diversified resources than any country



NATIVE OF CAPE BRETON, BELONGING TO THE ANCIENT TRIBE OF MICMACS.

of Eastern North America. Deer, caribou, bears, foxes, wildcats, martens, wolves, and beavers are still found in numbers which can be explained only by the fact that up to 1880, the population of the island was almost entirely limited to the coast settlements. The hilly interior remained a *terra incognita* till after the arrival of farm-seeking colonists from Canada West, when experiments proved that potatoes and sundry garden vegetables can be raised in the inland valley as well as on the coast, or even better, since sea fogs were found less frequent and

that farms in the alleged inhospitable wilderness of the uplands can be made self-supporting. The teamsters and woodcutters of the lumber camps take only navy biscuit along, and get fat on venison in winter and on berries and trout in summer. In the intervals of their work they try their hand at trapping, and have become expert in the art of soft-tanning all sorts of furs. Bear skins and wildcat skins as soft as velvet are offered for sale at all crossroad stores, and experience has taught the natives to prefer such furs to waterproof rubber coats, which leak wherever



ICEBERGS ON THE BANK OF NEWFOUNDLAND.

impenetrable wherever exploring parties crossed the coast hills.

English sailors have proved their talent for butchering the nomenclature of foreigners ever since they turned the Bellerophon into a "Billy Ruffian." In the time of the first French settlers, two conspicuous mountain chains of Newfoundland were known as the Blomidon Hills and the D'Espoir Range, but have since been metamorphosed into the "Despair" and "Blow-me-down" mountains. Both abound with game, and are more and more frequently visited by sportsmen from Quebec and Halifax.

The reports of these explorers make it probable

the rubber has been worn off by friction, and in their prime are liable to the objection of checking the exhalations of the skin.

It is a rather remarkable circumstance that in spite of the extreme humidity of the climate, rheumatism is comparatively a rare complaint. One cause of that immunity may perhaps be found in the circumstance that the diet of the islanders is more wholesome than the potato and sour milk fare of rainy Ireland, where rheumatic affections seem to have become hereditary in many families. Lactic acid, however, is not the only cause of the complaint, since all ill-digested food retained in the bowels for

an undue length of time, is apt to vitiate the humors with similar results. Cool air is a digestive stimulant, and the chill climate of Newfoundland may thus act as an antidote to the almost universal habit of hard work after meals.

Michigan lumbermen contract rheumatism in summer oftener than in winter; after May a liberal dinner eaten shortly before a five hours' application to the hardest kind of labor must naturally tend to wear out the toughest constitution, but the stimulus of a Newfoundland sea breeze may possibly make an hour's dinner recess a sufficient *siesta*. It is much the same with the penalties of other dietetic transgressions. The abundance of animal food and the enforced inactivity of storm days, constitute a sore temptation to gluttony, but the next day of outdoor work makes amends, and dyspepsia is rare — as rare as delirium tremens, though the fishermen are addicted to a vile mixture of tea and alcohol.

The average of longevity is rather above that of Lower Canada, and consumptives would have no special cause for complaint if it were not for the excessive fatigues incident to foot tours in the rain-swept hills, and the tobacco-clouded atmosphere of the native winter quarters. In the fishermen's hamlets everybody smokes, from the waddling youngster who replenishes the fuel box with a basketful of dripping driftwood, to the blear-eyed crone who mends nets in the chimney corner. And all drink tea. The tea habit must have something specially seductive for the natives of a cold, moist country, since it prevails so generally in Holland and north-western Russia, while the natives of the dry South stick to coffee and chocolate.

The Micmac Indians of the west coast eschew fluid stimulants, but have an ugly predilection for stale fish, and worship tobacco so devotedly that a boat-

load of their young men will often brave the breakers in a storm rather than forego the hope of reaching a ship in the offing and bartering furs and dried venison for a few twists of the narcotic weed.

These Indians are descendants of immigrants from New Brunswick, while the aborigines (the Beoths, as they call themselves) are said to have become extinct at the beginning of this century. The famous breed of canine aborigines seems to be in danger of sharing that fate. A few mongrels are still found on the north coast; but the colonists, as a rule, greatly prefer the wolfish Eskimo dogs from the neighboring coast of Labrador, and a thoroughbred Newfoundlander can nowadays be found in Edinburg or Detroit much more easily than in St. Johns.

A New England pedagogue who tried his luck in St. Johns and Torlay, states his impression that the youngsters of Newfoundland are physically and intellectually, though not morally, behind their Yankee contemporaries. They will sit still for hours, watching their teacher with folded hands, but their progress is slow, and with their wooden shoes and multiplex breeches, they look a little awkward on the playground. Sedate habits are apt to be developed in countries where dogs and youngsters have to share the shelter of a narrow cabin for six months in the year, and the scarcity of books may now and then result in habitual mental inactivity, though in the neighborhood of circulating libraries the natives of winterlands occasionally become inveterate bookworms. Physical indolence, too, yields to better instincts on the first opportunity for outdoor pastimes. The awkward youngsters of the St. Johns parish schools climb the cliffs with the agility of monkeys, in search of bird's eggs, and hundreds of them grow up to match the most intrepid sailors of Northern Europe.

(To be continued.)

"INTEMPERATE eating and drinking," says Mrs. A. R. Aldrich, in *Harper's Bazar*, "are not the only intemperate habits that seem to be part of our social fabric. There is an incalculable waste of feeling, of emotion, and will, and the power lost in these various channels of life tells the whole story, if we would trace it back, of the undirected or misdirected energy at the outset. A child whose habits of eating, of sleeping, of dressing, and of talking are controlled by the real needs of life, and regulated with taste and discretion, will never need the good offices of a temperance society or legislation to

save him from ruin. His salvation is a foregone conclusion. . . . What we most need is to be saved from ourselves, or, better to express the same thing, to be lifted into our best selves by adjusting the emotions, appetites, and tendencies when they are plastic and can be molded."

DOES Miss Boardman get her lovely complexion from her father, or her mother?

From her father. He's in the drug business.—*Chicago News*.

WHERE CHOLERA ORIGINATES.

THE following account of the home and origin of cholera, written by Dr. D. B. Simmons, Chairman of the Yokohama Board of Health, is an excellent illustration of the relation of germs to at least one form of disease, and also illustrates the principles which govern the development, not only of cholera, but of a large number of other germ diseases. This graphic account is taken from a recent work by Dr. Simmons, entitled, "Potable Water," and is worthy of the most thoughtful consideration by every sanitarian:—

"The drinking-water supply of India is derived from wells, so-called 'tanks,' or artificial ponds, and the water-courses of the country. The wells generally resemble those in other parts of Asia. The tanks are excavations, made for the purpose of collecting surface water during the rainy season, and storing it up for the dry season. Necessarily they are mere stagnant pools. The water is used, not only to quench thirst, but is said to be drunk as a sacred duty. At the same time, the reservoir serves as a large washing-tub for clothes, no matter how nor in what manner soiled, and also for personal bathing and ablution. Many of the water-courses are sacred, notably the Ganges, a river sixteen hundred miles long, in whose waters it is the religious duty for millions, not only of those living near its banks, but of pilgrims, to bathe and to cast their dead. The Hindu cannot be made to use a latrine. In the cities he digs a hole in his habitation; in the country he seeks the fields, the hillsides, the banks of streams and rivers, when obliged to obey the calls of nature. Hence it is that the vicinity of towns and the banks of the tanks and water-courses are reeking with filth of the worst description, which is of necessity washed into the public water-supply with every rainfall. Add to this the misery of pilgrims, their poverty and disease, and their terrible crowding into the numerous towns which contain some temple or shrine, the object of their devotion, and we can see how India has become and remains the hot-bed of the cholera epidemic.

"In the United States official report the horrors incident upon the pilgrimages are detailed with appalling minuteness. W. W. Hunter, in his "Orissa" states that twenty-four high festivals take place annually at Juggernaut. At one of them, about Easter, forty thousand persons indulge in hemp and hasheesh to a shocking degree. For weeks before the car

festival in June and July, pilgrims come trooping in by thousands every day. They are fed by the temple cooks to the number of ninety thousand. Over one hundred thousand men and women, many of them unaccustomed to work or exposure, tug and strain at the car until they drop exhausted, and block the road with their bodies.

"During every month of the year a stream of devotees flows along the great Orissa road from Calcutta, and every village for three hundred miles has its pilgrim encampments. The people travel in small bands, which at the time of the great feasts actually touch one another. Five sixths of the whole are females, and 95 per cent travel on foot, many of them marching hundreds and even thousands of miles, a contingent having been drummed up from every town or village in India, by one or another of the three thousand emissaries of the temple, who scour the country in all directions in search of dupes. When those pilgrims who have not died on the road arrive at their journey's end, emaciated, with feet bound up in rags and plastered with blood and dirt, they rush into the sacred tanks or the sea, and emerge to dress in clean garments. Disease and death make havoc with them during their stay. Corpses are buried in holes scooped in the sand, and the hillocks are covered with bones and skulls washed from their shallow graves by the tropical rains.

"The temple kitchen has the monopoly of cooking for the multitude, and provides food which, if fresh, is not unwholesome. Unhappily, it is presented before Juggernaut, thus becoming too sacred for the minutest portion to be thrown away. Under the influence of the heat it soon undergoes putrefactive fermentation; and in forty-eight hours much of it is a loathsome mass, unfit for human food. Yet it forms the chief sustenance of the pilgrims, and is the sole nourishment of thousands of beggars. Some one eats it to the very last grain. Injurious to the robust, it is deadly to the weak and wayworn, at least half of whom are suffering from some form of bowel complaint when they reach the place.

"Badly as they are fed, the poor wretches are worse lodged. Those who have the temporary shelter of four walls are housed in hovels built upon mud platforms about four feet high, in the center of each of which is the hole that receives the ordure of the household, and around which the inmates eat and

sleep. The platforms are covered with cells, without any windows or other apertures for ventilation; and in these caves the pilgrims are packed, in a country where, during seven months out of the twelve, the thermometer marks from eighty-five to one hundred degrees, Fahrenheit. Hunter says that the scenes of agony and suffocation enacted in these hideous dens baffle description. In some of the best of them, thirteen feet long by ten broad and six and a half high, as many as eighty persons pass the night. It is not, then, surprising to learn that the stench is overpowering, and the heat like that of an oven. Of three hundred thousand that visit Juggernaut in one season, ninety thousand are often packed together for a week in five thousand of these lodgings.

"In certain seasons, however, the devotees can and do sleep in the open air, camping out in regiments and battalions, covered only with the same meager cotton garment that clothes them by day. The heavy dews are unhealthful enough; but the great festival falls at the beginning of the rains, when the water tumbles in solid sheets. Then lanes and alleys are converted into torrents or stinking canals, and the pilgrims are driven into the vile tenements. Cholera invariably breaks out. Living and dead are huddled together. In the numerous so-called corpse fields around the town as many as forty or fifty bodies are seen at a time; and vultures sit and dogs lounge lazily about, gorged with human flesh.

"In fact, there is no end to the recurrence of incidents of misery and humiliation, the horrors of which, says the bishop of Calcutta, are unutterable, but which are eclipsed by those of the return journey. Plundered by priests, fleeced by landlords, the sur-

viving victims reel homeward, staggering under their burdens of putrid food wrapped up in dirty clothes, or packed in heavy baskets or earthenware jars. Every stream is flooded, and the travelers have often to sit for days in the rain on the bank of a river before a boat will venture to cross. At all these points the corpses lie thickly strewn around (an English traveler counted forty, close to one ferry), which accounts for the prevalence of cholera on the banks of brooks, streams, and rivers. Some poor creatures drop and die by the way; others crowd into the villages and halting-places on the road, where those who gain admittance cram the lodging-places to overflowing; and thousands pass the night in the streets, and find no cover from the drenching storms. Groups are huddled under the trees; long lines are stretched among the carts and bullocks on the roadside, their hair saturated with the mud on which they lie; hundreds sit on the wet grass, not daring to lie down, and rocking themselves to a monotonous chant through the long hours of the dreary night. It is impossible to compute the slaughter of this one pilgrimage. Bishop Wilson estimates it at not less than fifty thousand. And this description might be used for all the great Indian pilgrimages, of which there are probably a dozen annually, to say nothing of the hundreds of smaller shrines scattered through the peninsula, each of which attracts its minor hordes of credulous votaries; so that cholera has abundant opportunities for spreading over the whole of Hindustan every year by means of many huge armies of filthy pilgrims, and the country itself well deserves the reputation it universally possesses of being the birthplace and settled home of the malady."

THE LIGHT CURE.

DRS. BLACKER AND CLARKE have recently published in the *Practitioner*, an English medical journal, a series of articles on the effects of light. An abstract which we quote from *Health*, gives the following interesting account of a certain resort called Veldes, at which diseases are treated by means of light baths, air baths, and water baths:—

"Veldes is situated in Austria. It is a village lying on the borders of a lake, 1600 feet above the Adriatic level, and is placed between the Julian Alps and the Karawanks. Of the Julian Alps, the highest peak is Trighax, which is 10,000 feet in height.

"A certain Dr. Rikli superintends the Veldes 'cure,' and his season begins in June and ends in

October. The climate is mild, and is regarded as dry, though our authors add that mountain showers are frequent and heavy. The cure is of a singular and unique character, but in its essence seems to consist of a new application of the very old principle—plenty of 'air and light.' The description of the cure may be best given in Drs. Blacker and Clarke's own words:—

"They tell us that a male patient is made to rise with the sun, between 4 and 8 A. M., according to the season. He prepares for his first or air bath provided with a flask containing a quart of fresh milk, 6 oz. of Graham or whole-meal bread, and a small jar of honey. Clothed lightly, he arrives at the foot

of the hill on the summit of which the air bath is taken. Having removed his shoes and stockings, and with bare feet, he commences the ascent, the rest of his attire being gradually removed as he walks on the dewy grass, and passes through fir plantations, until at last the summit is reached in a state of absolute nudity, the only covering permitted by the director being a pair of scanty bathing drawers or a handkerchief suspended from a belt, but even this slight covering is usually dispensed with. After partaking of the frugal repast with which he has been provided, and having amused himself by running, reading, and various games, for one, two, or three hours, in company with his fellow-bathers, he descends, clothing himself by degrees as he approaches the inhabited regions below.

“On reaching his hut, he rests until the time arrives for him to present himself at the bath-house for his first sun bath (between 10 A. M. and 1 P. M.). This is nothing more nor less than a modified Turkish bath, the heat of the sun taking the place of artificial heat, and the whole surface of the body being exposed to the action of sunlight. While taking their baths, the patients lie in a row on the roof of a wooden house, hidden from the gaze of the curious by a fence, the head being the only portion of the body which is protected from the light of the sun.

“After roasting for some twenty to sixty minutes, turning from time to time, so as to expose completely the surface of the body to the light, and in order that a too extensive blistering of any one portion of the body may not occur, the patient is wrapped in several folds of a thick blanket, and left in the sun for another ten minutes, the result usually being a profuse perspiration. He is then carried to a water or steam bath, and roughly and unscientifically rubbed by two attendants from five to ten minutes.’

“Three springs supply the water used. The temperature of these springs is respectively 50°, 55°, and 62° F. The lake’s temperature ranges from 68° to 77° F.

“After the bath, the patient is made to rest, or to take a short walk; and the midday meal (which consists of Graham bread or rye bread, milk, sour or fresh, honey, stewed fruit, and a lightly boiled egg) is then served. A second sun bath is taken between two and four o’clock; this, however, is over in half the time occupied by the first bath. Then the patient walks barefooted and returns at 5:30 for his dinner, which is made up of bread, vegetables, and fruits—no butter, meat, nor alcohol being allowed, save in special cases. Then follow amusements, conversation, and the like, and bedtime comes with sun-

set. For women patients the cure is conducted on similar lines, but of course the exercise grounds are separate from those of male patients, and the clothing arrangements are less primitive than is the case with the male side of the community.

“The huts are described by our authors as being ‘situated on the borders of the lake, about ten feet above its level. They consist of a treble row of detached wooden chambers of different dimensions. They are quadrilateral in shape; three sides are of wood, the fourth is open, but can be closed by drawing a curtain hanging from a rod fixed about one foot below the roof. The back wall is also open for about one foot at the top, but can be closed in severe weather by a wooden shutter, the result being that the occupant practically lives in the open air. The floor is of wood, two feet above the surface of the ground, and the roof is of tin.

“The huts are protected from the north and west winds by a rock rising abruptly behind them, on the summit of which a picturesque old castle stands. Numerous chestnut trees afford pleasant protection from the midday sun, and constitute a convenient resting-place for the bathers. Each hut is intended to serve as a bed and sitting room for two persons. Their size is 21 ft. x 16 ft. x 8 ft.; the furniture consists of two beds, couch, wardrobes, etc., which are substantial rather than ornamental.’

“At Veldes, it seems the quiet and privacy of the colony are undisturbed,—it might be very different at a British resort,—and everything tends to promote peace and silence, which last is described as often monotonous and oppressive. Only by the back of the huts is passage allowed, and a man and his wife supervise the domestic arrangements.

“Herr Rikli, who is not a physician (though an aged doctor looks after cases needing medical supervision), has among his patients representatives of all nationalities save French, while Americans are few. The cases under treatment are of very varied natures. Indeed, our authors hint that the Veldes treatment partakes too much of the nature of a ‘cure-all’ to be wholly orthodox; but it seems it is chronic and long-standing cases which Herr Rikli professes to benefit. He objects to receiving patients who are in an acute stage, or in a far-advanced stage of their ailments.

“The diseases treated at Veldes include the usual array of digestive and liver troubles, melancholia, anæmia, debility,—physical and mental,—and some diseases peculiar to women. There is a record of only three deaths in thirty years, but then we have to take into account the shortness of the season at

Veldes, and the fact that Herr Rikli selects his cases in a manner which must tend to weed out those likely to prove unsatisfactory or fatal when under treatment. Two hotels exist at this cure, so that the hut part of the *régime* is not indispensable, and modified forms of the treatment described above are carried out in certain cases.

"Of course, in considering a cure such as that practiced at Veldes, one must allow much for the effects of rest, change of climate, absence of worry, the purity of air, the effect of the open-air life, and the beneficial effects of light. There may be nothing novel in all this; and perchance at home many of us might imitate fairly well, in an appropriate locality, many of the conditions represented at Veldes. But it is the strict living by rule, and the constant *combination* of all the above-named conditions of light, air, and water, which represent, to my mind, the successful elements in the cure.

"Regarding the special effects of light, it is interesting to note what our authors have to say regarding this item in the Veldes treatment. The patients think it is the sunlight which is the ruling feature here, and the medical man at Veldes thinks so too. It is remarked by Drs. Blacker and Clarke that the Veldes cure may suggest 'that there is a case for further investigation into the therapeutics of sunlight, in the hope that more precise information may be obtained as to when and how it should be employed. For of course in a general way every one

is familiar with its beneficial effects; and least of all in this country, where so little is obtainable, are we likely to underestimate its value. For this reason alone, if the question is worth investigating at all, it should have a special interest for English people, who are liable to suffer so much from the frigid frugality of our winter sun; and since the action of sunlight and sun-heat are quite distinct, if it can be proved that the former has any independent and definite therapeutic qualities, these must act more powerfully on the skin of the whole body, as at Veldes, than when nothing but the face, or at most the face and hands, are exposed.'

"Speaking of the effect of light, they say, 'Whether therapeutically or not, there is no doubt that light does *act* on the skin and nervous system, and it is more than probable that in moderation this action is beneficial, and certain that in excess it is injurious. It would thus appear not unlikely that its moderate and regulated application might be extended with advantage. Obviously, the methods of Veldes could not be carried out in this country, but on the hypothesis that light baths have some value, there is no reason why they should not be adopted here without much expense or difficulty. Glass houses warmed with stoves could be erected for a moderate sum, and many patients who have neither the time nor the means to go abroad would gladly spare a portion of their time to carry out the treatment at home.'

THE SCIENCE OF ABSTINENCE.

THERE was never any science that has seemed to me so beneficent and so useful as this very simple science of teaching why people should abstain from strong drink. There is common sense in science, and when science is not common sense, it is not, strictly speaking, scientific in its character. Science is simplicity. It is nature speaking to man. When we look at the details of life and consider how they are put together,—so that living creatures may be brought into action, and may exist and have power, and may go through the phase which we call life,—we see that, with regard to the means by which a living being is brought into existence and carried through it, there are certain methods for the construction of the body, for the supply of its wants and necessities, and for the maintenance of its power, which remain inviolate. Men may change their views and opinions, but these eternal laws go on.

So when we come to the investigation of the food and drink of man, we find that, according to nature, there is one principle at work, and none other. There are two things given us to live upon in nature—things which are combustible, and things which go to build up the body. These we call food. Then we have something given to us to carry these solid parts of food round the body and dispose of them in the same way in which the merchant distributes his goods up the rivers, and so on. The bearer of all these substances which go to build up our bodies is a fluid, and that fluid is water. It makes up 64 per cent of the weight of all our bodies, and it carries like a mighty river all through our vessels the food which we require. In nature we always find this water present. The smallest or the largest animal cannot live without this fluid. Beasts require no other fluid than water. It is not until we come to

man, and then only to a very small part of mankind, that we see any interference with this universal law of nature.

Man must at some period of his history have dropped upon a stray kind of product which exists in nature, and thinking it different from water, began to drink it. He called it wine, and then spirit, when he had discovered the art of distillation. Then serious evils took place. He was off the line, was not running with the natural state of things, but by and by, men began to learn. Then not learned men but poor men began to think it wise to return to natural principles. Poor men rather more than fifty years ago began to start this great principle that man should be content like the rest of creation with the natural fluid sent to him.

There has been a great controversy as to whether it is not bad to give up the fluid alcohol. You will ask, Is this fluid positively harmful? Yes, it is harmful. It changes the natural order of the body and produces a fascinating effect for the moment. It quickens the pulse and the breathing, excites the mind, leads to sudden impulses which make men or women feel for the time that they are strong and happy, but in all that it leads them from the natural course of things. Everything is carefully ordered as to time in the human body, and if this regulation be but preserved, there is a long stage of life before every living man. But nature will not be interfered with. Change that order; put into the body a substance like alcohol, which is foreign to it, which quickens the pulse, the breathing, the impulses, and the thoughts, and you hasten the period of death. That is the peculiarity of all, or nearly all, those persons who indulge largely in strong drink,—they

become prematurely old. And so, is it not common sense and common science too, when we see effects like these following a misuse of the substance before us, that it is better for every man, woman, and child never to vary from the natural course of nature so as to induce these pleasurable sensations and this quickened life in the organic life? I think you will all be of opinion that this is the right and proper view for everybody to take.

We are all born to drink no other fluid than water. Why should we ever depart from it? Why break the pledge which nature has given, and make man cease to be what he was intended to be? Not one bit of good ever comes from the trial. When we take a pledge with nature, there is no service rendered ourselves by the breaking of it. This substance called alcohol, goes to form no tissue or give warmth. It imperfectly dissolves everything in the way of food which comes in contact with it, interferes with the digestion and the distribution of food, produces false products in the body, disease in the organs of the body, sadness always after a time, aberration of mind, so that at least 14 per cent of the unfortunates in our asylums are there because of its presence. It makes diseases, some of which are specifically its own and are called after it; and we can calculate by figures what will be the value of life in a person who is freed from this agent, and the value of life in one who continues to take it. This in common sense should make every one of us resolve to go back to nature if nature has been departed from, and to let our lives pass from beginning to end in pure obedience to nature and in obedience to that Power from which all nature springs.—
Benj. Ward Richardson, M. D.

THE SECRET OF YOUTH.—A late writer well says: "It is sad to see how many elderly and middle-aged women take it for granted that life holds nothing for them but the passive role of grandmother. Many a woman has but little time for study while rearing a family; but when the children are married and gone to homes of their own, then comes the time when she needs some outside interest. If she has not something to take her out of herself, she will turn to gossip and fancy work to keep her busy.

"This is just the time for her to devote herself to some particular study. Let her take up one that was a favorite in her school-days, whether it be one of the sciences, painting, or music. If she has no predilection for any one thing, let her try several things, until she finds what she likes best.

"If she never does anything worth showing, the time will not be lost, for the happiness found in these hours of absorption in a chosen pursuit cannot be easily estimated.

"But the middle-aged woman may surprise herself by making a great success of her undertaking. Time would fail to tell of the distinction that has been won in different fields by people far from young. Schliemann was thirty-four years of age before he knew a word of Greek. George Eliot was thirty-five when she put her hand to the first of her great novels. Prescott published the first of his almost perfect histories at the age of thirty-five. Ogilvie, who made an excellent translation of Homer, began to study Greek at fifty.

"The first of the Waverly novels appeared when

the author was forty-one, and Cowper was nearly fifty before he did his best work. When we think of Mary Somerville at sixty, writing upon the physical sciences, of Gladstone at eighty, hewing oaks and studying Homer, and of Tennyson, also an octogenarian, writing 'Across the Bar,' no one can fold his hands and say, 'I am too old to do anything of any moment.'

"'A man is only as old as he feels,' says Oliver Wendell Holmes, who certainly carries a young heart, though his head be gray.

"Numberless cases that are not so marked might be cited. A woman whose stories have done an incalculable amount of good did not dream that she could write until her children had gone to homes of their own, and she began to write to beguile her loneliness. Another woman, whose songs are household favorites, did not know anything of the theory of music till she was fifty, when she began to study harmony. To-day she is well known as a composer, and her music supports her most comfortably.

"A grandmother used to dabble in her granddaughter's paints, and became so interested that she studied under a good teacher. To-day her pictures have an honored place in the water-color exhibitions.

"Every woman cannot be an artist, author, or musician, but every one of us can have some wide outside interest. We can take up a course of reading that will sensibly broaden our horizon; if we cannot travel, we can go round the world in books, and thus glean no small benefit without the toil of travel."

HABITUAL DRINKING A BAR TO SUCCESS.—We quote the following from H. L. Hastings' valuable paper, the *Christian*:—

Dr. Dash, a successful physician in the West, returned to his old home after a long absence, and visited the college in which he had been educated.

"Twenty years ago," he said to a group of students, "I graduated in this hall. There were eighteen men in my class. Of the eighteen six drank habitually while at college. Not to excess, but regularly—a glass or two each day. Not one of these men has succeeded in attaining fortune, reputation, or even a respectable position. But they were among the ablest men in the class.

"While at college, I was in the habit of frequenting the daily newspaper office here. There were ten men in it—editors and reporters. I knew them all—a lot of bright, jolly fellows. The work was hard, the hours late, the meals irregular.

"Every man in the office drank but one, a reporter, Ben Perry. One of the editors told me he

had seen Ben come in from a fire at two o'clock in the morning, drenched to the skin and tired out. He would look wistfully at the whisky bottle, but he never touched it.

"I inquired for the boys to-day. Three had died from drinking; six were holding inferior positions in newspaper offices.

"'Habits bad,' said my informant, 'They could not make their way, and so fell lower. Perry's head was always clear, and he was regular at his work.' He is editor-in-chief of one of the principal newspapers in a seaboard city. He had not half the natural ability of at least three of the others."

BURDETTE ON ADULTERATION.—*Food* publishes the following as a contribution from Robert J. Burdette to sanitary science in relation to dietetics:—

"Placid I am, content, serene,
I take my slab of gypsum bread,
And chunks of oleomargarine
Upon its tasteless side I spread.

"The egg I eat was never laid,
By any cackling, feathered hen,
But from the Lord knows what 't is made
In Newark, by unfeathered men.

"I wash my simple breakfast down
With fragrant chicory so cheap;
Or for the best black tea in town
Dried willow leaves I camly steep.

"But if from man's vile arts I flee,
And drink pure water from the pump,
I gulp down infusoria,
And quarts of raw bacteria,
And hideous retortæ,
And wriggling polygastrica,
And slimy diatomaceæ,
And hard-shelled orphryocercinæ,
And double-barreled kolpodæ,
Non-loricated amboedæ,
And various animalculæ
Of middle, high, and low degree,
For nature just beats all creation
In multiplied adulteration."

OUTDOOR LIFE A PANACEA.—A correspondent of the *Herald of Health*, in a communication to that journal, relates the following incident illustrative of the value of outdoor life:—

"My daughter Jennie was not strong, but tall and slender, and every effort seemed to exhaust her. What could we do? We did not believe medicines of any kind were needed. We had read of the value of outdoor life for delicate children, and resolved to try it. How should we begin? The gardener offered to take her with him in his daily work, and keep her busy and happy among the plants and trees. A little wheelbarrow was made, in which she could wheel dirt, stones, and anything that was wanted. The gardener was kind, sympathetic, and intelligent, and

answered all her questions, and encouraged her in her work. When trees were to be set out, she aided in various ways. When flowers were to be planted, she was with him to learn and help. If the lawn needed cutting, she helped him drive the mower. When insects were a trouble, she helped apply the spray or powder to kill them. She gathered up small stones and got them into piles for the cart. If she became tired, she rested in her hammock or under the trees. She even went barefooted and did not mind the sun or wind. 'O what a happy time I am having,' she said often and often. Her appetite became splendid, her sleep good. She was as brown as a nut and grew stronger and stronger every month, and to-day she is altogether another girl, healthy, happy, joyous, even beautiful, and all from outdoor life."

SOME NOTABLE GLUTTONS.—The English monthly, *Health*, gives the following notable instances of gluttony:—

"Elizabeth Charlotte, the Duchess of Orleans, writing under date of December 5, 1718, says: 'The late king, Monsieur the Dauphin, and the Duc de Berri were enormous eaters. I have often seen the king eat four plates of different kinds of soup, a whole pheasant, a partridge, a dish of salad, two thick slices of ham, mutton flavored with garlic, a plateful of pastry, and finish his repast with fruit and hard-boiled eggs.' There was an old German from Wittenberg, who had a fine faculty for storing away provender. His case is well attested. For a wager he would eat a whole sheep, or a whole pig, or put out of sight a bushel of cherries, stones and all. He lived until he was about eighty years of age, a great portion of the time supporting himself by exhibiting the peculiarity of his appetite, which, to say the least, must have been a very eccentric one. He would chew glass, earthenware, and flint into small fragments. He had an especial preference for caterpillars, mice, and birds; and when these were not procurable, he would content himself with mineral substances. Once he put down his "maw" a pen, the ink, and the sand-pounce, and would have gobbled the inkstand too, had he not been restrained.

"Taylor, the water-poet, tells of Nicholas Wood, of the county of Kent, who was a tolerably good trencherman. On one occasion he got away with a whole sheep; at another time with several rabbits; at a third, with three dozen pigeons (well-grown pigeons, not squabs); again, with eighteen pounds of black-pudding; and on two other occasions sixty

pounds of cherries, and three pecks of damsons. Dr. Copland, in speaking of two children who had wonderful appetites, the younger, seven years of age, being the worst, said: 'The quantity of food devoured by her was astonishing. Everything that could be laid hold of, even in its raw state, was seized upon most greedily. Besides other articles, an uncooked rabbit, half a pound of candles, and some butter were taken at one time. The mother stated that this little girl, who was apparently in good health otherwise, took more food, if she could possibly obtain it, than the rest of her family, consisting of six besides herself.'

"A trifle over a hundred years ago, a London youth ate five pounds of lamb and two quarts of green peas in fifty minutes; and a Polish soldier, who was presented at the court of Saxony, succeeded in one day in getting outside of twenty pounds of beef and half a roast calf, with the appropriate 'fixings.' When George III was king, a watchmaker's apprentice, nineteen years of age, in three-quarters of an hour devoured a leg of pork weighing six pounds and a proportionate quantity of pease-pudding, washing all down with a pint of brandy. The tall Nick Davenport, the actor, is known to have eaten a seven-pound turkey at a single sitting. . . . In 1870, two men of Wiltshire wagered each other as to which could consume the greatest quantity of food in the shortest space of time. One of them blotted from existence six pounds and a half of rabbit, a loaf of bread, and two pounds of cheese in a quarter of an hour; and he was so pleased with the approbation he received from the bystanders that he finished off with a beefsteak, a pint and a half of gin, and half a pint of brandy!"

Cynicus — Whisky has very different effects in different parts of the city.

Listener — How do you prove that?

Cynicus — On the Bowery, it causes drunkenness, on Wall Street, alcoholism, and on Fifth Avenue, heart failure. — *Puck*.

A MINISTER annoyed by tobacco chewing, thus spoke to his congregation: "Take your cud of tobacco out of your mouth on entering the house of God, and gently lay it on the outer edge of the sidewalk or on the fence. It will positively be there when you go out, for a rat won't take it, neither will a hog; you are certain of your cud when you go after it. Not the filthiest vermin on earth would touch it." — *Sel*.



THE MUSCLES.

BY J. H. KELLOGG, M. D.

WHEN we consider the muscles as machines, we find them marvelously adapted to the various functions which they perform in the body. They are shaped in a great variety of forms to meet the requirements of symmetry, or movement of the various parts of the body in which they are placed. For example, we find in the upper part of the chest a large fan-shaped muscle, the pectoralis, the fibers of which are gathered into a tendon and attached to the upper part of the arm. In the thigh is found a muscle of a very different shape, the sartorius, or tailor's muscle, by means of which the legs are flexed and crossed as when sitting tailor fashion. This muscle is the longest in the body. A curious little muscle in the neck has three tendons, one at each end and one in the center; the central tendon passes through a loop which serves as a pulley. The muscles employ the bones as levers, by means of which the various movements of the body are produced.

The lever is one of the most important of all the mechanical powers. The principle of the lever is illustrated in the ordinary crowbar, one end of which is placed under the weight to be lifted, while pressure is made at the other end, an intermediate point, usually nearest the weight, resting upon some fixed support called the fulcrum. The two sections of the lever between the power and the fulcrum and the weight and the fulcrum are termed its arms. When the arms of the lever are equal, no advantage is gained by its use; but if one arm is longer than the other, and the power is applied to the long arm, then an advantage is gained which is measured by the proportion existing between the two arms; the greater the length of the long arm in proportion to

the short arm, the greater the advantage in lifting a heavy weight. If, however, the purpose is rapidity or extent of movement rather than the lifting of a weight, then an advantage is gained by the application of power to the short arm. In the human body, the power is usually applied to the short arm of the lever; that is, the point of attachment of the muscles to the bones is usually such as to give extent and rapidity of movement, rather than great advantage in lifting heavy weights.

The muscles are far more perfect than mere machinery, for they keep themselves in repair. The point at which the muscle arises, and which is nearest the center of the body, is called its origin, and the point where it is attached is called its insertion.

There has been very extensive study upon the subject of the mechanical equivalent of the work done by the muscles. It is found that there is a great disproportion between the stimulus applied and the amount of work done; for example, if a weight falls upon the nerve by which a muscle is controlled, the muscle will contract with sufficient force to lift one hundred times the weight which falls upon it. So there is a disproportion between the stimulus applied and the force developed in a muscle, similar to that which exists between the force applied to pull the trigger of a gun, and the force developed in the firing of the gun.

Comparative studies of the force exhibited by man and other animals have been made to determine the proportion between their strength and their weight; it has been found, for example, that a horse can drag three times his own weight, while among insects, the difference between the weight and the force exhibited is much greater. The South American beetle can

carry forty times its own weight; the ant can carry a mass several times as great as itself. We may note also the force exhibited by insects in the movements of their wings, which often vibrate many thousand times a minute. The dragon-fly, for example, easily keeps up with a railroad train which is going at the rate of a mile a minute; birds also accomplish the same feat. The exhibition of muscular power by these creatures is very great, and proportionately far superior to that of human beings.

Quetelet says that a man by pressing his hands together can exert a force of 120 pounds, and women one third less. Landois states that the force that a man can exert by closing his hand, is about seven tenths of his own weight. A strong man can carry twice his own weight, while the average woman can only carry half as much. I suppose this to be true not because woman is naturally the "weaker vessel," but because she has not had the same chance for development. But I know of no reason why she should not be able to carry as much as a man of the same size, with the same opportunities for development. Lower animals are stronger, proportionately, than human beings. A dog, for example, when he closes his jaws, is capable of exerting force equal to lifting eight times his own weight; a bulldog can close his jaws with so much energy that it requires a tremendous force to pull them apart, and dislodge the dog from his hold. He will sometimes die, even, before he will let go. When a crab uses his pinchers, he exhibits the same degree of force—eight times his own weight. Shell-fish exhibit still greater muscular ability; when a clam, for instance, shuts up his shell, he exerts a force equal to thirty-eight times his own weight. A flea can leap forty times his own length. If an elephant had leaping abilities equal to those of a flea, how far could he jump? Probably about ten times the distance across the Atlantic, or to the moon in eight leaps.

Some of the lower animals, however, are not so strong as they appear. The stork, for example, stands half a day on one leg; he will stand hours and hours absolutely motionless in this position. One would think he would get tired of

standing on one foot, but he does not, because he is really exerting very little force. Nature has furnished the stork with leg bones constructed in such a way that the tibia locks into the femur; he simply locks these joints and then balances himself upon one foot. In a similar way chickens sit upon the roost; they place their feet on the roost and then settle back, and this act closes their toes upon the perch, and thus they retain the position without any effort.



THE MUSCLES.

Some very interesting calculations have been made in regard to the amount of work which man performs in a day of ten hours. It is found that the amount of work which the ordinary laboring man does in the course of a day, is equal to lifting 300 foot-tons. This seems astonishing, but when we figure it out and see what it means in practical work, we shall find that only an ordinary amount of work is required of the muscles to accomplish the equivalent of lifting this weight in twenty-four hours. An Englishman, Mr. Horton, has made some very interesting calculations as to the amount of work done in walking, and he finds that the work done by a person weighing 150 pounds, walking on a level surface at the rate of about three miles an hour, is equivalent to lifting his own weight perpendicularly, through one twentieth of the distance: hence in walking one hour he lifts $\frac{5,280 \times 150}{20} = 118,800$ foot-pounds, or over fifty-nine foot-tons. If a man walks all day, or a day of ten hours, at three miles an hour, he would walk thirty miles; this would be equivalent to lifting 594 tons a foot high. Now the average man does only about half that amount of work in a day.

Suppose a person walks for an hour at the same rate up an ascent of one mile in three, we have to multiply the whole distance through which he has lifted himself, by one third of his weight, or 792,000 foot-pounds, which is 396 tons. This added to the fifty-nine tons, equals 455 foot-tons for a person climbing a mountain a mile high, walking three miles an hour. To accomplish this would require an ex-

penditure of energy equal to more than a day's work. The amount of force exhibited by human beings is often very great. For example, a robust rower who is doing his best, does as much work in a given time as seven shovelers who are loading dirt into a cart. We thus see that the ordinary laboring man does not work very hard; but the vigorous rower can maintain his great expenditure of energy only a few minutes, while the laboring man must toil on all day.

Dr. Smith has made a calculation of the amount of work done, based on the amount of carbon-dioxide thrown off. While a person is asleep, this is four and five tenths grains per minute; the same person awake and walking at the rate of three miles an hour, throws off twenty-five and eight tenths grains, and when he is walking on a treadmill and ascending at the rate of twenty-eight feet per minute, he is throwing off carbon-dioxide at the rate of forty-three and four tenths grains; in other words, when traveling in a treadmill and ascending at the rate of twenty-eight feet per minute, he is doing ten times as much work as when asleep.

The work of the heart in twenty-four hours amounts to from 100 to 150 tons,—sometimes 200 tons; and the work of the lungs in the same time amounts to several tons; and when we add together the work of all the internal organs, we find that it amounts to from 250 to 300 tons per day, besides the ordinary daily labor of the voluntary muscles, which is about 260 to 300 tons; so that the work done each day by the body of the ordinary laboring man is equivalent to from 560 to 600 foot-tons per day.

THE ABDOMINAL METHOD IN VOCAL CULTURE.

FIRST and foremost among the many theories that one ambitious to become a singer should avoid is termed the "abdominal method of breathing and singing." There is nothing among the numerous fallacies employed by noted teachers and their followers that is so popular and at the same time attended with so much misery and disappointment as this so-called "abdominal method." To its accursed practices can be laid the shattered nerves and broken health of hundreds, yes, thousands, of female students, and the failure of innumerable male pupils to succeed in their chosen profession.

Of its effect upon the efforts of the masculine gender we will dwell but briefly. It can positively be asserted that the employment of abdominal pressure renders impossible a correct location of the

voice, for it forces the sound-producing organs to become the point of contact, thus destroying the "focus of vibration" in the front mouth, thereby banishing the chance of creating perfect acoustical conditions, the existence of which is the only result that indicates correct voice production and insures *pure tone*.

In short, this "abdominal" effort necessitates throat action, friction, undue waste of tissue, forced emission, making the soft palate a secondary point of contact, ending in huskiness, often a nasal twang, false intonation, and premature vocal decay, making the efforts of the singer a burden to the sensitive ear, and unacceptable to even a casual listener. This will be the result in a majority of cases.

Of course now and then some one withstands for a

longer time than the majority the ravages of this system, but that argues nothing against its evil and destructive influences, any more than the return of some unharmed soldiers from a battle would prove that no danger existed in the conflict. There are enough maimed and dead ones to prove the contrary.

I expect that this statement will arouse the ire and indignation of the "abdominal" advocates, and that they will deny the truth of what I say, but it matters not; it is true nevertheless, and undoubtedly their own condition would prove to be the best evidence of the correctness of my statements. A critical investigation of their case would convince them of the fact and reveal the corruptness of their practices.

My own experience in restoring to normal action the voices of numerous "abdominal breathers," brought to the verge of voice destruction by their false practices, is all the evidence I need, or that is necessary, in my estimation, in pronouncing so positively upon the corrupt principles of the so-called "abdominal method." I could bring volumes of evidence to bear in substantiation of my statements. . . . Let every one interested critically examine himself and calmly consider his own case.

It is to the female sex that I wish most to address myself, for abdominal methods mean to them broken health, a ruined voice, a living misery, and perhaps death. A vigorous pursuance of the abdominal-breathing method will, in nine out of ten cases, complicate diseases incidental to their sex, and to an extent that will baffle the efforts of the best physicians to remedy, to say nothing of the impossibility of restoring their health while the practice of abdominal breathing is continued. . . . I must try to impress my readers with the almost certain appearance of uterine troubles if female pupils persist in the practice of this abominable method of attempting to cultivate the voice.

I know of cases where in six months' time pupils have been reduced from a most excellent state of health to a condition of weakness by this abdominal system, that required months of skillful medical treatment to remedy. In these cases, it was impossible to benefit the condition of the patient until all abdominal practices were suspended; and when the patient was restored, it took only a very short time of renewal of this course of instruction to develop local symptoms that grew rapidly worse until the pupil was in her former miserable condition.

I have restored the voice of a victim of the abdominal method who was under treatment for over two years before she actually was restored physically.

To have persisted in her abdominal method would have reduced her to a bed-ridden invalid for life. I will not go on and enumerate cases, for it would be but the repetition of those already mentioned, but I can assure my readers that there is a multiplicity of them in every degree of organic debility. What I desire is to create an investigation upon the part of every pupil, that all may become impressed with the dangers attendant upon the practice of the abdominal system, and thereby prevent trouble and misery by avoiding a system of instruction that leads to such direful results.

I wish every female pupil, before beginning a course of vocal instruction, could have put into her hands a copy of Dr. Clifton E. Wing's pamphlet entitled, "The Abdominal Method of Singing and Breathing as a Cause of Female Weaknesses." This well-known specialist, after fully describing five aggravated cases of uterine difficulties arising from the practice of the abdominal method, further writes: "Lately I have talked with a number of ladies, and have been surprised to find how many of those acquainted with the subject, on my mentioning the matter to them, have at once said that they had no doubt whatever that the 'method' was often injurious. Several had attempted it themselves, and finding that they did not feel so well after it, had given it up."

There is evidence enough presented in Dr. Wing's pamphlet to convince the most enthusiastic "abdominal breather" of the danger attached to abdominal effort. To afflicted students it would throw a light upon this direful practice that would make clear the cause of all the misery they were suffering because of their unfortunate identification with such a system.

My first information concerning abdominal effort was obtained from the late Dr. Guilmette, but as he devoted more time to singing and the demands of his medical profession than to teaching vocal culture, his influence in extending this dangerous practice was less potent than it might otherwise have been, had he devoted his time exclusively to vocal instruction. It is my opinion that Madame Rudersdorff is responsible for its widest dissemination in this country. The five principal cases fully described by Dr. Wing were all her pupils. . . .

I warn female students to avoid the abdominal system of breathing and singing, for there are dangers attending its practice that may overtake them and render them miserable for life, besides destroying all chance of their ever succeeding as singers.—
Warren Davenport, in Boston Musical Herald.



NOT A BLUNDER, BUT A CRIME.

WHEN I see women stay indoors the entire forenoon because their morning dresses trail the ground, and indoors all the afternoon because there comes up a shower, and the walking dress would soak and drabble; or when I see the working woman standing at the counter or at the teacher's desk from day to dark, in the drenched boots and damp stockings which her muddy skirts, flapping from side to side, have compelled her to endure; when I see her, a few weeks thereafter, going to a doctor for treatment, as a consequence; when I find, after the most patient experiment that, in spite of stout rubbers, waterproof gaiters, and dress skirt three or four inches from the ground, an "out-of-door" girl is compelled to a general change of clothing each individual time that she returns from her daily walks in the summer rain; when I see a woman climbing upstairs with her baby in one arm, and its bowl of bread and milk in the other, and see her tripping on her dress at every stair (if, indeed, baby, bowl, bread, milk, and mother do not go down in universal chaos, it is only from the efforts of long skill and experience on the part of the mother in performing that acrobatic feat); when physicians tell me what fearful jars and strains these sudden jerks of the body from stumbling on the dress hem impose upon a woman's intricate organism, and how much less injurious to her a direct fall would be than this start and rebound of nerve and muscle, and how the strongest

man would suffer from such accidents; and when they further assure me of the amount of calculable injury wrought upon our sex by the weight of skirt-ing brought upon the hips, and by thus making the seat of all the vital energies the pivot of motion and center of endurance; when I see woman's skirts, the shortest of them lying (when they sit down) inches deep along the foul floors, which man, in delicate appreciation of our concessions to his fancy in such respects, has inundated with tobacco juice, and from which she sweeps up and carries to her home the germs of stealthy pestilences; when I see a ruddy, romping school girl, in her first long dress, beginning to avoid coasting on her double runner, or afraid of the stone walls in the blueberry fields, or standing aloof from the game of ball, or turning sadly away from the ladder which her brother is climbing to the cherry tree, or begging for him to assist her over the gunwale of a boat; when I read of the sinking of steamers at sea, with nearly all the women and children on board, and the accompanying comments,—“Every effort was made to assist the women up the masts and out of danger till help arrived, but they could not climb, and we were forced to leave them to their fate,”—I feel that I have ceased to deal with blunders, and have entered the category of crimes.”—*Elizabeth Stuart Phelps Ward, in Symposium on Dress, in the September Arcna.*

BROKEN HEARTS. — The wonderful mechanism of the body is as a sealed book to the ordinary woman of fashion. She knows, however, that she has a heart, for she is familiar with the term through reading romances where bleeding and broken hearts are wont to figure. But of the heart as a great muscular pump which forces the blood through all the arteries, veins, and capillaries of the body, she knows nothing.

If she did, she might be a little more careful to give it room, and not gird her corset so tightly as to press the stomach, lungs, and ribs in upon it and thus impede its action. It is really true that hearts do break sometimes, but not often in the manner set forth in novels; they break in a very unromantic manner from overwork in a tight, crowded place!—*Kate Lindsay, M. D.*

AN "EMANCIPATION DAY" FOR WOMEN.—It now seems probable that within a few years every woman will feel at liberty, socially as well as physically, to wear comfortable and convenient garments, whenever and wherever she chooses.

The new dress-reform movement has no one leader. Every woman who has expressed dissatisfaction with those features of woman's dress which injure her health or dehumanize her appearance or interfere with her free activity, has helped to lead up to the present possibility.

The movement, as now undertaken, has a few distinguishing points: First, though aiming at a radical reform, it asks no one to start out alone, or to make herself conspicuous on account of singularity of dress. Second, though seeking to make so common as to attract no attention and excite no remark, a dress that will give freedom to both upper and lower limbs, it makes no effort to banish long skirts entirely. Let women secure the freedom to wear *a reasonable working and walking costume* whenever and wherever they like, and long skirts will confine themselves mainly to tidy rooms, carriages, and hours of ease.—*Frances E. Russell.*

HOW ONE WOMAN DRESSES FOR RAIN AND MUD.—A lady correspondent of a contemporary journal writes thus: "Every one knows how wet the backs of shoes and hose get by the bottom of the skirts hitting against them. More colds are caused in this way than in any other. Rubbers protect only the bottom of the feet. Rubber boots cost but little more and will outlast a dozen pair of ordinary rubbers. The writer wears a pair of woolen socks over her hose, in the boots, an old dress skirt that water and mud will not hurt, a good gossamer, carries an umbrella, and goes perfectly dry in the heaviest rain or the deepest mud, has no skirts to hold up, and carries her shoes or slippers if going to stay anywhere."

But with the present length of women's skirts, if they are *not* held up, what a condition are they in after a long, wet walk! A still better and tidier way than the above would be to have the skirts shortened out of the way of mud and wet.

THE LONG SKIRTS CARRIED THE GERMS.—The *Union Signal* relates the following incident:—

"A case of malignant scarlet fever, beyond all hope, recently came to my notice. The mother was in despair; she had been an overfond and devoted mother to this only boy. Anxiously she questioned the doctor as to how the disease could have come to him. She had given up her mission and sewing class

lest she might bring home contagion, had not mingled in crowds or allowed her little one to play with other children, the sewerage of the house was perfect, and to her the coming of the disease seemed unaccountable. The doctor said, 'Madam, I do not know how your child took the fever, but I trust you love him better than the prevailing fashion of wearing a dress on the street capable of bringing home bacteria of the most virulent character.' Does it not seem a strange inconsistency for women who are fighting the foe of intemperance, to follow a fashion which may breed disease and death?"

COMMENCE WITH THE CHILDREN.—In dress as in everything else relating to the moral and physical, we ought to commence with the children. I am thankful for the improved clothing of infants. So much real happiness comes from freedom of limb to enter into all sports as well as gymnastic exercises, that if we can teach children they are never to outgrow this freedom, and be put into tight, cumbersome clothing, a reform in dress will, of necessity, be brought about. I have great hope for the future from the healthful dressing of the children of to-day.—*Frances J. Barnes.*

MADAME DIEULAFOY, the famous wife of the French explorer, has been the companion of her husband on all his scientific expeditions, and has for convenience in traveling through wild regions worn throughout men's clothing. Growing thus accustomed to the ease and comfort it confers, she has obtained from the French government special permission to wear it upon the streets of Paris, both herself and husband making affirmation that to the best of their belief it is necessary to the preservation of her health that she continue to wear the kind of garments to which she has become accustomed.

SIX new diseases, we are told, have come into existence with the styles of dress which require the wearing of multitudinous and heavy skirts. Indeed, I wonder that there are not sixty. No doctrine but the doctrine of the "survival of the fittest" will touch the problem. We are of tougher stuff than our brothers, or we should have sunk in our shackles long ago.—*Elizabeth Stuart Phelps Ward.*

THERE is no one thing that would do so much to emancipate women as the adoption of short, simple skirts.—*Jennie June.*

I WOULD have dress a servant of the wearer, not a ruler.—*Lucretia Mott.*

SOCIAL PURITY

THE TRUE IDEAL OF ART.

A LATE English writer, Richard Jones, of Oxford, in a criticism of modern art makes comparison between genuine art as illustrated in Holman Hunt's celebrated painting of Christ as "The Light of the World,"—a picture not specially remarkable for vivid coloring, delicacy of touch, or excellence in the mere technique of the painter's art, but great because it satisfactorily treats of a noble conception,—and that travesty of art which represents purely sensual enjoyment or gratification, and degrades genius by painting well those subjects which are not worthy of being painted at all. He says:—

"This is the ideal of art against which the Puritans rebelled. Lingering remnants of this conception are still seen in the attitude toward certain forms of art of many Christian men and women of to-day. Christian men and women were and are right in fearing the influence of such a travesty of art. This is the kind of art so-called which Ruskin anathematizes as ministering to vice and sensuality.

"But though there is the tempter's music, whose voluptuous strains awaken the baser passions, and pictures whose presence is contagion, and books whose touch is vile, yet there is music which opens the gate of heaven, and paintings which illuminate divine truth, and poems which justify the ways of God to man.

"And only the latter are genuine art; the former

but a travesty of art 'stealing the livery of heaven to serve the devil in.' All true art is ennobling, refining, elevating; the handmaid of religion; God's ministering angel to men.

"I have seen thousands of busy men in 'roaring London' step into St. Paul's cathedral for a few moments to be lifted up into a higher life by the service of song there so exquisitely given, the memory of which is a benediction during the weary hours of daily toil; I have seen Dore's gallery filled with earnest-minded men and women who here find spiritual strength in these imaged sacred truths; and I have seen young men and women find answer to many of life's perplexities, in the most deeply religious poem of the century, the 'In Memoriam' of the Poet Laureate.

"It fills me with indignation to see a painter paint a pig under a gate and call it a work of art, or a poet lay open a moral ulcer and call it realism, or a sculptor carve an undraped, sensuous Venus, and call it the human form divine, thus turning that which properly is sweet, pure, and wholesome, into a source of corruption. The world needs, not less art, but right notions as to the function of art, and more art; art wedded to the service of God,—the preacher, the teacher, the artist, differing in methods, but one in aim, and all on the onward march toward the beautiful good and the beautiful true."

A GOOD WOMAN'S INFLUENCE.—Rev. E. E. Hale relates the following incident in the *Cosmopolitan*:—

"A certain woman, a hard-worked library assistant, observed one day that a little Irish boy who came for his books was following along the poorest line of story books which that library would offer. She thought, and thought rightly, that he had had enough of them. She called him behind her desk and showed him a handsomely illustrated book of butterflies. She asked him if he had ever seen any butterflies or moths, and made him remember and tell her about them. She asked him if he would

not like to know more about them, and then promised that, if he would bring some one companion, she would let them see some of the elegant illustrated books which bore on that matter. When the little roughs came, she had ready for them some of the tempting books which are now printed, open to the capacities of children, and she started them on a new career. Before a great while she had the pleasure of seeing that they were themselves watching the insects which they could readily enough find on the Common or in the parks of Boston, were making their own collections, and in short were

started as naturalists, with a hobby, with an enthusiasm, with some notion of higher life and study than they had before.

"Here is a little story of what one person found it in her power to do in the real business of education. That is, she engaged herself in discovering a latent faculty; she brought that faculty out, she unfolded it, and at this hour there are half a dozen young men happier, stronger, better, and of larger life, because she was willing to turn aside from the routine of book delivery to take one of them into her counsels and to start him heavenward while there was a chance of his going the other way."

"EVIL COMMUNICATIONS."—We quote the following from the *New York Philanthropist*:—

"The father of a confiding, affectionate little boy of six years, with the surroundings of what is called 'good society,' said to us recently: 'It is absolutely appalling to think of the vile, lewd talk indulged in among little boys, even those of good families, with Christian fathers and mothers.' The mother of this little boy is a lovely woman, one of a thousand; he is devotedly attached to both father and mother, they have his entire confidence, and he gives to them without reserve the experiences of his child life. With the environment of their parental love, they hope to preserve in him the bloom of purity, so often destroyed by evil contact. It is through his confiding reports of the talk and doings of his boy playmates, boys of the better sort, that this fond father gets his appalling glimpses of the propagandism of vulgarity and impurity prevalent among them. Alas for those children who do not have this loving parental care, who are not confidential with their parents, and who are left to drift in the downward current of contaminating evil conversation!"

THE TRUE HERO.—The truly strong man is the man of self-control, the one who can instantly draw the curb on the jaw of fierce desire till the fiery Bucephalus of passion steps as tame as a lamb. It was not as a weak fellow, but as possessing the strongest manhood, that the knightly young Hebrew Joseph rose superior to his temptation.

Only the virtuous are manly. The Latin *vir* means a man, a hero. Among the old Romans *virtus* meant valor, for in their idea the true man was he who could face the enemy. But we give to *vir-tue* a higher meaning, for the truest man or hero is not he who can strike down his fellow-man, but the one who can control himself. Only the virtuous are the truly virile.—*Sel.*

A WORD TO MOTHERS.—Mothers, if you would keep your children pure, establish from earliest babyhood the closest and most sacred confidential relation between them and yourself, and maintain it at any cost. If you are not already well posted on special physiology, obtain the best and most practical books on the subject, and study until you will be able to meet in a wise and loving way every question or story they may bring to you, no matter how startling or shocking it may seem at first. Books on physiology, anatomy, and hygiene should be a part of every mother's constantly used library. Gain the implicit confidence of your boys and girls, instruct them as fast as they are able to receive knowledge on questions of vital import, be always their best friend and counselor, and then only will they be safe, and then only can you be happy.—*Kate Lindsay, M. D.*

HE who utters a wanton suggestion to corrupt the innocence of chastity, may set fire to passion that cannot be quenched. The loan of a pernicious book, the insinuation of an infidel thought, the repetition of an unclean story, the irreverent use of God's word, is often fraught with undreamed-of mischief. Beware how you play with the fire of wicked suggestions that may kindle a flame of sin in a fellow-creature's heart!—*Rev. T. L. Cuyler, D. D.*

DR. MARTHA G. RIPLEY, physician to the Maternal Hospital, Minneapolis, Minn., says:—

"Parents must be awakened to the perils that surround their daughters, and girls be warned of the snares that confront them. We must remember that ignorance is not conducive to innocence, and be warned by the poor mother who brought her fourteen-year-old daughter to the Hospital, and with tears streaming down her cheeks, said: 'I am more to blame than she is, for I never told her about these things.'"

AT a recent meeting of the Society of Friends, in London, the subject of the British opium traffic was very generally discussed. Among the speakers was a missionary from Central China, Rev. Joseph S. Adams, who told the audience about little children in his section of country who had been sold for immoral purposes to buy opium for their debauched fathers.

YOUNG people, keep your hearts clean. The only way to get rid of impure thoughts is to bolt the door, brace conscience up against it, and bar out evil.—*Sel.*



THE KEELEY CURE IN ENGLAND.

THROUGH the kindness of Dr. T. D. Crothers, we present our readers with an account of the recent action taken by the medical and lay press of England, relating to the recent attempts of Dr. Keeley to install his secret-remedy business in England. Through influence of some sort the Right Reverend Bishop Barry was induced to lend his interest to the enterprise, and June 8, a meeting was to be held under the auspices of the Church of England Temperance Society, with Bishop Barry in the chair. The London *Lancet* utters a warning voice against the impositions which were being practiced upon these good people by Keeley; and our wise friend, Dr. Norman Kerr, who has done so much for the cure of inebriates in England, called upon Bishop Barry and explained to him the real nature of the business to which he had been induced to lend his influence. The exposition of the methods of these adventurers came just in the nick of time, as evidenced by the following from the London *Medical Press*, of June 22, which will doubtless be of considerable interest to our readers:—

“Rumors had prepared us for an attempt to run the now exploded Keeley Gold Cure for Inebriety in this country, but when we received the formal announcement of a meeting to be held on Friday last, under the auspices of the Church of England Temperance Society, with Bishop Barry in the chair, we felt that it was time to do something more than merely criticise. It was evident that the ecclesiastical dignitaries who had consented to give their influence could not be cognizant either of the nature of the so-called cure nor of its collapse in the United States. We determined, therefore, to nip this bold attempt in the bud, in order to preserve a praiseworthy institution from the discredit which must infallibly accrue from such an undesirable partnership, and the weak-kneed victims of the alcoholic

habit from an expensive and delusive treatment. We therefore called the attention of the gentlemen who had unwittingly lent themselves to the movement, to our articles on the subject, and we are pleased to be enabled to state that a few hours before the said meeting was to have been held, we received the authoritative announcement that it had been indefinitely postponed. We have ‘scotched the snake,’ but it would be injudicious to assume that further efforts will not be made to secure support for such a highly remunerative venture, and we shall continue to exercise every vigilance to prevent its getting a footing among us.

“It is just as well that the public should become thoroughly acquainted as soon as possible with all the information which is to be obtained with regard to this latest phase of American quackery. To be forewarned is to be forearmed. For those who may feel somewhat disposed to give the treatment a trial, the following ‘results,’ testified to by Dr. C. H. Merr, in an American contemporary, should be given due consideration. Colonel Mines, a few weeks after his ‘cure,’ died of alcoholism. Senator Fair’s son died of heart disease directly attributed to the treatment. Walter R. Earle died a raving maniac a week after his dismissal. Henry Anstey died during treatment. Dr. Miller, of Illinois, Luther Benson, and Charles Vaughan became insane. Ex-Congressman Hopkins also went mad, and died soon after treatment.

“After this melancholy array of catastrophies, of which the evidence shows that the treatment was responsible, well-advised persons should pause before placing themselves under its influence. The remedy so far is a secret one, and on being asked why secrecy was maintained, Keeley is reported to have replied, ‘The cure is a system. Drunkenness must be treated systematically. We could not hand

it over to the doctors, because they would not handle it properly. I look upon my cure as belonging to the women and children of the country. If I gave out the formula, the quacks would destroy it in a very short time. There are only three persons in the world who know the secret, and no one else ever

will know it.' No person with ordinary common sense could possibly fail to understand that these words can have only one meaning; in short, Keeley clearly believes in quackery so long as he can practice it without suffering from competition, and net fabulous sums thereby."

A NEW FETICH.

A SAVAGE in an African forest who has had the misfortune to be bitten by a poisonous insect or serpent, seeks relief by the application of a charm of some sort. It may be a lion's tooth, a bit of elephant's tusk, a portion of a human skull, or some fetich, in the mysterious virtues of which he has the most profound faith. The civilized American would doubtless find it difficult to pin his faith to such simple trifles as those mentioned, but he readily accords an equal amount of confidence to equally worthless or more complicated trinkets, such as electric in-soles, magnetic brushes, Boyd's battery, or Dr. Sanche's "Electropoise." The promoters of the last-named humbug have recently had published in the *St. Louis Republic*, an item stating that the twelve-year-old daughter of Col. Dubois, of Nashville, Tenn., had recently been bitten by a "ground rattler," and that her life had been saved by the application of the electropoise to the wound after it had begun to swell. We quote as follows from the item, the person referred to being Mrs. Dubois, the mother of the child:—

"She had no ice, and only used the Poise in cistern water, so, of course, could not get a very strong power, but she soon had the swelling very much reduced, and the poison began to ooze from the wound, and by the next morning the swelling had entirely disappeared, and there was not the least sign of swelling, though there was a large black mark around the wound.

"Miss Julia is now entirely well and has been since the second day, and of course the family are more than ever convinced of the fact that the Electropoise is the greatest thing on earth."

We are happy to note that a reliable antidote for snake bite has at last been discovered. The public should be immeasurably grateful to Dr. Sanche and Mr. Webb for perfecting this marvelous life-saving contrivance, the Electropoise. Would it not be in order to ask Congress to vote to these gentlemen a few million dollars as a reward for their ingenuity and industry? Certainly such public service should not go unrecognized. We should be heartily in favor of such an action, indeed would be glad to

head a subscription for the creation of a million-dollar fund to erect a monument to the great Dr. Sanche and his secretary and successor, Mr. Webb, making only one condition, namely, that each should demonstrate the value of the Electropoise and his confidence in its antidotal ability by allowing himself to be bitten by a ground rattler, or some other venomous reptile, then applying the Electropoise to prevent fatal effects. If Mr. Webb will consent to the experiment, we will agree to furnish the snake and a good supply of ice, so the Electropoise will have a good chance to do its best.

An experiment of this sort made before a reputable audience would be a grand advertisement for the Electropoise, would cost less than newspaper advertisements at a dollar a line, and would be more effectual, as the great number of witnesses present would render the conclusions thoroughly authentic. Once established as a reliable antidote for snake poison, the number of Electropoises that could be sold would be almost incalculable. Every doctor in the country would be compelled by popular sentiment to keep one in his office ready for any emergency. Travelers in wild countries, woodsmen, and hunters would not dare to risk their lives without an Electropoise close at hand. The government would require every soldier to carry one in his knapsack. The demand for the instruments in India and South America, where venomous serpents are as thick as mosquitoes in Florida, would be universal, and a special line of steamers would have to be chartered to carry instruments over as fast as wanted in that snake-ridden country.

If the Electropoise will cure a snake bite for little Julia Dubois, it will certainly do the same for Mr. Webb, for the same dose of snake poison is much more likely to kill a small child than a grown person. Here is a fair offer for Mr. Webb and a grand chance for him to make himself a millionaire. If he will allow himself to be bitten by a rattlesnake which we will furnish, we will furnish a hall for the experiment, pay all expenses for advertising it, provide plenty of ice, a doctor, and a clergyman, and pay the funeral expenses.

GOOD HEALTH

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

THE TRAINING OF A PUGILIST.

WILLIAM MULDOON, eminent in sporting circles as an athlete and boxer, and a trainer of pugilists, recently contributed an article for a popular magazine on the "Diet and Training of Athletes," which contains food for solemn reflection on the part of men and women engaged in the ordinary affairs of life.

According to Mr. Muldoon, a pugilist who is "anxious to get in fighting trim," and who places himself under Mr. Muldoon to be trained for this purpose, is obliged to give up all his favorite vices and submit to a regimen of the most rigorous character. First, he must give up his tobacco and liquor; no more cigars, cigarettes, or toddies; he must be out at six o'clock in the morning; to use the words of Mr. Muldoon, "No 'cat-naps,' or 'just a few minutes more,' will do, but out on the minute, is my rule."

After light gymnastics, Mr. Muldoon's charges are treated to a bath and rubbing down; then they go out for a walk of an hour, and return at eight o'clock for the first meal, of which Mr. Muldoon says:—

"It is very simple, and the epicure from the city will doubtless miss the customary delicacies of his New York breakfast table. They will be served with fruit, oatmeal or cracked wheat, with a little milk, boiled or poached eggs, baked potatoes, stale bread or toast, and one cup of either coffee or tea. That does not sound, perhaps, like a strikingly inviting repast, but after a few days they will positively and very properly enjoy it. I forbid fat or greasy food, and allow very little water or liquids of any kind. Most people drink far too much water. They drink a glassful before eating, one during the meal, and a few swallows at the close. In my opinion this is most injurious."

After breakfast the man in training is allowed to rest for an hour and a half, but by ten o'clock he must be ready for hard work. Putting on his "sweaters" he starts out with his trainer for a ten to twelve mile

walk and run. Starting slowly, the pace is gradually increased to a trot, then a run, until out of breath, when the pace is moderated for a time to recover breath, then another trot and run. This is kept up for a couple of hours. On returning home, the man lies down well wrapped in blankets, takes a little hot water, and when he is perspiring freely, is rubbed down again, and takes a cold plunge or shower; another rub until dry; then a rest for half an hour, and dinner at one o'clock, which consists of plainly cooked and wholesome vegetables, with a little roast or boiled meat. "No gravies or fried or sweet dishes, nor desserts of any kind."

After dinner, two hours of complete rest; then some more hard work. One of the exercises which is especially recommended is skipping the rope; another is jumping over a dozen hurdles without stopping, the hurdles being about three feet high and placed thirty feet apart. After two or three hours' work of this sort, another sponge bath, drying for half an hour, then supper, which consists of plain stale bread, cold stewed fruits, baked potatoes, poached eggs, and a little cold meat, going to bed at nine o'clock.

Mr. Muldoon's fame as a trainer is world-wide, and unquestionably the secret of his success lies in the simple and rigorous regimen to which he subjects his charges. This sort of training gives a man the strongest muscles, the greatest alertness of mind and body, and the most enduring nerves, which he covets as the requisites for a successful encounter with his antagonist, who is undergoing a like preparation under some other trainer.

The question which thinking men and women ought to consider, in the face of such facts as these, is whether the man who is in training for the serious business of life, who wishes to be as well prepared as possible to meet the trials and perplexities of an active business career, or the still more taxing or-

deals and responsibilities of professional life, might not with profit make a practical application of the same principles which are utilized with so great success by Mr. Muldoon, in preparing men for pugilistic encounters. Does not the physician or clergyman charged with the responsibility of human lives and human souls, need physical alertness and endurance as much as the pugilist, whose sole purpose is to win in the brutal contests of the prize ring?

Another thought: If the man possessed of the marvelous physical powers and constitutional stamina of a Sullivan or a Heenan, cannot without injury indulge in the use of tobacco, liquor, spices, rich gravies, sauces, sweets, etc., how can a man or woman, boy or girl, of delicate constitution, sedentary habits, and perhaps hereditary tendencies to disease, indulge in the use of unwholesome and indigestible foods without the greatest damage? Have we not here an excellent illustration of the

truth embodied in the Scripture text, "The children of this world are in their generation wiser than the children of light"? How many Christian men and women are mourning because of their lack of ability to work for the cause which they love, mourning over their inefficiency, and perhaps groaning with pains and distresses, which they imagine are sent by Providence "for their best good," who are themselves responsible for all their weakness and suffering, which are simply the result of the violation of natural laws so plain and simple in their meaning that they are easily recognized by the worldly-wise man who wishes to put himself in the best possible condition for an athletic feat or a sparring-match.

One can hardly resist the idea that the majority of intelligent men and women in matters pertaining to health willingly close their eyes to facts and principles so cogent and so lucid that "he who runs may read," if he only has the will to do so.

WHOLESALE CHILD POISONING.—We are glad to note that 140 children have been recently ordered out of the Cincinnati tobacco factories by the State Inspector of Tobacco Factories of Ohio, the order being based upon the grounds that such work is injurious to youth. In the tobacco factories which we ventured into on a tour of inspection two years ago, we were struck with the unhealthy appearance of all the employees, among whom were a large number of boys and girls who had just entered their teens. The poisonous atmosphere in which these people live, could not be otherwise than productive of grave diseases, and children thus employed must suffer great constitutional injury as the result. The use of tobacco by grown people is bad enough, but the employment of the noxious weed as a means of blighting and dwarfing the lives of children is an evil which even the most confirmed tobacco user must recognize as intolerable.

THE little work, *Le Tabac et la Dépopulation de la France*, by Decroix, gives a very striking and conclusive demonstration of the influence of tobacco as the cause of the depopulation of France. A study of the statistics of France shows that there has been, since 1881, a steady decrease in the birth-rate as compared with the deaths. In 1890, the number of persons who died in France, exceeded the births by 38,446. M. Decroix has ascertained by a careful study of statistical documents, that there is a direct and close relation between tobacco using and the lowered birth-rate. He finds that in the ten departments of France in which the most to-

bacco is consumed, the birth-rate is much smaller than in the ten departments in which the smallest amount of tobacco is consumed. Many other facts of great importance in reference to the consumption of tobacco are presented.

THE INFLUENCE OF TOBACCO UPON DIGESTION.—J. Ydan-Pouchkine recently reports in *Wratch* the results of experiments upon seven healthy persons not addicted to smoking, for the purpose of determining the effects of tobacco upon digestion. He made careful examinations of the gastric juice for three days, during which no tobacco was taken. At the end of that time, each of the seven persons experimented upon were allowed to smoke twenty-five cigarettes daily. The gastric juice was examined each day as before. The observations were also continued for an additional period of three days, after which the use of tobacco was discontinued. The results observed were as follows:—

1. Tobacco increases the quantity of gastric juice, but diminishes its acidity, a significant fact when it is recalled that the degree of acidity of the gastric juice is the measure of its activity in the absence of abnormal acid fermentations.
2. The quantity of free hydrochloric acid in the gastric juice is diminished under the influence of tobacco.
3. Just in proportion as the free hydrochloric acid is diminished, the digestive power of the gastric juice is diminished.
4. Tobacco also diminished the activity of the rennet ferment contained in the gastric juice.

These facts should be carefully considered by those physicians who have been in the habit of recommending tobacco chewing to their dyspeptic patients as an aid to digestion. We have constantly noted the remarkable fact that tobacco smoking and chewing, though not infrequently recommended as an excellent remedy for certain dyspeptic conditions in men, are never prescribed for women suffering from identical conditions. There has never been the slightest scientific basis for such a recommendation, and the results of careful scientific experiment now presented by the authority above quoted furnish a most excellent reason for prohibiting tobacco, not only to those suffering from feeble digestion, but also to those who wish to keep their digestive organs in a healthy condition.

The tobacco habit is one of the most conspicuous blemishes upon our modern civilization. No apology can be offered for it which is not equally good, or better, for the alcohol habit, the opium habit, the cocaine habit, or the hasheesh habit. It is to be hoped that the time is not far distant when

medical men as a class, will set their faces earnestly against poison habits of every description. Then, and not until then, can we hope for the beginning of a general reformation on the part of the laity.—*Bacteriological World and Modern Medicine.*

PURE ALCOHOL.—Much has been said by the advocates of moderate drinking, of the harmlessness of "pure liquors;" they maintain that the injury resulting from alcoholic drinks in modern times is due to the impurity of liquors recently made, as compared with those of bygone generations. The fallacy of this reasoning has been shown by some recent experiments made by Strossmann, of Germany, who has shown by experiments upon animals, that alcohol containing even so much as one half of one per cent of impurities is no more injurious to health than that which is absolutely pure. These observations ought to make an end of the puerile argument referred to. The objection to alcoholic drinks is not that they contain impurities, but that they contain alcohol.

A ROYAL VEGETARIAN.

THAT vegetarian ideas and principles are steadily gaining ground in the world is evident from the influence which the views of Pythagoras, Seneca, and other eminent old philosophers are acquiring among the higher and more intelligent classes within the last few years. It was recently announced that Lady Paget, wife of the British ambassador to the Austrian court, had become a vegetarian, having renounced the use of flesh meat on humane grounds. A suspicion of a selfish motive is aroused, however, by an observation made by Lady Paget, that she has noticed that vegetarians have usually a very clear and beautiful complexion. We quote the following from an article by Lady Paget, in the *Nineteenth Century* for April, and call special attention to the quotation from Bünge, one of the highest of recognized authorities on physiological chemistry, and hence one prepared to speak authoritatively respecting the relation of spirit drinking and the use of flesh food:—

"The very strict ascetic sect of vegetarians who live only upon seeds and uncooked food, look down upon their weaker brethren who eat eggs and milk and butter, in fact, everything which does not necessitate the taking of life, which appears to me to be the only reasonable standpoint. It is certain that the giving up of animal food cures many illnesses

which no medicine can reach. Everybody knows the bad effects of butcher's meat in gout and rheumatism. In affections of the heart it is often the only remedy, and the wonderful results are not difficult to explain in a case where rest often means cure, if one reflects that while the meat-eater's heart has seventy-two beats in the minute, the vegetarian's has only fifty-eight beats, therefore 20,000 beats less in the course of the twenty-four hours. Insomnia and nervousness are affected in the same way; there is less wear and more repose in the constitution. I could enumerate many other illnesses in which vegetable diet does marvels, but will only mention those of the skin. Most vegetarians have unusually clear and often beautiful complexions. I need only remind those who know them of the old Carthusian and Trappist monks, who all have smooth white and pink *Fra Beato Angelico* kind of faces, which are not found among the orders that do not habitually live on Lenten fare.

"The splendid teeth of the Italian peasantry, who never touch meat, speak for themselves, and it is the same in other countries where the people live under similar conditions. It is foolish to associate vegetable diet with temperance, as so many do; they are quite astonished to see a vegetable eater, drinking wine or beer. One thing, however, is true;

viz., that it is far easier to cure a drunkard if you deprive him of meat. . . . G. Bunge, professor of physiological chemistry at the University of Bâle, writes, in his book on vegetarianism: 'The appetite of the drunkard is directed almost exclusively to animal food, and vegetarians are quite right when they teach that spirit drinking and excessive use of animal food are in connection with each other.'

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

eater. Traveling, mountain climbing, all seem easier and less fatiguing on this light and soothing diet: and why should it not give strength to the limbs and sinews if one reflects that all the strongest animals who do the heaviest work in the world, like horses, oxen, and elephants, are entirely herbivorous? It is not my intention to be understood to say that I look upon vegetable diet, even with its necessary accompaniments of fresh air, frequent ablutions, gymnastics, and exercise as a panacea for everything, and that medicines become useless. We are mortal, and there is no perfection in this imperfect world. Nobody has a greater belief than I have in remedies judiciously given during illness, but it is the many who are out of health and below par, without knowing what is the matter with them, who would be all the better for trying whether their discomforts spring from too high and rich a diet, or from the inability to procure any but inferior meat or fish."

SPONTANEOUS TYPHOID FEVER.—That typhoid fever may occur spontaneously without any connection with a preceding case of typhoid fever, is a notion which has been strongly combatted by sanitary authorities, although maintained by Dr. Murchison, of England, and the eminent Sir William Jenner, who held that the disease is due, not to a specific germ, but to a peculiar decomposition which may be set up in the stools of healthy persons as well as those furnished by typhoid-fever patients, although much more likely to occur in the stools of persons suffering from typhoid fever. The evidence has seemed to be against this view, until recently it has been discovered that the germs which are found constantly present in the large intestine of human beings may assume, under certain circumstances, exactly the appearance and all the properties of the germ discovered by Eberth, which has been very generally believed to be the specific cause of typhoid fever. Roux, Vallet, and others have been making a careful investigation of this matter, and are convinced that Eberth's germ is simply a peculiar form of the germ referred to, which is constantly found in the large intestine, from which it has derived the name "bacillus coli."

A fact developed by these investigations, which it is important for the public to know at the earliest possible moment, is that the bacillus coli is to be found in a thriving condition in cesspools, being possessed of very great vitality. It is also found growing in vaults and closets, and when obtained from such sources, is found to be even more destruc-

tive to animal life than when obtained directly from the stools of human beings.

From these facts it appears that typhoid fever is due, not to the introduction of a specific germ into the body, but to conditions which cause the germs always found present in the body in great numbers to take on a peculiar development by which they acquire unusually active and virulent properties.

The bacillus coli has also been found to be a cause of abscess, especially abscess of the liver, pleurisy, inflammation of the bowels, peritonitis, dysentery, cholera-morbus, and other allied conditions.

The sanitary lesson which these facts teach, scarcely needs emphasis. They certainly should impress upon the mind most forcibly that the danger of typhoid fever can be avoided, not simply by avoiding contact with typhoid-fever patients, or milk or water infected by dejections of persons suffering from this disease, but that safety from this fatal malady can be secured only by the most scrupulous sanitary cleanliness. Cesspools and vaults must be regarded as hot-beds of disease, from which may emanate not only typhoid fever but a host of other destroying and fatal maladies, and should be abolished from every civilized community. The greater share of suffering, disease, and death are due, not to Providence, nor to uncontrollable circumstances, but to our own ignorance and folly, since sanitary science is demonstrating constantly the fact that the worst enemies of life and health are those which we ourselves encourage and foster within and about our dwellings, and in our habits of life.



HOW NOT TO HAVE THE CHOLERA, AND HOW TO CURE IT.

THE time to commence to cure the cholera is before it begins. Experiments and experience have shown that a person whose digestive organs are in a healthy state is not likely to contract either the cholera or any other infectious disease which attacks the body through the stomach, such as typhoid fever, cholera morbus, dysentery, etc. The gastric juice of man and other frugivorous animals naturally contains free or uncombined hydrochloric acid. This acid is one of the best disinfectants. Even in very dilute solutions it will destroy germs or prevent their growth. Cholera germs can develop only in the intestines. The same is true of typhoid-fever germs, and most other microbes which produce death or dangerous symptoms by growth in the alimentary canal, and the production of poisons which are absorbed into the system. The symptoms of cholera, as well as those of typhoid fever, cholera morbus, and allied affections, are due to the poisons produced by the microbes peculiar to these maladies, the germs running the gauntlet of the stomach before they can begin their work of mischief.

It is only necessary, then, to keep the stomach in such a healthy state that germs cannot live in it, to make one's self safe from cholera and all allied diseases. A stomach that is germ proof is a better barrier against cholera than the most efficient quarantine. It is, indeed, a sort of sanitary cordon or quarantine station for the body. Nevertheless the number of germ-proof stomachs in an ordinary civilized community is so small as to render the abolishment of quarantine at the present time quite unsafe; and prudence will lead every person to avoid contact with this dread disease in the most careful manner, especially as no one can be absolutely assured that the vital barricade presented by his individual stomach at a given moment is absolutely intact.

A few suggestions as to the best method of keeping the vital resistance and protective power of the stomach at its highest level will perhaps be appreciated just now, when cholera is exerting such a wholesome effect in creating general respect for sanitary rules and hygienic principles.

1. Dietetic excesses of every description predispose to cholera; hence, overeating, the use of indigestible articles of food, such as pickles, pastry, fried foods, etc., and especially the use of decomposing substances as food, such as cheese and meat with a gamey flavor, must be carefully avoided in cholera times. A person who wishes to keep his stomach in condition to battle successfully with the cholera microbe and germs of all sorts, will carefully abstain from all irregularities in diet; he will make his food as simple as possible, his meals regular, and will avoid such pernicious articles as ice-cream, iced tea, ice-water, or other cold drinks at meals, or, in fact, at any time, in more than the smallest quantity. The effect of cold upon the stomach is invariably to lower the vital resistance of the organ and lessen its ability to secrete a highly active gastric juice. Dr. Beaumont observed that after Alexis St. Martin had swallowed half a glass of cold water, nearly an hour elapsed before the stomach recovered its normal temperature and resumed the work of digestion. This interval would afford ample time for a whole regiment of cholera germs to slip through the unguarded stomach and begin their work of mischief in the small intestine below, where there is no hydrochloric acid to molest or make them afraid.

Alcoholic drinks of all sorts, even wine, beer, and cider must be rigorously abstained from, as these substances also lessen the digestive vigor of the stomach, and hence diminish its power to cope with the deadly cholera germ. In an epidemic which occurred in Paris, many years ago, it was noted that

the number of cases which were brought into the hospitals on Monday was more than 12 per cent greater than that brought in on other days. The Magdeburg epidemics, conspicuous in the history of this disease, all occurred, according to Prof. Niemeyer, after a general feast in which the population had given themselves up to reveling and excesses. A high medical authority, writing of an epidemic of cholera at Tiflis, states that "drunkards died off like flies," a fact which was reiterated as regards the epidemic of yellow fever in St. Augustine a few years ago.

2. Hayem and Winter, two eminent French physiologists, have recently shown that while hydrochloric acid is present in a free state in the stomach fluid of man after a meal consisting of food of vegetable origin, it is entirely absent from the gastric fluid of a dog after the animal has taken a meal of meat. Experiments which the writer has conducted in the Sanitarium Laboratory of Hygiene, agree with this observation. In one case, hydrochloric acid was added to a quantity of meat juice. It was found that the hydrochloric acid disappeared as rapidly as it was added, until a quantity had been added which in amount far exceeded the proportion of this precious digestive and disinfecting agent found in the normal gastric juice. Subsequent analysis of the meat juice to which the hydrochloric acid had been added, showed that the acid had combined with the albuminous elements of the meat, thus destroying its ability to act as an antiseptic or disinfecting agent.

This fact certainly suggests the idea that abstinence from the use of flesh food would be a wise precaution during cholera times, as by this means the stomach would be furnished with a larger amount of free and active hydrochloric acid.

Sylvester Graham, the great apostle of vegetarianism in America, who was a resident of New York during the great cholera epidemic which occurred in that city during the decade of 1840-50, asserted that after careful inquiry he was unable to find a single instance of the disease having occurred in a person of strict vegetarian habits. Certainly we should not undertake to support the proposition that no vegetarian could have Asiatic cholera, since the favorite home of the disease is among the vegetarian natives of India. Nevertheless, there can be no doubt that abstinence from flesh food will supply one of the conditions most valuable as a defense against this dread disease. The fact of the prevalence of the disease in India, where cholera exists as constantly as does typhoid fever in this country, and without

attracting much more attention, is not an evidence of the special vulnerability of vegetarians, but rather of the enormous resistance offered to the development of an epidemic of cholera by a vegetarian people living under most unfavorable conditions. In India, where the disease always exists, cholera cuts only a small figure in the mortality list; but when the microbe finds its way to such countries as Germany, England, France, and America, where dietetic habits are less simple, and flesh meats are freely used, the flickering flame of the disease is quickly fanned into a violent and most destructive conflagration by the more favorable conditions which it finds in the human alimentary canal.

Another evidence of the correctness of this view respecting the influence of flesh eating in predisposing to the disease, is afforded by the fact well known to biologists, that vegetarian animals, such as the rabbit, afford a much greater resistance to blood poisons of all sorts than do carnivorous animals, such as dogs, etc. Capt. Sanderson, the great elephant hunter of India, states in his interesting volume entitled, "Fourteen Years among the Wild Beasts of India," that a lion or other carnivorous animal, when wounded, almost invariably dies of blood poisoning, though the wound may be comparatively insignificant, while elephants, bisons, and other non-carnivorous animals are often observed going about in apparent health, although presenting huge festering and suppurating wounds.

3. It is scarcely necessary to mention the importance of exercising the greatest care respecting the purity of water, milk, and all liquids taken. Any one who will take the pains to take only sterilized foods and drinks into his stomach, is almost safe from cholera anywhere, at any time.

That one may be exposed even for a period of weeks to the most intimate contact with cholera, without becoming affected with the disease, is shown by the fact that Prof. Koch and his assistants were actively engaged for a number of weeks in the investigation of the cause of this plague during its prevalence in Egypt a few years ago, and yet not a single member of the party succumbed to the disease; indeed only one person suffered from it, and in this case the disease was due to a neglect of the precautions which were carefully enjoined upon every member of the commission, one of the essential measures of which was that no fluid or food should be taken which had not previously been thoroughly exposed to the temperature of boiling water.

Mequil has shown that boiling water for 15 minutes at a temperature of 230° to 239°, which is 20° to

25° above the ordinary boiling point of water, would effectually destroy all germs found present in water under any circumstances. The fact that cholera is communicated through the medium of drinking water was long ago established beyond any chance for controversy. It may of course be communicated by milk as well as water, as milk is not infrequently contaminated with impure water, either by dilution, or through the use of impure water for cleansing cans or other receptacles. It is evident that the simple boiling of water, milk, and other fluid foods, will afford almost an immunity from the disease. Great care should be taken that the boiling is at a high temperature; ordinary boiling only raises the temperature to a point a little less than 212°, hence some means must be employed by which the temperature will be raised to a higher point. This may be accomplished by means of the milk sterilizer sold by the Sanitary Food Co., a description of which will be found in our advertising columns.

As regards the treatment of cholera, volumes have been written, but the enormous fatality of the disease and the consequent dread with which it is regarded is satisfactory evidence that no certain remedy has been found. It is probable that a general knowledge of the utility of some simple measures might greatly lessen the mortality in epidemics of the disease. The constant vomiting and purging render internal remedies almost altogether useless. Medicines are vomited as quickly as swallowed. Niemeyer observed, however, that persons who drank large quantities of hot water, in the form of warm teas, or otherwise, afterward going to bed and covering themselves warmly, so as to produce profuse perspiration, were thus able to ward off an attack, even when the disease had clearly obtained

a foothold. If called upon to treat a case of this disease, we should adopt this plan, and should add large hot enemata, repeated as often as the bowels were moved, by this means emptying the stomach and bowels of the poisonous matters produced there in such abundant quantity by the growth of the microbes. An ice bag applied to the back of the head and upper part of the spine, with constant hot applications to the abdomen, such as mustard fomentations and the application of artificial heat about the limbs, will also be of service.

The use of water in cholera is by no means a new idea. Among the Persians it has been the custom for centuries, during the prevalence of an epidemic, to place pails of water along the highways at short intervals, for use of those who may be suddenly stricken down upon the streets. When a man finds himself attacked by the disease, the fact being announced to the bystanders, a pail of cold water is thrown over him, and he is vigorously rubbed, so as to produce a thorough reaction. This remedy is held in high esteem by the Persians.

Having had no personal experience in the treatment of this disease, we can scarcely offer more than the above suggestions respecting treatment, nevertheless our confidence in the simple measures outlined is so great that we should resort to it in case we were called upon to treat the disease, and should, if possible, secure its application if attacked personally by the malady.

We may also add that a Russian physician has recently reported eminent success in the treatment of this disease, during the epidemic which is still prevailing in Russia, by following a method of treatment similar to the one which has been outlined above.

SICK-HEADACHE.—Sick-headache, or what is sometimes incorrectly called nervous headache, bilious headache, bilious attack, or bilious vomiting, accord- as special stress is laid upon one or the other of the symptoms prominent in the disease, is perhaps as little understood as any of the common disorders which afflict humanity. Persons who are subject to these attacks usually attribute them to hard work, loss of sleep, taking cold, malaria, disordered liver, the bile getting on the stomach, or a variety of other causes, none of which are the real or particular cause to which the disease is chiefly attributable.

While not dangerous to life, the suffering endured by persons subject to frequent attacks of sick-headache is enough to make life thoroughly miserable,

and hence it is important that the cause of this unpleasant malady shall be discovered and if possible removed. Fortunately, both are easy of accomplishment. Indeed, it may be said with most positive certainty that the real cause of sick-headache, nervous headache, and allied affections, has been discovered to be the development of poisons in the stomach and bowels, usually the stomach, as the result of germs which have been swallowed with the food. These germs are present in the stomach constantly; nevertheless, they cause sick-headache only in certain persons. The reason for this is that while the germs are present in the stomach, they require favorable conditions for development. One of these conditions is a dilated state of the stomach, which

allows the food to remain in it a great length of time, so that the germs have an opportunity to develop and to produce the poisons to which the distressing symptoms accompanying this disease are due. The writer has found a dilated state of the stomach in every case of this malady which he has had an opportunity to investigate in the last three years, and believes it to be an unvarying accompaniment of the disorder.

Special foods also encourage the disease, and especially dietetic errors; for example, coarse vegetables which remain long in the stomach in consequence of the great length of time required for their solution in the gastric juice so that they may be discharged from the stomach, are particularly productive of attacks of sick-headache. We have often been told by persons subject to this disease that a "boiled dinner" was certain to bring on an attack. For the same reason, hasty eating, which involves the introduction into the stomach of food imperfectly masticated, is productive of a condition favorable to the development of sick-headache. The same must be said of overeating. Taking great quantities of liquids at meals, especially of cold liquids, the use of tea and coffee or butter, the free use of meat, pastry, sweets—anything which tends to produce

indigestion, and hence the formation of gases and distension, and ultimately dilatation of the stomach, is productive of sick-headache.

As regards treatment, there is no specific for sick-headache except complete emptying of the stomach. The writer has frequently relieved patients suffering from sick-headache by passing a tube into the stomach and emptying it of its contents. The relief obtained in this way is usually instant, the patient ceasing to suffer as soon as the offending substances are removed from the stomach. It is only necessary, then, to keep the stomach in good sanitary condition to prevent attacks of sick-headache. In cases in which the stomach is widely dilated, this is by no means an easy task, but careful attention to diet, or at least a dietetic regimen adapted to the needs of the individual, will control any case of this disorder, no matter how obstinate it may have proved to be, after medicinal or all other remedies may have been administered. Sometimes the stomach may be washed out by swallowing a large amount of warm or hot water. As a rule the bowels are inactive, and should be emptied by a large enema at the same time. By this means the alimentary canal can be thoroughly cleansed, and the patient quickly relieved.

ANSWERS TO CORRESPONDENTS.

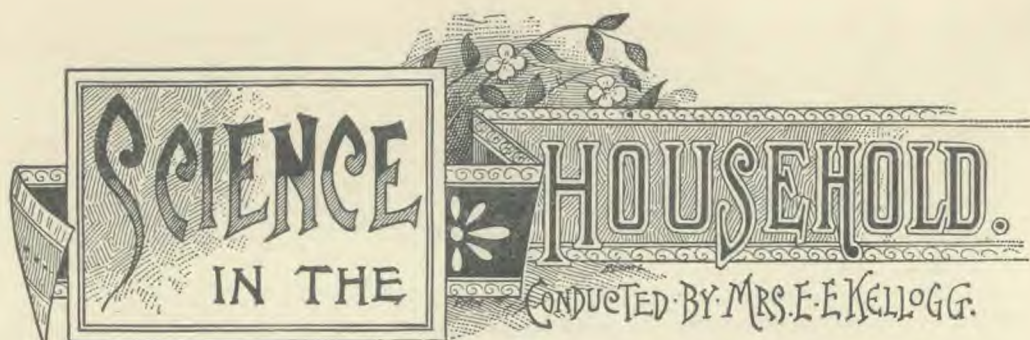
THE USE OF LIME-WATER, ETC.—A. S. H., Vermont, inquires, "Why is it objectionable to us water containing lime, while it is recommended to use lime-water in milk?"

Ans.—The difference between the use of lime-water in milk and the use of lime-water for drinking and culinary purposes is simply a difference in quantity. A small amount of lime-water used in milk is not likely to do any harm, although it is quite possible that no considerable amount of good may be accomplished by it. We are continually finding out that many things considered useful have really no practical value, after all. It is quite certain that barley-water or oatmeal-water are fully as useful as lime-water as a dilutant for milk. Prof. Vaughan, of Ann Arbor, an eminent chemist and physician, asserts that the addition of lime-water to milk for the purpose of increasing the amount of lime salts contained in the milk is entirely an error, since the proportion of the lime salts in milk is greater than that in lime-water, so that the only effect of the addition of the lime-water would be dilution as regards the lime, rather than concentration. We believe, however, that there

are cases in which the addition of lime-water is beneficial as a means of neutralizing acids which have been formed by the action of microbes in the milk; but it would doubtless be better to accomplish this by some other means, such as boiling the milk, or the addition of a very small amount of soda. It is still better, of course, to avoid the presence of such acids, by sterilizing the milk while perfectly fresh, and keeping it at a low temperature until used.

COMBINATION OF MILK AND VEGETABLES.—S. A. S., Indiana, writes: "I see by the diet table leaflet that milk and vegetables make a bad combination. 1. What is objectionable in using milk, in moderate quantities, with potatoes? 2. Would the use of cream be objectionable also?"

Ans.—The rules laid down respecting the combination of foods do not apply to persons whose digestive organs are in a healthy state, but only to those who are suffering from weak digestion. Persons whose stomachs are reasonably healthy may use milk or cream in connection with potatoes or other wholesome vegetables, without injury.



CONTRIBUTED RECIPES.

FRUIT SOUPS.—Soak one half cup of sago for one hour in a cup of cold water; add a quart of water and cook in a double boiler until transparent. In the meantime cook together one cup of sweet California prunes and one half cup of raisins in a small quantity of water. When the sago is transparent, add the fruit and juice to it together with one half cup of currant or some other tart fruit juice and one half cup of sugar. The quantities given are sufficient for three pints of soup. Serve hot with croutons.

FRUIT SOUP No. 2.—Instead of the above, rice with dried apricots, prunes, and currant juice may be used. Dried apples with dried cherries may be used if preferred.

ANOTHER.—Vermicelli or pearl barley may be substituted for sago, and dried cherries, with strawberry and lemon juice used in place of the fruits mentioned.

MRS. W. H. HYATT.

IRISH CORN SOUP.—Cook one pint of sliced potato until tender; rub through a colander and add one pint of stewed fresh or canned green corn which has also been rubbed through a colander. Add boiling water to make the soup of the required consistency, season with salt, and serve.

APPLE MACARONI.—Prepare enough freshly stewed apples to make five cupfuls of rather thin sauce (eight medium-sized apples will make about this quantity). Sweeten to taste, heat it to boiling, if cold, and cook in it one cup of macaroni broken into inch lengths, from one half to two hours, according to the quality of the macaroni. This is best cooked in a double boiler to prevent burning, but may be allowed to remain directly over the fire for a short time at first, and cooked rapidly.

EVORA BUCKNUM.

To polish tortoise-shell ornaments, rub with pulverized charcoal and water, using a clean flannel cloth; next moisten with vinegar and rub with whiting wet with water, or powdered rotten stone may be substituted for the whiting.

TABLE oilcloth, tacked back of the stove, if pans or cooking utensils are hung up, and of tables where mixing or dishwashing is done, saves the wall and may be cleaned easily, and lasts a long time.

To remove the shiny look from black coat collars, elbows, seams, etc., where the nap of the cloth is not worn off entirely, ammonia water is excellent; but if the whole coat needs a thoroughly good cleansing, use strong black coffee, to which has been added a few drops of ammonia, and sponge with a piece of black woolen cloth.

THE first Mission School of Cookery and Housework, at 1228 N Street, Northwest, Washington, D. C., claims to be the oldest free school of cookery in the country. It was opened in 1880, with two classes of little girls. Since then, free instruction in cooking has been given to more than a thousand girls. The president and chief patron of this school is Mrs. Anna L. Woodbury, a niece of the late James Russell Lowell.

AN INGENIOUS METHOD OF MENDING CHINA.—A contemporary has recently solved the difficulty usually experienced in the mending of a broken article of glass or china which has been so fractured that the pieces cannot be kept together until the cement hardens. It is to make, by means of a companion piece of the broken dish, an exact mold of plaster of Paris, and then fit the pieces into it. Of course when the cement hardens, the vessel is in

perfect shape. When the broken article is a bit of *faience* which has no fellow, and therefore no mold can be made, the pieces might be well oiled, the edges touched with cement, and then with great care pressed into a mass of soft gypsum.

THE Houswife Union of Berlin, founded by Frau Lina Morgenstern, twenty years ago, for improving domestic service, has become one of the most useful organizations of Germany. It gives prizes to women who have remained in the service of the same family for terms of five, ten, twenty, and thirty years, the highest prize being thirty marks in gold. At a recent meeting a prize was given to one woman who had served fifty years in one place, outliving two generations. Another's term of service lasted thirty-eight years. The union also supports a free intelligence office and cooking school.

AN exchange says that chloroform will take out grease spots; so will salt dissolved in alcohol. Or you can wet the place with ammonia water; then lay white, soft paper over it and iron with a hot iron. Or rub French chalk on the wrong side, let it remain a day, split a visiting card, lay the rough side on the spot, and pass a warm iron lightly over it. Or try the old-fashioned "grease balls," a stiff paste made of fuller's earth, saleratus, and strong vinegar, molded into balls and dried. Wet the spot, scrape the ball over it, let it dry, and then wash it off with tepid water.

A SEWING-MACHINE SECRET.—A correspondent in the *Housekeeper's Weekly* gives the following interesting and most important bit of information concerning the care of a sewing machine:—

"Take out the screw that holds the foot-plate, remove it, and you will be surprised at the amount of lint accumulated there. Clean the little grooves with a penknife, and under the whole of the plate. (The needle must be taken out before the work is begun.) You will often find this is the only cause for the machine's running hard or not carrying the work, and it is a little secret that the agents will not tell you. I have just cleaned mine in this way, and it runs like a new machine."

THE MOST CONVENIENT KITCHEN IN AMERICA.—The famous model kitchen built by Mr. Norton Q. Pope, of Brooklyn, has this enviable distinction. Although not so large as that of Cornelius Vanderbilt (both are private kitchens), which in all its appoint-

ments is said to be planned on as colossal a scale as that of any hotel or public institution in the land, having a range which alone cost \$1500, yet the Pope kitchen surpasses it in fineness of detail. Here every particular of arrangement has been made a study, and every inch of space has been utilized in the highest degree. The walls and floors are tiled, and it has two separate ranges,—a coal range and a gas range,—and in addition a Dutch oven is provided. The roasting and broiling is done on automatic revolving spits, and on silver gridirons. The furnishings are described as unique, each receptacle for food, as well as each cooking utensil being the embodiment of an idea. The former are of graniteware bound in nickel, and each separate article was made to order from a special design. The domain of science is laid under tribute in every way to procure exact and uniform culinary results, and thus a more than ordinary intelligence is demanded of those who perform the work. Housework is here reduced to a system as regular as clockwork, and as perfect in the performance of its functions.

THE *Domestic Journal* gives the following as a good mixture to have in the house: "Aqua ammonia, two ounces; soft water, one quart; saltpeter, one teaspoonful; shaving soap, one ounce. Scrape the soap fine before mixing the other ingredients, and allow it to stand a few hours before using. It is sure death to bedbugs if applied to the crevices which they inhabit; it will remove paint that is mixed with oil without injuring the finest fabrics, and will remove grease from carpets by covering the spots with the mixture, and after sponging and rubbing it thoroughly, washing it off with clear cold water."

AN excellent use for oyster shells is to clean the fire-brick of the stove. Lay a number of them on top of the hot coals, and when the fire burns down, it will be found that all the clinkers have scaled off the bricks.

A WOMAN'S coöperative bakery was opened last month at Springfield, Mass. Its business is already so great that an extension of quarters will soon be made.

AN English exchange says: "Grass stains upon children's clothing may be removed by the application of molasses, as though it were soap, and presently washing as usual; the fabric will suffer no injury."

LITERARY NOTICES.

THE October *Arena* contains another installment of the Bacon-Shakespeare controversy which will prove of general interest. Among the papers treating serious moral, political, and reformatory problems are the following, all of which are from the pens of eminent thinkers: "Has Islam a Future?" "The Negro Question in the South;" "Should the House of Representatives be Limited to Its Present Number?" "Social and Economic Influences of the Bicycle;" "The Church and the World;" "Astrology Fin de Siecle;" "A Plea for the Prohibition Party;" and "The True Character of Christopher Columbus." The last half of the Symposium on Woman's Dress, prepared under the auspices of the National Council of Women, appears in this number. The editor contributes a valuable illustrated paper in favor of improvement in woman's dress.

THE October *Scribner* begins a series of articles on the World's Fair at Chicago, intended to give the general reader some adequate idea of the immense undertaking which is being so rapidly and artistically carried out. The present article is, "The Making of the White City," by H. C. Bunner, with a number of striking illustrations. The two educational articles, "The School for Street Arabs" (the D'Alembert School, near Paris), and "The Education of the Deaf and Blind," are of high value. Among the most vivid articles in the "Historic Moments' Series" is a description in this issue, by Daniel Denison Slade, M. D., of "The First Capital Operation under the Influence of Ether." Other interesting articles are, a paper in the "French Art" series, Andrew Lang's "Homer," and "The Launching of Cruisers and Battle-ships." The fiction of the number is by Octave Thanet and Bliss Perry. Charles Scribner's Sons, New York.

"THE WELL-DRESSED WOMAN," a Study in the Practical Application of Dress to the Laws of Health, Art, and Morals, by Mrs. Helen G. Ecob, is now on press by the Fowler & Wells Co., New York. It is in line with the present agitation of the subject at Chautauqua and by the Ladies' Club of Chicago, and others. The work will be fully illustrated and very practical.

WITH each copy of *Demorest's Magazine* for October, a reproduction of the lovely painting of "A White House Orchid," painted by Mrs. Benj. Harrison, will be presented *free*.

THE *Pansy* for October is an excellent number. Its articles are timely, and of a character that this magazine well knows how to furnish its readers. The two main stories, by Pansy and Margaret Sidney, come to a close. The English Literature paper on Macaulay, and the American History paper on St. Louis, are both of extreme interest, and the shorter stories and articles valuable in every particular. Price \$1 a year; 10 cents a number. D. Lothrop Co., Publishers, Boston.

A VERY timely book is "The Career of Columbus," by Charles Elton, M. P., which, however, while it is timely, is not ephemeral. It has been prepared with great care, and the author has brought scholarly research to bear upon its making. It is a book that will be read for its intrinsic worth as well as for its relation to the great anniversary of 1893. The author writes in a popular style, and his book is likely to interest young as well as older readers. Cassell Publishing Company, New York.

AN important change in the *Kindergarten Magazine* is that the Misses Andrea and Amalie Hofer, both prominent in kindergarten and journalistic work, assume editorial charge, beginning with the present number. The magazine has been remodeled, and appears under a new cover which does justice to the dignified cause it represents. The *Kindergarten Magazine*, Woman's Temple, Chicago.

THE only complete and authentic life of Grover Cleveland that has yet been written will be published immediately in Cassell's Sunshine Series. The author is George F. Parker, editor of "The Writings and Speeches of Grover Cleveland," published by the Cassell Publishing Company, and he has had the authorization of Mr. Cleveland in his work. Besides Mr. Parker's "life" of the great Democratic Leader there will be added to the book a literary estimate of the ex-President by Richard Watson Gilder, and a review of his legal career by his late partner, W. S. Bissell, of Buffalo.

"SHORT TALKS ON CHARACTER BUILDING," to be issued by the Fowler & Wells Co., New York, is by G. T. Howerton, a well-known teacher in the South.

"HOW SIX GIRLS MADE MONEY," and Occupations for Women, by Mrs. Marion Edmonds Roe, is being brought out by the Fowler & Wells Co., New York.

PUBLISHERS' DEPARTMENT.

MR. WM. ARNOLD, whose peregrinations about our planet have acquired for him, among his friends, the title of "The Great American Traveler," has recently returned from a twenty-two months' tour in South America and the islands of the West Indies. When Mr. Arnold started on his first round-the-world trip, he carried with him outfits for the introduction of the various works upon health and temperance, published by the Good Health Publishing Company, and was so successful in introducing the works in Australia and New Zealand that many thousand copies of the various subscription books issued from this office have been sold in those countries within the last four years. Although for some time back engaged upon other works, Mr. Arnold has recently again taken up the introduction of health literature, and will for the next year or two devote his remarkable energy and ability as a salesman to placing our reform literature in the hands of the men and women of America. Mr. Arnold expects to spend the coming winter in some portion of the South.

* *

THE Sanitarium medical students who are taking a course of study and training preparatory to medical missionary work, and who have been spending the summer months at the Sanitarium, have returned to their studies at Ann Arbor, Michigan, with the exception of two, who remain behind to assist in the work at the Sanitarium during the coming year. The managers of the Institution are looking forward with much interest to the time when these young people will complete their course of study, and be prepared for the responsible and active duties which await them. Some of them possess so excellent a faculty for making themselves useful that they will be considerably missed from the positions which they have filled during their summer vacation.

* *

THE Sanitarium family has been fully as large as ever during the last summer, and the continued afflux of patients indicates an unusually large patronage during the fall and winter months. The general good cheer and satisfaction which prevails among the patients is an evidence of their appreciation of the advantages afforded by the Institution, which are pronounced by those who have traveled much, and visited health resorts in various parts of the world, as absolutely unparalleled in the number, variety, and efficiency of health-getting agencies afforded.

* *

THE construction of the Haskell Home for Orphans, which is being built by the aid of the munificent gift of Mrs. C. E. Haskell, as a memorial for her deceased husband, has been progressing somewhat slowly in consequence of delay on the part of shippers in sending material promptly. But the foundation is now completed, and an army of carpenters who have been awaiting their turn to lay hold of the work, have begun the erection of the skeleton of wood in good earnest, and will soon have four walls and a roof to outline the shapely proportions of the structure. A great amount of time and labor have been bestowed upon the plans by the building committee and the architect and builder, Mr. W. C. Sisley, and it is believed that this structure when completed will be the most perfect model for a home for orphan children, and the education and training of such children, that has ever been erected. The promoters of the enterprise feel deeply grateful to Mrs. Haskell for the unexpected and generous gift which renders it possible to place this philanthropic work at once upon a footing which could not have been reached in many years without such substantial aid.

WE were glad to be favored recently by another visit from our old friend, T. J. Cox, of Iowa. It is now more than seventeen years since Mr. Cox made his first visit to the Sanitarium. He was then brought by his friends, and was in a state so wretched that life was a burden to him. By a persevering effort, however, he made an excellent recovery, and now enjoys as good health as ever in his life, and though sixty years of age, is hale, hearty, and good-natured as a boy of sixteen, active, rosy-cheeked, and bright-eyed, and is planning to be a centenarian, if attention to hygiene and common-sense methods of living will accomplish it. Mr. Cox makes an annual pilgrimage to the Sanitarium, which he declares to be his Mecca, not as formerly to find relief from nervousness, sleeplessness, indigestion, and a host of kindred maladies, but simply to exhibit himself as a specimen of good health, and to make sure that he is keeping himself in line with the most recent discoveries in dietetics and healthful living. We are glad to count Mr. Cox and his good wife among our warmest and most esteemed friends.

* *

WE shall resume in an early number of this journal, the series of articles which were so much appreciated by the readers of GOOD HEALTH, but which were interrupted some months ago by the urgent press of many duties which rendered it impossible for the writer to continue the series at that time. We refer to the articles entitled, "Short Talks about the Body, by a Doctor." The articles will be, as before, profusely illustrated by both ordinary engravings and colored plates.

* *

A GREAT WORK. — The most magnificent illustrated work ever placed before the public for lovers of the beautiful in nature and art, has been issued under the auspices of the Natural Science Association of America, 114 Fifth Avenue, New York. An association supported entirely by voluntary contributions in carrying out its object: "To disseminate and promote natural science information."

We refer to "The Birds of North America." It contains 119 artistically engraved plates, on which are represented all our birds, in their various colors of plumage and botanical surroundings, true to nature. The text gives a clear and interesting account of their habits and characteristics. The systematic table, arranged according to the classification adopted by the American Ornithologists' Union, includes all the additions and corrections of our North American species which have been made to date, with an index to page, plate, and figure of each species, according to the A. O. U. number.

This superb work was undertaken to supply the want in America of a good illustrated work on ornithology at a reasonable price. Audubon's magnificent book, originally sold at \$1000, is now very scarce, and only rich men can afford to buy it. An edition of Wilson's work is now to be had of a Philadelphia publisher for about \$100. Baird's "North American Birds," of which three volumes have appeared, is sold at \$20 per volume, the plates, however, showing only the heads of the birds. The public is now offered a work in every way worthy of the subject, and attainable by all lovers of birds, at the exceedingly low price of \$40, handsomely and substantially bound in fine half bindings, or \$45 for fine full bindings — Russia, Seal, or Turkey Morocco.

It is emphatically an original work, *original in design and execution*, and whether in letter press, illustrations, or price, it is unapproached by anything of the kind in existence.

It is recommended by the highest scientific, ecclesiastic, and

PUBLISHERS' DEPARTMENT.

educational authority as being the most attractive, meritorious, pure, and ennobling exposition of our ornithology yet given to the public.

Dr. Elliot Coues, author of "Birds of the Northwest," says: "It is a really notable work." Prof. C. J. Maynard, author of the "Birds of Eastern North America," says: "It contains the best pictures of the species which I have ever seen." Thomas G. Gentry, author of "Life Histories of Birds," and "Nests and Eggs of Birds of the United States," says: "It is the cheapest and best publication on ornithology in this country. The drawings are of a very high order, and rival in beauty of design and finish the more costly works published abroad or in this country. It should be found in our homes and in libraries generally."

This edition of the work, which is limited to 1000 copies, is being subscribed for readily for use for the holidays, the good reason, as Dr. Theodore Gill, a member of the National Academy of Sciences, says: "It is not only a meritorious volume, but is altogether so handsome as to make it a very appropriate presentation book or ornament for the family table."

We bespeak for it your kind and favorable consideration as being a very useful and appropriate addition to the home and reference library, and for presentation purposes generally. Samples of plates and text can be had, by sending twenty-five cents in postage stamps, to the above named address.

* *

COLUMBUS DAY PROCLAMATION. — *State of Michigan, Executive Department.* Whereas, The World's Congress Auxiliary of the World's Columbian Exposition has made a patriotic suggestion that, at the same time that the Exposition grounds at Chicago are being dedicated on October 21, 1892, the anniversary of the discovery of America, all the people of the United States unite in celebrating the anniversary, of which celebration the public schools of the Republic shall be everywhere the center; and,—

Whereas, The President of the United States has by proclamation recommended the observance of that day by public demonstration and by suitable exercises in the schools and other places of assembly throughout the land; —

Now, therefore, I, Edwin B. Winans, Governor of the State of Michigan, do hereby recommend and request the observance by the people of Michigan of the said twenty-first day of October, 1892, as a general holiday, that business be suspended, and that civil and military organizations join in the celebration. In testimony whereof, I have hereunto set my hand and caused to be affixed the great seal of the State, this first day of September, A. D., 1892.

EDWIN B. WINANS, Governor.

* *

THE DIAMOND SPECIAL. — The Illinois Central's New Chicago-St. Louis Train — Its Elegant Equipment a Glistening Display of Fine Woods, Plushes, and Silks in Artistic Combination and Design. The Illinois Central is now running a daily night train between Chicago and St. Louis, which, in points of elegance of equipment, desirability of route, time, and efficient service, is the peer of any existing train between those cities, and is equaled by but few railway trains in the country. The train is known as "The Diamond Special;" is a vestibule train lighted by gas throughout, and is equipped with a Pullman compartment buffet sleeping-car, drawing-room, sleeping-car, free reclining chair car, and a compartment coach and smoker. The elegant nature of

this entire equipment can be aptly compared to a noted author's summary of a famous building. "It is characterized by elegance," he said, "bespeaking a delicate and graceful taste, and a disposition to indolent enjoyment." This line of thought is somewhat furthered by the names of the new compartment sleepers; for, although of foreign derivation, certainly "Delecto" and "Felicito" are sufficiently suggestive to warrant the expectation that they will be found "highly pleasing," and that they will "delight." Their exquisite beauty and harmony would seem, however, to warrant the expectation. They contain three state-rooms, a drawing-room, a smoking-room, a buffet, and eight sections in the body or so-called parlor of the car. Mahogany in three varieties, including the delicate Prima Vera, or white mahogany, a deep, rich vermilion wood from Africa, quarter-sawed oak, and exquisitely painted woods are used in the structural finish and decoration of the interior.

In artistic combination with these are panels of embossed and decorated plush, which, with the plain plushes of the upholstering and the silken draperies, are in harmony in color-tone with the natural and the painted woods. The coloring of the different compartments is in pleasing variety and of simply marvelous beauty. For instance, of the state-rooms, there is one in delicate pea-green, stippled and embellished with gold; another of that delicate shade throughout known as canary; another, of steel gray; the drawing-room, of white, stippled and embellished with gold, giving an effect of ivory-finish; the smoking-room, in deep red and gold; and last, but not least, the warm effect of mahogany and Spanish red coloring in the body of the car.

The remaining equipment of "The Diamond Special" is in keeping with the standard set by the compartment sleepers, and in any part of the train one could easily acquire "a disposition to indolent enjoyment." The train leaves Chicago daily at 9 P. M., runs over the Illinois Central's lines in Illinois, via Gilman, Gibson, Farmer City, Clinton, Decatur, Pana, and Vandalia, reaching St. Louis the next morning over the tracks of the Vandalia line from Vandalia, but remaining a solid train for the entire distance. Tickets via the Illinois Central can be obtained of agents of connecting lines, in any part of the country, or by addressing A. H. Hanson, G. P. A., Chicago, Ill.

* *

NORTH STAR POINTS is the title of a book of reference for all points between Chicago and Lake Superior on the line of the Milwaukee & Northern R. R., and is a valuable publication for business men and tourists who may be interested in the development of the agricultural, mineral, and timber resources of Northern Wisconsin and the upper peninsula of Michigan. This book, together with an illustrated pamphlet telling "Where the Trout Hide" will be sent free upon application to George H. Heafford, General Passenger Agent "North Star Route," Chicago, Ill., or to Harry Mercer, Michigan Passenger Agent, 82 Griswold Street, Detroit, Mich.

* *

A VIEW of the World's Fair buildings, in the form of a large-sized lithograph, in eight colors, with key to same, can be had by sending your address with twenty cents in postage stamps, to Geo. H. Heafford, G. P. A., Chicago, Milwaukee & St. Paul R'y, Chicago, Ill. As the supply is limited, applications must be made early. Should the supply become exhausted, the postage stamps will be returned to applicant.



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With positive Hygienic, Prophylactic, and Therapeutic properties.

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BOOKS THAT SELL.



THE sale of books by canvassing agents, looked upon a few years ago as a sort of peddling business, has almost reached the dignity of a profession, and at the present time quite a considerable portion of the reading public depend upon the traveling salesman for their supplies of recent choice literature. No publishing house thinks of presenting its most valuable works to the public in any other way. **There is no more pleasant, no more useful, and no more profitable business** in which a young man or woman of ability can engage, and **none which brings such large and quick returns** to the energetic worker, as the sale of a good book in good territory, prosecuted by a good agent employing good methods, and putting energy, enterprise, and industry into his work.

The man or woman who engages in the introduction of a good book, — one calculated to instruct, elevate, and materially benefit all who become acquainted with its contents, — is as genuine a missionary as the man or woman who engages in missionary work in the wilds of Africa or the distant islands of the sea.

The good book as well as the good impression which a good agent leaves behind him in each of his successful efforts, is a permanent source of salutary influence to the household which receives it.

The undersigned have for many years been engaged in the publication of books for the million, and several hundred thousand copies of their bound volumes are to be found scattered among the households of the United States and other English-speaking countries, although comparatively little effort has been made to push the sale of their publications. They are now organizing a vigorous campaign for the introduction of their various works in all parts of the United States, Canada, and the West Indies. **Liberal commissions are offered agents, splendid territory, and books, the selling qualities of which are not excelled by any subscription books offered by any publishing house in the world**, as will be seen by the following reports of work done within the last few weeks in different parts of the United States: —

John P. Neff, a college student less than twenty-one years of age, now at work in a Western State to earn money to pay his expenses during the next college year, has sold of the two works advertised on this page, books to the following amounts, for seven successive weeks consecutively: —

	First week (4½ days)	\$240		
Second week.....	\$244		Fifth week.....	\$440
Third "	280		Sixth "	230
Fourth "	370			

This same agent sold \$180 worth of books in one day.

Another agent (C. C. Nicola) sold 65 books in one week; amount of sales, nearly \$300.

F. A. Shaver, an agent working in Wisconsin, took orders for over 200 books, and delivered nearly all of them, in three weeks.

Another agent working in Vermont, when able to put in full time, has averaged nearly \$100 per week.

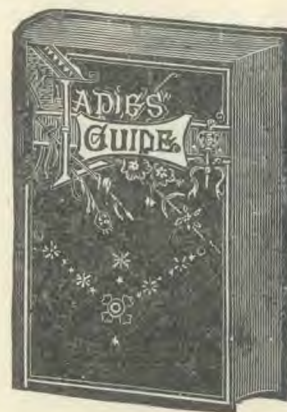
A lady made 25 canvasses in one day and took 21 orders, amount, \$95.

A young lady in Dakota reported Sept. 9, 1892, 83 calls, 52 orders, amount, over \$200. *Good for 5 days' work.*

A young man took orders amounting to \$458 in 57 hours. **In one day of 12 hours he sold 36 copies** of "Man, the Masterpiece" and "Ladies' Guide," **netting a profit of \$99** at usual commission.

Scores of cases might be cited in which agents are making from \$25 to \$50 clear, weekly. No agent of average ability in average territory can fail to succeed with these works, and many who have failed with other works succeed with these. A wide-awake agent, with plenty of pluck and perseverance, is certain to make a success almost from the start, when he has had a proper preparation for the work. For terms and other information, address,

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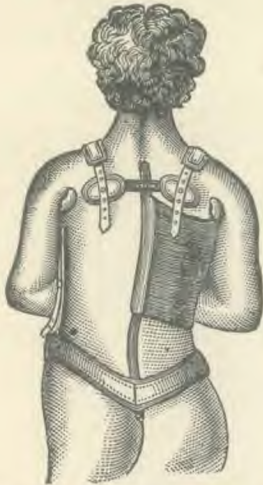
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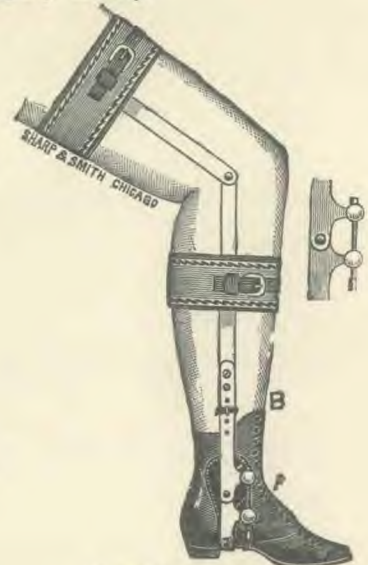
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No. 1 Graham Crackers.....	70	Rye Wafers.....	72	Gluten Food No. 1.....	50
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CHICAGO	am 9.00	pm 12.30	pm 8.10	pm 5.02	pm 9.20			pm 10.10	
Michigan City	11.05	2.05	4.56	8.45	11.13			am 12.25	
Niles	pm 12.35	2.07	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		am 8.00	pm 12.15						
New York		pm 8.45	8.50						
Boston		9.35	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		am 8.30	
New York		10.30	4.30	6.00		9.15			
Syracuse		pm 7.30	11.35	am 2.10		am 7.25			
Rochester		9.35	am 1.25	am 4.30		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	12.39	5.05	9.45	2.15		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		8.15	
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.
O. W. RUGGLES,
 General Pass. & Ticket Agent, Chicago.
GEO. J. SADLER,
 Ticket Agent, Battle Creek.



Chicago & Grand Trunk R. R.

Time Table, in Effect June 26, 1892.

GOING WEST.				STATIONS.		GOING EAST.			
pm	pm	am	pm	am	pm	pm	am	am	pm
7.15	3.00	11.00	7.00		Boston		7.00	8.00	9.25
9.45	5.00	6.30	8.00		New York		pm	am	pm
12.10	6.20	6.25	1.00		Buffalo		8.40	5.50	4.20
1.35	7.45	8.00	2.45		Niagara Falls		7.30	4.10	3.10
8.30		3.00	12.00		Boston		8.05	9.50	
9.30	8.40				Montreal		8.00	7.00	
11.30		1.00			Toronto		8.35	5.25	
		8.00			Detroit		9.25	7.45	9.25
Day Exp.	B. C. Pass.	Limited Exp.	Pacific Exp.	Mail Exp.		Mail Exp.	Limited Exp.	Day Exp.	Pr. H. Pass.
am	pm	pm	pm	am	Dep.	Arr.	pm	am	am
6.50	3.44	12.25	3.40	6.19	Port Huron	10.01	pm	am	12.10
8.05	5.10	1.27	10.07	6.25	Port Huron Tunnel	8.56	12.35	7.30	8.50
8.35	5.47	1.55	10.47	7.49	Lapeer	8.15	11.20	6.15	7.35
	4.05		8.00	8.35	Flint	7.30	10.47	5.40	7.05
7.15	4.40		8.25	6.50	Detroit	9.25	7.45	9.25	11.50
7.50	5.17		9.00	7.15	Bay City	8.37	7.15	8.37	11.30
9.05	6.50	2.22	11.20	7.50	Saginaw	8.00	6.40	8.00	10.45
10.02	7.55	3.07	12.20	9.35	Durand	6.50	10.20	5.08	6.35
10.59	8.30	3.34	12.52	10.40	Lansing	6.10	9.30	4.00	5.40
11.15	9.25	4.15	1.50	11.15	Charlotte	4.34	9.01	3.25	5.11
11.53	9.59	4.55	2.35	12.25	BATTLE CREEK	3.40	8.20	2.40	4.30
				1.08	Vicksburg	2.38	7.40	1.48	3.00
				1.19	Schoolcraft	2.21			
12.40	6.45	3.30		2.05	Cassopolis	1.29	6.58	12.45	8.07
1.20	6.30	4.10		2.50	South Bend	12.45	6.20	12.00	2.55
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
	pm	am		pm	Arr.	Dep.	am	pm	am

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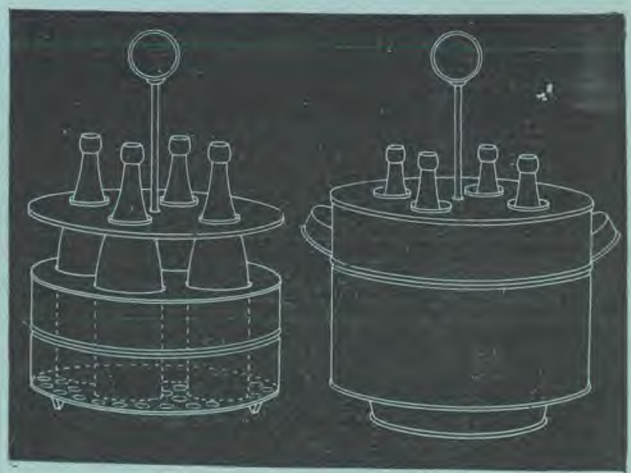
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