Good Health

Nov. 1888

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AN ITALIAN VILLA.

GOOD HEALTH
A JOURNAL OF HYGIENE
MENS SANA IN CORPORE SANO.
Volume XXIII. Number 11.
BATTLE CREEK, MICHIGAN. NOVEMBER, 1888.

HYGIENE AMONG THE DYAKS OF BORNEO.

BY W. T. HORNADAY.
Author of "Two Years in the Jungle."

THE diseases of mankind increase in variety and subtilty in a corresponding ratio with our ability to cope with them. The savage is subject to but few diseases besides epidemics, and even those are of the simpler sort. Civilized man, on the contrary, has developed an array of ailments appalling in number and complexity. In spite of the march of medical science, the list of incurable diseases is growing larger every year. But for certain mitigating circumstances, such conditions are enough to make a man wish himself a savage, clad only in simplicity and war paint, in some vast wilderness where consumption, Bright's disease, and heart disease are unknown.

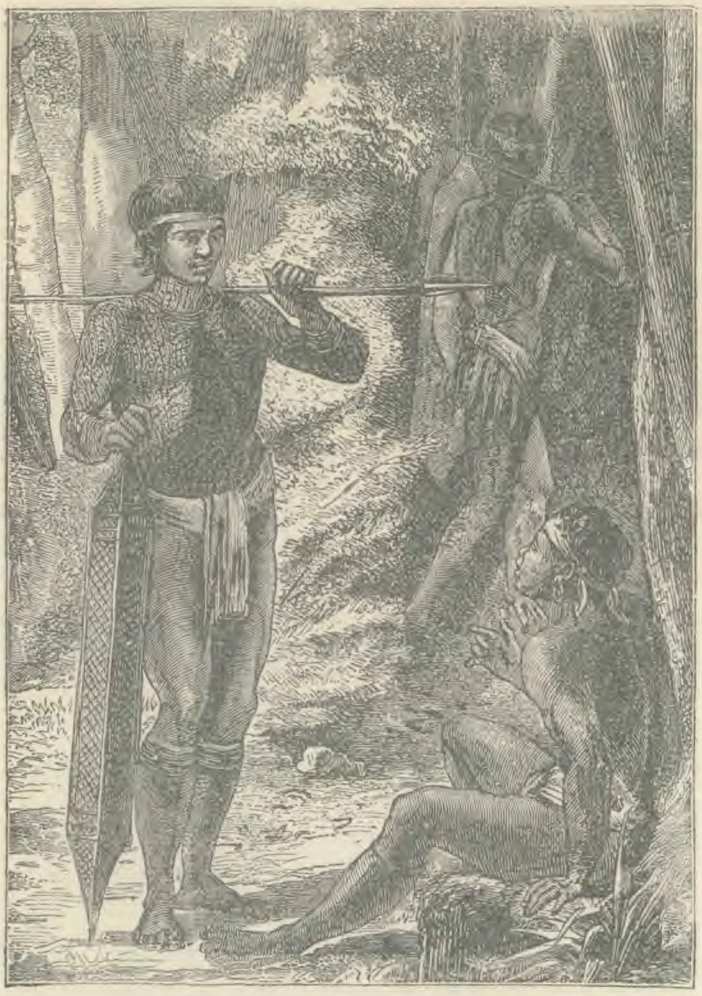
A brief sojourn with the Sea Dyaks of Borneo brought me face to face with the famous conundrum of Truthful James: "Is civilization a failure?"

In those simple-minded children of nature, I saw a presence of virtue, and an absence of vice, disease, and crime, which made a complete wreck of some of my theories of human progress.

Although they are absolutely without religion, or any semblance of it, excepting a vague belief that there is somewhere a Supreme Spirit, or Being, whose nature and attributes they do not even pretend to understand; although they have no written language, and no moral laws save traditionary precepts that are handed down from father to son, they are, so far as I know, the most moral people under the sun. They never steal nor lie, nor talk slanderously. They treat their women with chivalrous respect and fairness, even in matters involving labor. The children obey their parents; and when a sexual offense is committed, the punishment and disgrace are meted out equally upon the man and woman guilty of the crime. I know this latter statement will be put down as an uncommonly tough "traveler's tale," being so very different from the way we manage such matters in enlightened, Christianized America, but it is true, nevertheless. Our custom, as every one knows, is to "stone the woman, and let the man go free."

The absence of disease among the Dyaks was so marked as to attract my attention, and provoke such inquiries into the causes as I was able to make. In the portion of Borneo I visited—Sarawak Territory—there are two

tribes of Dyaks, those of the Hills, who live away from the coast, usually on the mountains; and those of the Sea, who have their dwellings along the coast, and on the banks of the rivers between the mountains and sea.



The people of both tribes live in rude wooden houses raised on posts from six to sixteen feet above the ground. In habit and mode of life they are practically one people, and it is unnecessary to describe them separately.

In comparison with other savages, the Dyaks work hard, chiefly in making clearings in the dense forest, and in growing the crops of rice and bananas, which form their principal subsistence. But they are far from being strict vegetarians. They are not only fond of fruit of every description, and all other edible vegetable products of the jungle, but also of animal food of nearly every description. They kill many deer, wild hogs, porcupines, and smaller quadrupeds; snare birds, catch fish, and even do not disdain to eat a plump snake now and then, if it be of the proper sort, as I have seen. A hospitable young Dyak, whose rude little hut by the river-side once sheltered me on a very dark and stormy night, roasted a four-foot water-snake in the embers, and blithely invited me to join him in the feast. I have eaten crocodile, monkey, iguana, armadillo, and once a piece of rattle-snake as an experiment; but his particular snake was one too many for me, and when I declined with my politest thanks, my friend, the Dyak, immediately proceeded to put it where he considered it would do the most good.

The Dyak eats but twice a day, morning and night; and excepting on great feast-days, water is his only beverage. They rise in the morning about six o'clock, each family kindles a fire in its own private room, and boils the morning meal of rice and vegetables in an earthen pot, or a joint of bamboo. If they are lucky enough to have on hand the flesh of any animal, that also is boiled or roasted, and forms a portion of the meal. When eating, they squat upon a mat in the center of the room, around the vessels containing the food, and all eat with their fingers. After eating, the Dyak takes a drink of water from

the bamboo which stands in the corner, rinses his mouth, and prepares at once to set out for the scene of his daily labor. If he intends to go into the jungle to search for gutta, honey, dammar gum, or rattans, or to hunt or snare game, he takes along his spear, ax, and dog if he has any. If his day's work lies in the field, he takes with him his wife and older children, to help plant or reap the rice, or clear the ground, as the case may be.

Late in the afternoon he returns, his basket laden either with rice, bananas, or other fruit, or such jungle products as he has been able to secure. By the time supper is eaten, it is night, and time to light the smoky dammar torches, by the flickering light of which both men and women make mats and baskets, boil gutta, make new paddles or ax handles, and work busily until bed-time. About nine o'clock, the young and unmarried men and strangers climb up the ladder into the loft over the long hall, and after stretching their limbs upon their mats, lie there singing and chattering until they fall asleep.

The married couple and their small children and girls retire to their rooms, and spread their mats upon the floor, being usually provided with dingy cotton-cloth curtains as a protection against the mosquitoes.

There is one article of food yet to be mentioned, of which the Dyak is decidedly fond. Tell it not in Gath, but it is—*pork!* I am sorry he should evince such bad taste, but the step from the wild hog to the tame one is very natural and easy. But even when pig is most plentiful, my friend the Dyak gets it but seldom, and when he does, he never gets enough to hurt him. As yet, his swine are absolutely free from cholera, trichinosis, and other like ailments that make things lively and interesting for the great American pork-eater. He always eats it fresh and well cooked, and generally when it is young, also. It is the leanest pork I ever saw, not even excepting the renowned "hazel-splitter" variety, which I knew well in my boyhood days.

I repeat that I was astonished at the absence of disease among the Dyaks. To enumerate the diseases which they never have, would weary the reader; but the story of those they do have, is a short one, and easily told. The most common ailment is ichthyosis, or "corrip," a painless skin-disease which causes the epidermis of the subject to crack all over the body, and roll up in little whitish rolls. The body of a person so affected has a repulsive grayish appearance, and I was told that the disease is difficult to cure.

Fever and dysentery are common diseases, but few die of them. Ophthalmia is prevalent during the months of September and October, during the weeding of the rice fields; and while it yields to simple remedies if taken in time, its neglect causes many to lose their eyesight. Insanity is very rare, and so are natural deformities of person. So far as I could learn, the Dyaks are entirely free from the long list of unmentionable male and female diseases which appear to have been developed by the human race only at its highest stage of civilization and refinement. It is a singular, though melancholy, fact that savages know nothing of venereal diseases, abortion, and drunkenness, until they are introduced by the civilized nations of the earth.

Such are the facts in regard to the Dyaks of Borneo; from them the reader can draw his own conclusions. I must leave it to the medical faculty to tell us why those blessed savages are free from consumption, heart disease, paralysis, cancer, tumors, scarlet fever, whooping-cough, diphtheria, meningitis, rheumatism, Bright's disease, neuralgia, pneumonia, and even cramp colic. The reasons why they are free from dyspepsia, insomnia, headache, nervous exhaustion, loss of appetite, and gout are apparent to every one, I am sure. They are strictly temperate in all things,—in eating, drinking, working, and sleeping; eat only what is good for them, and make fools of themselves in nothing.

—More than 15,000 children are killed in this country annually, by the use of soothing sirups containing opium. In England the number of infantile deaths from this cause is still greater. And yet no legislature has ever undertaken to prevent or lessen this wholesale slaughter of the innocents.

THE STIMULANT DELUSION.

BY FELIX L. OSWALD, M. D.

Author of "Physical Education," "Household Remedies," etc.

II.

THE ALCOHOL HABIT.

THERE is a curious tendency in human nature to palliate the evils of antiquated errors; and a quite similar fallacy disposes even men of science to assume the necessity of widespread abuses. "Whatever is, is right," expresses a theory which, in its logical consequences, would oblige its defenders to deny the existence of evil, but which, upon closer scrutiny, can be reduced to the truism that "everything has its proper cause."

"There must be a substantial basis for the belief in sorcery," argued the Salem witch-hunters, "for a doctrine accepted since the beginning of our chronological era cannot be founded upon a mere delusion. The belief in the efficacy of Indian amulets is but of yesterday, and does not deserve serious refutation; but night-hags have sown a seed of hell-fire, and reaped the harvest of the stake, for more than a thousand years, and their persecution and punishment should not be suffered to relax for the sake of a few worldly-minded skeptics."

"The ether-habit cannot be defended," argues Dr. Quackbitters, "and people who get addicted to hypodermic injections of morphine ought to be sent to the lunatic asylum. The use of alcohol, on the other hand, must be founded upon an actual want of the human organism. A habit prevailing throughout an area of sixteen million square miles cannot be explained upon the theory of mere self-delusion."

In reply to this argument, it must be admitted that every poison habit can become a "second nature." Every virulent substance known to botany or chemistry can be abused for purposes of stimulation. The Yakoots of Northern Siberia fuddle with poisonous toad-stools, the Syrian mountaineers with arsenic, the miners of the Peruvian Andes with verdigris, the Chinese and Turks with opium, the Syrians with a decoction of hemp-seed, the Malays with the acrid juice of the betel-nut. A toper might save his liquor bill by getting drunk on "jimsonweed apples" or foxglove-tea. Here and there, in Dalmatia, and in the southern Caucasus, foxglove-leaves (digitalis) are actually used for intoxicating purposes, but the habit has never spread beyond the precincts of a few starving villages. Arsenic is in no danger of becoming a popular tipple, though its votaries prefer it to food and drink. Toad-stools have failed to seduce the troopers of the Siberian garrisons. How, then, shall we explain the fact that alcohol can boast a larger number of devotees than all other virulent stimulants taken together, and that the use of fermented, or distilled, liquors has prevailed for centuries, nay, in some of its forms, since the earliest dawn of historic tradition?

The answer is, that alcohol is the most *accessible* of all stimulants. Long before our ancestors had discovered the stimulating properties of mineral poisons, incidental, and almost unavoidable experience had acquainted them with the fact that fermented grape-juice, fermented honey-water, and any similar liquid, would induce an artificial excitement, followed by a depressive reaction, and by and by also by an increasing desire for a repetition of the stimulant dose. "Before people used wine," says Fabio Colonna, an Italian naturalist of the seventeenth century, "they drank sweet must, and preserved it like oil, in jars or skins. But in a warm climate a saccharine fluid is apt to ferment, and some avaricious housekeeper may have drunk that *spoiled* stuff till she became fond of it, and learned to prefer it to must." Barley-broth and rice-gruel could be abused in the same way; hundreds of different fruits and berries yield vinous liquids; beer-like beverages are prepared from sago and a variety of farinaceous grains and roots, and in Tartary even from milk, the Koumiss-tonic of the Turcoman nomads being an intoxicating residuum of fermented mare's milk. The Emperor Akbar, of the Mogul dynasty, conceived the idea of curing the opium-vice of his Hindoo subjects by a thorough extirpation of the poppy-plant; and it is said that only the death of the be-

nevolent despot prevented the execution of that plan; but how could the alcohol habit be cured by any similar remedy? The extirpation of grape-vines and barley would not prevent a single toper from indulging his passion, and no amount of vigilance could suppress the secret manufacture of fermented stimulants. Alcoholic beverages could be prepared from the milk of the arctic reindeer as readily as from the wild fruits of the tropical jungles; and it would be no exaggeration to say that, taking the habitable globe as a whole, a penchant for alcohol can be gratified a hundred times more easily than any other stimulant vice.

Thus alone can the ubiquity of the alcohol habit be logically explained; for in the choice between equally accessible poisons, the bias of instinct can hardly be supposed to have given the preference to fermented, or distilled, stimulants. The arsenic habit, for instance, can be contracted without anything like an urgent protest of our physical conscience; arsenious acid (the common ratbane) being almost tasteless, not to mention sugar of lead and certain seductively palatable poison-plants —palatable at least at the first taste; for the permanent settlers of a new country, together with their domestic animals, soon acquire a supplementary instinct apt to warn them against the repetition of a mistake which has once betrayed its significance by convulsing their digestive organs or those of their ancestors. Frisian cows, for instance, upon their arrival from the pastures of Western Europe, are notoriously prone to get victimized by a variety of American poison-herbs, but experience soon teaches them caution; and their offspring, after the second generation, seem to be born with a full equipment of protective instinct.

The taste of alcohol, on the other hand, never fails to provoke an unmistakable protest of the palate, and the alleged exceptions from that rule will rarely bear the test of investigation. Our next relatives, the frugivorous monkey, were long supposed to be naturally fond of intoxicants, so much so, indeed, that their two-handed countrymen had only to expose a pan-full of rum to catch a whole symposium of long-tailed topers. A similar trick is actually practiced by the Abyssinian trappers, but the naturalist Brehm, who witnessed the capture of seven wily baboons, remarks that the efficacy of the bait depends upon a large admixture of saccharine elements—about nine parts of sugar to one of rum. In the neighborhood of Singapore, too, the enterprising Chinese catch rhesus monkeys by means of "fuddle-cakes," containing a stupefying amount of alcohol; but here, too, the success of the stratagem requires a liberal expenditure of sirup. In other words, the alcohol bait can be made attractive only by disguising the taste of the poison. The argument founded on the alleged alcohol-thirst of drunkard's children is equally invalid. Dr. Zimmerman, a contemporary of Voltaire and Hume, already observes that "*home influences are too often mistaken for hereditary influences.*" That shrewd remark might elucidate manifold mysteries of moral biology, but is specially applicable to the genesis of the alcohol habit. During twenty years of inquiries and experiments, I have never yet come across an undoubted case of an *innate* appetite for alcohol. Boy-topers are nearly always seduced children, or have acquired the fatal habit through the influence of the propensities which phrenologists comprise under the name of *imitativeness*. They see their elders barter fame and fortune for the sweets of delirium, and naturally conclude that the boon must be worth obtaining, though perhaps not worth its highest price. The vast majority of young tipplers, however, owe their ruin to direct enticement. Only a few weeks ago a policeman in charge of a Cincinnatti pleasure-resort arrested a two-legged brute, who amused his boon-companions by fuddling a lisping baby with glass after glass of steaming grog; and rum-ruined mothers often resort to similar deviltries for the purpose of silencing a crying child. In the literal sense, the life-blighting habit is thus "imbibed with the mothers milk," at a period often too early for the distinct recollection of the poor

victims themselves. But bring up a drunkard's child at a safe distance from such home-influences, and after a while, say at the completion of its seventh year, offer it the choice between a glass of lemonade and a glass of lager-beer, and I would stake my life on the result of a wager that in ninety-nine out of a hundred cases the offspring of beer-swilling parents would prefer the lemonade, even without sugar. To the palate of an unseduced child the "delightful and exhilarating stimulants" of the more concentrated alcoholics,—French high wines and the "bitters" of the quack-market, are so shockingly nauseous that we might as well wail about an innate fondness for sulphate of quinine.

That protest of instinct is one of the tests which mark the alcohol-habit with the unmistakable characteristics of a poison-vice. An equally decisive symptom is the *progressiveness* of the habit. For a time the self-regulating tendency of the human organism rejects the insidious poison, and the inner monitor repeats his appeals again and again; but that protest once silenced, nature surrenders the victim to his self-chosen fate, and from the moment the palate of the incipient toper learns to relish the taste of alcohol, the stimulant-vice begins to "*grow upon*" the habit, as our language expresses it with a deep significance. Thus the egg of the parasite-wasp breeds a worm, which develops within the body of its victim; and from a mere speck of living tissue gradually grows up into a devouring foe, eating out the blood, the strength, and at last the life, of the doomed creature. Only the smallest varieties of those parasites content themselves with destroying a portion of their prey, and leaving their living house a chance to repair the damage. The larger kinds complete their work of destruction, and it is a pitiful sight to see a caterpillar struggling frantically against the sting pressing down to inoculate it with the seeds of certain death. Thus the human organism instinctively struggles against the incipience of the deadlier stimulant-habits, and it is a curious fact that the eventual persistence of those habits is proportioned to the original vehemence of the protest. In other words, the harder it is to overcome our instinctive repugnance to the taste of any special poison, the harder will eventually prove the attempt to shake its yoke off again. The unnatural excitement of the nervous system is followed by a depressing feeling of exhaustion, akin to the languor experienced after a fit of reckless passion; and before long, that feeling can be relieved only by a repetition of the stimulant dose. And worse: the jaded nerves at last refuse to answer to the wonted spur; the tipple palls, while the feeling of exhaustion remains; and yielding to the fatal temptation, the patient soon resorts to the expedient of *increasing* the dose of the stimulant.

Here, then, we see the physiological necessity of a result which moralists are still apt to ascribe to the wanton perversity of the toper. "If he must drink," they argue, "if he really cannot muster moral courage enough to decline the invitation of a convivial friend, why does he not at least confine himself to moderate potions? Temperance in all things is such a safe rule, and after the experience of so many years, he ought to know the consequences of excess. But his recklessness seems to get worse from month to month."

The truth is, the exorbitance of the perverted instincts is steadily increasing. Not the moral turpitude, but the physical poison-thirst, of the inveterate dram-drinker grows worse, from month to month; and the same amount of stimulation which five years ago could be induced by a tablespoonful of brandy, can now be effected only by a ten-fold quantity. The nerves have become callous to the spur, and the desire to relieve the deadly torpor of the mental and physical organism can be gratified only by increasing the quantity of the wonted stimulant, or else by a resort to stronger poisons.

"People sometimes wonder," says Dr. Jennings, "why such and such men, possessing great intellectual power and firmness of character in other respects, cannot drink moderately, and not give themselves up to drunkenness. They become drunkards by law,

—fixed, immutable law. Let a man with a constitution as perfect as Adam's undertake to drink alcohol, moderately and perseveringly, with all the caution and deliberate determination he can command; and if he could live long enough, he would just as certainly become a drunkard—get to a point where he could not refrain from drinking to excess—as he would go over Niagara Falls when placed in a canoe in the river above the falls, and left to the natural action of the current. And proportionally swift as he descended the stream, would his alcoholic attraction increase, so that he would find it more and more difficult to get ashore, until he reached a place where escape was impossible. . . . . Sinners become slaves to sin; the collapse of the moral power of resistance is the chief curse of besetting passions."

The latter term, however, is frequently applied to an inveterate penchant for the gratification of perfectly natural instincts—a fondness for out-door sports, for the society of the opposite sex, for the pleasures of the table. The tenacity of such "passions" has nothing in common with the fatal sway of the poison-vice—the inevitably *progressive* despotism of the opium-hunger or the alcohol-thirst. A man may become extremely fond of ripe tree-fruits, without running the risk of ruining his family by a more and more ravenous appetite for bananas or oranges. A girl may contract a perfect passion for ice-cream, but a single saucer-full per summer-evening will satisfy that passion to-day as well as five years ago, nor will she clamor for a constant increase in the richness of the cream or the sweetness of the flavor.

To the victim of the poison-habit, however, the stimulants that initiated the fatal vice will soon cease to answer their purpose. To a confirmed dram-drinker, beer is no tonic at all; a rum slave would as soon drink water as wine. "You are right that wine-making is not doing this country much good," a *habitue* of that sort once told me in California, "they might as well bottle up ditch-water; I can't say that their stuff has any more taste about it."

Opium-eaters, after about two years, have to increase the original dose about two thousand per cent; dram-drinkers at least five hundred per cent; the five-fold quantum, with all its dreadful ravages, resembling the progress of a devouring fire, produces barely as much appreciable *relief* in its momentary stimulating effect as a few drops would have afforded in the earlier stages of the insidious habit.

And thus we may realize the full truth of the axiom that "abstinence is easier than temperance;" but also the radical fallacy of the arguments adduced by the advocates of "moderate drinking." We might as well trust a child with a flaming torch and a keg of gunpowder, and then recommend "moderation" in the enjoyment of the explosion.

TO BE CONTINUED.

OXYGEN ENEMATA AS A REMEDY IN CERTAIN DISEASES OF THE LIVER AND INTESTINAL TRACT.

Read in the Section on Practical Medicine, at the Thirty-ninth Annual Meeting of the American Medical Association, May, 1888.

BY J. H. KELLOGG, M. D.

THAT oxygen may be taken up by the intestinal mucous membrane, or that an interchange of oxygen and carbon di-oxide may take place through this membrane, might be inferred from well-known facts in comparative physiology. For example, in certain fishes the mucous lining of the alimentary canal performs a very important part of the work of the respiratory system. Some members of the gar family are killed almost as quickly by cutting off the supply of oxygen to the alimentary canal as by interrupting the gill respiration. Great numbers of illustrations might be given from the lower classes of the animal kingdom, in which the entire process of respiration is carried on by the mucous lining of the alimentary canal. Why, then, should not man be able to receive a very appreciable and efficient amount of oxygen through this channel?

But I am able to present something more than theoretical considerations for believing

that the oxygen administered in this manner is absorbed. I have frequently asked patients to whom the gas has been administered to observe carefully respecting the possible escape of the gas as flatus or in eructations, and have often been assured that no such escape occurs, although usually there is an escape of flatus within two to four hours after the treatment is administered, often soon after, unless the patient is instructed to restrain the tendency to the escape of gas. I am collecting specimens of gas at different intervals after administration, for the purpose of determining the length of time it must be retained to enable complete absorption and interchange to take place.

To make assurance doubly sure, I made the following experiment on a guinea-pig, on July 20, 1887 :—

After placing the animal under chloroform, the abdomen was opened, and the intestines drawn out, and spread out in such a way that the dark portal veins were in full view. A quantity of gas was then injected into the rectum; and to my great satisfaction I found that the dark venous blood assumed a bright red hue almost equal to that of arterial blood, within less than one minute after the injection of the gas, showing the rapidity with which the absorption of the oxygen takes place. To confirm the result, I allowed the oxygen to escape from the bowels, afterward replacing it, and repeating the experiment several times. In each instance the color of the blood in the mesenteric veins assumed its ordinary dark purple color immediately after the oxygen was withdrawn, while the bright color returned almost instantly when the new supply of oxygen was introduced.

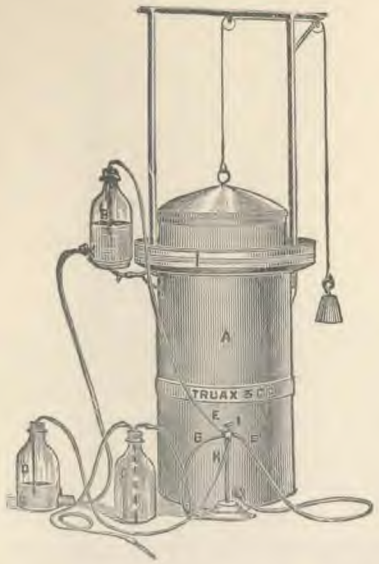
The processes of digestion and excretion are chiefly those of oxidation and hydration, considered from a chemical standpoint. Dujardin-Beaumetz has shown that the use of oxygenated water materially aids digestion. By introducing pure oxygen gas directly into the intestinal canal, digestion may be materially aided, especially in cases in which the intestinal portion of the digestive apparatus is the part chiefly at fault.

It seems to me to be entirely probable that oxygen enemata may be advantageously employed in quite a variety of cases. I believe that it may be used with good results in all cases in which there is such a disturbance of the normal interchange of gases in the lungs as deprives the system of its proper amount of oxygen. The mucous membrane of the intestines presents an absorbing surface, very small, it is true, when compared with the amount of surface presented to the air in the lungs, and yet it is sufficiently great to allow the introduction of a large amount of oxygen into the system in addition to that which can be gotten in through the lungs; and this additional quantity, though small when compared with the total amount received by the lungs, may be of sufficient value to the system to be of immense advantage to it, especially on account of its introduction at this particular point in the circulation. The notable functional disturbances of the stomach which accompany various pulmonary disorders, such as emphysema, chronic bronchial catarrh, chronic pleurisy, pneumo-thorax, etc., suggest a very important relation between the digestive function and the quantity of oxygen received through the lungs. The same relation is also suggested by the frequency with which dyspepsia occurs among sedentary persons who are habitually air-starved.

The administration of oxygen by enema should prove especially serviceable both in functional and organic diseases of the liver. If we accept the views of Dr. Fothergill and others, respecting the relation of the liver to the excretory work of the kidneys, it being held that the liver aids in some way in the conversion of uric acid and allied compounds into urea, it is at once apparent that the introduction of a large amount of oxygen into the portal vein ought to be of service to a feeble, overworked, or disabled liver.

We should expect, also, that this remedy would prove serviceable in cases of disturbance of the glycogenic functions of the liver, and that a cirrhotic or fatty liver would by the conversion of the venous blood of the

portal vein into arterial blood, be better able to do its work than with its ordinary blood supply, which is perhaps, the poorest in oxygen of any in the body. I do not forget, of course, that the liver receives a part of this blood from the hepatic artery; but this is a comparatively small part of the total amount received by this enormous and wonderfully active glandular structure; and experiment has shown that the liver may continue its



work after entire suppression, by ligature, of its arterial blood supply.

I have used oxygen in this manner in a variety of cases, and with most marked results. In cases of inactive liver, stubborn cases of dyspepsia, in diabetes, and Bright's disease of the kidneys, it has proved specially serviceable.

Oxygen enemata may be administered by means of the apparatus used in administering sulphuretted hydrogen; but it may be much more accurately used by means of an apparatus described by the writer in a paper entitled, "A New Form of Apparatus for Administering Gaseous Enemata," read before this section one year ago. (See accompanying cut.) The treatment may also be given much more conveniently with this apparatus.

The Effect of Tea upon the Teeth.—A writer in the *British Medical Journal* states that in the district in which he resides, about two thousand persons who are employed in cotton-factories are in the habit of drinking strong tea to excess, and that "they, almost without exception, have bad teeth;" that many of them lose their teeth at puberty; and that the disease, "whatever be its cause," seems to be hereditary, children during the teething period often losing their first teeth before the time for the eruption of the permanent set. He states that decay begins in or near the roots, and that it bears no resemblance to specific disease,—syphilis being an almost unknown disease in the district. He evidently entertains the opinion that tea is the direct cause of the decay of the teeth. Another writer in the same journal says that "excessive tea-drinking," in so far as it vitiates the secretions of the mouth, thereby favoring the development of acids or micro-organisms, which, being deposited on the teeth that are structurally defective in enamel or dentine, cause decay, may "be looked upon as a remote cause of dental disease."

Tea and Throat Disease.—Dr. Downie, a throat specialist in Glasgow, has recently called attention to the fact that tea-drinking is a frequent cause of throat disease, the prominent symptom of which is great dryness, which is attributable to dyspepsia resulting from the use of tea. The patients soon recover after discontinuing the use of tea.

—A London druggist has hit the popular taste for good bargains. In his window he displays a card that reads: "Come in and get twelve emetics for one shilling."—*Texas Siftings.*

—*Sorrowful Child* (to the pastor): "Mr. B., mother sent me to tell you that father is dead."

Pastor. "Is he? Did you call a doctor?"

Child. "No, sir; he just died of himself."—*Boston Journal.*

DRESS.

A LECTURE. *

THE subject which I promised to talk with you about this evening, is one which, since Eve made her first experiments in dress-making, has been of perennial interest to at least one-half the human race. The eagerness with which the devotees of fashion watch for the latest fashion plates, is only equaled by the interest with which the true disciple of hygiene watches for new ideas and devices, by the aid of which the principles of health can be more closely followed in the matter of dress. Very likely the question arises in your minds, What new can be said on this subject, which has been so much talked about by dress reformers and anti-dress reformers for the last quarter of a century? I should have asked the same question myself a few years ago, for I supposed I knew all there was to know about dress reform and dress hygiene. But within the last year or two I have had some special opportunities for making studies and observations, which have given me new ideas, some of which I want to present to-night, along with many old ones.

First among the old ideas, is the fact that a woman is very much like a man. Nothing horrifies a woman so much as to be told that she is masculine; nevertheless, it is a fact, that the bodies of the two sexes are so nearly alike from an anatomical standpoint, that if we have but the skeleton, the difference is so little apparent that it requires a skilled anatomist to say whether it is the skeleton of a man or the skeleton of a woman. Suppose we spend a few moments glancing at the anatomy of the human body. First, I will call your attention to the skeleton. Please do not be frightened, as this skeleton did not belong to any friend of mine or yours. It was imported from Paris, the head-quarters of shams, and may be made of paper for aught I know. Notice the three large bony cavities; first, the cranial cavity, or the skull; second, a bony cage made up of the ribs, and below this is still another cavity for the pelvic organs. This central cone-shaped cavity of the body contains nearly all the vital organs of the body. First, there are the lungs, and lying between the lungs, is the heart. Of the importance of these organs, it is not necessary to speak. Just below the lungs, lies the diaphragm. This is a large muscle which rises up over the liver and stomach. This cavity contains, further, the liver, stomach, pancreas, and lower down, the intestines. All of the important viscera of the body lie in this central cavity. It is easy to understand, then, why this portion of the body is so well protected. It could not be a complete bony structure like the skull, because this portion of the body must be able to expand, so as to give the lungs freedom of action in breathing.

The lungs are made up of air-tubes and many millions of wonderful cells. The lining

* Delivered by Dr. J. H. Kellogg, Monday evening, Oct. 13, 1888, in the Gymnasium of the Sanitarium, Battle Creek, Mich.

membrane of the lungs is so extensive that if spread out, it would cover twenty-two hundred square feet. Underneath, lie delicate blood-vessels,—arteries, veins, and capillaries. Every minute of our lives a quantity of blood equal to the entire amount of blood in our bodies, passes under this delicate membrane. The reason for this rapid circulation is that there are a variety of poisons constantly being generated in the human body, some of which, of course, pass off through the bowels, kidneys, and skin, but the most deadly of all escape through the lungs. Very recently, Dr. Brown-Sequard, of Paris, has made some experiments by which it is shown that a most deadly poison escapes from the body, through the breath. If a little of it is gathered in a vial, and injected under the skin of a rabbit, it will cause death within a few hours. Now this animal is not more surely poisoned than is the man who retains in his system this poisonous matter.

That dome-shaped muscle called the diaphragm, has an important office to perform in the matter of correct breathing. It is the duty of the lungs, as mentioned above, to carry off the poisons generated in the body, and if they are prevented from performing their proper function for a few moments only, the person dies. That is the case in suffocation and drowning. The fresh-air supply being cut off, the person dies of the poisons generated in his own body. It is necessary to take in a large amount of oxygen to carry out these poisons. The breath we breathe out will not support life. Flies will die if shut up in it; a candle will not burn in expired air. To keep the body free from these poisons, there must be constant activity of the lungs. We must have them constantly swept by a current of pure air, to bring in the life-giving oxygen. Oxygen is the physiological house-cleaner. It is oxygen which cleanses away all the impurities. When a person goes to the woods or the mountains for exercise and rest, and comes back with a new glow and a clean, healthy color, it is simply because he has been taking in a larger quantity of oxygen than usual, which has hunted up the dirt, and swept it out from every corner. In consequence, his blood has been purified, and he feels like a new creature.

The heart is simply a living pump. It contracts seventy times per minute, all our lives. One of the chief offices of the heart is to distribute the oxygen to all parts of the body. The activity of the heart depends largely upon the oxygen received through the lungs. The lungs may be compared to the hearth of a stove or to a pair of bellows. If the hearth is closed up, then the body becomes clogged, and its vital energies diminished, just as a stove without draft soon fills with soot and smoke. The stomach and the liver also, demand plenty of oxygen in order to do their work well. The physiological action of breathing is like the action of a pair of bellows, and the shape of the human apparatus is a little like a bellows. The lower points of the ribs may be called the handles, and the throat, the nozzle. We have strong muscles attached to the lower part of the chest, and these are for the purpose of working the handles of the bellows, drawing out the sides, and then letting them come together to force the air out. You see at once why the chest is flexible. The process of breathing in the turtle, whose ribs are fast together and form a hard shell, is simply that of swallowing air by the mouthful, its lungs being but an air-bag inside. A frog drinks air in the same way.

In human beings the principal expansion of the chest is intended to take place at the lower part. The diaphragm contracts when we draw in a breath. We have not only a drawing in of air, but a drawing in of blood at the same time. It, as well as the heart, is a great pump,—a sort of air-pump and blood pump combined. The diaphragm pumps blood as well as air; and that is one of the important things to which I wish to call your attention. In contracting, the diaphragm presses upon the liver. The liver is very much like a sponge; it contains a pound or two of blood all the time, and it is a part of the duty of the contraction of the dia-

phragm to squeeze the blood out of the liver, and send it along through the large portal vein to the heart.

Some time ago I removed a large cancerous tumor from the breast of a woman. It laid bare the large arteries and veins under the arm, and every time the patient breathed, I could see these collapse completely. They lay as flat as a rubber tube with the air drawn out. When the diaphragm contracts, and the chest expands, the blood is drawn down from the head, also from the liver, and from every organ in the abdomen; it affects those organs clear down in the pelvic cavity, and so maintains circulation. This pumping of the blood is one of the most important functions of the diaphragm.

(TO BE CONTINUED.)

"Trunk-Hose." Periwig.

MASCULINE FOLLIES.

MASCULINE costumes have not been always wholly absolved from the influence of the fickle goddess. The long and powdered periwig, shown in the cut, still survives in the prescribed costume of the English barrister, although the "trunk-hose," which date from a somewhat earlier period, have happily gone out of vogue. The latter, one form of which is shown in the illustration, were short breeches gathered in just above the knee, and stuffed out with horse-hair and bran, to enormous and almost incredible proportions. We have the word of veracious chroniclers for it, that they sometimes attained to the circumference of nine feet about the hips. It is recorded that the trunk-hose of a dandy of the time of James I. were explored by an officer, and the stuffing found to consist of the following materials: a pair of sheets, two tablecloths, ten napkins, four shirts, a hand-glass, a comb, and a night-cap.

Poisonous Perfume Powder.—Perfume powder can hardly be called an article of dress, and yet powders are sometimes the only covering of portions of the body which might much more properly be protected by the dress. Consequently it may be proper to call attention in this department to the fact, that a German actress, Frau Frohn, died recently from the poison of perfume powder, used after a bath. In cleaning her nails she stuck the point of the scissors into her hand, and the powder got into the slight wound. Instantly the finger swelled, and medical aid was unable to stop the progress of the poison. The finger was amputated and finally the hand, but nothing was of avail, and the woman died in terrible spasms.

Moral Influence of Dress.—The much disputed maxim, that "dress makes the lady," really contains more truth than is generally allowed. A human being is certainly influenced greatly by his environments. A dress that embodies an idea cannot be worn without inspiring, to some degree at least, the idea represented by the dress. Clean clothes give to one a sense of dignity and self-respect which is inconsistent with soiled garments; so rich robes, made in accordance with the latest fashion, foster pride and exclusiveness. Healthful garments which embody the principles of hygiene, represent a class of ideas elevating in character and in the highest degree wholesome for the individual. If one wears a dress which conforms to the principles of hygiene, he will be likely to observe the laws of hygiene in other respects, and consequently will live a better and more useful life. The influence of dress is really far reaching, and the much needed reforms which

are being agitated at the present time should receive the support and encouragement of all intelligent men and women.

Dress for Warmth.—For women and children there is no garment more conductive to health and comfort during the cold months of the year than the "union under-flannel." The accompanying cut represents this garment, which possesses the advantages of warmth, convenience, and comfort in a high degree. It is offered for sale by the Sanitary Supply Co., whose advertisement appears elsewhere in this journal. This article being patented, the price asked for it is somewhat higher than is charged for the two garments which it represents. Persons in limited circumstances, and others who feel the need of economizing, may avail themselves of the advantages offered by this garment, by simply joining together the two garments with a nice seam. By this means, all the advantages of the single garment may be secured at a minimum cost.

Union Under-Flannel.

Tight-Lacing and Bile.—Dr. W. J. Collins has shown that tight-lacing interferes with the flow of bile. It has long been known to physiologists that the movements of the diaphragm aid the liver to empty its passages of bile. Each time the diaphragm contracts, it presses down upon the liver, and forces out the bile. This has been experimentally proved by observations upon animals. Dr. W. J. Collins concludes, from experiments upon guinea-pigs, that by reducing the circumference of the waist one-fourth, the amount of bile is diminished one-half. This damming up of the outlets for the bile has been shown to be a frequent cause of gall-stones, a malady which occurs much more frequently in women than in men.

Health Corsets.—We have frequently had occasion to observe the mischief done by a class of garments misnamed "Health Corsets." Thousands of these articles are sold to deluded women, who think that in purchasing and wearing garments labeled "health" they are thereby securing this much desired commodity. We are not going to say that the so-called "health corsets" are not an improvement upon *some corsets*, but it is certainly true that these garments do not conform sufficiently to the requirements of hygiene which relate to dress to render appropriate the term "health" as applied to them. We have had occasion to examine the dress of scores of ladies who were wearing "health corsets," and supposed that in so doing they were conforming to the requirements of health as relates to dress; but not in a single instance have we found a woman able to give proper exercise to the lower portion of the chest and muscles about the waist while wearing one of these garments. Corsets of all sorts we unhesitatingly condemn, and insist that a woman's clothing should be as loose about the waist as that of a man, and that a woman should be able to expand the lower portion of her chest as thoroughly with her clothing on as when her garments have been laid aside at night.

Few women with the dress on, can expand the waist more than one-quarter or one-half an inch, and we have in numerous instances found women unable to expand the waist at all. A woman who has learned to breathe properly can easily expand the waist from three to five inches, and in some instances even more. A young woman who was formerly addicted to tight-lacing, after laying aside her corsets, and cultivating breathing for two years, was able to expand her waist six and one-half inches. A woman whose usual dress will not allow her to expand the waist to at least three inches, is unquestionably suffering injury from the restriction of her respiration.

The garments should be supported from the shoulders, not by straps and harnesses, but by a waist. Heavy skirts should not be tolerated.

A DAY.

BY JOHN G. WHITTIER.

TALK not of sad November, when a day
Of warm, glad sunshine fills the sky of noon,
And a wind borrowed from some morn of June
Stirs the brown grasses and the leafless spray.

On the unfrosted pool the pillared pines
Lay their long shafts of shadow; the small rill,
Singing a pleasant song of summer still,
A line of silver, down the hill-slope shines.

Hushed the bird-voices and the hum of bees;
In the thin grass the crickets pipe no more;
But still the squirrel hoards his winter store,
And drops his nut-shells from the shag-bark trees.

Softly the dark green hemlocks whisper; high
Above the spires the yellow larches show,
Where the woodpecker and home-loving crow
And jay and nut-hatch, winter's threat defy.

O gracious beauty, ever new and old!
O sights and sounds of nature, doubly dear
When the low sunshine warns the closing year
Of snow-blown fields and waves of arctic cold!

Close to my heart I fold each lovely thing
The sweet day yields; and, not disconsolate,
With the calm patience of the woods I wait
For leaf and blossom when God gives us spring!

—A Boston school-teacher, speaking of the poles to a primary class in geography, said: "I wonder if any of you can tell the names of the poles?" "Yes, ma'am, I can," said a bright little fellow, the son of a well-known electrician. "Well, Johnny, what are they?" "Pos'tive an' neg'tive!" came the authoritative response.

A DEAR EXPERIENCE.

BY S. ISADORE MINER.

IT was Amy Norton's first baby. Perhaps that is why she persisted in behaving so foolishly about it, and perhaps it was because she had once been an innocent little country maiden, whose mother and grandmother before her had always taken care of their babies themselves, and who would probably have thought it a most heathenish thing to trust a bit of one's own flesh and blood entirely to the tender mercies of a nurse-girl; at any rate Amy thought so, although she was now the mistress of an aristocratic city home; and so, for eight months of her little life, baby's sole attendant had been her own dear mamma, and her sole nourishment that provided by nature.

Now Amy's mother-in-law, dear good fashionable soul, had from the first been very properly scandalized by such an outbreak of sentiment, as she called it; and when Amy announced her intention of discarding the services of wet-nurses and colicky bottles, she felt it her duty, for the good fame of the family, to interfere.

"It is very ill-bred, Amy, very ill-bred, indeed," said that well-meaning woman. "Why, I would n't have our set know that you nursed your own baby for anything in the world. I never did, for all I have had four children, and I never knew that I had one either, as far

as their care was concerned, until they were old enough to introduce into society. You must think of these things, my dear, and have a little consideration for the feelings of the family."

Amy did think of these things, and the result was she concluded to have a little consideration for herself and baby.

She thought of the cold, unloving atmosphere of the big brown stone front the Norton's designated "home" (though a more inappropriate word could not have been invented), where there were no tender caresses, no happy greetings or affectionate farewells, no loving exchange of confidence, and where a social hour in the privacy of the family was never spent.

She mentally compared this picture with one indelibly stamped on her inmost heart,—that of an humbler but happier home in a small New England town. Seven rosy children, herself the eldest, made the old house merry with laughter; and mother was never too busy or engrossed with pleasure to give a glance of love or a word of sympathy, whenever they ran to pour out their petty joys and sorrows in her ear, was it fifty times a day, and sometimes, between them all, it was that many. And father was never too tired or pre-occupied at night when he came home from his tread-mill of duties as village doctor, if he came home at all, to greet them with such hearty kisses that they sometimes went two or three times around, always ending up with mother and the baby.

At this momentary picture of the past, a great wave of homesickness drowned Amy's last scruple, and she said, as she passionately pressed her own darling to her throbbing heart, kissing the little upturned wondering face, "Mamma will never let a nurse-girl mother her precious baby. She will love it and feed it and tend it all herself, for baby must never love any one so well as mamma."

Good Mrs. Norton gazed at her in consternation, as if she thought she had suddenly become demented. She could not understand Amy's rapturous mother-feeling; and how could she, never having experienced any herself, and having always considered it a very ill-bred thing, harbored only by vulgar people? So, with ill-concealed disgust, she gave up the attempt to bring her refractory daughter-in-law within the pale of civilization, and went away with a dazed sort of wonder, and a feeling that had been for eight months daily growing stronger,—the feeling that her son George had in some way made a sad *mesalliance*. I doubt if she would ever have attempted a return to the charge, had not her pride, her pet pride, too, received a terrible shock.

Now, George Norton was as yet wholly unaware what a terrible blunder he made when he married pretty little Amy Thorne, and he stood in a fair way of forever remaining in ignorance. Indeed, he cherished the idea, way down deep in his manly heart, that he had done a very fine thing for himself, and that if there had been any blunder, it was all on the other side. He thought the new life in his snug little home a delightful improvement over the cold, cheerless existence in the brown stone front. Oh, no! He wouldn't exchange his sweet wild rose plucked from a country road-side, for all the pale unnatural blossoms forced into bloom in the many fashionable parlors he had visited. He never regretted his choice, or wished her a whit more fashionable; and Amy never regretted hers, either, or the long bright summer spent with an invalid aunt at the sea-side, where she had met George Norton, and won him by her fresh face and simple modesty. But she sometimes regretted the old home life, or rather that he had never known such a one, and so been content to pass his days in such another, but she never told him so.

But, as I was saying, Mrs. Norton's pet pride received a terrible shock,—a shock that caused her to renew her onslaught on poor Amy,—and this is how it happened.

Lady Elting,—at least it was a lady whose cousin had married a lord, so it amounted to just the same thing in Mrs. Norton's eyes,—had recently come from England, and become the bright particular luminary of Mrs. Nor-

ton's set. Now if there was one thing more than another that Mrs. Norton's feeble soul bowed down to and worshiped in the blindest kind of blind admiration, it was a title. Her own father had been a small tradesman, and her husband's a soap-maker, who, late in life, had been hoisted into the position that comes hand in hand with wealth, by the increasing needs of the great unwashed. But that, to her mind, only made it the more necessary to avoid in every way, anything that might serve to identify her with the humble past. Somehow, to her shallow mind, whatever would, in the slightest, interfere with the pleasures of a fashionable life were such links, and ignorance of the qualities that are the real and only distinguishing characteristics of true nobility, led her even to consider the stirrings of motherly love and duty, God's best gifts to woman, as so much evidence of the inherited "bad blood," to be speedily stifled by a studied indifference. Wealth she now had; position alone represented to her the one thing needful.

Whether the *pseudo* Lady Elting discovered this, or whether she determined to profit by the fact that Mrs. Norton always addressed her, in the most obsequious manner, as Lady Elting, as well as introducing her to public notice under that title,—an artifice which my lady never took pains to correct,—is not here to be determined. Suffice it to say that her ladyship's most refulgent beams were reserved for Mrs. Norton, who, asteroid like, reflected the light of her friend far and near. The two became inseparable, and scarcely an afternoon of the fair spring weather passed, but found the ladies on the avenue, in the Norton *landau*, with its spanking bays, colored driver, and liveried footman.

It was on one of these excursions that Mrs. Norton's pride received the fatal blow, so to speak. They were driving through the park, when a turn in the winding road brought them face to face with Amy, dressed in a simple, yet pleasing costume, wheeling baby's perambulator. Dear little Dottie was cooing and gurgling with delight, happy as any little baby bird in the warm sunshine and fresh air, while the fond young mother, basking in the sunshine of baby's presence and the freshness of her love, was all dimples and smiles as well.

In her simple joy she forgot everything but that she loved Dottie, and here came Dottie's grandmamma, who, of course, loved her, too. Seizing the crowing child, she held it aloft in her arms, nodding blithely to her mother-in-law, thinking that she would surely stop for a look at baby, as her own mother would have done.

The driver slackened the horses as he saw her, but received peremptory orders to drive on; and so they left her far behind, still holding up the jubilant Dottie, and looking after the retreating carriage, wondering in her innocency what it all meant; for she had seen Mrs. Norton's face flush, and had received only a cold nod of recognition. Poor Amy! Could she have heard the conversation then taking place, she might have been enlightened, but I doubt if her wonder would have abated.

"My dear," Lady Elting had said as they neared the young mother, "there is a nurse-girl yonder who really acts as if she knew you. Who can it be?"

"Ah," said Mrs. Norton, evasively, taking it all in at a glance, Lady Elting's implied criticism as well, "that is my son's baby; a very sweet child indeed"—this as they passed Amy, and doubtless intended for her ear as a conciliation for the cold bow.

"Yes," said her friend, "it has promise of great beauty, and the nurse-maid is above the ordinary—really quite a pretty little thing, but quite too familiar. But then that is the trouble with all your American servants. Your daughter-in-law should teach her a lesson."

Mrs. Norton had not intended to utterly disown Amy; but after this speech she felt that she could never admit to this lady of noble connections, whose aristocratic cousin kept several nurse-maids, that her son's wife served herself in that capacity, and was, moreover, so unaffected in style as to be mis-

taken for a servant. No, indeed! Wild horses could not have drawn it from her; and now, to save herself from future embarrassments, when her little deception might not work so smoothly, she determined upon a piece of strategy. Even shallow waters have deep soundings, and for once Mrs. Norton was equal to the emergency.

She saw that any attempt to impress Amy with the social disadvantages of appearing as her own nurse-maid would prove futile, and she knew that only by strategem could she gain her end through George; for, be it said to his credit, he had no sympathy whatever with his mother's vagaries. He could not see why his father, the rich speculator, and himself, a prosperous young business man, should feel their fair fame in jeopardy because the nucleus of their fortune was founded in soap. In fact, he was rather proud than otherwise that at least part of their wealth was won by honest toil. He had more faith in the bubbles that formed in his grandfather's big caldron than in all the bubbles that floated on Wall Street, and he did not see anything in the past to be covered up, and trodden over as lightly as if a seething volcano, instead of a soap-kettle, lay hidden beneath.

Though his genial manners had won him a cordial *entrée* to the social circles his mother so much coveted, his marriage with sensible Amy Thorne, though much to the disapproval of his mother and his more ambitious sisters, had more than ever confirmed him in his contempt for the vanities and follies of a merely fashionable existence. Life to him was now interpreted by another word than *enjoyment*, and that word was *duty*.

Having set her ladyship down at her hotel, Mrs. Norton drove immediately to her son's office, and finding him disengaged, proceeded at once with her errand, still striving to keep to the truth as much as consistent with her purpose.

"George," said she, "you really must have noticed how Amy has changed the last few months?"

"Yes," complacently returned the fond young husband, "I've been thinking myself that she was looking uncommonly well lately, and immensely pretty, too, if I do say it."

"Uncommonly well!" sharply repeated his mother, rather taken back by this unexpected reply to a question intended to alarm him. "That is about all you men can see! I declare I never saw her looking so wretched as I did this afternoon"—which was all true, in one sense. Amy never had looked as wretched as Mrs. Norton, that afternoon or any other time in her life.

It was now George's turn to repeat. "Wretched!" he cried excitedly, "why, what can be the matter? She was well when I left this morning. Where did you see her? Where is she?" and he reached for his hat and cane.

"Now, don't get excited, George," exclaimed his mother. "Amy's not dying. I presume she is just as well as when you left her. It is a pity one can't speak her name without your flying off at a tangent. Sit down; I want to talk with you, and I can't very well with you standing up with your hat on, ready to fly out of the door."

Thus admonished, George took his seat, but made frequent surreptitious consultations with his watch, and gnawed his mustache rather nervously.

"What I was trying to say," added his mother, with sarcastic composure, "when you broke in on me like a tiger let loose, was that I saw Amy down in the park rolling that great, heavy perambulator, and carrying the baby in her arms. The baby alone is enough to kill any ordinary woman, and if you have any sense left (for she never did have any on that subject), you will put a stop to such doings at once."

"But Amy says she feels well, and her cheeks are as rosy—"

"Rosy! there that's just like a man. Anything that's red is healthy. Scarlet fever must be a very desirable disease with them. Rosy, indeed! consumptives are quite addicted to rosy cheeks; and there are more than you, George, that can't tell the

difference between a hectic flush and a natural color."

"Good heavens! mother, Amy has n't consumption, I hope. Why, this is dreadful! What can be done?"

"Sit still, and hear me out. There is nothing serious yet, but if you allow her to lug that heavy child around much longer, I'll not be responsible. Of course the child has got to have outdoor air and exercise, and of course as long as you won't keep a nurse, Amy 's got to take a nurse's place, and roll that baby carriage around in the broiling sun and over the hot pavements; and then if the baby cries, take it out and carry it, too. Oh, she has n't the least particle of government!"

"But what can I do, mother?" asked the now thoroughly aroused husband. "You know she has always objected to nurse-girls, and I'm sure I did n't care if she looked after Dottie herself, for she enjoyed it so much, and I did n't think it hurt her any. She does n't do much of anything else."

"Well, I'll tell you what I'd do, if I were in your place," said Mrs. Norton, sticking tenaciously to his first remarks, for her hold was surer there, "I'd have a nurse-girl whether or no, and I know Amy would consent if she saw your mind was fixed on it; she is always so anxious to please you. Dottie will be better off with a nurse-girl now, and her mother to look after her, than she will be with a nurse-girl and no mother by and by."

At this climaxical ending, Mrs. Norton rose and shook out her skirts and her last compunction at the same time. She knew she had sent home a telling shot, and she thought it wiser to say no more, so after the significant wish that Amy would be looking better when next she saw her, and the injunction that he had better say nothing to her of this conversation, she bade him a hasty good afternoon.

(TO BE CONTINUED.)

—Women who wish to do the best brain work must dress loosely and sensibly. They cannot be devotees of the latest fashions, but must dress rationally.

EVOLUTION OF THE INTERIOR OF DWELLINGS.

THE manner in which the interior of human dwellings has been evolved, or set apart to different uses, forms a curious department in the history of civilization. When man has felt a need, he has endeavored in some way to supply it. Even in the earliest ages, he was obliged to have a shelter from the elements. This accomplished, he lived for unnumbered years with his family or tribe crowded in a single room, like animals gathered in a pen or fold. A sense of delicacy, with a longing for comfort, caused the construction of the bed-chamber; a desire for convenience caused the construction of the kitchen; the need of quiet and retirement, the study; and the disinclination to admit occasional guests to the intimacy of the household, or the wish to have a chamber where friends might be assembled, and which might represent the elegance of the mansion, the parlor, or as the French now call it, the *salon*.

Of all the rooms of a family mansion, the bed-chamber has the most interesting history, not merely that it has been the ordinary scene of births and death, but for social and political reasons. Let us take France, for instance, as the most pertinent illustrations of the subject. Three hundred years ago all occupations of life were performed in a single large room which formed a great part of the mansion. Here were found the master of the house, his family, and the servants, engaged in their various occupations. This was the rule, to which sometimes, in the case of kings and noblemen, there were exceptions. But even a king's bed-chamber was not kept private.

The monarch generally had two,—one where he could take, if he insisted on it, a good honest sleep, and which was of moderate dimensions, and the other a state bed-chamber, where he held audience; where his rising in the morning and his going to bed at night were in the presence of a crowd of lackeys and courtiers.

He was not allowed to die in his private bed-chamber, although he could pass there a part of his fatal illness. When his end was evi-

dently at hand, he was carried into the large chamber called "chamber of parade," placed in its magnificent bed, and permitted there to draw his last breath, in the midst of as many of his courtiers and aristocratic subjects as could gain admission. It was because the bed-chamber was so public during the Middle Ages, that it was so handsomely decorated, and that the bedstead became a work of art, many specimens of which are preserved in European museums. In old engravings the king is represented as attending to affairs of State in a bed surrounded by his ministers and parsons of the Court, and great queens as partaking of their meals in their chambers, as was the custom, the bed being on one side of the room, the table on the other.

The first *salons* in French houses only date back to the end of the seventeenth century; that is, to about 1680 or 1690; and the first dining-rooms only to 1750. Up to that period, the rich had eaten habitually in the rooms where they slept. As for those in moderate circumstances and the poor, they still lived, cooked, slept, and received their friends in the same apartment; or if they had a separate bed-room, it was no more than a closet or a hole in the wall, into which they forced themselves with difficulty.

* * * * *

In the seventeenth and during a greater part of the eighteenth century, no parts of a palace were well warmed. The doors and windows were not well made, and the magnificent fire-places, of which many specimens are extant, served only to grill one side of the person, while the other was benumbed with cold. This is, perhaps, one reason why so many of the fine ladies of the early part of the last century received their guests while in bed.

From this account of the gradual division of the dwelling into rooms, it will be seen that there was little delicacy and scarcely any comfort, till the latter part of the last century, or a little more than one hundred years ago. After Louis XIV., the house existed with all, or nearly all, its modern appointments.—*Selected.*

—Don't worry. Seek peace and pursue it.

AN ICELANDIC FARM-HOUSE.

THE buildings of a farm usually are under one roof, and stand in a row, with their gable ends facing the court. They are peculiarly constructed. Economy of timber and the exigences of the climate furnish, however, a key to their architecture. Ordinarily they are but one story in height. They are framed of wood, and their gables also are wooden; their sides and backs, which usually slope to the ground, are commonly of lava and turf; the roof always is thatched with turf, which quickly grows together, and forms a continuous covering, through which wet and cold scarcely can penetrate. Seen from a distance, a group of farm buildings bears the appearance of an irregular grass-grown hillock, upon which, to heighten the illusion, sheep are calmly grazing. The farm-house proper consists of two or three gables; next to it is the byre for the winter shelter of the cows, if the farmer is sufficiently well-to-do to possess any, and next the smithy, with its forge and anvil: the Icelander in his isolation is thrown upon his own resources, and is obliged still to exercise, upon occasion, a calling that has descended to him from the immemorial past.

Entering the house through the low doorway in one of the gables, you find yourself in a long straight passage, through which, even in broad daylight, you must commonly grope your way. The floor is sometimes of boards, sometimes of earth; on each side doors open into the adjoining buildings, separated from each other only by wooden partitions. Usually the door on one side leads into the common living room of the house, which occupies the whole of the building in which it is situated. A quaint and picturesque interior meets your eye. It is a long, low room, lighted at either end by a square window. Above, the beams are visible, and have been made the place of deposit for an indescribable variety of household articles. Along one side stands the low, stationary bed, which serves also as a lounging place by day; some square wooden chests are ranged along the opposite side; at the

end, particularly in winter, several women are carding and spinning wool. This common room always indicates the thrift or poverty of the farmer. Sometimes it is scrupulously neat and orderly, and its furniture is good and substantial, if not costly. Frequently, however, everything about the place is of the most primitive kind; and comfort, convenience, and cleanliness are unknown. The bed looks as if it were never made up; and dirt, fleas, children, and dogs are distributed in equal, though inordinate, proportions.

If you enter the door on the opposite side of the hall-way, you find a smaller room, usually furnished with chairs and a table, and sometimes with a bed. This, in the larger houses, is the spare room of the house, and, after the various saddles and Sunday garments placed here for safe keeping have been removed, it is assigned to the chance guest. If instead of turning to the right or to the left, you continue your way along the passage to the end, you arrive at the kitchen, which usually is in a separate building. Its floor is of earth. In a fire-place flickers an uncertain fire of peat, and over it hangs an iron pot, from a crane. Everything is dark and smoke-begrimed, for much of the smoke does not escape through the open chimney, and the only light is from the fire. Perhaps an old woman, with her black garments and her tasseled *hufa*, bends over the kettle, and stirs its contents. The unsteady light gives it all a weird appearance, and you wonder if the crone is not muttering an incantation. It is such an interior as Gerard Douw would have loved to paint.

Small as is the kitchen fire, it is often the only one in the house, for fuel in some parts of the island is exceedingly scarce, and must be used with the strictest economy, for cooking purposes alone. It is customary to close the houses when the cold winter weather comes on, for then the atmosphere becomes at least warmer than the outside air, if not quite so well adapted for breathing purposes. The houses of the clergy often are better than those described, in that they have more rooms or better accommodations; sometimes, however, they are worse, or the guest chamber already has been allotted, and in that case you retire to the neighboring church.—*William H. Carpenter, in October Atlantic.*

Temperance Notes.

—Seventy-four counties in Missouri are without saloons.

—Every district of Kentucky has a Prohibition candidate for Congress.

—Germany has tobacco fields sufficient to cover an area of 1,934,304 acres.

—The new Chinese treaty with the United States makes the special provision that Americans shall not import opium into China.

—The Scandinavians, of whom there are in this country about one million three hundred thousand, are said to be largely prohibitionists.

—The income of the liquor traffic for Great Britain, for the year ending March 31, 1888, shows a decrease of one million dollars on the preceding year.

—Several lectures by John B. Gough have been translated into the Tamic language, spoken by sixteen million people in Southern India and Ceylon.

—It is said that when the Queen of Madagascar ordered the saloons in her kingdom closed, and the saloon-keepers asked for compensation, she replied: "Compensate those you have wronged, and I will pay the balance."

—Hereafter, boys who mean to be pure and clean from tobacco, will find helpful influences at the Chambersburg (Pa.) Academy. Those who use it can neither board there nor attend the school. The reason given is that the effects of tobacco upon both the mind and health of the students, are pernicious.

—John Adams wrote in his diary, in 1761: "Dramshops may be compared to Pandora's boxes. In many places they are the nurseries of our legislatures." Thomas Jefferson said: "To the use of ardent spirits is to be attributed much evil legislation. If I were again placed in a position to do so, my first question to a candidate for office would be, 'Do you drink ardent spirits?'"

Popular Science.

—Petroleum is coming into large use as a fuel for generating steam. It is said to be more economical than coal, and free from any of the objections to which the latter is open.

—A paper chimney has been constructed in Breslau, Germany, fifty-four feet in height. It is built of solid blocks of paper, joined together with a special cement. The chimney has the advantage of being not only non-inflammable, but by the nature of the material quite secure from lightning.

—M. Naville, who has recently been exploring in Egypt, has found three kinds of ancient brick,—one, the best kind, with straw mixed in the clay; another, an inferior class, with reeds instead of straw; and the third kind, consisting only of mud. These latter were probably such as the Israelites were required to make.

—An interesting experiment to ascertain the effect of artificial heat on vegetation has been made by Barthelemy. He arranged a number of hyacinths in glasses, in a circle around the pipe of a stove, and after some time he found that the roots assumed a nearly horizontal position, or a direction almost at right angles with the pipe.

The Star-Fish at Dinner. — I have watched with much interest the manner in which the star-fish devours his prey. Place a common mussel in a glass jar filled with sea-water and some sea-weed, and hang him by a string close to the glass wall; then drop a star-fish in the water. It may take many trials before you catch the star-fish in the act of eating, but have patience, and you will be rewarded. The star-fish creeps slowly around his prison walls, crossing and recrossing the mussel, without offering him violence, but finally he comes to a stop directly over his victim, and slowly wraps his arms around the shell. The chances are that the first two or three times you try the experiment, you will come to your aquarium in the morning and find an empty shell, where the night before was a living animal, while the star-fish is crouched away in a dark corner, as if anxious to escape notice. Take the "star" out of the aquarium, and look at his mouth, which is on the under side of the body, and you will wonder how he managed to "get away" with the shell-protected mussel. The shell is not crushed; the mouth is entirely too small to admit the passage of so large a shell, and the entire performance seems a mystery.

This is the marvelous way in which it is done. After settling down upon the shell, and enwrapping it with the arms, the star-fish slowly protrudes its stomach outside of its mouth, and surrounding the shell, goes through the process of digestion with its stomach outside of its body. The star-fish, by this peculiar power, is a great shell-fish destroyer, and an enemy to the oyster-men. Sometimes they appear in vast hordes on the oyster-fields, and in a single night destroy all the oysters in the vicinity. Oyster-men have a natural hatred for star-fishes, and destroy them whenever and wherever found. Some years ago these men had the habit of cutting the star-fish into two parts, and throwing the pieces overboard. Nothing could have been more unwise, for each portion grew into a perfect star-fish, and in less than a year there were two individuals instead of one.—*Swiss Cross.*

Effect of Light upon Flowers.—In parts of Norway and Sweden, where, during the summer, there is almost continuous daylight, barley crops are grown, with only from six to eight weeks intervening from seed-time to harvest. After acclimatizing, many garden flowers increase in size and depth of color. There is a prevailing tinge of red in the plants of the field, the aroma of fruits is increased, and their color well developed, but they are deficient in sweetness. The development of essential oils in certain plants is greater than in the same plants grown in other latitudes. It is an established fact that light bears the same relation to aroma as heat does to sweetness.

Wonders of the Sea.—The sea occupies three-fifths of the surface of the earth. At the depth of 3,500 feet, waves are not felt. The temperature is the same, varying only a trifle from the ice of the pole to the burning sun of the equator. A mile down, the water has a pressure of a ton to the square inch. If a box six feet deep were filled with sea-water, and the water allowed to evaporate in the sun, there would be two inches of salt left at the bottom. Taking the average depth of the ocean to be three miles, there would be a layer of pure salt 230 feet thick on the Atlantic. The water is colder at the bottom than at the surface. In the many bays on the coast of Norway the water often freezes at the bottom before it does above. Waves are very deceptive; to look at them in a storm, one would think the whole water traveled. The water stays in the same place, but the motion goes on. Sometimes in storms these waves are forty feet high, and travel fifty miles an hour—more than twice as fast as the swiftest steamer. The distance from valley to valley is generally fifteen times the height; hence, a wave five feet high will extend over seventy-five feet of water. The force of the sea dashing upon Bell Rock is said to be seventeen tons to the square yard.

"Blessed are the Pure in Heart."

PREMATURE MARRIAGES.

"UNHAPPY marriages are the tragedies of our day," said a wise man. If he had added that *too early* marriages caused a very large proportion of the unhappiness, he would have shown us how a part of the tragedy might be spared.

The fact that a youth and maiden love one another is not a sufficient reason for them to marry, unless they are fitted to be and to do all that this sacred relation requires. Principle, not passion, should preside over the affair. Temperaments should harmonize, tastes and aims be not too different, and above all, both parties should clearly understand the religious significance of the tie, and not lightly bind themselves while under the rosy glamour and romance of a first fancy.

Few girls of eighteen are ready, either physically or mentally, to become wives and mothers. Twenty-five is a better age, since then she is mature, and should be in her prime. Young men do not attain their full growth before twenty-eight, and few before that age have seriously taken up the work of life, and are fit to become the heads of families.

Far too many rush into matrimony just when they are least prepared to undertake its duties, accept its responsibilities, or wisely use its rights and pleasures. Then, when the young wife fades, and takes to her sofa, an invalid; when the children are puny; the husband disappointed, indifferent or tyrannical; and the home a sad failure, people console themselves by talking of the deterioration of the race, and the mysterious dispensations of Providence. Now it is too late to give back her bloom to the over-taxed girl, to put vigor into the babies born of immature parents, or to teach the young man the sacred duties of husband and father. So the costly experiment goes on, and too often the union, which should have given mutual happiness and strength, is a burden and a fetter.

Better begin in time and train up the boy or girl for the great relation of life. Fathers and mothers are far too ignorant, careless, or timid to do their part faithfully in the years when children are as clay in the hands of the potter, easily molded into any shape, before time casts the statue for good or ill. A mother, especially, cannot begin too soon to win the confidence of the little creatures who instinctively turn to her with their small doubts and fears, sorrows and joys, sure that she can explain, heal, and share them all. She should be wise as well as tender, and lay a sure foundation for the work which comes later, when the children enter girlhood and boyhood, full of new hopes, perplexities, and temptations. Who so well as she, can guard the eager boy against his own passions and appetites, teaching him the hard lesson of self-control, before the world, the flesh, and the devil begin to tempt him as a man? Who so delicately as a mother, can help the budding girl to understand herself, to feel the sacredness of her mission, to prepare for it intelligently, to

be worthy of it, and so be armed against the trials that beset the sex which is born to suffer and be strong for love's sake.

Fathers should do their part as faithfully, first, by trying to set an example of true manhood for their sons to follow, that these keen-eyed young critics may see few faults to pardon, many virtues to imitate, and add honor to love and confidence. He can warn them against the many temptations women never feel, the false ambitions that belittle life, and the too-easy forgetfulness of the wants of the soul, in the pleasures of the body. He can best help them to find their places in the world, to work patiently and honestly at their chosen task, and to render themselves worthy in due time to ask some innocent woman to share heart and home with them.

No easy task, but one which is terribly neglected and deeply regretted, when sad experience shows parents their mistake too late! Intent on getting money, place, or power, men let their children grow up with very little knowledge of them, except as toys or torments; and when the lads go wrong, blame every one but themselves; or when the girls bloom suddenly into womanhood, asking for their right to love, care, and guidance, they are strangers to their own daughters, and too often regard them as burdens to be gladly gotten rid of by marriage,—not comforts and props to the old age yet to come.

Mothers keep silence, from a false sense of delicacy, and let their sons blunder into knowledge as they may, at the most critical period of their lives; and when trouble comes, they lament over these neglected boys, hide their faults, and nurse them with a devotion which, rightly used, would have spared them all the shame and sorrow, the irradicable wrong done soul and body by the loss of innocence and health. Daughters are allowed to grow up with no aim but an early marriage, and too often hurry into a bad one, quite unconscious of the misery such precipitation inevitably brings.

This want of care and principle in parents is a fruitful source of these unwise, unhappy marriages. How can it be otherwise, when little school-girls discuss their beaux as they eat bread and butter at recess, and boys boast of being "mashers" at sixteen? Foolish novels, bad plays, too much liberty, and lack of proper training, both at home and in school, fit these children for the fatal step that so often wrecks their lives, or leaves them bound together with ever-increasing rebellion, indifference, or the sad resignation which so often takes the place of the love, honor, and mutual help which alone makes wedlock holy and happy.

Public opinion is to blame as well as parents, and needs reforming, since its influence is great. It is thought so "pretty and romantic" to see these youths and maidens pair off like birds in spring-time, with all the pleasant excitement of bridal veils, wedding bells, and honey-moon trips, that it is small wonder the ignorant and innocent creatures take the plunge with smiling faces, and are wakened from their dream by finding the water cold, the tide strong, and the rocks sharp under the sunny, blue waves that seemed ready to float them to the Islands of the Blest.—*Louisa M. Alcott.*

A SERMON ON PURITY.

BY REV. MORGAN DIX.

[THE following is a portion of a very remarkable sermon preached in Trinity Church, New York, by its rector, one of the most eminent divines in this country. The first portion of this most excellent discourse was given in our July number.—ED.]

The Lord testified and said, "Blessed are the pure in heart, for they shall see God." And this he said in that vile age of the world which some would fain reproduce, in its characteristic deformity, in our own day. In the decadence of the old Roman Empire, in the hearing of the court and the forum, in the ears of such as Tiberius and Heliogabalus, of Felix and Festus, of the cultured Epicureans at Athens, and the harlots of Corinth, unto the bloated Pharisee and the crafty Sadducee, —unto people like ourselves, who loved and justified their sins, as we love and justify ours,—did the Lord announce and declare,

"Blessed are the pure in heart, for they shall see God."

On the foundation thus laid by their Lord, the apostles gladly built. They preached of discipline; of severity to the flesh; of keeping it under, and bringing it into subjection. They talked to men and women of their sins, not in smooth speech, or words to plaster over the ulcer and the plague-spot. They bade men flee fornication as a deadly crime which bars from heaven; they bade women be chaste and pure, and love their husbands and children, and be keepers at home, and adorn themselves with good works. And great were the joy and peace of those who heard the counsel and followed it; blessed, of a truth, were the pure in heart, in their lives, yea, in their heroic death. Open the "Annals of the Martyrs," the "Acts of the Saints," and see the courage with which men, matrons, and maidens laid down their lives rather than suffer pollution in that lascivious age; glorious are the records, clear in silver light, around which the black cloud of pagan luxury and lust surges up and glooms, and rolls away, like the storm-drift before the stars.

Christ spoke no word in vain: least of all, vainly, that blessing on the pure. Nothing corrupts like carnal sin; nothing degrades like sensual passion; nothing else brings such frightful punishment. On the other side, no victory is grander than the victory over this sin; nothing more precious than uncontaminated virtue and unspotted honor; nothing lifts a soul so near to God as inner purity; a pure soul cannot be lost; its path is straight to the face of the Eternal. O man, O woman, battling against the Devil and the sinful lust of the flesh, hating that which is filthy and unclean, longing to be like the angels, and never relaxing thy vigilance against thy foe, thou art not far from thy reward; some mere clouds divide thee from it; a little while longer, and those clouds will have disappeared, and with open eye, triumphant over the final assault, and delivered from the burden of the flesh, thou shalt receive the promise, thou shalt see God.

It is in no hopeful spirit that the preacher bids to self-denial, to self-discipline, to brave resistance, on this perilous ground. He has against him—and full well he knows it—the voice of the heart, which is a sink of everything impure, the drift of the age, which is toward greater license and increased indulgence, the teaching of a school who know no God but nature, and no law but that law which is in our members, the example, alas! of persons who ought to be on the side of God, but, for some reason or other, give no help, and increase, by their follies, the demoralization of the day.

O, how we long for the aid of Christian women, and their overwhelming influence, in this day of strife and contention! What work they could do as reformers, what work for the purifying of the world! I think of some not here, I see some before me, fitted by their social position, their gifts, their strong character, to take a position which would help others; I see hardly one, whatever her station, who could not wield some influence over some person or in some direction, for good. And yet I see the wrong prevailing over the right, the impure over the pure; the altars of the heathen temples burning with perpetual fire, and the altar of the Lord in the dust.

O woman, woman, called of God, redeemed by Christ, bethink you of your duty and your power! You know how things go,—what books young women read; with what bad men they talk; how they are tempted; the unclean gossip that goes on, the jests which pass the lips,—and how women allow men to talk to them in a way in which, of old, one woman could not have talked to another without blushing for shame; how they dress, and how they behave; how they tolerate bad manners, and induce familiarity; how they laugh at modest women, and term them prudes and cowards; how one season in society will take the bloom from the flower and the modest look from the eyes. And you look on, and make no protest; perhaps you encourage, by your example. What can we do without your help? And why, slaves to fashion, and blinded followers of types of a most unworthy womanhood, do you let us go on speaking to

the winds, and hearing no response to our protests, except their echoes through the empty air? We say to one, we say to all: This is a subject of vital consequence to your own souls and to the society in which you move. It is nothing less than a matter of life or death.

We say to one, we say to all: Christ and his apostles are right, and material philosophy, be the era what it may, is wrong. Men may fall away from the faith, heathen morals and manners may be revived, art may become the ministrant to sin, and women may go dressed like harlots, and say it is not wrong, and men may applaud; but it *is* wrong, and a shame, and a disgrace, and a mortal sin, of which the wages is death.

We say to one, we say to all: Inordinate desire is a devil; you must fight it by prayer and by abstinence.

These things we say to one, to all, to high and low, to rich and poor, to men and women; and there we leave it. Perhaps some may have grace to heed the voice; probably the greater part will go their way, and do as they think best; and some will call hard names, and cry out that we are behind the age, and morbid, and ignorant. Let them so take up their parable, and so let them curse; but the day cometh that shall burn as an oven, and then shall they know, if they know it not already, that God gave them full warning.

THE MOTHER'S CARE NEEDED.

THE *Christian Woman* believes a daughter should enjoy a mother's care and oversight so long as she remains at home. We commend to our readers the following words of advice from this excellent journal:—

"There is a great deal of conversation between young people that ought to be restrained. The mother's presence, if she is a careful mother, would keep the young people from drifting into imprudent and unprofitable currents of talk, and would compel the bounds of propriety to be carefully observed. There is no recommendation of espionage here. Far otherwise. It is recommended that the daughter in society keep fast hold of her mother's hand, and for her own protection and safety keep ever near her mother's side.

"There are a great many young men who think well of themselves, and with a very good cause, who will make remarks to young women when no one is by, that they would be very slow to make if the brother or mother of their interlocutor were present.

"From such young men young women need protection, and from themselves such young men need protection. They would find it in the careful clear-seeing eye of the mother, with whose daughter they are disposed to amuse themselves. It is always safe to 'keep honest men honest.'

"A great many mothers, who have been able to give their daughters advantages they were not permitted to enjoy when young, seem to think that because of these superior advantages the daughters stand in little need of personal maternal supervision. In some respects this judgment may be just. But the mother's experience, her convictions, her crystallization of opinion and sentiment—the result of her greater years,—all these are, or ought to be, of inestimable value to the daughter, in showing her what not to do, what shoals and quicksand to steer clear from, and what general direction is safe.

"So long as the daughter remains under the maternal roof, the mother should be visible, though only in the distant horizon; her presence in the landscape, though only in the back-ground, is her daughter's protection and safeguard."

—At the International Council of Women recently convened at Washington, D. C., much attention was given to thes ubject of social-purity reform. Many stirring speeches were made, by some of the ablest women speakers of the day. This great meeting was an unqualified success, and will doubtless contribute much to the advancement of social-purity reform.

A WEEK AMONG THE MOUNTAINS.

WITHIN the last few months we have made a number of hasty excursions to different parts of the United States, for the purpose of attending the annual meetings of the American Health and Temperance Association. In this way we have had the pleasure of meeting many of the friends of reform, in Indiana, Iowa, Wisconsin, and other States. On one of these hasty excursions, we got as far west as Colorado, and having a few days on our hands before another appointment in the State of Missouri, which we desired to meet on our way home, we were afforded the opportunity to spend a few days among the mountains of this wonderful State.

It is not the purpose of this article to describe the scenery of the Switzerland of America, nor to enter at length into a discussion of its climate, but simply to jot down a few observations which may be of interest to the reader. Going by the Burlington Route, we landed first in Denver, a city which, while not yet so large as Chicago, expects to be, and certainly more than rivals the Western metropolis in thrift and enterprise. The city had apparently more than doubled since our first visit just ten years ago; and, if one can place any faith in the assertions of real-estate speculators, will double again in the next decade.

During our few days' stay in Denver, we gave five addresses on practical health topics, which were listened to by good-sized and attentive audiences.

One afternoon and evening we spent in researches on the subject of dress, among the Indian girls of a Catholic school for girls and native Chinese women. We found the intelligent "mother superior" of the Catholic school for girls very ready to render us all the assistance desired in obtaining tracings of the breathing movements in Indian girls who had never bowed down to the moloch of fashion. Of the young women tested, one, a Chippeway girl of fifteen, had evidently been trying to emulate her white sisters in the arts of civilized dress, as she was found to be encased in a corset so tight that she seemed to be almost choked by it; at least she looked puny and sickly, and presented a decided contrast with other young women of the same tribe who wore loose and healthful clothing. We obtained a number of most interesting and instructive tracings, which we will present in connection with another article in a future number.

We made a long search before we were so fortunate as to find a Chinese woman sufficiently civilized to understand the import of our investigation, and hence to be willing to have the testing apparatus applied to her

chest, and at the same time sufficiently uncivilized to be clothed in the sensible dress of her native land, untrammeled by corsets, tight bands, or stays. The good-natured wife of a Chinese laundryman finally consented to serve science and the cause of dress reform, by placing herself on record as able to breathe in a manner as masculine as any man, expanding the chest at the waist instead of breathing only with the upper part of the chest, as do most civilized women.

From Denver we went to Colorado Springs, where we spent a few days exploring the wonderful gorges and other places of interest for which that locality is famous. Of our observations here, we will speak at another time.

OYSTERS.

THIS is the season of the year when oyster-lovers begin to get their mouths ready for the bi-valve in all shapes,—dead and alive, stewed, breaded, scalloped, fricasseed, squirming from its shell. A patient asked us the other day, "Are oysters good food for the sick?"

In the first place, let us consider whether oysters are good food for anybody. They are digestible. No doubt about that. I suppose there is nothing more digestible than oysters, unless it be old cheese, or "high meat." If you want meat to be very tender, you have to let it decay a little. The butchers in San Francisco do not sell a particle of meat before it is a week old, and the foreman of Mr. Armour's establishment told me that he kept his Christmas beef two months. This reminds me of the Chinese, who bury fish in the earth for two months, and find it to be very digestible. Starch is very digestible, yet a person would starve to death on starch alone. Our digestive apparatus is made to perform hard work. We have an alimentary canal thirty feet long. An animal whose digestive apparatus is designed to digest only food which is easy of digestion, sometimes has an alimentary canal which is not longer than the body itself. In man it is ten times the length of the trunk of the body; in the dog, six times the length of the body. Some animals which live on decaying flesh have alimentary canals only one-half the length of the body, as in the case of the oyster. Our alimentary canals have many turnings in them, so there is a large amount of its surface with which the food can come in contact. We have sufficient digestive vigor to digest food which requires some hard work. Some people have dyspepsia because they do not give their alimentary canals enough hard work to do. Somebody has claimed that oysters digest themselves. The oyster helps to digest other things, they say. Sometime ago a doctor experimented with some oysters. He found that they would not digest themselves or anything else.

What does the oyster live on? When in the Gulf of Mexico a few years ago, I looked into the depths of the water with a telescope. One of the things that amused me most was a "Portuguese man of war." I found this creature sending arms into the water three or four feet long. Way down, I saw something entangled among them. It was a dead fish. This beautiful creature was acting as a scavenger. It had found a dead fish, and was living upon it. By and by it gets all it wants of the dead fish. It drops it down into the water, and it is picked up, and eaten by other scavengers, who feast upon the remains; and so it is passed along from one scavenger to another until it reaches the bottom, and there it finds, what?—An oyster with its back stuck in the mud, and its mouth wide open to receive what other scavengers have rejected. The oyster is the scavenger of scavengers. I cannot imagine why people choose to eat these creatures which nature has appointed to be scavengers, rather than the beautiful fruits which are supplied so abundantly. Some people would think it very strange to eat snails and angle worms, but it is a very common thing in some parts. In Paris, when passing through a market, I noticed upon a table four or five bushels of snails. A man came along, and bought a dozen of them to take home for his dinner. Where did the snails come from? The snail is a very wholesome creature in com-

parison with the oyster. Its home is in the vineyard, and it lives upon leaves. I quite agree with the poet who said :—

"He must have had a palate covered o'er
With brass or steel, who, on the rocky shore,
First broke the oozy oyster's pearly coat,
And risked the slimy morsel down his throat."

Raw oysters are supposed to be particularly good for sick people. I wonder what a person would think if he were an oyster, and some big animal should swallow him? I suppose he would feel as Jonah did when he was swallowed by the whale. Sometime ago a lady came here, and said she knew she had a lizard in her stomach. She felt very badly about it. One day she wanted to know if she could have some raw oysters. I told her I was surprised, as I understood she had an animal in her stomach already, of which she wanted to be rid. The Russian eats tallow candles; the Chinaman eats decayed fish; and we almost feel horrified to think that a German eats limberger; yet we eat live oysters.

I do not hesitate to say that in my opinion the oyster is wholly unfit for human food; and the eating of live oysters is a species of cannibalism, worthy only of a beast of prey.

WORK AS A MEDICINE.

THAT famous Dutch physician, Boerheave, declared that more people would be cured by climbing a bitterwood tree than by drinking the decoction of its bitter leaves; and another old-fashioned doctor declared that sawdust pills would be found an invaluable remedy for dyspepsia, if the patient were compelled to make the sawdust. Acting upon this same principle, a Swedish physician has ordered the queen of that country to make her own bed, and to dust and sweep her own room, besides engaging in other manual duties and out-of-door exercise, as a means of cure for a nervous disorder. Commenting on this fact, the *Golden Rule* sagaciously remarks :—

"This has been dubbed 'the chambermaid cure,' and not a bad cure for many a fashionable dame would it prove. Moreover, it has the advantage of suggesting an endless number of invaluable remedies, which have hitherto been overlooked by the medicine-loving public.

"There is the 'office-boy cure' for the dyspeptic millionaire; and the 'stevedore cure' for the nervous merchant; and the 'stable-boy remedy' for Crœsus, with the liver complaint; and the 'penny-postman cure' for Midas, who is suffering from the accumulation of too much adipose tissue; and the 'nurse-girl cure' for fashionable Mrs. Hysterics, who cannot stand the noise of a crying baby; and the 'dressmaker elixir' for Miss Flora McFlimsy, who has palpitation of the heart at sight of a spider or a mouse. But really there is no end to these new and interesting additions to *materia medica:* and we freely give this space, which is worth far more then ordinary advertising rates, to a gratuitous notice of these remedies."

INDIGESTION.

INDIGESTION is something more than simply an inconvenience. A body which is served with food by a dyspeptic stomach, receives very poor material of which to rebuild its tissues. None of the food is perfectly digested, and hence the quality of all the tissues is deteriorated. Besides this, the septic changes which take place in the stomach and bowels, produce various poisonous substances, which are absorbed along with the food, and which poison and irritate the brain and nerves, and produce various disorders and discomforts which are ofttimes attributed to other causes. Even the imperfectly digested food is treated by the system as waste or poisonous material, and instead of being used to repair the wastes of the body, is excreted, or thrown off, by the liver and kidneys, with the waste elements of the system.

The stomach sometimes holds up wonderfully under the heavy burdens laid upon it, and digests a much larger amount of food than is necessary to suppiy the wants of the body. In such cases, the excessive amount of nutriment received is either at once excreted, or accumulates in the tissues, clogging

the various organs, and interfering with their proper activity. Accumulations of this sort are the chief cause of gout, rheumatism, biliousness, and numerous other disorders which are usually attributed to other causes.

Eating when tired, and engaging in active mental or physical exercise immediately after a hearty meal, are two of the most common sins against dietetic rectitude in our modern civilization. An old medical writer tells us that a hundred years ago it was the custom among the merchants of Edinburg to take two hours' "nooning" for dinner in the middle of the day, during which time the shops were closed, and all business suspended. It is quite hopeless to attempt a resurrection of this good old-fashioned custom in these fast times; and the best thing we can suggest is that no hearty meal should be eaten during the active business hours of the day, unless at least an hour or two can be allowed after the meal has been taken, to give the stomach opportunity to get the digestive process well under way. The plan which our personal experience leads us to prefer is to defer the hearty meal, as did the old Romans, until the latter part of the day, say four o'clock in the afternoon, taking, if necessary, an apple, a bunch of grapes, an orange or two, or some equally simple food at midday, to appease the clamoring of the stomach, until it has become accustomed to the lengthened interval between the first and second meals. Two meals a day are in every way preferable to a larger number. The ancient Greeks and Romans took but one meal *per diem*. During the republican era, the Roman custom was to eat twice a day, breakfast being simply a light repast of fruit and bread. At the present time, the two-meal-a-day plan prevails quite extensively in France and Spain, especially among the better classes. The inmates of the hospitals in Paris are supplied with but two meals a day. The same is true respecting the soldiers of the French army.

—Dr. Davis claims, in the *Therapeutic Gazette*, that the use of tea and coffee is a cause of barrenness.

Weaker and Wiser.—The increase of knowledge in these modern times is so manifest that none would undertake to dispute the statement that the world is growing in wisdom; but that we are growing weaker at the same time is not so obvious, although the saying is a trite one. Indeed, there are those who affirm that we are improving physically, as well as increasing in knowledge. A first glance at recent statistics seems to confirm the last-mentioned view, as there has been, within twenty years, an increase of two years in the average length of human life. According to the statistics published by the Registrar General of Great Britian, the present average length of life is a little more than forty-one years, while twenty years ago it was only thirty-nine. This would seem to argue that the race, or at least the civilized portion of it, is gaining in physical vigor. An examination of the details of the statistics, will show, nevertheless, that however desirable such a state of things would be, it does not exist. It appears that the increase in the number of lives saved per thousand, is wholly in ages under nineteen years. Above this, there is an actual loss in longevity, as compared with previous statistics. The cause of this is evident when one gives a little careful study to the subject.

The saving of life under nineteen is due to the better care of young children, which has the effect to keep alive many feeble infants and children of little constitution, who, under former circumstances would have succumbed at an early age to the adverse conditions surrounding them. These same persons now survive a longer time, only to die in early manhood or womanhood. It must not be forgotten, also, that these feeble persons, by marriage communicate their feebleness of constitution to others, so that the ultimate result is really to weaken the constitutional vigor of the race, although there seems to be a gain in the average length of life.

This serious fact should direct the attention of sanitarians to the necessity for something more than public sanitary measures. Individual hygiene must supplement public hygiene. By the practice of appropriate hygienic rules,

the hereditarily weak may become strong, and transmit to their children qualities of strength instead of weakness, thus improving the race, as well as preserving their own lives.

Rev. Sam Jones vs. "Christian Science."—Rev. Sam Jones is not our ideal preacher. He smokes, and we don't like him for that; but he says some excellent things, nevertheless. Here is what he thinks of the "faith-cure" and "Christian Science" so much talked of nowadays:—

"I will tell you where this faith-cure comes in. There's an old brother and a sister who have been taking all the nasty, quack patent medicine on the market for the last ten years. Somebody comes along, and prays over 'em, and they quit using the patent medicines, and they are well again. They say it was faith that cured them. It *was* faith which caused them to quit taking old patent nostrums, that cured them. I don't say I belong to the Christian science crowd, or anything of that sort; but I thank God, that by the side of my sick wife I may kneel down, and pray that the remedies given by the physician may prove effective. I don't pray over the supernatural. I pray over the pill."

We quite agree with Mr. Jones as to the proper office of prayer, but we would not confine our prayers to pills.

Hygienic Savages and their Immunity from Disease.—It is often stated by those opposed to sanitary reforms, particularly those relating to diet, that those who give no attention to these matters are no more subject to disease than are those who are the most exemplary. This statement is palpably false, but the absence of statistics renders it by no means an easy matter to refute it by actual facts so general in character as to be convincing. Individual cases of great vigor or longevity, in persons who have given scrupulous attention to diet, are matched by cases of like character in persons who have given no attention whatever to health rules. We are, on this account, pleased to be able to present, now and then, evidence like that found in the following paragraphs, which we quote on the authority of the *Sanitary News*:—

"It is said of a Bengalese tribe, the Oswals of Marwar, that while cholera rages on all sides of them, not one has ever taken the disease, much less succumbed to it; and they attribute their immunity to their sanitary rules. According to the precepts of their religion, they never touch animal food nor spirituous liquors; they dine early, and sup on milk and fruit. Wherever an Oswald goes, he never breaks these rules. It is not added, but it is quite safe to presume, that a measure, at least, of cleanliness goes with these other religio-sanitary ordinances."

Alum in Flour.—The use of alum in flour seems to be becoming more frequent recently than has been the case for some years back. "A miller of Warsaw, Illinois, was lately accused of using alum to improve the color of his flour, and he attempted to justify the use on scientific and sanitary authority. The Secretary of the State Board of Health, on being questioned as to the use of alum in flour, gave the following opinion of the nature and effects of alum when mixed with flour: 'My belief is that the practice stated to be followed by certain flour manufacturers, of adding alum to the product of their mills, even in small quantity, is a harmful adulteration, and an injurious fraud upon the public. While the double salt of alumina and potassa, commonly known as alum, has a well-recognized place and value as a remedial and medicinal agent, still its continued administration can with safety be placed only in the hands of competent medical men. The prime objection raised to the use of alum as an admixture of flour by physiological chemists, physicians, and sanitarians is not the presence of the substance itself in an uncertain, though usually small, proportion, but that by its action in the process of bread-making, certain insoluble combinations are formed, which render digestion difficult, and detract largely from the value of bread as food. This is the

view set forth by Liebig in an essay on healthy foods awarded a prize by the American Public Health Association last fall at Washington. Prof. Vaughn, of the University of Michigan, says: "The use of alum is an adulteration which is injurious to health. It unites with the phosphates in the bread, rendering them insoluble, and preventing their digestion and absorption. In this way, alum, when present, diminishes the nutritive value of bread." While some gain may perhaps temporarily accrue to the manufacturer through the covert perpetration of this fraud, still no good to any one can result therefrom.'"

Fifty Years a Vegetarian.—Hon. J. E. Weeden, of Randolph, New York, is undoubtedly the oldest vegetarian in this country. From a letter recently received from this gentleman, we glean the following interesting facts, some of which are stated in his own words:—

Mr. Weeden is a lawyer, and although eighty years of age, still goes regularly to his office, and attends to the business of his profession. At thirty, he found himself with a strong tendency toward consumption. He abandoned the use of flesh food, tea, coffee, and tobacco, and took but two meals a day. He has continued in this course of life ever since. He was the oldest of thirteen children, all of whom, with the exception of himself and the three youngest, are now dead. He has not had a sick day for thirty years. Mr. W. ascribes, and no doubt correctly, his wonderful vigor to his simple habits of life.

Coddling.—More mischief is done by coddling than parents ever know. Boys are often ruined for life by over-careful mothers. Girls are still more frequently reared to useless womanhood by mothers who protect their daughters from every breath of air, as though it were a blast from the Sahara. They are never taught to use their muscles, for fear they may, in some way, "hurt their backs," or do some other mysterious mischief. We hear a vast deal said nowadays about the harm resulting from stair-climbing at school. We scout the idea that going up and down a flight of stairs two or three times a day ever did a healthy girl, healthfully dressed, a particle of harm. Girls properly clothed and properly brought up from infancy, can climb stairs as well as boys. Too much coddling is the real cause of the mischief.

Poisonous Candy.—A professor of chemistry, of Beloit, Wisconsin, has been analyzing the candies commonly sold by confectioners, and shows that many of them are colored by such poisonous substances as chromate of lead, Prussian blue, eosine, and others of like character; and yet parents continue to tempt their little ones with these poisonous sweets, almost invariably to their great harm, and not infrequently deadly injury.

Total Abstinence and Health.—The *British Medical Journal*, in a late issue, gives a summary of the annual report of the "United Kingdom Temperance and General Provident Association," from which it appears that of the two classes of members in this association,—total abstainers and moderate drinkers,—the total abstainers outlived their expectancy by twenty-six per cent, and were twenty-four per cent ahead of the moderate drinkers.

Bogus Temperance Drinks.—An investigation recently made in England showed that some of the "temperance drinks" extensively sold in that country, under the alluring titles of "temperance port," "temperance sherry," etc., contain as high as seventeen to nineteen per cent of alcohol. No wonder these beverages are popular among reformed drunkards! The worst feature of this fraudulent business is the probability that persons may have become habitual topers while supposing themselves strictly temperate.

—It has recently come to light that it is quite a common practice to use old rags and rubbish for the stuffing of mattresses and pillows.

NASAL CATARRH.

How to Cure a Cold.—As has been remarked in the preceding articles on the subject of nasal catarrh, a "cold in the head" is simply an acute catarrh of the nasal mucous membrane. The things to be accomplished by curative measures are:—

1. The removal of exciting causes, and the taking of special precautions to prevent the contraction of further colds.

2. A restoration of the balance of the circulation, the disturbance of which, through the influence of chill upon the nervous system, is the usual exciting cause of a cold.

3. Local treatment for the relief of the local affection.

The best means for the accomplishment of these measures are the following:—

1. If the feet have been wet or chilled, take a hot foot-bath, or dry the feet, and rub them until warm. If the whole body has been chilled, the circulation should be stimulated by means of hot drinks; as, hot water, hot lemonade, or any of the simple domestic "herb teas," omitting from the category such irritating substances as ginger, capsicum, or lobelia. Extra wraps should also be added. If possible, the patient should go to bed, place a hot brick to the feet, and wrap himself with woolen blankets. When these conveniences are not at hand, vigorous exercise, either in the open air or indoors, may be substituted with advantage and entire success by persons in robust health. Sneezing, which many persons regard as a danger signal, indicating that a cold is likely to be contracted, is, as has previously been remarked, really the first effort of resistance against the encroaching disorder which we commonly call a cold. A vigorous sneeze agitates the whole body, and is usually accompanied by a convulsive jerk of a large portion of the five hundred muscles which compose the muscular system. A sneeze is, in short, a vigorous kind of muscular exercise, which is intended by nature to restore the balance of the circulation, and thus antagonize the cold. A walk or run in the open air, or any other kind of vigorous exercise, may operate beneficially in the same way.

2. The measures already mentioned are to some degree preventive as well as curative in character, acting not only to remove the cause of a cold, but to remove the evil effects which may have been already produced. There are, however, other efficient measures which act still more vigorously upon the nervous system, and aid in the restoration of an even balance in the circulation. Among these may be mentioned a hot bath, which may consist of a simple hot full bath, a vapor or hot-air bath, a Turkish or Russian bath, a wet-sheet pack, or a dry pack. What is desired is that a vigorous perspiration should be induced. Here are some of the most convenient ways for accomplishing this result in an ordinary home.

A Vapor Bath.—Have the patient sit in a cane-seated chair, the seat of which is covered by a wet towel, a pail or small tub of hot water being placed beneath. Surround the patient with blankets. Carefully place in the tub, one by one, heated flat-irons or bricks, which may be conveniently handled by means of a string or wire attached. A heated brick should not be thrown at once into the tub, as it will produce too large a volume of steam, but it should be slowly let down into the water so that the generation of the steam may be properly regulated.

A vapor bath may be taken in bed by placing hot bricks wrapped in moist cloths alongside the patient, being careful not to place them against the body, and elevating the bed-clothing by means of a frame-work made of bent hoops or wires.

Still another method of taking a vapor bath is to place a perforated wooden board in a full bath-tub, resting it three or four inches above the bottom of the tub. Place the patient on this, and allow the hot water to run along the bottom of the tub and out at the discharge pipe. By covering the tub with a blanket, a very effective vapor bath may be obtained.

A Hot Air Bath.—Place the patient in the chair as for a vapor bath, and place underneath the chair a saucer containing an ounce or two of alcohol. Before lighting the alcohol, set the saucer in a pan containing a small amount of water, so that any overflow of alcohol will not result in damage.

Pack.—The method of administering a wet sheet pack is understood to require a description. A dry pack is taken by wrapping the patient in blankets, placing hot bottles at the feet and sides, and giving hot drinks. Hot drinks should be copiously given in connection with all the baths described, both before and during the bath. If a vigorous effect is desired, the sweating started in the vapor or hot air bath may be continued by means of a dry pack.

After taking a bath of this sort, the patient should go directly to bed, and should, if possible, remain there until the cold is substantially cured, being careful to keep warmly covered, and if possible maintaining a sufficient degree of perspiration to keep the skin slightly moist.

As has been previously pointed out, the essential morbid condition in a cold is a dilated condition of the blood-vessels of the affected part, the immediate cause of which is a disturbed state of the nerve centers of the spinal cord, which control the blood-vessels of the particular part affected. It is thus evident that the real disease is located in the spine, hence it is proper that treatment should be addressed to this part. Among the most important measures of treatment for a cold of the head, or throat, or lungs is the application of heat to the upper portion of the spine. Heat may be applied in the form of fomentations of flannel cloths wrung out of hot water, bags filled with hot water, heated bags of sand or salt, hot bricks or bottles, or any other similar means. The effect of the heat is intensified, and to some degree prolonged, by the addition of mustard to the water from which the cloths are wrung, in the proportion of a tablespoonful of mustard to the quart of water. A very light mustard plaster, allowed to remain on just long enough to cause a redness of the skin without causing a blister, may be advantageously used, though, on the whole, the continued application of heat is to be preferred to any other form of counter-irritant. The relief afforded by this measure of treatment is often very prompt and very remarkable. The pain at the back of the head, stiffness of the neck, and similar symptoms which frequently accompany a cold, quickly yield to these applications.

If a hot bath or other means by which perspiration is induced, is not sufficient in its first application, it may be repeated once or twice, but it should be distinctly understood that the repeated application of hot baths day after day is not a proper mode of treatment for the relief of a cold. The effect of such a course is usually to aggravate the malady by keeping the system of the patient in a constant state of susceptibility to abnormal disturbances of the circulation. The skin is relaxed, rendered sensitive, and unable to defend itself against temperature changes: hence, if the cold is not substantially "broken" by one or two hot baths, accompanied with the other means of treatment mentioned, the sweating measures should be discontinued, and the spinal applications, combined with measures calculated to harden the skin, should be employed. Among the best of these are the salt rub, which consists in rubbing the whole body vigorously with moist salt; a saline sponge bath,—sponging the body with a tepid solution of salt, a tablespoonful to the quart; and a vinegar sponge. Cold bathing has very much the same effect, though less intense. After a bath of any sort, the body should be well rubbed with olive or cocoanut oil or fine vaseline, as a protection. This, indeed, is a precaution which persons subject to cold should always take after a warm bath.

(TO BE CONTINUED.)

WHAT IT IS FOR.

BY "WREN."

It was noon recess in Miss De Lancy's pleasant country school. Several of the smaller children were engaged in a lively game on the spacious playground, while others quietly played marbles and jack-stones on a grassy little knoll, and a small group gathered about a stout rope swing in the big walnut-tree, which looked very inviting, even to passers-by.

A bevy of bright, interesting girls were taking their dinner out-of-doors, in the cool shade, picnic fashion, and laughing and chattering to their hearts' content. Some allusion to their afternoon lessons made them a little more serious. "I wish we did n't have to study," said Lily Marvin, "I just *hate* physiology. If I could understand *what it is for*, I might get interested in it, maybe; but I can't see what good it can do to learn all those *horrid names* that it is just impossible to remember; or to know, exactly, how many bones there are in the body, or teeth in the mouth."

"That is just what *I* wanted to know, *what the study is for*," said Ollie Brainard, a sturdy, rosy-cheeked little girl, the smallest of the group. "I asked mother one night last week, *and she told me!*" —with a little, triumphant air.

"Oh!" said mischievous Rose Clayton, "*Your* mother is an *oracle*, is she? Perhaps we would all do well to consult her. Pray, what did she say?"

"I've a good mind not to tell you," said the brave little woman, flushed and hurt. "You need n't speak that way of *my* mother, for *she knows*. Her father was a doctor, and he let her study his books; and she used to be a nurse herself, too, so now!"

The revelation of these important facts seemed to inspire confidence in the "oracle," and Rose joined the eager clamor of the rest, for Ollie to "tell." "*Please do* tell what your mother said," they all urged, in the same breath.

"Well," said Ollie, reflectively, "as near as I can remember, she said it was to teach us how to preserve our health, and to live a great many years, so that we might do lots of good in the world. She said if I would be patient, and learn the lessons every day, I would begin to see how it is doing this, after a while; and that I must be careful to put in practice whatever it tells me to do."

"Well, it *would* be very nice to learn all that," said Lily; "you know it must be dreadful to be sick, like poor Mary Harvey, and have to lie in bed and suffer pain, while all the other children are playing, and enjoying themselves."

"Or to have to walk with crutches, like poor Billy Reynolds, who had the spinal disease so long; or to die of cancer on the face, like sweet little Myrtle Green," said Grace Marvin.

"And then it would be worth something to learn how to live to do a great deal of work in the world, like Victor Hugo, or to be queen fifty years, like Victoria Regina, you know," said Rose, with a roguish twinkle in her eye. "Do you know, girls," suddenly becoming sober again, "I read the other day that more than half the human family die in infancy! Is n't it shocking?"

"But, truly," said Grace Marvin, "I can't think of a single thing that physiology has ever told us to do in order to be well, can you? I think we must be awful dull, or else it must be told in a kind of blind way."

"Hark! there goes the bell," said Rose, "we must hurry and get a drink; and say, girls, let's ask Miss De Lancy, this very afternoon, how to find these things in physiology." "Well, let's;" and the girls hastened, with one accord, to the school-room, and began studying their lessons with unusual eagerness.

Late in the afternoon the physiology class was summoned for recitation (after the little ones had been dismissed to their homes), and so much had the interest of the girl members of the class been stimulated by their conversation at recess, that they had learned their lessons remarkably well, and were very

prompt and accurate with their answers, which may account for the willingness their teacher showed to give them a little extra time when the request came.

They all seemed a little reluctant to put the intended question; but, after a suitable amount of nudging with the elbows, making signs, and winking at each other, etc., each wishing to put the responsibility upon another, Lily Marvin raised her hand; the teacher smiled kindly upon her, and thus encouraged, she proceeded: "Miss De Lancy, will you please tell us if physiology is really to teach us how to be *healthy* and *long lived*, and *if* it is, *how* does it do so? We were talking about it at recess, and we could n't think of anything we had learned to help us in this."

"Thank you, my dears, for having thus shown your teacher that there must be a *great lack* in her method of instruction, as well as in many of the physiologies for schools, which is very noticeable. Too much time and pains are employed in teaching and learning definitions and facts, while the practical application to the needs of the body, of what is thus learned, is too often neglected, or left to be observed by inference. I will try to illustrate what I mean, and to show you how you may find out many things by searching for them, having your senses quickened and your powers of observation sharpened, while you study for the *purpose* of learning how to take care of yourselves. Being thus on the watch for practical suggestions in regard to the preservation of health, you will find that they are more frequent and perhaps plainer than you thought.

"Now," taking a physiology from her desk, "I will read two facts in regard to *breathing*, which you know is absolutely essential to our being, a well as the first act of our lives; and you shall tell me what practical lessons we are to learn from them, in regard to the care of ourselves:—

"'1. A man breathes sixteen times a minute, inhaling thirty cubic inches of air each time. In an hour, therefore, he breathes between sixteen and seventeen cubic feet.'

"'2. Twenty-one per cent of the air we breathe is oxygen, which is the vital principal of life, while we throw out, or expire, but sixteen parts of oxygen, five parts of carbonic acid gas—a poisonous vapor —having been thrown out of the body, instead;' and this goes on, remember, hour after hour. Now think, and tell me what we can learn from this that we *must* do, if we wish to have good health."

All answered in concert and with much earnestness, "Breathe fresh air."

"Right. The air is poisoned so rapidly by this percentage of carbonic acid gas, especially if there are many persons breathing it, that the air of a room is soon rendered quite unfit for breathing, you see, do you not? and as we cannot always live out-of-doors, where there is a breeze, and a constant interchange of air, what does this fact show to be a vital necessity in all our houses?"

Several promptly answered, "Ventilation."

"Right, again. Now I am going to read another fact, and ask you to tell me, by inference from it, just *how* we may ventilate our rooms in *very cold weather*, when we cannot have the doors and windows open, as we do in summer. *Attention* now:—

"'Hot air ascends; our breath, which is poison, to the extent just named, being warm (about 98°), naturally rises, and so the air at the top of the room becomes very foul. As long as the room is warmer than the outside air, the poisonous gases will lie along the ceiling, above our heads; but as the room becomes cooler, the impure air begins to come down, especially the poison, as carbonic acid gas is *heavier* than air except when heated.' Now tell me how we shall manage to get rid of the impure air. In a comfortably warm room, where shall we make the openings?"

All answered eagerly, "At the top."

"Exactly; then to get rid of the bad air in our

rooms, and, at the same time, secure a continued supply of good, fresh air, we must let down the windows at the top, on one side of the room, and—what else?"

A few ventured to reply, a little timidly, and with the rising inflection, "Open them at the bottom on the other side?"

"Yes, only this might make an unpleasant draught of cold air upon some one, which I will tell you how to avoid. Raise the lower sash two or three inches, and fill the opening with a strip of wood fitted for the purpose. This will leave a corresponding space between the meeting rails in the middle of the window, through which a current of air enters, and is directed towards the ceiling, instead of blowing upon some one in the room. This is Mr. Hinckes Bird's 'costless system of ventilation,' and a very good one it is, too, as well as cheap. So much for 'fresh air,' and please remember that this is of *incalculable importance!* Now what necessity of our being is next to that of fresh air to breathe?"

"Food to eat," with alacrity.

"Yes; now turn to the chapter on digestion, and read it aloud, by turns, beginning at the head; and I will listen attentively, and then write out in a few words, on the blackboard, the practical teachings of what you have read. Commence now."

Now, at the end of this little exercise, what do you suppose was written upon the board? Just this:—

1. Eat slowly, and chew your food well.

2. Be sure not to eat too much, nor too many kinds.

3. Eat only at meal-time.

"Do you see, all of you, that these rules *really* come from the teaching of the chapter you have just read?" asked the teacher. "Yes," "yes," "yes," responded nearly every one in the class.

"Now," said she, "I am going to try another and still nicer plan, for the next subject, as it is getting late, and you must now be dismissed. Before you come to school to-morrow morning, you are all to read the chapter on the 'skin,' and each to write on a slip of paper, to bring to me, what those chapters teach that we are to do in order to be healthy."

The next day, these answers were duly examined; and would you think it, though there was different phraseology employed, they nearly all expressed the same idea, which might be briefly stated in two words—"Bathe often." To be sure, Jim Watkins's paper had written on it in scraggly characters, "Go in swimming!" but this was, perhaps, because he regarded swimming as the most satisfactory way of bathing; or, maybe, it was "just for fun." Anyway, it showed that he apprehended the truth.

In a similar manner, Miss De Lancy drew from her scholars many other practical suggestions in regard to right living; in the course of the summer, she brought up a variety of subjects; such as, "sleep," the "care of the teeth," the "necessity of exercise," etc., etc., obtaining always tolerably correct views from the majority. We have not space to transcribe these views, but feel that we *must* give to our young readers the answer to *one* question; namely, "What of tobacco and ardent spirits?" It was entirely unanimous, and laconic enough to please even the great Douglass Jerrold himself. It was, "*Don't touch them!*"

Question Box.

[☞ All questions must be accompanied by the full name and address of the writer, as it is often necessary to address by letter the person asking the question.

GLEANINGS FROM THE SANITARIUM QUESTION BOX.

MONDAY morning is "question morning" at the Sanitarium. Patients gather in the large parlor, write their questions upon slips of paper, and lay them upon the table. In a few moments Dr. Kellogg comes in, and, one by one, considers the questions asked. The following is a stenographic report of a portion of one of these morning talks:—

1. Is butter hard to digest?

Ans. Butter is easily digested when it reaches the right point in the digestive apparatus, but it is indigestible in the stomach. We have five digestive fluids formed in the digestive apparatus,—the saliva, the gastric juice from the stomach, the bile from the liver, the pancreatic juice from the pancreas, and the digestive fluid all along the intestines. Each of these five fluids has a special work to do. The saliva digests starch; the gastric juice digests albumen; the bile digests fats. Each of these fluids can do but one thing. The pancreatic juice digests starch, albumen, and fats. The intestinal juice does something more. It digests starch, albumen, fats, and also sugar. Thus, you see, butter is not digested in the stomach at all. It is not digested in the mouth, and cannot be acted upon by the saliva, gastric juice, or the bile. Butter is easily digested by the bile, but not by the stomach. Butter makes great trouble in the stomachs of persons whose digestion is slow, because it interferes with the action of the gastric juice. When you go out-of-doors on a wet day, you will have your shoes greased to allow the water to run off, and thus keep them dry. It is precisely so with the food

which ought to have been digested in the stomach. Take fried potatoes, or anything farinaceous, which ought to be digested in the stomach, and smear it over with melted butter. The result is that each little particle of starch is completely surrounded with fat. Gastric juice has no effect upon fat. When it comes in contact with the morsel of food which it ought to digest, it is covered with fat, and cannot get at the albumen. Thus albumen is protected from the gastric juice just as a well-oiled boot would be from the rain. It does not allow saliva to act upon the starch, and does not allow the gastric juice to act upon the albumen. The effect is that the digestion goes on very slowly, and often does not go on at all.

2. Are cucumber pickles good for the stomach?

Ans. I have noticed that young ladies who live mostly on pickles and bread and butter have tempers as acrid as their diet. Pickles are indigestible because they are soaked in salt and water until hardened, and afterwards saturated in vinegar, which makes them still more indigestible. Repeated experiments have been made which show that a considerable amount of salt in the stomach impedes digestion. It has also been proved that the addition of vinegar impedes digestion very much, because it interferes with the action of the gastric juice. So a pickle saturated with salt and vinegar is practically indigestible.

3. Is ice-cream a proper food?

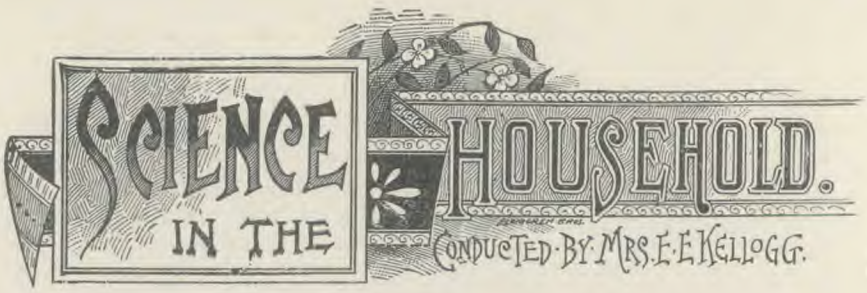
Ans. Consider for a moment the process of digestion. How does the stomach know that anything is digested?—Because it has nerves. If you get particles in your eye, it begins to shed tears. The stomach does the same thing. It sheds tears of gastric juice. Dr. Beaumont used to look into Alexis St. Martin's stomach after he had eaten his dinner. He found it looked just as the brow does when the perspiration is just starting out. Little beads of gastric juice stood out on the walls of the stomach, and trickled down. In order for this to take place, it is necessary for the nerves of the stomach to be wide awake, and delicate, and sensitive. Suppose you had some very delicate work to do. Perhaps nothing more than picking up a pin. Would you, as a preparation for that work, hold your hand in ice-water for half an hour? If you had been out in the cold, you could hardly feel the pin when you tried to pick it up. It is precisely so with the stomach. If you send down into the stomach a preparation of frozen milk, it chills the stomach, and benumbs its nerves. The stomach does not know there is anything wanted of it at all. It is paralyzed, just as the fingers are when one has been out in the cold, for the stomach is a more delicate organ than the hand, and it has vastly more delicate work to do. Think what this process of digestion is. It is a process of converting the things that we eat into living tissues,—living blood, nerves, and muscles. To send down a mass of ice into the stomach to freeze it, is certainly not a good preparation for this kind of work. This applies to frozen foods of every description. Ice-cream is worse than all others, for when we take it into the stomach, it cannot work for two or three hours, or perhaps longer, and the frozen material which must be digested before it can be absorbed, undergoes decomposition.

4. If a person's pulse is but 60 degrees, ought not some stimulant to be given to raise it to 70 degrees?

Ans. It is a mistaken idea which some have, that old people need stimulants on account of slowness of the pulse. I think the philosophy is a bad one. Why is the pulse a little slow in old age? Perhaps it is because the heart is economizing its forces. If it goes on beating at 70 degrees, the same as in younger years, it brings more blood into the brain, and makes a person think faster. It sends more blood to the stomach, and the liver works faster, so with all the organs of the body; and the consequence is that a person lives faster. Nature slows down the heart in old age on purpose so it will not wear out so quickly, and we will last longer. Here is another reason. The blood-vessels of the brain have very thin walls. Suppose one of them should be ruptured. The blood rushes out of the little arteries, and destroys a portion of brain structure, and some part of the body is paralyzed. This is what happens when a person has apoplexy. You never hear of a ten-year-old boy having apoplexy; it is rarely that a person under forty years of age has this disease. It occurs in old persons because the blood-vessels of the brain become brittle. If in old age the heart kept up its vigorous beating as in youth, the result would be to increase the danger of hastening the person to his grave.

5. Will not the removal of the tonsils interfere with the voice?

Ans. I think not. I have removed at least a peck of tonsils, and have never seen other than a favorable change in the voice.



SEASONABLE BILLS OF FARE.

BREAKFAST.

Grapes, Baked Sweet Apples,
Oatmeal and Cream,
Stewed Potato, Sliced Beets,
Breakfast Rolls, Hominy Gems,
Prune Toast.

DINNER.

Cream Pea Soup,
Baked Sweet Potatoes, Mashed Irish Potato,
Scalloped Vegetable Oysters,
Oatmeal Bread, Whole-Wheat Puffs,
Rice with Fig Sauce,
Apple Snow, Grapes.

Prune Toast.—Pour warm water over some prunes, and let them stand a few minutes to soak and soften. Rub well between the hands in order to clean them; rinse in clean water, and then remove the stones, which can easily be done by this time. For every quart of prunes when stoned, add three of water, and place in a porcelain kettle on the stove; cover tightly, and simmer gently till done. Then turn into a colander, and rub through to remove the skins. If the toast is desired for breakfast, the prunes should be prepared the afternoon before. When needed, heat to boiling, and pour over nicely browned slices of toast, previously moistened with hot water or hot cream, as preferred.

Scalloped Vegetable Oysters.—Boil two quarts of sliced vegetable oysters, well washed and scraped, in two quarts of water, until very tender. When done, skim out the oysters, and put a layer of them in the bottom of a pudding-dish, and cover with a layer of grated bread crumbs. Fill the dish with alternate layers of oysters and bread crumbs, having a layer of crumbs for the top. To the water in which the oysters were boiled, add a pint and a half of thin cream, salt to taste, boil up, and thicken with a little flour. Turn this over the oysters and crumbs, and bake half an hour. If there is not enough water remaining to make, with the cream to be added, sufficient juice to cover all well, a larger amount of cream or milk should be used.

Oatmeal Bread.—Two cups of oatmeal, half a cup of sugar or molasses, half a cup of yeast or half a small cake of yeast dissolved in half a cup of lukewarm water, and, if desired, half a teaspoonful of salt. Cook the oatmeal as for porridge, add the salt, and, when cool, the yeast and molasses; stir in enough wheat flour to make it as stiff as can be stirred with a spoon. Put the dough into bread tins, and allow it to rise until very light. Bake about one hour and a quarter. The above quantity is sufficient for two loaves.

Hominy Gems.—Two cups of cooked hominy (fine), one egg, one tablespoonful of thick cream, one cup of boiling water, and salt if desired. Beat the egg very light, add it, with the cream and salt, to the hominy. Thin the mixture with the boiling water until it will form easily, and bake in gem irons, in a hot oven.

Apple Snow.—Bake or steam a half dozen tart apples, and rub the pulp through a sieve. Add sugar according to the acidity of the fruit. If the apples are not very tart, their flavor may be improved by adding the juice of half a large lemon and a little of the grated rind. A tablespoonful of grated pineapple may be used instead of the lemon, if preferred. Beat the whites of two or three eggs to a very stiff froth, and add, by degrees, the prepared apple. Beat all together for an hour, or until it will stand quite stiff when taken up in the spoon. With the

yolks of the eggs, make a simple custard for the bottom of the dish, and pile the snow high in rough spoonfuls on the custard.

THE IRONING OF TABLE LINEN.

A WRITER in a recent exchange offers the following suggestions concerning the washing and ironing of table linen:—

"The wringer, while it saves labor, does it at the expense of much of the beauty of the table-cloth or napkin that passes through it. The wringing out of the very thin starch or rinsing water should be done by hand, and as it is not at all necessary that starched linen especially should be wrung very dry, the hands will do just as well. Shake the articles thoroughly, or fold them into manageable size. But little starch should be used in such articles—just enough to give them a new feeling, and to take the polish of the iron. It is not necessary to use any starch at all if the linen is ironed when quite damp, and patiently gone over until thoroughly dry.

"Always take table-cloths from the line while still damp. Fold the linen evenly, and roll up in a tight roll, wrapping large pieces in damp towels, so that they will not dry on the outside. Napkins should be similarly treated, and each size and pattern rolled up in damp towels in packages by themselves, until ready to iron. The irons should be heavy, and as hot as possible without danger of scorching. Iron table linen in single fold, if you wish to bring the pattern out handsomely, and let there be several thicknesses of flannel upon the ironing-board. A damp towel may be laid over a portion of the cloth that the operator will not immediately reach. When the entire surface has been ironed, fold it lengthwise, and iron again with the selvage toward the operator. Go over the entire length of that side, then fold with the just completed portion inside, and so continue until the cloth is folded and done. If still damp, hang in the sun or on a clothes-horse until thoroughly dry. Napkins are to be similarly treated, and should never have their first ironing when folded together, but be gone over singly, then folded as directed with the table-cloth."

Bakers and Baking in Ancient Times.—Athenæus mentions that the Cappadocians were considered the most approved bakers, next to them the Lydians, and finally the Phœnicians. The art seems to have traveled from Egypt into Greece, where it must have received a considerable development, for it appears that no less than sixty-two varieties of bread were known to the Greeks. According to Pliny, it was made a profession in Rome, 170 B. C., where a corporation was instituted of all the bakers in the city. Public granaries were built, and a commission, styled the *Catabolenses*, were charged with the proper distribution of the grain to the various bakeries. The grain appears to have been roughly pounded and sifted at this time. Thirty years later, after the conquest of Macedon, large numbers of Greek bakers flocked into Rome, bringing with them their implements for grinding; these were known as *pistores*, and by their superior skill they succeeded in obtaining special privileges, ultimately resulting in a practical monopoly of the baking trade. The bakeries of Rome were distributed in fourteen wards of the city, over each of which a superintendent presided; these elected one of their number each year to preside over the rest, and vested in him the care of the college for the time being. From this association neither they nor their children could ever separate themselves; their goods were held in common, and not to be disposed of individually; they were forbidden to associate with comedians and gladiators, with like precautions for preserving their honesty and respectability; and at times one of their body would be made a senator. It was subsequently found necessary to appoint a chief magistrate, with the special duty of adjusting all matters relating to the manufacture and sale of bread.—*British Miller and Baker.*

—A writer in *Good Housekeeping* says: "This is the way I have settled upon as the best to preserve eggs from summer to winter. Put an inch layer of crushed salt into a common salt-box. Stand in this salt fifteen eggs,—five rows, three in a row,—which will fill the layer. Cover with salt—enough to shake down well between the eggs, and leave an inch or more above them. Crowd into this salt another one and a fourth dozen eggs on end, and pack the box with salt to its brim. Tack down cover lightly, and put in a cool dry place, turning from top to bottom every week or two to prevent yolks from settling and cleaving to the shell."

—The *Journal of Chemistry* says: "All cooks do not understand the different effects produced by hard and soft water in cooking. Peas and beans cooked in hard water containing lime or gypsum, will not boil tender, because these substances harden vegetable caseine. For extracting the juice of meat to make a broth or soup, soft water, unsalted and cold at first, is the best, for it more readily penetrates the tissue; but for boiling where the juices should be retained, hard water is preferable, and the meat should be put in while the water is boiling, so as to seal up the pores at once.

—If white china or ironstone table-ware has become stained or discolored from use, scour it well with wood ashes, or boil it in good lye, and it will become perfectly clean and white again.

Publisher's Page.

ANOTHER ENLARGEMENT.

THE managers have determined to change the style and size of GOOD HEALTH, adopting a more popular and modern form, and also to increase its attractiveness in other ways. It is proposed to make the journal a thirty-page monthly, with pages about four-fifths larger, or nearly double the present size. This will afford opportunity for larger and better illustrations, and other attractions. In making these further improvements in the journal, a small increase in the price will be necessary. At the beginning of its career, GOOD HEALTH was a sixteen-page monthly, a few years later it was enlarged to twenty-four pages. Still later, eight pages more were added, and at the beginning of the present volume, its size was increased to forty pages. The publishers wish to make still further improvements in the journal, but as it has been published during the last year at an actual loss, find it impossible to do so without a slight increase in the price. It has accordingly been determined to raise the price of the journal to $1.25. We know of no other journal which offers the same value for double the price asked, and feel sure our old patrons will gladly pay the additional twenty-five cents for the valuable improvements offered in return.

SPECIAL OFFER TO OLD SUBSCRIBERS.

As stated above, the subscription price of GOOD HEALTH will be raised to $1.25 at the beginning of the next volume. We propose, however, to give all our old subscribers a chance to renew their subscriptions for 1889 at the old price of $1.00 a year, and to this end make the following liberal offer:—

All persons who are now subscribers to GOOD HEALTH may renew their subscriptions for one year from the expiration of their present subscriptions, by sending to the office $1.00 before Jan. 1, 1889.

The above offer is not made to new subscribers, nor to old subscribers after Jan. 1, 1889.

A New Book.—Doctor and Mrs. Kellogg have in preparation a new work on dress, which will treat this important subject in a new, interesting, and most practical manner. Dr. K. will present the medical side of the question, in the light of his large experience and extended observations; while Mrs. K. will deal with the practical side of the question, and show the ladies just how to arrange their clothing so as to make it conform to the requirements of health.

The work will be profusely illustrated, and made attractive by several colored plates illustrating "the follies of fashion," and the terrible results of the transgression of health laws relating to dress, which are almost universal among civilized women.

☞ This number is made a little late by the absence of the editors, Mrs. K. being in attendance at the annual meeting of the N. W. C. T. U., at New York City, and Dr. K. at the annual meeting of the American Health and Temperance Association, at Minneapolis.

☞ Our readers will certainly be interested in the personal observations respecting that remarkable people, the Dyaks of Borneo, related by Prof. Hornaday of the Smithsonian Institution, at Washington, D. C., in the present number. Few travelers have kept their eyes wider open than Mr. Hornaday, and still fewer have so happy a faculty for putting in a readable form, the facts gathered in their wanderings. Any one who has never read Mr. Hornaday's "Three Years in the Jungle," published by the Scribners, will be delighted and instructed in the perusal of this entertaining book. Capt. Sanderson, the renowned elephant-hunter of India, told the writer that he considered this work one of the best books that has ever been written on India. Mr. Hornaday's "Rum on the Congo," is also a work which we take pleasure in commending. His vigorous exposure of the iniquity of the enormous traffic in bad whisky and cheap rum ought to bring down upon the heads of those so-called Christian governments which allow and encourage this stupendous crime, the indignation of all intelligent and high-minded people.

☞ Battle Creek College opens this year with a fine class of students, and with several valuable additions to its faculty and important changes in its curriculum of study. There are, in all, over three hundred students in attendance. The manual-training feature of the school has been improved by the addition of a department in which practical cookery will be taught in an efficient manner. The gymnasium connected with the institution receives due attention, and is under the charge of an efficient director. For thorough training in all that contributes to practical success in life, this school is unexcelled.

☞ The publishers of this journal have recently perfected arrangements with the publishers of nearly all leading magazines, by which they are able to furnish many standard periodicals when clubbed with GOOD HEALTH, at greatly reduced rates.

Those who wish to subscribe for one or more journals besides GOOD HEALTH, will find it to their advantage to get prices from us before subscribing elsewhere.

Send us a postal card with a list of the papers which you desire, and we will furnish you with estimates.

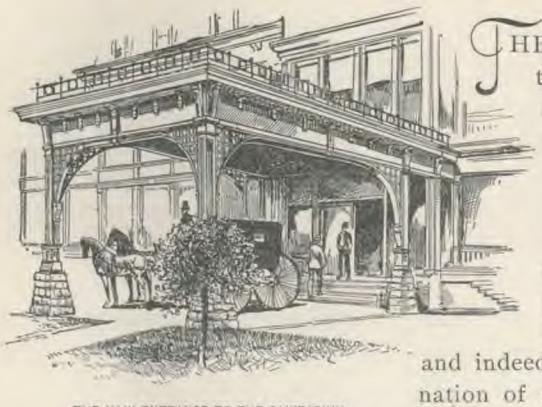
☞ The new edition of "Sunbeams of Health and Temperance" is printed on still finer paper than the preceding edition, and some extra touches give added beauty to the binding. The work is gotten up in a wholly artistic manner and is a splendid specimen of the printer's art. The sales of this book are so rapid that the publishers expect to be obliged to put another edition to press within a month, if not sooner. There are few books better suited for a holiday present than is this work. It sells rapidly. Agents wanted in every State.

☞ The Review and Herald Office have in press a new edition of Dr. Kellogg's "Man the Masterpiece," a work which has had and is having a remarkable sale. It is a book which ought to be in the hands of every young man.

☞ Unavoidable delays in the completion of the Sanitarium Hospital building have rendered necessary the postponement of the dedication for three or four weeks.

☞ The Sanitarium has recently nearly doubled the extent of its beautiful grounds, by the purchase of several acres of property adjoining on the north and south.

Where to Spend the Winter.



THE MAIN ENTRANCE TO THE SANITARIUM.

THE question, Where shall I go for the winter? is asked us so often at this season of the year, that we have determined to devote a few pages this month to the consideration of this practical question. We shall not attempt to cover the whole ground, nor to mention even all the good winter resorts, but shall call attention to one place which possesses advantages that are, in many important respects, not excelled, and indeed are rarely, if ever, equaled. The combination of advantages presented is unquestionably unrivaled.

We must remark at the outset that there are many erroneous notions held upon this subject of winter resorts.

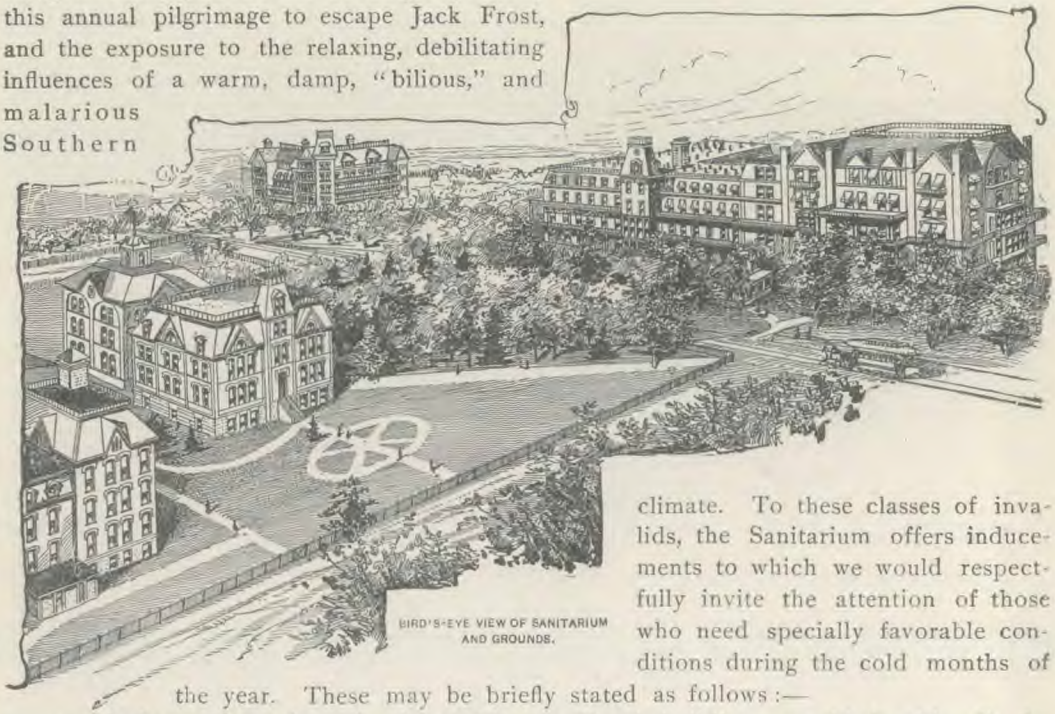
THE SANITARIUM AS A WINTER HOME FOR INVALIDS.

When winter approaches, thousands of invalids annually migrate to the southern part of the United States, particularly to Florida, New Mexico, and Southern California. Every train is crowded with persons, many of whom are invalids, leaving home, friends, and most of the comforts and luxuries of life, to escape the rigors of our Northern winter. For some cases, such a change of climate is made a necessity, partly by the need of more favorable climatic conditions, and partly for the relief from habitual cares and routine duties secured by absence from home.

There are, however, many cases, as the personal experience of every physician will testify, in which the advantages to be gained by a visit to a warmer climate are more than counterbalanced by the sacrifice of many advantages which can seldom be secured in places of winter resort. Very many patients require careful medical care and skillful nursing, which are even more important in some cases than any climatic advantage. There are many others who cannot be induced to leave home and friends, to spend months among strangers, so far from home. Still another class do not avail themselves of the possible advantages of a change of climate, on account of restricted pecuniary resources. They are unable to bear the expense of a long journey and large hotel bills in crowded resorts, where wealth is essential to secure the comforts required by an invalid away from home. To all of these classes, the Sanitarium offers special inducements.

From observations at home and in the South, we are convinced that many invalids make a mistake in running away from cold weather. Frost is the best of all Nat-

ure's disinfectants, and the pure air of our Northern winter is much to be preferred to the germ-laden atmosphere of most Southern climates. The cold weather "toning up" which dwellers in Northern climates experience, is one of the best of vital stimulants, and an advantage to the "dyspeptic," the "bilious," the overworked, the anæmic, the neurasthenic, and the generally run down valetudinarian, which he cannot afford to forego. Many persons are actually injured by this annual pilgrimage to escape Jack Frost, and the exposure to the relaxing, debilitating influences of a warm, damp, "bilious," and malarious Southern climate. To these classes of invalids, the Sanitarium offers inducements to which we would respectfully invite the attention of those who need specially favorable conditions during the cold months of the year. These may be briefly stated as follows:—



BIRD'S-EYE VIEW OF SANITARIUM AND GROUNDS.

1. A large, steam-heated, thoroughly ventilated building, provided with all the conveniences of a first-class hotel, including Edison electric lights, call-bells, polite attendants, a Hale hydraulic elevator, water-closets for each floor, warm halls, commodious parlors, etc.

Indoor Exercise.—2. Abundant facilities for exercise indoors, including a gymnasium, furnished with all scientific appliances for exercise, Swedish movement machinery, lifting apparatus, pneumatic apparatus for lung exercises, manual Swedish movements administered by well-trained persons, etc.; thus enabling those who cannot prudently expose themselves to the inclemencies of the winter season, to live entirely within doors without feeling any restraint or suffering any detriment thereby. Each patient is given a carefully prepared prescription for exercise, and is assisted in executing it in the gymnasium by experienced trainers. The opportunity for physical culture is the best to be found anywhere, and each patient is expected to leave the institution with a broader chest, stronger muscles, and a better physique, than when he came. Plenty of sunshine is obtainable by promenades upon the verandas, or upon the dry walks of the Sanitarium grounds and the city. *A glass-inclosed veranda one hundred and fifty feet in length*, affords a fine promenade in weather not suitable for out-of-door exercise. A fine hack stands at the door ready for immediate use. Open or closed carriages are also ever ready at call by telephone from the business office, and every arrangement for the comfort of guests is made as perfect as money and ingenuity can command.

3. The patient is all the time under careful medical supervision. The diet, exercise, and in fact all the conditions requisite for the best results, are not only prescribed, but the means for securing them are furnished, thus enabling the patient to comply with the demands of the most varied and exacting prescription. This is an advantage which will be appreciated by patients who have been made miserable in wrestling with hotel dinners and exhausted by the varying exigencies of travel while seeking health by wandering in Southern climes.

An Artificial Climate.—4. Even climatic advantages are secured in a very large degree. As the whole building is heated by steam, halls included, a very nearly uniform temperature is maintained, the temperature being much more even than the most equable climate known. The temperature of the halls and public rooms is maintained at 65° to 70° F., during the day, and 60° at night. The temperature of each room may be regulated independently, as each room in the building is furnished with a steam coil by which it may be made to range anywhere from 50° to 90°. Patients are instructed, however, to keep the temperature of their rooms about the same as that of the halls, and when they are unable to attend to the slight adjustment necessary, it is looked after by nurses or attendants. The general heating of the house, which is accomplished by means of warmed air, heated by immense steam heaters in the basement, is regulated automatically by an ingenious electrical device.

Another very important means of securing climatic advantages, which is in use only in this Institution, is a system by which not only the temperature, but the degree of moisture, of the atmosphere of each room, may be accurately and independently regulated. This enables any patient to enjoy the benefits of a dry, cool atmosphere, or a moist one, as his particular case may demand, the degree of moisture being determined, when extreme accuracy is required, by means of the hygrometer. The latter instrument is also in constant use for the purpose of regulating the condition of the air supply of the entire building to a healthy standard.

5. Many classes of chronic invalids can be more successfully treated and more rapidly restored to health during the winter months, if properly protected, than at any other season. There are hundreds who have found by experience that the winter climate of the South, while adapted to a small class of invalids, is by no means advantageous for the majority. To such the Sanitarium offers inducements in facilities for treatment and protection from the inclemencies and irregularities of the season, which are not offered elsewhere in this country.

6. Michigan is noted among the Northern States for the mildness of its winter climate. The editor of the

THE GLASS COVERED VERANDA

Rural Home, of Rochester, N. Y., wrote thus to his journal while on a visit here in February :—

"*Michigan Weather and Enterprise.*—I should hesitate more about undertaking a winter journey, if my fortune as a traveler were not so uniformly good. Such weather as has smiled on me the past week!—clear, mellow days, crisp, sparkling nights, the sunshine like a psalm, and the moonlight like a balm,—who could n't enjoy travel under the sun or stars? There is n't any snow in Michigan; there has n't been any since last April, worth mentioning; and I could fancy Indian summer here now, instead of February, if the papers told nothing about blizzards in New England, and blockades elsewhere. Each day for a week I've heard some old croaker say, 'It's a weather breeder; there's a storm coming; did n't you see the circle round the moon?' [Hang the man (in a very polite and easy fashion) who never sees any good thing that can last! But how surprisingly numerous he is!] And still the fine days do not end; the weather breeders breed delightfully.

"I believe Michigan has more sunshine to the acre than New York has, and why it should be so puzzles me, too. The State is three-fourths surrounded by water, and within its area the water surface is large. Yet I never spend a week or two among the Michiganders but that I find them blessed with more clear sky than New Yorkers enjoy. We in Rochester claim that Lake Ontario troubles our atmosphere! Why should not Lakes Huron and Michigan breathe mist over the whole Peninsular State, on the same principle? There are some interesting questions in Climatology that I propose to study up if the time ever comes when I may go a-fishing.

"I write this in Battle Creek, one of Michigan's smartest towns, where five or six years ago I spent two or three days pleasantly, and of which I then wrote at some length. It is a growing place, with decided manifestations of public spirit and private pluck. Its location is fine, and its surroundings attractive. There are manufacturing interests which compel growth and beget enterprise in the community; and these, I note, have enlarged their facilities vastly since my first visit. I have n't learned the city's present population—fifteen thousand will cover it. An Eastern air of refinement, culture, and good morals pervades the town, mingled with much of that go-ahead thrift so characteristic of the remoter West."

Prof. A. Winchell, formerly State Geologist of this State, and of world-wide repute, in his Climatological Charts of Michigan, remarks as follows respecting the climate of this highly favored State :—

"The sinuosities of the several [isothermal] lines will demonstrate at a glance the peculiar character of the climate of Michigan, and the fact that, both in summer and winter, it is better adapted to the interests of agriculture and horticulture, and probably also to the comfort and health of its citizens, than the climate of any other Northwestern State. The marked peculiarity of the climate of Michigan, in these respects, is attributable to the influence of the great lakes, by which the State is nearly surrounded. It has long been known that considerable bodies of water exert a local influence in modifying climates, and especially in averting frosts, but it has never been suspected that Lake Michigan, for instance, impresses upon the climatic character of a wood region an influence truly comparable with that exerted by the great oceans."

A Winter Palace.—Dr. Richardson, an eminent English physician and sanitarian, proposed the erection of what he termed a "Winter Palace" for English invalids, who, by the nature of their complaints, are compelled to spend the winters in France,

Italy, or on the shores of the Mediterranean. Dr. Richardson's idea is that a large building might be constructed in such a manner as to secure an equable temperature, with regulation of atmospheric moisture to suit the varying meteorological conditions, and supplied with such appliances as would give the inmates the advantages of a uniform mild climate, without the trouble and expense involved in a long journey to a foreign climate.

Dr. Richardson's scheme has never yet materialized in England, but from the description above given, it will be readily seen that the conception of this eminent scientist has a material representation. The idea of producing an artificial climate was quite original with us, and was matured and carried to the present perfect development before we were aware that Dr. Richardson had said anything on the subject, and we believe that we have demonstrated the possibility of producing an artificial climate that may even excel the most favorable natural climate in some particulars—since the most equable climates are subject to more or less variation. We are glad to know that the idea has the endorsement of so eminent an authority as Dr. Richardson, who proposes it as not only possible, but as a most desirable achievement of the future.

Aseptic and Medicated Atmospheres.—The well-known benefits derived from a residence in the germ-free atmosphere of high mountain regions and the ozonized, balsamic air of pine forests, has led to an appreciation of the benefits to be derived from the breathing of absolutely pure air, and the inhalation, continuously, of air containing in a thoroughly diffused form the various volatile balsams which have been found of special service as producers of ozone and as favorable to natural healing processes. This is particularly true as regards consumption, bronchial catarrh, and other diseases of the air-passages. It is undoubtedly true that the use of a medicament in a finely divided and diffused form continuously, is more likely to be attended by good results than the same remedy used at comparatively long intervals in a more concentrated form.

These considerations have led the managers to fit up suites of apartments especially for the use of this class of patients, the air of which is first filtered in such a manner as to render it germ-free, and is then charged with some medicament,—balsam of pine, spruce, benzoin, tolu, tar, whatever is best suited to the requirements of the individual case. In this way the patient is enabled to enjoy the advantages of the purest atmosphere, added to those of a residence in a pine forest, and is receiving the benefits of the health-giving properties of the agents employed, when asleep, as well as when awake. The advantages to be derived from the employment of medicated atmospheres, especially during the cold months, when the temperature and moisture are regulated, as well as other properties, are so evident that no further presentation of the merits of this new departure in the treatment of this class of maladies is required. We desire only to add that although we have for several years contemplated the introduction of this new measure of treatment, and have employed it in a limited way, it is only recently that we have perfected the system so as to be able to present it as an established addition to the facilities of the Institution.

Summer All the Year.—During the summer season, the spacious grounds about the Sanitarium are made most attractive by an abundance of flowers, foliage plants, palms, and other tropical plants. The groves are well supplied with rustic seats, and patients find no end of enjoyment in quiet repose beneath the green trees, lying upon rugs spread upon the grass, or swinging in hammocks stretched from tree to tree.

During the winter months a large greenhouse supplies the house with beautiful pot-plants; and flowers are never absent from the dining and other public rooms. Feeble patients are supplied with flowers in their rooms, and plants to care for when they desire.

The greenhouse is connected with the main building by an underground tunnel, through which patients have ready access to it during the cold months; and here they find a nice display of tropical and other flowering plants, palms, bananas, etc. One of the chief attractions is a large orange tree more than forty years old, which is always in full bloom, or hanging with the most delicious fruit.

THE SANITARIUM GREENHOUSE.

With these advantages, we feel confident that the Sanitarium is unrivaled as a home for those who demand special care during the winter months. As the public is becoming acquainted with these facts, our winter patronage has constantly increased, so that at the present time the number of patients is nearly as great in the coldest winter months as at any time during the summer season.

WHO OUGHT TO VISIT A SANITARIUM.

All invalids do not need the advantages of a Sanitarium, although most, or all, may be benefited by a short sojourn in such an institution as this, through the excellent dietary and regimen to be secured, the advantages for physical culture, etc. Nearly all invalids may be benefited; but we specially desire the patronage of those chronic invalids who have been long sick, and who are not likely to get well at home, yet whose cases are curable. It is a good plan for those contemplating a visit to some health resort, to consult their family physician, whose advice will be found a safer guide than advertisements in newspapers and flaming circulars.

Persons who may not be dangerously ill, may find it worth their while to spend a few weeks at the Sanitarium for the purpose of learning how to live healthfully. Mothers may gather information which will prove invaluable to themselves and their families, from the instruction imparted in the lectures which are given. Young mothers particularly may gather in a few weeks' stay here, knowledge concerning self-care and the care of their families, which will be invaluable.

The friends of persons whose cases have been pronounced hopeless, and which seem to be so, and of persons suffering with epilepsy or mental disease, should correspond with the Medical Superintendent respecting the case before bringing the patient here.

(To be Continued in our Next.)

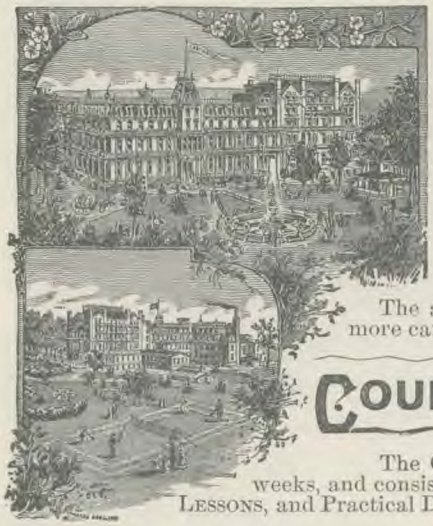
PHYSICIANS, INVALIDS, AND TOURISTS

Visiting the health and pleasure resorts of the Great West by the BURLINGTON ROUTE will be interested in the statements made herewith. In addition to the efficient service of the road and the comforts in travel which it offers, the statements made show the esteem in which the road continues to be held for other reasons.

THE TENDENCY OF ALARMISTS TO EXAGERATE TROUBLES OF A RAILROAD CORPORATION.

Every time the Chicago, Burlington & Quincy issues its monthly statement of earnings and expenses, the alarmists and sensation-seekers lift up their hands in horrified astonishment, and deplore the "reckless mismanagement" that has brought the once valuable property to the verge of ruin. The statements are never quite as bad as these same alarmists invariably predict beforehand, and yet it appears that they are always so dumbfounded when the actual figures come to light, that they have a hard time in finding adjectives enough to express the gravity of the situation. The secret of all this seems to be that the Burlington had a big strike on its hands some time ago, and refused to surrender. Apparently no attention is paid to the fact that nearly all the other Western roads are showing heavy decreases in earnings, as compared with last year, and some of these are the very roads that were supposed to have profited by the Burlington's loss of business during the strike. The only excuse these roads can offer for their poor exhibits is low rates and lean traffic, which, of course, affect their competitors as much as themselves. Little has been said about the June statement of the Atchison, Topeka & Santa Fe, yet the net earnings closely follow those of the Chicago, Burlington & Quincy, and show a loss of over 40 per cent. This road has had no such dismal experience as fell to the lot of the Burlington. Its drawbacks have been only those that were common to all roads similarly situated. And its loss in net earnings was $2,200,000 for six months. This is accounted for on the ground of the heavy falling off in the corn crop; and it is promised that when the new crop begins to move, the Atchison will make up its losses, and more too. If this is true of the Atchison, it is also true of the Burlington, which is acknowledged to be the greatest of all the corn roads in the country. If the critics want to know what companies are going to make the money, they have only to look at the roads that run through the corn belt,—the territory for six or seven degrees of latitude south of a line drawn from Chicago to Omaha, and extended. They will see that the Burlington takes the lead. The friends of this road are firmly convinced that it will be earning more than any of its competitors by January, and that the anniversary of the beginning of the great strike will find it again heading the list of the money-making railroads of the West. Its *protege*, the Burlington & Northern, is also showing an improvement in its earnings, and there are those who still believe in the future prosperity of that property. The prestige it has recently gained with Chicago shippers, coupled with able management and the ability of the road to handle through business profitably, at a rate so low that rival roads cannot compete without loss, are advantages which argue strongly in favor of the theory that the Burlington & Northern will yet rise above the difficulties that have handicapped it from the time it became a corporation.—*Chicago Times.*

SANITARIUM SCHOOL OF DOMESTIC ECONOMY.



THE necessity for scientific instruction in cookery and the various arts connected with housekeeping and home-making, has long been recognized. In foreign countries, particularly in England and Sweden, successful efforts have been made in this direction, but there is yet a very evident and urgent demand for this kind of practical education. In this country, especially, very few attempts in this line have been made, and those have been but partially successful. In view of the great need of a school of this sort, the managers of the Sanitarium have opened a

SCHOOL OF DOMESTIC ECONOMY.

The attendance at this School is already very large, but more can be accommodated.

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The Course of Instruction continues through twenty-five weeks, and consists of daily LECTURES, RECITATIONS, DEMONSTRATION LESSONS, and Practical Drills in the following subjects:—

Scientific Cookery, in all its Branches.

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" 2. A Healthy Stomach.
" 3. Stomach of a Moderate Drinker.
PLATE 4. Stomach of a Hard Drinker.
PLATE 5. Stomach in Delirium Tremens.
PLATE 6. Cancer of the Stomach.
" 7. *A.* Healthy Nerve Cells. *B.* Fatty Degeneration of Nerve Cells. *C.* Healthy Blood. *D.* Blood of an Habitual Smoker. *E.* Blood of a Drunkard. *F.* Blood Destroyed by Alcohol. *G.* The Drunkard's Ring. *H.* Healthy Nerve Fibres. *I.* Fatty Degeneration of Nerve Fibres. *J.* Healthy Muscle Fibres. *K.* Fatty Degeneration of Muscle Fibres.

PLATE 8. Smoker's Cancer. A Rum Blossom. A Healthy Brain. A Drunkard's Brain. A Healthy Heart. A Drunkard's Heart.

PLATE 9. *A.* A Healthy Lung. *B.* Drunkard's Consumption. *D.* A Healthy Kidney. *E.* Enlarged Fatty Kidney of Beer Drinker. *F.* Atrophied Kidney of Gin Drinker. *G.* Healthy Liver. *H.* Liver of Drunkard, showing Nutmeg Degeneration. *I.* Magnified Section of Fatty Liver of Drunkard. *J.* View of an Eye Diseased from the Use of Tobacco and Whisky. *K.* View of the Interior of a Healthy Eye.

PLATE 10. Alcoholic Drinks, showing the percentage of Alcohol contained in the common Alcoholic Beverages. Adulterants of Alcoholic Drinks, showing a list of various poisons used in adulterating the various liquors. Sphygmographic Tracings of the Pulse, showing the effects of Alcohol and Tobacco upon the pulse. *A.* Pulse of a Healthy Person. *B.* Pulse of a Moderate Drinker. *C.* Pulse of a Drunkard. *D.* Pulse of an Old Tobacco User. *E.* Pulse of a Young Smoker.

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STATIONS.	A. M.	A. M	P. M	P. M.	P. M.	P. M.	P. M.
Chicago.....*	5.00	9.00	d 3.10	d10.10	d 9.10	4.40	.....
Michigan City.....†	7.23	11.03	4.54	12.23	11.27	6.57	.....
Niles.....‡	8.37	12.10	5.49	1.5)	12.55	8.20	4.00
Kalamazoo.....§	10.26	1.33	6.58	3.35	2.27	PM9.5) AM7.10	5.38
Battle Creek.....	11.15	2.15	7.39	4.27	3.15	7.5)	6.30
Jackson.....¶	1.20	4.15	8.49	6.15	4.45	9.35	8.20
Ann Arbor.....**	2.43	5.30	9.41	7.50	6.00	10.40	.....
Detroit.....††	4.10	6.45	10.45	9.20	7.30	11.50	.....
	P. M.	P. M.	P. M.	A. M.	A. M.	A. M.	P. M.

TRAINS WEST.	Mail.	Day Exp's	Ch'go Exp's	P'cific Exp's	Eve'g Exp's	Kal. Acc'n	Local Pass.
STATIONS.	A. M.	A. M.	P. M.	P. M.	P. M.	P. M	A. M
Detroit.....††	7.30	9.10	d 1.20	d10.15	d 8.00	4.00	3.45
Ann Arbor.....**	8.51	10.40	2.24	11.35	9.15	5.30	5.00
Jackson.....¶	10.18	11.45	3.27	12.54	10.55	7.10	6....
Battle Creek.....	12.09	1.23	4.38	2.15	12.27	8.52	7.55
Kalamazoo.....§	12.50	2.04	5.15	3.07	1.20	PM 5. AM4.45	8.40
Niles.....‡	2.27	3.27	6.27	4.32	3.07	6.30	10 10
Michigan City.....†	3.48	4.25	7.32	5.43	4.32	8.0	.....
Chicago.....*	6.10	6.40	9.30	7.45	7.00	10.20	.....
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Time Table in effect June 24, 1888.

GOING WEST. Chico Pass.	Mail.	Day Exp.	Pacific Exp.	B. Crk Pass.	STATIONS.	GOING EAST. Mail.	Lmtd Exp.	Atlte Exp.	Sou. Pass.	Pt H'n Pass.
.....	am	am	pm	pm	Dep. Arr.	pm	am	a m	.....	am
.....	5.55	7.15	3.05	4.10	.....Port Huron.....	10.20	1.15	7 35	.....	10.50
.....	7.28	8.31	9.34	5.40	.....Lapeer.....	8.42	11.57	6 17	.....	9.17
.....	8.05	9.10	10.15	6.20	.....Flint.....	7.56	11.27	5 40	.....	8.40
.....	8.48	9.35	10.58	7.29	.....Durand.....	7.05	10.58	5 08	.....	8.05
.....	10.00	10.30	11.53	8.26	.....Lansing.....	5.20	10.07	4.00	.....	6.45
.....	10.37	11.00	12 25	9.03	.....Charlotte.....	4.42	9.37	3.25	.....	6.15
a m	11.30	11.45	1.15	10.05	A {BATTLE CREEK} D	3.45	8.55	2.35	.....	5.30
6.30	am	12.05	1.20	pm	D {BATTLE CREEK} A	3.40	8.50	2.30	.....	am
7.15	.....	12.50	2 21	——	.....Vicksburg.....	2.52	8.11	1.44	.....	——
7.25	——	1.00	†2.32	Val.	.....Schoolcraft.....	2.40	....	1.33	.....	Val.
8.13	Sun.	1 50	3.19	Acc.	.....Cassopolis.....	1.50	7.20	12 45	.....	Acc.
8.55	Pass.	2.30	4.07	——	.....South Bend.....	1.05	6.50	12.00	.....	——
10.05	am	3.43	5.30	am	.....Haskell's.....	11.54	....	....	pm	pm
10.20	7.20	4.00	5.50	6.55	.....Valparaiso.....	11.40	5.30	10.30	3.40	7.00
12.40	10.00	6.25	8.10	9.45	.....Chicago.....	9.05	3.25	8.15	1.15	4.25
pm	am	pm	am	am	Arr. Dep.	am	pm	pm	pm	pm

†Stops only on signal. Where no time is given, train does not stop.
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