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DECOMPOSING ORGANIC MATTER.*

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MR. PRESIDENT, LADIES AND GENTLEMEN,—The subject which has been assigned to me by the secretary of this Convention is a most unsavory one; a subject in which one will look in vain for anything entertaining or interesting except from a practical standpoint. The very thought of decay, or decomposition, is repulsive to most persons, and the presence of decay is in the highest degree obnoxious to an undepraved nature. The occupation of the scavenger, although an obvious necessity in a civilized community, is by most people regarded as a few degrees below that of the hangman. Antipathy to dirt, or at least to filth, is characteristic of all the higher animals, man included. The robin takes its morning bath, and carefully cleans from its feathers every trace of impurity. Many animals show distinct traces of the scavenger instinct, and keep both their bodies and their homes in a good sanitary condition by an instinctive observance of some of the most important principles of scientific sanitation. The dry-earth system of disinfection was employed by more than one class of the brute creation before it was enforced by Moses, or described in any text-book on sanitary science.

Viewed from a practical standpoint, few subjects are of more consequence than the one we are considering. In an æsthetic sense, it is repulsive. In a sanitary sense, it is all-important. The pictures which it presents to the imagination are not such as to please or entertain, but they may be such as to edify. In order to accomplish the latter result as thoroughly as possible, I shall endeavor to present the subject in untechnical terms, even at the risk of sometimes wounding the æsthetic sensibilities of my hearers.

Organisms associated with Diphtheria.

The decomposition of organic matter is one of the most common of every-day phenomena. The various forms of vegetable and animal life which make up the organic world are constantly passing through the change which we call death. Every living thing, from the delicate little fungus which springs up in a night and fades at the first glance of the morning sun, to the stalwart oak which braves the frosts and gales of centuries, obeys the mandate, "Dust thou art, and unto dust shalt thou return." Every tempest shriek is a wail of woe for the death of a monarch of the forest or of a king among beasts. Every leaflet's rustle or brooklet's ripple is a requiem sung to the death of a million blooming flowers or humming insects. Every instant countless myriads of creatures in earth, air, and water fall victims

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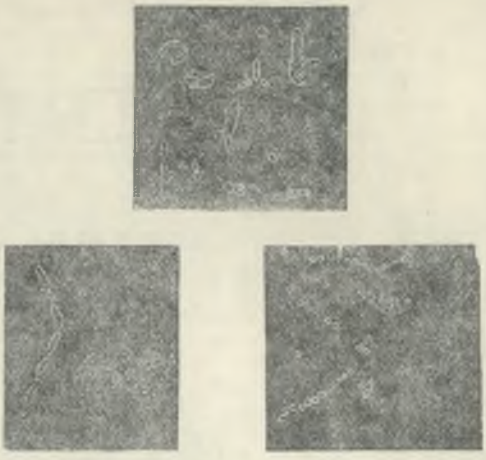
to the great destroyer. The whole world is one vast charnel-house. The soil we tread upon is strewn with corpses. The air we breathe, the water we drink, is often teeming with the carcasses of organic beings which have finished their life-work, and given place to a new generation, which will soon meet the same fate as its predecessors.

The universal dominance of death is often used to point a moral lesson, and with telling force it appeals to the sentiments; but to the sanitarian it has much more than a sentimental significance. Science points out with unmistakable clearness the fact that each death is accompanied by danger to the living as well as misfortune to the victim. The chemist carefully scrutinizes the phenomena of death, and discovers that when the body of a plant or animal returns to its primitive dust, certain gases and other products of a noxious character spring into existence, which have the property of disseminating the cruel contagion of death so far as their influence may extend. To these, the products of decomposition, the sanitarian directs his attention.

As before remarked, chemistry brings to light poisonous gases, the presence of which is confirmed by the sense of smell; but the microscope makes a still more important discovery; viz., the presence of myriads of minute specks of life, to which the name of *germs* has been attached. Wherever decomposition is taking place, these organisms are present in countless numbers. It is perhaps a question whether they are a product of decomposition, or its cause; but it is certain that they are never absent from the process of decay. Infinitesimal in size,—so small that millions may range with unrestricted freedom in the smallest drop of water,—they are yet more potent for harm to human life and health than all other agencies combined. Undoubtedly these are the active agencies which give rise to the terrible typhoid fever which annually carries off thousands of victims, to dysentery, cholera, diphtheria, yellow fever, the plague, and a long list of diseases, the exact number of which is not yet known.

There is some difference of opinion respecting the exact nature of the germs which give rise to different diseases, and as to the exact mode of their development and transmission; but it is certainly settled that decomposing matter furnishes a fertile soil for the development of the germ-causes of the diseases mentioned, and many others.

Noxious gases and disease-germs are usually associated together,—a fortunate fact, as it enables us to detect the danger-



Illustrations showing Virus of Hog Cholera. Stages of Development.

ous character of an infected atmosphere without the trouble of a chemical analysis. It is possible for the air to be swarming with disease-germs without an offensive odor being present; but it seldom happens that we have an odor of putrescence without the presence of noxious germs. It is perfectly safe to say that a foul-smelling air is a dangerous air. If our eyes were microscopic, we should daily, hourly, behold sights that would appall the stoutest heart.

Perhaps we may with profit consider for a moment some of the most common sources of these deadly enemies to human life. We need not seek long for an illustration of the source from which these unseen foes sally forth to prey upon our dearest friends and ourselves. Let us picture to ourselves an average human habitation. We have a fine, commodious dwelling, ample room, plenty of comforts of every sort, every convenience that money can procure or ingenuity devise. It would seem that the occupants ought to be hale and hearty, but they are not. Every now and then Death makes a visit to the household, carrying off its brightest members, ruthlessly slaying father, mother, brother, sister; the strong man, or the feeble infant. Why this sacrifice, this cruel slaughter? Who are the invisible monsters invading this happy circle? In olden times it would have been said, "An

evil spirit hath done this;" but the days of witchcraft and superstition have gone by, and we must look for some more rational solution of the mystery.

Let us look around. We will begin our investigation at the lowest portion of the house, and proceed to examine the cellar. The sense of smell at once informs us that a quantity of decaying vegetables is accumulated there, having been undisturbed perhaps for months, and is pouring forth into the air deadly emanations, the effects of which have already been described. Through the open cellar-door, through small cracks in the floor, through the porous partitions, and through a thousand channels, this stagnant, poison-laden air finds its way to the living-apartments of the house, and into the lungs of the occupants. Every nook and corner of the dwelling is haunted by that pestilential, disease-producing odor.

We ascend to the kitchen. Here we find an accumulation of what everybody recognizes as kitchen-smells. In one corner stands the antiquated wood-box, the mute receptacle of a hundred things besides its daily supply of fuel. If the witness were not mute, we might listen to a surprising tale of sanitary transgressions connected with that homely piece of furniture in the corner. Let us turn out upon the floor the contents, and scrutinize them. Shade of Hygeia, what a smell! The nose makes protest with a sneeze. Suppress your emotions, and proceed to examine. Rotten bark, decomposing apple-cores, odds and ends of almost every imaginable eatable, the remnants of the cozy nest in which several generations of house-mice have been reared,—a moldy, putrescent conglomeration of everything perishable that enters a household, teeming with filth, redolent with putrefaction, and crawling with vermin,—such are the contents of the average kitchen wood-box. Not a few such have we seen, and a still larger number, out of sight, but conveniently near, we have smelled!

In another corner is the inevitable "sink," made of wood, and saturated with decomposing "dish-water." Hiding in its secret corners are ancient rags in an advanced state of decay; and the drain-pipe, connected with its bottom, affords an open channel for the ingress of pestilential odors from the cess-pool just outside the door.

The plastered walls, saturated with the accumulations of a quarter of a century, pour forth an odoriferous stream of gaseous filth, which is unobserved only because overpowered by the other sources of contamination.

But we must not omit to take a peep into the pantry close at hand, before proceeding elsewhere with our investigations. I wonder if the Goddess of Health ever looked into a modern pantry! If she did, it is a marvel that she did not send her emblematic serpent on a mission of punishment among the cooks, for such flagrant infractions of her laws. Our olfactories are the only guide necessary to enable us to discover the whereabouts of the precious corner where are hoarded the provisions for daily consumption by the family. An odor of sourness which betrays unmistakably the presence of decomposing milk, leads us to the doorway of the pantry, and we enter to make a closer inspection. With the exception of a few pans of milk which has lost its useful properties, and acquired some which are not useful, all looks neat and orderly; but a musty odor, not perceptible, perhaps, to those who have become accustomed to it, but apparent and significant to the sensitive olfactories of a sanitarian, attracts our attention to sundry drawers and corners which might otherwise have escaped notice. We will not pain the sensibilities of our hearers with all the possible revelations from an investigation of the hidden recesses of the ordinary pantry. Fragments of moldy bread, stale food of various kinds, perhaps a churn, with its souring, fermenting contents, awaiting the weekly churning-day, are but a few of the items which would be included in a complete inventory. It is a magnificent place for germs of every description to hold high carnival. And they do. Every housewife knows that a pan of new milk placed in a close room or pantry with a pan of sour milk, sours much sooner than if set in a perfectly fresh and wholesome place.

Let us take a look into the sitting-room, the chief living-room of the house. Here, again, we are pretty sure to find a wood-box, nicely papered or painted outside, but no less uninviting inside than its humble brother in the kitchen. We find no kitchen-sink with its unsavory odors, but the source of contamination is within easy smelling distance, and so is still able to do its work of mischief. So, too, the putrescent fumes from the cellar and pantry are plainly discernible, and

the walls are covered with a layer of decomposable matter condensed from the vapors rising from the cooking of vegetables, boiling of soiled garments, and other culinary and domestic operations. Many other such layers have been formed and buried by the new layer of paper and paste added every two or three years, or oftener, until, as we have seen in some instances, as many as eight or ten layers may be counted. Where could a more fertile field for germs or parasitic fungi be found?

A dark spot a foot or two in diameter in one corner marks the place where, as

Green Mold.

the housekeeper says, the paper has been stained as the result of a defective roof. A close inspection shows something more than a stain,—a flourishing crop of mold. Put a speck of that same mold under the microscope, and we behold a forest. Every twig bears fine, large, round fruit, which consists of sacs filled with minute specks called spores. Some of the sacs are ripe and bursting, throwing the spores with which they are filled in every direction. This is what is taking place on the wall, and those same spores fill the air in every direction, getting into the dough and making the bread sour, creeping into the fruit-cans, stealing into the pantry, and spoiling the labor of the housewife in a hundred ways, besides creating a musty odor which is constantly inhaled by the occupants of the house, and possibly conveying to them the seeds of disease and death. A beautiful carpet upon the floor conceals beneath its delicate shades a conglomerate accumulation of contributions from every source of impurity within the dwelling and without. Let the children romp about the room a few minutes, and see what a cloud of witnesses arise to testify that the shades of death are lurking just beneath its graceful patterns. Every day in the year this Pandora is compelled, by a vigorous application of the housewife's broom, to send out its miscellaneous store. Each sweep of the broom sends up a cloud of germs, and spores, and decomposing and decomposable fragments, garnered from the kitchen, the yard, the street, the gutter,—a thousand sources,—until the air becomes almost as opaque as the densest fog. Every living occupant of the room prudently retires, even to the household cat, except the sweeper, who plies her broom with industrious activity, with head and nose enveloped in the folds of a handkerchief, to act as a protector and a strainer. When the commotion is ended, the dusty filth settles upon the tops of book-cases, cupboards, and other articles of furniture, among the folds of lace window-curtains, upon the ceiling and walls of the room, and wherever it can find a lodgement. Pretty soon the housekeeper comes back, and with a duster stirs up anew the dust which has settled upon tables, chairs, window-sills, picture-frames, and other articles within easy reach, driving it up to higher lodgement, from which it is destined to be constantly swept by currents of air, movements of windows, swinging of hanging articles, and in various other ways, to be breathed, after all, by the daily occupants of the house, who thought to escape by avoiding the commotion created by the morning's sweeping. Such air, like the mines of Nevada, has "millions in it," all alive, and ready to develop, in a fertile soil, into disease and death.

But we have not seen all yet. Here is the parlor, with its close, fusty smell and its chilly dampness. An "odor of sanctity" pervades the place. It is sacred to use on great occasions, when its death-dealing walls are made to witness the still more deadly depredations of a fashionable festival. Upon its cold walls are condensed the steam from kitchen and wash-

room, and the organic filth carried with it. "What makes the walls of my parlor sweat so?" has been asked me many times by housekeepers who were annoyed by the dampness of their parlor walls and ceiling, often giving rise to mold and mildew. The explanation is already given. The sunshine never gets into this sacred corner of the dwelling, or at most only a glimmer now and then. Its walls are never disinfected by the sun's full, warm rays. Hence its air is constantly charged with death-dealing properties, which are ready to exhibit their potency whenever a favorable opportunity affords.

And there is the parlor bedroom, a veritable man-trap, containing all the dangers enumerated for the contiguous apartments, and more. How many a useful clergyman has been sacrificed at the very height of his usefulness by incarceration in one of these sanitary—well, I came near using a very significant word, but one not a whit too significant to express the utter unfitness for occupancy by any human being, of the average parlor bedroom.

How many an itinerant missionary has arisen from his bed after a night spent in such a place, with rheumatism or consumption fastened upon him. I can easily recall many horrible nights spent in such a place, when boarding around as a district school-teacher, fifteen or sixteen years ago, and shudder at the recollection.

Let us ascend to the upper part of the house. Here, you may say, we shall find a better condition of things. No kitchen with its foul smells, no pantry with its decomposing food, less dust, and no wood-boxes; but we must not congratulate ourselves too soon. Here is an open stairway in direct communication with the lower rooms; and the heated air from below which ascends to the apartments above, carries with it its gleanings from cellar, sink, pantry, dusty carpets, moldy walls, fermenting wood-boxes, and the various contributions to the insanitary conditions of the house, so that the upper rooms become a receptacle for the overflow from below. Closets, garrets, and unventilated rooms above, become, in time, charged with most virulent enemies to health.

We have not yet by any means finished our indoor inspection, but we must hasten, so let us take a hurried survey of the exterior.

Before we pass to the outside, let us pause a moment to ascertain, if possible, the cause of that peculiar sickening odor which seems to emanate from the hall. The occupants of the house say they noticed a bad smell there last fall, and now, as the warm days of spring are coming on, it has reappeared. What is it? Each member of the family has sniffed it, and scolded at it, and echoed "What is it?" a hundred times. It is not moldy walls, nor foul wood-boxes; gas from the sink-pipe, nor decaying vegetables in the cellar; sourness from the pantry, nor ancient dust from under the carpet. Possibly it may be something under the floor. No one has ever taken the trouble to look and see, as the space under the floor is not spacious enough for one to visit without considerable inconvenience, and so the matter has not been investigated. Besides, there is no ready means of access to the inclosure, except by making a hole through a stone wall. Suppose we step outside and undertake the task. What do

Destruction of Blood Corpuscles by Bacteria.

Virus of Fowl Cholera, with Oval Blood Corpuscles of the Fowl.

we find? Perhaps a dozen rats that were fed arsenic in the cellar or pantry, and sought out this as a convenient place to die in; or may be maliciously thought to retaliate for their own poisoning by poisoning their destroyers. Perhaps the pet rabbit which so mysteriously disappeared a few months ago, apprehending approaching death from surfeiting, has sought this secluded spot to breathe his last, as evidenced by his decomposing remains. At any rate, there is great need of the services of a scavenger, and we wonder how it would be possible to invent a more

ingenious contrivance for accomplishing the physical ruin of the family, if such a fiendish design were to be executed.

Now let us glance around a little. The front yard is orderly and inviting, of course. Graveled walks, a smoothly-cut lawn, a few elegant shrubs and evergreens, all suggest the highest degree of neatness and good taste. Let us step around to the back yard. What a contrast! Close by the door stands a garbage-barrel which testifies to at least two of the senses that its history goes far back into the dim past. Once a week the milkman comes with a cart and empties the unsavory receptacle, stirring to the bottom its reeking contents. (Let me whisper in parenthesis that some of the same comes back in tin cans and earthen jars. Swill-milk is not an unknown article, even in rural districts, when hay and grain bring a good price.) At all hours of the day and night, this half-rotten receptacle of decomposing organic matter sends out upon the air its filthy emanations.

Near by is a brown-looking spot of earth, over which are crawling eagerly myriads of the first insects of the season, and from which ascends a noxious vapor, visible in the cool morning air, and not difficult to discover, if not visible, by its pungent, nauseating odor. This, the gardener explains, is the dumping-place for the dish-pan and the wash-tub since the drain-pipe became clogged, a few months ago. Frozen up during the winter, it was annoying only by its unsightly appearance; but now that the vernal sun has come, the accumulation of months sends forth a constant stream of noisome smells, which are too often experienced to need further description.

A rod or two from the house we notice a little depression in the ground. This, we learn, is the location of the cess-pool. The boards which once formed its roof have rotted away, and allowed the overlying earth to drop into the receptacle beneath, which originally consisted of a bottomless box or barrel, half-filled with stones, and connected with the kitchen sink by means of a long wooden box. The wood has now nearly disappeared, a few rotten fragments only remaining. Out of this putrescent hole arises a stench which finds no counterpart elsewhere than in a similar contrivance for domestic poisoning. Horrible, nauseating, loathsome, are faint words to describe the dense vapors which ascend from this repository of liquid filth.

A few feet distant is an edifice which we are at a loss to know how to describe. A correspondent was in the same predicament, when he sent us a clipping for publication, which he said was "rescued from a place consigned to infamy." The edifice referred to probably ought to have been consigned to infamy, if it had not been, and the same should be said of most others of the same class. Though carefully guarded from observation by a close lattice, covered by clambering vines, its presence is easily detected, and that without close proximity. How often, as we walk along the streets at night, does the air, which Heaven sends us pure, sweet, and potent with life-giving energies, come to us laden with poisonous exhalations from dozens of such sources, and freighted with the agencies of death! The vault of of an out-house often becomes a much more dangerous enemy to human life than a powder-magazine or a nitro-glycerine factory; yet the latter are by law required to be located far apart from human habitations, while the former is tolerated in the closest proximity to human dwellings, often even under the same roof with human beings.

In the midst of all these sources of the most dangerous filth is located the well, from which is to be daily drawn one of the most essential of the necessaries of life. Is it any wonder that the cup of life is often transformed into the cup of death? Only think of the condition of a family with death enthroned in the well, and daily dealing out his poisonous draughts to its members! The mysterious Providence which deprives a family of its loved ones through the agency of typhoid fever may, in a majority of instances, be proved to be a mysterious connection between the well and a privy-vault or cess-pool.

A settler in a new country generally digs two holes in the ground after erecting his humble cottage. Into one go es all the filth and offal; out of the other comes all the water for family use. These holes are usually so near together that the contents mingle, so that what goes into one comes out of the other. In an old-settled country, a man, in making a home, digs two or three holes for filth and one for water, so that the latter is often surrounded with the former. As most of the water from the well is returned to the holes for the

reception of filth, a very large share of it may find its way back to its original source,—a very economical arrangement when the water-supply is short, so far as the water is concerned, but not to be recommended if health and long life are valuable.

If we inquire for the location of the cistern, we shall very likely find it under the house, and conveniently near the drain-pipe, so that in case of leakage of the pipe, the foul water from the sink may find its way with the greatest facility into the cistern.

At no great distance we may find a stable, with its filthy accumulations, which are drenched by every rain, and contaminate the soil for many feet around and to an unknown depth. Here is another probable contributor to the water-supply. We have seen scores of wells located in the barnyard, so as to be convenient for watering the stock, but used for culinary purposes as well, if not in any other way, in the form of milk, beef, pork, or mutton.

Some one may say the picture is highly colored; but the experienced sanitarian will certainly say we have not told half the truth. If our eyes were microscopic, we should see about us in many of the houses we visit—perhaps in the very ones in which we reside—a spectacle more surprising than that which met the gaze of the man of old whose eyes were opened for a moment, enabling him to see a mountain covered with armed hosts who were invisible to his natural eyes. But the hosts we should see would not be an army of brave soldiers coming to rescue us from disease and death, but the emissaries of death in countless numbers, intent upon our destruction, ready to pounce down upon us at the first favorable opportunity, rack us with pain, and finally devour us.

[CONCLUDED NEXT NUMBER.]

FOOD OF THE JAPANESE.

IN noticing a recent report sent to this Government by Thomas B. Van Buren, U. S. Consul-General to Japan, the *Scientific American* remarks as follows:—

"Among the many reports returned to the State Department at Washington by our consular agents abroad, this report on the food of the Japanese people is of exceptional interest. The subject has been investigated with a thoroughness which makes the report a scientific monograph of no mean order; and the subject itself has especial interest in its bearing on the question how far the characteristics of national life are determined by a people's food. It has happened that most, if not all, of the more forceful and active nations of the West have been large consumers of meat. So markedly has this been the case that it is commonly accepted as a truth practically demonstrated that a well-fed, capable, progressive people must of necessity consume a large proportion of animal food. It gives this theory something of a set-back to learn that the most progressive of Oriental nations, the Yankees of the East, as they have been called, are almost exclusively eaters of vegetable food. The masses do not eat meat, simply because they cannot afford to eat it. Beef cattle are scarce, and mutton and pork still scarcer. Domestic poultry and wild fowl are so costly that even the well-to-do partake of them sparingly and only on special occasions. Fish are comparatively plentiful, and are more largely eaten; so that it is estimated that half the people eat fish every day, one-quarter two or three times a week, the rest perhaps once or twice a month. Nevertheless, the food of the masses is nine parts out of ten vegetable. Yet the Japanese are well-fed, and though of small stature, are well developed physically, and capable of sustaining severe and long-continued mental and physical labor.

"Their physical and intellectual superiority to the rice-eating Bengalese—so far as determined by the nature of their food—may perhaps be attributed in large measure to the prominent place given to highly nitrogenous plants of the class known as leguminous. More than forty varieties of peas and beans are cultivated. The richly nutritive soy bean properly supplements the rice, which plays so large a part in the national diet. After rice, the cereals most cultivated are, in order, barley, millet, wheat, rye, and Indian corn. The sweet potato takes the first place among tubers, the annual product being sixteen million bushels. This crop is rivaled by that of the large white and highly odorous radish known as 'daikon.' Carrots, turnips, parsnips, and the like, are very largely eaten. The entire list of food plants covers a dozen long columns. Most of them have no western equivalents, though many of them, no doubt, might be profitably introduced among us."

THE BATHS OF ANCIENT TIMES.

THE use of the bath has existed, in al probability, from the beginning of the world, since it is founded in the most natural wants of man. The necessity of maintaining the cleanliness of his person, of defending himself from the heat of a burning sun, and of seeking refreshment after the fatigues of the chase, war, or labor, must have taught him, from an early period, the advantages derivable from bathing. But in barbarous ages, in which art has as yet accomplished nothing for the convenience of life, men merely plung d into rivers, streams, fountains, and o her natural reservoirs of water. They were far from dreaming of the erection of apparatus by means of which they might be enabled, as at a later period, to take their baths at any time, season, or place, and of an agreeable and salutary temperature. Doubtless the discovery of hot springs, which must have existed then, as in our own times, at various parts of the earth's surface, suggested to them the happy idea of communicating different degrees of heat to the water they employed, and of erecting more commodious and less dangerous receptacles. It was among the nations of the East, the earliest reapers of the benefits of civilization, that industry and the arts made the first efforts to satisfy the wants of men, and perpetuate the taste for, and the employment of, warm baths. The custom was carried from Asia to Europe by the colonists who successively established themselves in Greece, Italy, Iberia, and Gaul.

Greece knew the use of warm baths in the time of Homer; for mention is made of them in several passages of the writings of that poet, and among others, when he depicts the delicious life led in the palace Alcinous, and when he relates the reception given to Ulysses by Circe. Among the Greeks, the Lacedæmonians were the first, according to Thucydides, who adopted the custom, borrowed from Asiatic nations, of appearing naked at the public games; anointing themselves with oil, and covering themselves with sand, prior to the contest, and then plunging into hot baths. But the employment of baths in private families was not even yet very general in the time of Hippocrates. This prevented his recommending the bath in many diseases which called for its adoption. As to the public baths, they formed part of the *gymnasia* to which they were attached.

The Romans were accustomed, in the early period of the republic, after a day employed in labor in the fields, to wash only the arms and legs; and every ninth day, when they came to the city to be present in the assemblies for State business, they bathed the entire body. At that period the Tiber or neighboring streams formed their bathing resorts, vapor and hot-water baths being scarcely known to them. It was only at a late period that they thought of establishing public or private baths. The city, by reason of its situation on hills, presented great difficulties for the conveyance of water. It was not until about four hundred and fifty-one years after the foundation of Rome that water was brought, for the first time, from Tusculum, by means of an aqueduct constructed by the censor Appius Claudius. Aqueducts were multiplied afterward; and baths, or *thermæ*, were constructed in various parts of the city, characterized as yet by the ancient Roman simplicity, as may be seen from the description of that of Scipio Africanus, left us by Seneca.

The new custom which the Romans adopted toward the last years of the republic, of atatching baths to the gymnasia, rendered them indispensably necessary; and the frequent application which physicians, from this period, made of them in the treatment of disease, powerfully contributed to the increase and embellishment of these salutary and useful structures. But it was not until the reign of Augustus that they began to give to their warm baths that air of grandeur and magnificence which is yet to be observed in the ruins which remain. The public baths should, in fact, be justly considered as the most remarkable structures of the Romans. Their founders were princes, who, in their anxiety to conciliate the good-will of the people, endeavored to surpass all that had been executed before their time. To conceive a just idea of them, we should examine the plans of the principal edifices, as traced by Palladio. In beholding his designs of the basreliefs and pictures which adorn the walls and ceilings, we are at once astonished at the perfection of the objects they represent, and at the exquisite purity of taste which then prevailed in the arts. Much more than this: we find ourselves forced to acknowledge that all the efforts of

modern art in the decoration of our palaces, museums, and churches, are in general but servile imitations of the wonders which the baths of Agrippa, Nero, Titus, etc., offered, near two thousand years ago, to the admiration of the Roman people. The rarest marbles, precious vases, bronzes, columns, statues from the chisel of the greatest masters, and gildings skillfully applied, contributed to the brilliancy of the interior of these gigantic monuments.

It is difficult to enumerate the immense number of uses they were devoted to. Besides the vast basins, and the thousands of recesses (the thermæ of Dioclesian contained three thousand) appropriated to the different baths, there were found there theaters, temples, amphitheaters, palaces, festive halls, vast open promenades planted with trees, schools frequented by youth, academies where learned persons assembled for discussion, and libraries to which every one might freely resort.

The most complete establishments contained numerous departments devoted to the various processes connected with an elaborate system of bathing. The bather, after having undressed, was conducted into the *unctuarium*, where his body was freely anointed with strong oils; afterward, in an adjoining apartment, it was covered with sand or powder. He now repaired to the *sphæristerium*, an immense hall or rotunda, in which he engaged in wrestling, or other gymnastic exercises calculated to develop physical power. When the locality admitted it, the sphæristerium was uncovered, and exposed to the sun; or, rather, in the best-appointed baths, there were two sphæristeria. The various games were continued until the sound of a bell announced that the vapor and hot-water baths were ready. To these the crowd of bathers now proceeded, each person taking his seat on a marble bench, placed below the surface of the water, around immense basins, wherein swimming might be executed when agreeable. While here, they diligently scraped the skin with a species of ivory or metal knife, termed a *strigil*, by which they detached all impurities from the surface. The *tepidarium*, or tepid bath, and the *frigidarium*, or cold bath, were finally employed for a short time, for the purpose of bracing the pores of the skin, relaxed by so long a proximity of moist heat. Before dressing, those who desired to employ perfumes, again repaired to the unctuarium.

The baths belonging to private persons differed, of course, from those devoted to the service of the public, as each person followed his own taste in their construction. The same apartment sometimes served for various purposes; and the modifications of form, etc., were as numerous as those of the fortune and the luxurious taste of their proprietors. It was, indeed, the fashion to exhibit an almost insane luxury; and thus we find Pliny addressing severe reproaches to the ladies of his time, who covered the floor of their baths with silver.

The baths of the ancients, although usually built after a similar plan, yet offered a notable difference. At Rome, even in the most splendid establishments, the greater portion of the extent of the edifice was appropriated to baths, properly so called, which obtained for them the name of thermæ, from the Greek word *thermos*, heat. But with the Greeks the gymnasium occupied almost the entire structure, the bath itself being but of very limited dimensions. This difference exhibits the passion for bathing which seized the Romans toward the end of the republic, and continued to possess them until the fall of the empire.

At first, the public baths were only opened at two o'clock in the afternoon, and closed at five, the sick alone having the right to enter them at any time. Latterly, the emperors, wishing to conciliate the people by their favorite amusement, ordered the doors to be opened sooner and closed later. Nero had them opened at twelve; Alexander Severus allowed the bath to be entered from the break of day, and even furnished at his own expense lamps and oil for lighting them. From that time the Romans may be said to have passed their lives at the baths. They frequently bathed twice a day; and hot water constituted one of the indispensable elements of their existence. We must not, however, attribute this singular passion exclusively to fondness for bathing. The desire and hope of meeting with friends, of discussing the topics of the day, and passing the time agreeably, were no less powerful motives.

Pliny relates a fact which proves the singular jealousy with which the Romans regarded all things relating to their baths. A statue of a bather scraping himself with the strigil, was placed in front of the thermæ of Agrippa. It was executed by Dysippus, and of such mar-

velous beauty, that Tiberius, who admired it more than any other statue in Rome, had it removed to his own bedchamber. The populace, unable to bear the deprivation, covered him with insults until he had restored it.

One of the greatest largesses an emperor could confer on the people, on an occasion of public rejoicing, was to decree gratuitous admission to the baths. So great was the passion prevailing for this pastime, that when Rome was laboring under fear, and mourning on account of frightful calamities which had afflicted her, Titus, in order to dissipate these, ordered the rapid construction of the thermæ and the amphitheater, which still bear his name.

The baths were frequented indiscriminately by persons of all ranks. The noblest and richest persons there found themselves mingled with the poorest plebians. The following anecdote, related by Spartian, leaves no doubt upon this point. The Emperor Hadrian, he says, frequently bathed with a crowd of people. One day he perceived an old soldier, who, having no person to cleanse his skin for him, contrived a substitute by rubbing his back against a wall. Hadrian, who had known him in the field, inquired why he did this. He replied, "Because I have no servant." The emperor immediately ordered him some slaves and a pension. The news of so benevolent an action, performed before so many witnesses, quickly spread into every part of Rome; and the next time Hadrian came to the public baths, several old men did not fail to be there also, and endeavored by the same means to attract the notice and generosity of the prince. But the emperor, who had remarked the contrivance, far from treating them as he had done his old companion in arms, caused strigiles to be distributed to them, and ordered them to employ them by assisting one another.

It was not only the city upon the seven hills which contained public and private baths. They existed in all the towns of Italy, and in the palaces of nobles and freedmen. They were found also in all the Roman provinces. In our time even, it is easy to perceive the vestiges of the Roman thermæ in every country which formed a portion of the empire.

The greater number of these magnificent edifices, which, during the most illustrious period of the empire had constituted the pride and delight of Rome, were destroyed by the vandalism of the barbarian hordes. Those which were not pulled down were otherwise employed, or, being no longer repaired, gradually fell into ruins. Baths, which formed one of the requisites for the effeminate and luxurious life of the Romans, were, for the warrior and invading nations, mere means for the preservation of cleanliness. Thus the new conquerors were satisfied with taking a bath, as in the time of Scipio; and their slight taste for luxury never inspired them with the idea of erecting monuments resembling those which decorated the ancient city of the masters of the world. Utility and cleanliness were the only objects held in view in the construction of the thermæ which were henceforth erected in Italy or the other countries of Europe. We find, by the "Ephemerides Troyennes," that baths were much frequented during the whole of the Middle Ages, until the sixteenth century,—the epoch at which the use of linen became general.

Although the increasing use of linen has much diminished the hygienic necessity of the bath, and has occasioned the ruin and neglect of the establishments of the Middle Ages, yet public establishments have not ceased in our times to become multiplied on every side—thanks to the salutary counsels of medicine, the progress of civilization, and the amelioration of the material comforts of the masses. Thus there is not a street in Paris of any importance which does not contain several baths; and although we find new establishments springing up every day, all, in spite of the number and proximity of rivals, seem to increase and prosper, giving, as it were, the measure of the necessities of an intelligent and enlightened population. It is thus, by spreading through all ranks of society, that this usage has already produced the most satisfactory results as regards the public health; and by its happy influence, has diminished, among others, the number and severity of the affections of the skin, which no longer, as heretofore, exhibit at every corner of the streets this disgusting aspect of human infirmities.—*College Review.*

—Life is made up, not of great sacrifices or duties, but of little things, of which smiles and kindness and small obligations, given habitually, are what win and preserve the heart, and secure the comfort. —*Sir Humphrey Davy.*

ABOUT AIR AND SOME OTHER THINGS.

WE have received the following answer to A. Gasper's "Apele for Are," which we republished not long ago. The writer entitles the production—

A REPLY TO A APELE FOR ARE, ADREST SEVERAL YEARS AGO TO THE OLD SEXTANT, BY A. GASPER.

Poor Sextant! years I've waited all in vane
For somebody to speak a word for you.
That Gasper didn't even noe how to spell.
Now I, I thank my stars and parients,
Noe how to spell! Why, I am from Noo England
In which stands Boston! which you know is the
Literary hub of the great solo system!
Boston! where every mother's son is born
With Webster's unabridged in his side pocket,
And cries for grammers as other young 'uns
Cries for pap! where the Lord Mayor as he shaves
his self
Says to his glass, "I shave a Boston Mayor!"
Where the hackdrivers says, "I must behave—
I drive a Boston hack!" and the bootblacks say,
"This 'ere is Boston durt that I brush off!"
Boston! where folks believe in just one thing,
One unit, and that's why they're Unitarians—
Boston's the unit in their Rethmetics.
So you better blieve that I noe how to spel!
(Fact, I noe more'n one way to spell most words.)
But this is a digression. I sot down
To answer that are Gasper's apeal for Are.
I'll do it in 4 words: FOLK'S DO N'T WANT ARE!
They needn't say they do. I SAY THEY DO N'T!
And I will prove it, too. Just look at babys.
See how the nusses rap 'em head and foot
In roals and roals of flannel, so that once
A woman who had kerried her babe all nite
In the cars, unroaled it and 't was ded;
And you may say it died for want of breth;
'T wa n't no sech thing, and so you needn't crow;
The fact is, one end of the roal bein' just like tother,
She'd kerried baby rong end up all night,
And that had kild it. The doctor said,
"Inversion caused a tendency to the brane,"
Which certainly was likely. That's what kild it.
No. Want of pure air doant kill babys
Nor grone folks either. Else just tell me why
Are so many alive that go to cherch?
You say there ain't no are there, and its true.
Look at the cherches in the citys. Look
At Dr. ——'s in Detroit, or look to hum.
I've never found much air in any cherch
Except Ward Beecher's, yet see how folks live,
And sleep as well there as they do to hum.
And ef a breth of air chance to git in,
See how the wimin cringe and fix there shawls,
Till a big man gits up and stops the crack
By shuttin' the offendin' winder down.
And then, too, there's the carrs. Did you ever git
Into a carr at daybrake that was full
Of folks who'd been shet up in it all nite?
And was they ded? And was there any air
Except what had been drawn a thousand times
Thro 40 lungs, or snored through 40 noses?
Did n't you feel as if you'd got intew
The black hole of Kalkutty, and when you
Razed up a sash to git a breth of are,
Dident a maden with a case-knife nose
And nostrums fild with snuf, with piping voice
Cry out, "O shet that now, or I shall dye"?
Then see the steamboats and the sleepin carrs
Upon the raleway, them palashal carrs
That people rave about, and ain't they tite?
I ask you could a breth of air get in
Even ef 'twas so disposed? and do n't folks ride
In 'em all nite and call 'em splendid, too,
Nor say one word about the want of air?
It's my belief the deacons in our cherch
And most of the congregation, too, could live
Under water as long as eels. They doan't *need* air.
Are is good for burds, but folks ain't burds.
And then when folks is sick, jest see the panes
They take to keep the air out; and then look
At all those folks in citys who live down
In sullurs under sullurs in the ground,
And they doan't dye; they have big famalys
Who steal as cute as them that sleep out dores
On the side walks above. Look at Court houses
Jam'd full to hear some criminal case tried;
The breths ain't sweet—the men ain't over nice,
But do the lawyers and the jedges dye?

No, no, I tell you sextons ain't to blame—
When folks want air they'll git it—no mistake.
You say—"Just let a little air into our cherch,
And see how it will rouse the people up!"
That's just what they doant want. They go to
cherch
To do their dewty and to take their rest.
They think it rite to rest 1 day in 7.
And what do they want a streak of cold air
Bloing on 'em for to make 'em oncomfortable?
So, Mister Gasper, you jest shet your head.
What you've said proves too much, for ef 'twas true
That folks dye without are, we'd all be ded.
Now we *ain't* ded, ergo your fax ain't true.
Pure are ain't necessary to life, I've proved it
By your own showin', but *heat is!*
People can live as long as they are warm,
And folks that feel as you do, better take
A pew up in the belfry, where they'll be
Above all fear of smutherin'. So farewell.

—*The Illustrated Christian Weekly.*

HOW SHALL WE EAT?

BY MRS. E. E. KELLOGG, SUPERINTENDENT OF HYGIENE FOR THE W. N. C. T. U.

BETWEEN the asceticism of the ancient Stoics, which held that disregard of the body and extinction of all the natural appetites and desires was virtue, and weak pampering of the body and pandering to all the senses, lies the truth, that health, happiness, and success in life depend in the greatest degree upon the right use, without abuse, of those things which minister to the wants of the body. So strong is the bond of union between mind and body that whatever creates a morbid action of the bodily functions, dwarfs and cripples the mental and moral faculties; and any practice which lowers the standard of healthy action in the vital machinery has a tendency to degrade the powers of man's higher nature. Especially is this true in relation to habits of eating and drinking. Probably no other of the

vital processes exerts so strong a controlling influence over the mind, character, and disposition of an individual as the digestive; and it is not far from the exact physiological truth to say that the health of the entire body is tempered in the laboratory of the stomach,—a fact recognized by the old German proverb, "As a man eateth, so is he."

It is evident, then, that correct habits of eating and digestion are of the utmost importance if we would keep the body in a state to serve us well; it is, however, a lamentable fact that the digestive organs are undoubtedly subjected to more abuse than any other part of the vital economy. The majority of people eat and drink what and when their fancy dictates, never once taking into account the requirements of the system, the special properties of various foods, or considering that any possible injury may result to the stomach from what is thus promiscuously put into it.

The stomach is then expected to perform its function promptly and uncomplainingly; and if, perchance, it protests against such usage, or lags a little in weariness from overwork, instead of being allowed to rest, like any other organ of the body when tired, it is goaded on by stimulants in the shape of piquant sauces, pungent spices, ale, beer, wine, cigars, or some other artificial means of getting out of it more work than it is able to do.

The laws of nature are fixed, uniform, and inexorable. No person can impose upon his stomach with impunity; sooner or later punishment will follow as the result of physical transgression.

Broussais, the founder of a physiological system of medicine in France, attributed all human maladies to disease of the stomach. He was not correct; but a morbid stomach is a prime factor in the production of no small part of the various ills and, we may even say, vices to which humanity is heir. It is undoubtedly a fact that one of the chief causes of the appetite for strong drink lies in the perversions of digestion. Can we wonder that the morbid, moping, melancholy dyspeptic, whose weak mind and lack of self-control, the result of a diseased body, place him at the mercy of temptation, falls an easy prey to the demon, drink? Is it any marvel that he finds in the unnatural cravings and inordinate appetites of a diseased stomach the first incentives to the use of intoxicants? The physical root of intemperance is the appetite for artificial stimulation. A person with sound physical and mental health, feels no craving for stimulation, and is not likely to become a drunkard. How much does it behoove us as mothers, wives, and daughters of the land, to carefully study the laws which regulate our being, and practice the principles of true living in all the details of home life, educating our families in correct dietetic habits, and teaching our little ones from babyhood that they eat to live, not live to eat; that appetite must be held in abeyance to the will, and governed by reason. It is important that the food be retained in the mouth long enough for the starchy elements to be sufficiently submitted to the action of the saliva, as otherwise the other processes of digestion must be more or less imperfect.

Other difficulties arise from insufficient mastication. Portions of food in the stomach, surrounded by the digestive juices, have been likened to pieces of ice in a glass of water. The ice melts from without inward, so the stomach juices dissolve the bits of food from without inward. As the smallest bits of ice are quickest melted, so the smaller the bits of food, the sooner they will be digested. But if the food is not properly divided by thorough mastication, the juices cannot gain access to the various elements of which it is composed, and the particles begin to ferment and decay before they are digested.

The majority of people seem to have overlooked the fact that any time aside from that consumed in eating, or rather bolting the food, is required for digestion, and cease their work only long enough to dispatch their meals in the shortest possible time. Mental activity or severe physical exercise soon after eating, hinders the digestive process. A full hour at least is needed for the mid-day meal; a short rest before and after eating is a requisite of good digestion.

How often should we eat? is a debatable question, the answer to which depends on the habits of the individual, the varying circumstances of growth, physical and mental occupation, and the numerous changing exigiences of the system. The early Greeks ate but one meal a day; indeed, this was a prevailing custom of olden times. A gradual losing sight of the true functions of food and eating, making gratification of the palate instead of nourishment of the body the prime object, has resulted in the modern frequency of meals. That the system can be well nourished upon two meals a day is be-

yond controversy, and that more than three meals per day are deleterious to health, is granted by all observing physicians. The human stomach was unquestionably intended to have intervals of rest. Healthy digestion requires at least five hours for completion, and an hour for rest before another meal is taken, making six hours necessary for the disposal of each meal. When meals are taken more frequently, the stomach is allowed no time for rest; and if one meal is taken before the preceding one has been digested, the portion of food remaining, from its long retention in the stomach, is likely to undergo fermentation, thus rendering the whole mass of food less fit for the nutrition of the body, and fostering various disturbances of digestion.

Eating late at night, when the system is exhausted by the labors of the day, and then retiring soon to rest, is one of the most pernicious practices to which modern society is addicted. Owing to the exhausted condition of the system, secretion is deficient both in quantity and quality; and the lessened vigor of the vital operations during sleep makes the process of digestion very slow. For this reason the last meal of the day, when three are taken, should be very light, consisting preferably of fruits, grains, and articles easy of digestion.

The idea that seems to prevail, that it is necessary to take food just so often under all circumstances, and that by the taking of food the stomach or any other portion of the system will be immediately strengthened, is a mistake. The old philosopher, Aristippus, gave us the truth when he said, "It is not those who eat the most who are hearty and hale, but those who best digest."

This suggests another inquiry, How much should a person eat? Of course, no definite rule can be laid down which shall be a correct criterion for every person under all circumstances, since the requirements of an individual vary at different periods of life and under different circumstances. In general, the amount should be just so much as the system needs and the stomach can digest. Nature makes no provision for digesting more than her proper wants require.

The danger of eating too little is slight compared with that of erring in the opposite direction. Intelligent and reliable writers upon dietetics assert that an individual may subsist for any length of time, without detriment, upon a single pound of wheat-meal per day, with a sufficient amount of pure water. The Chinese laborers, in their native country, subsist and thrive on a very moderate quantity of rice, and are a very powerful class of men when not weakened and enervated by the use of opium. The laboring classes of many European nations are especially noted for their frugality, while they are remarkably robust and hardy. It is a fact well supported by reliable authority that it is safer for a person to disregard the *quality* of food than to indulge in excess in *quantity*. In other words, food of an inferior quality taken in proper quantity, is far less injurious than the best food taken in too large a quantity.

Perhaps we can best answer the question implied in our subject by showing how *not* to eat. One of the most prominent dietetic errors among Americans is the fault of hasty eating. We are living in a fast age, when everything is done at railroad speed, and the hurry and press of business is allowed to outweigh every consideration of health. The average American eats as he does everything else, on the high pressure system, precipitating into his stomach indiscriminately substances both digestible and indigestible, spending only enough time in mastication to reduce the food to a sufficient degree of fineness to allow of its being swallowed with safety to his respiratory apparatus.

Much more remains that might be said in answer to the question, "How shall we eat for health?" but we have only space in this article to add a plea for bright, cheerful conversation at meals. A sullen, silent meal is a most excellent promoter of dyspepsia. "Laugh and grow fat" is an ancient adage, which is good hygienic doctrine. It has long been well understood that food digests better when seasoned with agreeable conversation; and it is a matter of great importance that all vexatious questions and unpleasant thoughts be banished from the family board. Fill the time with bright and sparkling conversation, but don't talk business and discuss what work shall be done after dinner. Of all family gatherings, the meals should be the most social and pleasant. If thus the meal-time is prolonged, and too much time appears to be taken out of the busy day, be sure it will add to the years in the end by helping to prevent some of the errors to which we have called attention.—*The Union Signal.*

TEMPERANCE AND MISCELLANY.

Devoted to Temperance, Mental and Moral Culture, Social Science, Natural History, and other interesting Topics.

Conducted by MRS. E. E. KELLOGG, Superintendent of Hygiene of the National W. C. T. U.

MY YEARS.

BY J. C. LONG, D. D.

SOME were like rare and costly pearls
That, dropped into the sea,
Sank slowly many fathoms down,
And come no more to me.

And some were like light-footed winds,
That have no thought or care,
And, dancing on, no tracklets leave
Upon the yielding air.

And some were like the golden grain—
Ah, would that they were more!—
That, fallen into mellow ground,
Rise fairer than before.

The traceless winds and scattered pearls
Remembered oft with tears,
And here and there a fruitful grain—
Such are my vanished years.—*Sel.*

SHALL WE GO TO WAR ABOUT IT?

BY JULIA COLMAN.

IF we resort to arms to decide this temperance question, what watchwords shall we use in enlisting our separate recruits? In the War of the Rebellion, it was "North" and "South;" but in the liquor war we have no definite dividing lines, for all sections share in the great transgression. Even in Maine, where outsiders imagine the people are all ready to fight for prohibition, they have more than they can do to enforce their own laws on the subject; and in other States there is no disposition to do anything more than political campaign fighting at so much per speech usually, and expenses paid. Not that we wish to impugn the valor or the generosity of the temperance leaders; but the effective fighting *is* generally done on the platform or by kindred methods, and it is no more than right that expenses should be paid, always remembering that temperance people almost always *give* the amount in one way and another. Certainly it is not obtained by bleeding the poor, nor by pandering to appetite, as the immense revenue of the liquor-dealer is obtained.

This immense revenue arising from the sale of liquor is the tie that secures for the traffic nearly all its numerical force; but *this* can never become a watchword, because its constant tendency would be to alienate the customer, out of whom the money is to be made. And since *greed* is the great attraction, and the business in so bad repute, it is only the most sordid, and usually the most lazy of business men, who take it up. The dealer would not leave his shop to fight, because that would stop his profits. The actual fact in hundreds of cases in Maine is, that he pays his fine or goes to jail when he must, and opens his shop again as quickly as he can; and when the repetition of this routine makes his business unprofitable, he gets out of it. The more enterprise he has, the sooner he does so, as in the case of the leading distillers and brewers of Kansas. I could give many instances to prove this baseness on the part of the dealer. Such men have n't the stuff in them that is required to make heroes on the battle field, and there is no great principle on their side to develop heroism. So we look in vain among the dealers and manufacturers for the men who are to officer this imaginary army of whiskydom.

And who would make up the rank and file? The smaller dealers would be too much afraid of risking the loss of their business to recruit an army, where no one would be responsible for their pay or equipment; for there would be no profit in paying each other, and no public treasury to fall back upon. Very few of the customers would fight for the privilege of being fleeced, and as for the privilege of drinking, the most of them know it is bad for them, and their courage would soon ooze out in fighting for a bad cause. Doubtless a large crowd would enlist if they could have the prospect of unlimited drinks, but how long would the liquor-dealers furnish the drinks without pay? and what kind of fighters would an army of drunkards make? Not only Olympus but Infernus also would echo with the

most consuming laughter at such a sight, and all the world would ridicule the spectacle. Temperance people might well wish some such thing to happen. It would at least test the comparative sustaining power of alcohol and water, but every one can easily foresee the result. The sober men would capture the drinkers, and shut them up till they were sober, and then, for want of prison pens to keep them all, would release them on their parole of honor (!) to return to their old haunts, and connive with the stay-at-home dealers to supply them with more liquor.

We believe something like this, at least nothing better, is what actually would happen if the liquor party should make an effort to take up arms. Small riots there have been, and probably will be again, and possibly some little resistance to the collection of the revenue; but this is the nearest to open fighting that we have any reason to expect. No; the tactics of the liquor-dealers are cunning, deceit, wire-pulling, and bribery, rather than open fighting. When they can checkmate a long campaign by bribing a clerk, feeing a lawyer, or "influencing" senators, governors, and judges, they find it far easier, cheaper, and more in harmony with all their other methods. Alcohol in itself is deceitful, and it seems to infuse its own cunning and deceitful spirit into everything with which it comes in contact. Even the liquor-dealers themselves say, when they venture to publish anything, that there is not much hope for their cause, except in keeping quiet, attracting as little attention as possible to their work, and making all the money they can while they have a chance, for their patronage is doomed.

It is worth our while to observe in all this that the main assailable point is the relation of the dealer to the consumer. The former panders to the vice of the latter, and deceives and robs him. It is a relation of which both are ashamed. They do not wish to have it commented upon nor exposed. Secrecy—screens, window blinds, curtains, private rooms, and concealment generally—is the condition requisite to success in the present state of public opinion. The Massachusetts law pulling down the screens is enough, in many cases, to drive away the customers. This could not be the case if they knew the demand was legitimate, like that for potatoes, bread, or other kinds of food. Many a well-dressed matron of the highest respectability, examines and purchases these in the open market on the sidewalk, in front of the green grocer's; but if her husband wants "a drink," he is taken inside, and led through devious ways to a half-concealed door in the rear, to partake of his social glass, where, to protect his delicate sensibilities, he will be quite concealed from public view, and then he slips out again to the sidewalk, where his dainty wife has been left alone to minister to the honest needs of the family. "*Honest* needs!" yes, that is the exact word; the other is not *an honest need*. If the dram had been brought to him on the sidewalk, he would not have partaken of it there, nor allowed his wife to do so.

There is a readiness on the part of the dealer to put up these screens, and provide the private rooms, which shows covert shame on his part as well as on the part of the customer. The latter knows that he is hurting himself in the long run, and doing what public opinion condemns; and the dealer knows that he is both hurting and robbing his customers, and therefore it is no wonder that he prefers to work behind a screen. Now, if we can show the customer that he is hurting himself *every time* he takes a drink, we begin to loosen the bond between him and the liquor-dealer. There are, we know, many other considerations, but this belief that somehow the liquor is good for the drinker in a great variety of ways, is the broadest and strongest. He must be shown this by educational methods.

If any one doubts this, and thinks the drinker knows all about it already,—thinks he knows that the liquor always hurts him, and how it hurts him,—let him get some really good work on the subject, like Story's "Alcohol and its Effects," or Guthrie's "Temperance Physiology," and read up carefully, and he will soon realize, by finding out his own ignorance, how dense must be the ignorance of the drinker. Before he reads, he fails to see how such knowledge can be made available to help the cause of temperance; but after he reads, he finds that "knowledge is power" now, just as truly as it was in the days when Webster's old spelling-book was written, and that he who is well read in this kind of lore, is ever fruitful in devices for all sorts of effective temperance work.

Let me give one case as a specimen of

the results of this sort of treatment. In the eastern part of the State of New York, there was, fifty or sixty years ago, a village inhabited by drunken fishermen, which contained four dram-shops. By some means which we will not now spend time to detail, these people began to study the physiological and economical aspects of the whisky question, and in about ten years they had cleared out every dram-shop, and greatly improved the place in every respect. Now, for about forty years there has been no open, and but very little clandestine sale of liquors in the place, and the inhabitants are remarkable for their intelligence and thrift. The laws of the State during that time have changed frequently, running the gamut from prohibition to free liquor, but the calm air of this little village is disturbed by no such mutations. The liquor-seller has no foot-hold there, simply because the people do not want his wares. He might as well open a store for the sale of any other sorts of poison; the people would only laugh at him. But even this case could easily be surpassed by more recent endeavors, because science is so much clearer in her enunciations about the nature of intoxicating drinks now than she was in those early days of the reform..

So let us take courage. The key to success is in our own hands, and our victory shall be all the greater and more secure that it is to be a victory of peace and a moral triumph, rather than the result of an appeal to the arbitrament of arms.

MAKE HOME ATTRACTIVE.

THERE is such a thing as throwing around a home so many beautiful things—I mean not beautiful in art to catch the eye, but beautiful in thought and association, to hold the heart—that children shall cling to it with an undying love. The point which we have before us, is that of binding our children to us; and I believe that here, in making homes pleasant, is an instrumentality whose importance is not understood as it ought to be. The complaint is often made by parents, and with sadly too frequent truthfulness, that as soon as their children become old enough to mingle in society their home is forsaken, they seem uneasy and restless when compelled to remain there even for a single evening, and almost any other place seems to be preferred to that where father and mother and brothers and sisters are found. This complaint is made with a tone of deep regret; but at the same time, perhaps, the parents who make it have no suspicion that, after all, the cause of what they deprecate is found in themselves. No child, however sentimental, will love a home simply because it has the *name* of one. If we would have our children love it, we must make it lovely, we must give them something to love in the home.

Now if the principal ideas which a child has of his home are, that it is a place where he gets his meals and where he sleeps; where, if he is little, he is perpetually found fault with; where he must keep quiet; where at night-fall he must sit stupidly waiting till bed-time; or, if he has grown older, he can only deem it a dreary room in which he must employ himself as best he may, while the father sits at his paper or dozes in his chair, and the mother is silently busy with her sewing or her book,—if such be the aspect of home, one need not wonder that children learn to look elsewhere for pleasure, and seek to find amusement in other circles, or that home is forsaken as soon as it is possible to leave it.

It is practicable to make a home so delightful that children shall have no disposition to wander from it or prefer any other place; it is possible to make it so attractive that it shall not only firmly hold its own loved ones, but shall draw others into its cheerful circle. Let the house, all day long, be the scene of pleasant looks, pleasant words, kind and affectionate acts; let the table be the happy meeting-place of a merry group, and not a dull board where a silent, if not sullen, company of animals come to feed; let the meal be the time when a cheerful laugh is heard and good things are said; let the sitting-room, at evening, be the place where a smiling company settle themselves to books or games, till the round of good-night kisses is in order; let there be some music in the household—music not kept like silk and satins to show to company, but music in which father and mother and sister and brother join; let young companions be welcomed and made for the time a part of the group, so that daughters shall not deem it necessary to seek the obscurity of back parlors with intimate friends, or to drive father and mother to distant apartments; in a word, let the home be surrounded by an

air of cozy and cheerful good-will; then children need not be exhorted to love it —you will not be able to tempt them away from it.—*Wm. Aikman, D. D.*

Written for GOOD HEALTH.

FORTITUDE.

BY MARY MARTIN.

"He who best can suffer, best can do."—*Milton.*

"Nothing can work me damage but myself."—*St. Bernard.*

IT was the opinion of Dr. Johnson that "the habit of looking at the best side of any event is worth far more than a thousand pounds a year." Who, after due reflection, can say that this is an overestimate? This habit is especially valuable to the invalid; and, indeed, the person who, whether ill or well, is constitutionally or habitually inclined to look upon the "dark side," or has no internal resources upon which to rely, in nine cases out of ten has forfeited the victory that might have been won. There are no doubt some who belong to the same class as the woman who assured us that she "had enjoyed very poor health for many years." We bid all such a hearty welcome to the position, together with "all the honors and emoluments arising therefrom."

There are others who, while enduring unavoidable physical suffering, feel it a duty and a pleasure to enjoy all the blessings of life which remain in their possession, hoping, trusting, for better days to come. Such was Fielding, who, while suffering bodily pain, and environed by debt and various other difficulties, exhibited so much fortitude that Lady Montague, in referring to him, said she "was persuaded he had known more happy moments than any person living." Euler, the mathematician and philosopher, and Adanson, the French botanist, were no less marked illustrations: the former, though deprived of sight, with the assistance of a mechanical device, pursued his writing; the latter, though pressed by want, continued his studies and work, until released by death at the age of seventy-eight. Many others might be mentioned who could truthfully have adopted the language that Mrs. Browning places upon the lips of Aurora Leigh:—

"I kept the life thrust on me on the outside
Of the inner life with all its ample room.
. . . . . God,
I thank thee for that grace of thine."

A little boy, when questioned in regard to his Sabbath-school lesson, said, "*It was about the man who kept his soul on top.*" He had grasped the idea, and well were it for us could we always remember this beautiful result of keeping the "body under." We are guilty of ingratitude if we overlook present blessings, in undue admiration of, or desire for, the past.

It is perhaps but natural that a mind incapacitated for grappling with present events should be inclined to introspection and retrospection. "A sorrow's crown of sorrows, is remembering happier things;" and where reason and feeling are antagonistic, the former should ever maintain the supremacy. It is possible for our tastes to become so perverted, that, like Israel anciently, we shall loathe the Heaven-sent "manna," although it be "angel's food," and turn with longing eyes to the Egypt we have left. It is so easy to remember the "flesh and bread," and forget Pharaoh and the task-masters. Said an old man, "I never complained but once, and that was when I had no shoes for my feet; I met a man who had no feet, and concluded to become reconciled to my lot." Said a lady to one who felt the burden of Atlas resting upon her, "I felt somehow that I might tell you all my sorrow, and it would be understood; but I cannot tell why, for I see by your face that you have never known what trouble is by experience." Poor soul! she had yet to learn that not every one possessing a heart considers it wisest and best to wear it suspended from the sleeve to flutter in every passing breeze.

Happy the person who by nature, discipline, or grace, can effectually disarm the sting of circumstances by the fortitude with which they are met; whose hope and faith and cheer possess the virtue of Midas's touch. Said Gloomy Grimm to Happy Heart, "You seem to know how to pick beauties out of everything;" but instead of adopting the method he so much admired in another, he repaired to his dungeon and reassured himself for the nine thousand and ninety-ninth time, that life was n't worth the living,—that each endeavored to make it as undesirable as possible for others; and long years of indulgence in this train of thought amply qualified him to entertain the Prince of Darkness. Sidney Smith, whose facetiousness never deserted him under any circumstances, said, when writing to a friend, "I have gout, asthma, and seven other maladies, but am otherwise

very well." Southey tells of a man, who, when about to eat cherries, always put on his spectacles to increase their size. Some may exclaim against such folly, but the *morale* is worthy the second thought. There are those whose mental vision would be greatly benefited by viewing their blessings and mercies in this way, and with lens reversed looking upon the unavoidable trials and perplexities of life.

'Tis because we live so near the ground,
When a voice has often said, Arise,
That we see no stars in the sky beyond,
But only the clouds so near our eyes.

We may ever find a safe antidote for many of the ills of life in self-forgetfulness, laboring for the good of others. Dimly through the mists of ages is revealed to us the midnight scene of those who, although their feet were "fast in the stocks," "sang praises unto God;" and leaving the past with Him who knoweth all, our hearts receive fresh inspiration from the words of the Crucified One, who, even in the agony of death, did not forget to provide for his mother's comfort, and who bids us ever, "Be of good cheer."

INFANT EDUCATION.

In proportion as men will be expected to do something well in life, the development of their faculties and energies, and hence their early training, will become more important. The infant school, therefore, must be something different from a mere play or singing school, and, least of all, must the children be crammed.

Infant schools cannot but become worse than useless when children are taught in them in the manner of,—

G is for Goshen, a rich and good land,
H is for Horeb, where Moses did stand.
I is for Italy, where Rome stands so fair,
J is for Joppa, and Peter lodged there.
K is for Kadesh, where Miriam died,
L is for Lebanon, can't be denied.

Froebel's games must not be allowed to become monotonous, but the individuality of the teacher and the pupil must endow them with a daily freshness, which renders them a delightful exercise to the minds and bodies of the children. The teachers of infant training-schools do a most noble work, and must have warm hearts and active minds.

Race education, aiming at permanent qualities and fixed tendencies in the race, cares more for infant training than collegiate teaching. The latter may give us masters or commanders, who have neither the will nor the disposition to practice the laws they lay down for the regulation of others; it may make diplomats disposed to take advantage of the ignorance of the multitudes; but infant training makes men who are a law to themselves, and who succeed not by the folly and faults of other men, but by their own skill and industry.

It is a sort of malign providence in the State to educate the citizen just sufficiently to make him responsible for the law which he may be able to read, without developing in him the power to conform to it.

The culture of the disposition in the young, which is most affected by living example, is a grand school for the adult generation. But, alas! just here is the rub. It costs little or nothing to lecture. To give the example, we have to become learners and workers ourselves, and hence the preference of barren teaching to fruitful training.

If a person well trained in childhood strays from the path of rectitude, he is easily redeemed from his error through the early instilled sentiment, which, as it were, waits but for an opportunity to be aroused from its dormant state into full power, swaying again the life and action of the soul, and purging it from vice and crime.

Race education lays most stress upon the cultivation and development of a sound body; for where health and vigor are wanting, nothing great or good can be achieved, either intellectually or otherwise, and nations, as individuals, lose their hold upon success and pre-eminence with the loss of physical energy.

Still, though our main care in dealing with infancy is the attainment of bodily health and strength, we may and must lay the foundation for intellectual greatness in the nursery. It has been observed by Beale that fixing the attention steadily upon one object, or the complete concentration of mind, makes the Newton or Leibnitz. And this faculty may be cultivated in the nursery by riveting the attention of a child to whatever he is doing, until he comprehends as much of it as his age permits before he passes to anything else. Children are apt to fly from one thing to another with too much rapidity to thoroughly acquire a knowledge of one before they begin to examine another.

By a wise control over the appetites

and propensities of our children, the foundation is laid for that self-command without which no real happiness in life is possible.

Let children observe and learn facts, storing their minds with material for a later age, when the higher faculties will begin to combine and compare ideas.

We take notice only of what a child learns by set lessons, forgetting how much he learns by observation of innumerable facts and the acquisition of language.

Premature decrepitude and death are often the fruit of forcing the mind, and neglecting to strengthen the body.

Proper digestion, perspiration, exercise, and respiration are requisite to the proper action of the brain. Lessen the quality of the blood by impure air, or the quantity by insufficiency of food, and the brain lacks its proper stimulus.

Race education, aiming at permanent effect through organic improvement, seeks to ascertain in the nursery the temperament, constitution, idiosyncrasies, of the various organs, and their functions, morbid affections, hereditary tendencies, and the habits of those trusted to its charge. It being ascertained that the child we are to manage is of a bilious, sanguine, nervous, or lymphatic temperament; of a weak or powerful constitution; scrofulous or phthisical, with a hereditary tendency to insanity,—habits, surroundings, and a mode of living are to be chosen opposing the development of the evil tendencies feared.

It is in the nursery that the habit must be established of conforming to the hygienic laws of our being,—a habit that determines the whole of life, and is positively of itself sufficient to insure our success and happiness in life; and punctuality as regards food, sleep, temperature, evacuations, clothing, etc., affords a constant opportunity for the establishment of this habit of conforming to the hygienic laws of our being; and this opportunity begins with our existence, and will do more for us than all later precepts and exactions.

The brain of the young, soon overworked, disturbs the functions of nutrition, and produces indigestion, so common among us, as we overtask our children at school, and ourselves in whatever enterprise we may be engaged.

It is the excess that injures. A proper amount of physical and mental activity promotes the nervous activity requisite for the healthy functions of the human system.

Temperance and exercise of body and mind must be insisted upon, without which health of body and mind are impossible, and life becomes a torment.

Though all faculties are to be trained, still they are to be subordinate to the intellectual powers, which must, above all, be called into active exercise, especially as we are naturally prone to yield to our animal propensities.

As the formation of regular habits, self-control, and order are of the highest importance, a good nurse will lay the foundation to all these habits, and secure at the same time the health of the child by invariable order in the periods of feeding, and in all other matters.

Much can be done for the future happiness of the child by a cheerful nurse, who avoids harsh tones. A discordant voice and an ill-tempered mother are sure to beget moroseness in the child, and lay the foundation for future misery. Gloom and depression, says Taylor, during childhood, debilitate body and mind. A sorrowful child, full of unkindness and misfortune, develops among the lowest class a ferocity which startles at the commission of no crime. An unhappy childhood is often the cause of a wrong life, for it perverts the judgment and the natural feelings of man; depression impairs the functions and lowers the tone of body and mind.

Bearing in mind all the time that the physical growth and development is at this tender age important beyond every other consideration, we still say, More can be done for the future mental development of the child in the first two years than at any future period; for the child's powers of observation can be steadied and its curiosity strengthened, while we can weaken the one by discouraging the other, in order not to be annoyed by the child questioning us, thus exposing our ignorance besides trying our patience.

As light, air, and exercise are the first requisites of the young citizen, we will remark that the fading of the carpet must not be allowed to interfere with free access of the rays of the sun, neither must the possibility of soiling clean garments stand in the way of free and easy out-door play; and as a properly warm and active skin is the foremost preserver of good health, we will add here our protest against children's bare arms and legs.

It is a shame that our factories interfere even with infant schools. But can we

not by stringent factory laws, like Switzerland, keep little children out of factories? Or are our western prairies not as fertile as the ice-fields of Helvetia? and can the American republic not as well provide for the future citizen, as the mountainous land of Tell does for its children?—*Deterioration, and Race Education.*

SMOKING AND CHEWING.

A PARODY.

BY RUTH C. THOMPSON.

SMOKING the weed by the daylight fair,
Smoking the weed by the noonday glare,
Smoking the weed by the fading light,
Smoking the weed in the solemn night—
Oh! what shall the harvest be?
Oh! what shall the harvest be?

CHORUS.—|: Sowing the seed of a poisoned brain, :|
|: Sowing and reaping both palsy and pain, :|
Forging the chains of your slavery—
Sure, ah! sure will the harvest be,
Sure, ah! sure will the harvest be.

Smoking in faces of ladies fair,
Poisoning all the ambient air,
In coaches and cars, where the ladies ride,
The room of the sick and the home of the bride—
Oh! what shall the harvest be?
Oh! what shall the harvest be?

CHORUS.—Sowing the seed, etc.

Chewing the weed by the morning light,
Chewing all day and far into the night,
Defiling all places,—the high and the low,
The stairway, the carpet, the beautiful snow—
Oh! what shall the harvest be?
Oh! what shall the harvest be?

CHORUS.—Sowing the seed, etc.

Smoking and chewing by day and by night,
Regardless of reason, regardless of right,
Thus filling the hearts of your friends with pain,
Resolving to quit, then yielding again—
Oh! what shall the harvest be?
Oh! what shall the harvest be?

CHORUS.—Sowing the seed, etc. —*Scl.*

GENERAL HARRISON AND WINE.

A PENNSYLVANIA lady tells that when General Harrison was running for the Presidency, he stopped at the old Washington House in Chester for dinner. After dinner was served, it was noticed that the General pledged his toast in water, and one of the gentlemen from New York, in offering another, said, "General, will you not favor me by drinking a glass of wine?" The General refused in a very gentlemanly manner. Again he was urged to join in a glass of wine. This was too much. He rose from the table, his tall form erect, and in the most dignified manner replied: "Gentlemen, I have refused twice to partake of the wine-cup. That should have been sufficient. Though you press the cup to my lips, not a drop shall pass the portals. I made a resolve when I started in life that I would avoid strong drink, and I have never broken it. I am one of a class of seventeen young men who graduated, and the other sixteen fill drunkards' graves—all through the pernicious habit of wine-drinking. I owe all my health, happiness, and prosperity to that resolution. Will you urge me now?"—*Selected.*

—A good man was once tempted by the devil to commit one of three great sins,—either to murder his mother, to deny and blaspheme his God, or to get drunk. As the least of the three, he chose to get drunk. Satan left him, well pleased at his choice, for alas! while drunk he committed both the other sins. —*Exchange.*

—A little girl died in Philadelphia the other day from taking a drink out of a whisky bottle, and all the newspapers recorded the fact. A thousand men die every week from the same cause, and scarcely any note is taken of it.

—"Some people," says a writer, "are always finding fault with nature for putting thorns on roses; but I always thank her for putting roses on thorns."

—In Finland there is one Christian denomination which binds all its members to temperance; but its membership is mainly composed of the peasant class.

POPULAR SCIENCE.

—The ocean has been sounded to the depth of more than five miles.

—The most northern point reached by the Jeanette expedition was 77° 42′ N. latitude.

—A new form of electric lamp, said to be superior to Edison's, comes from St. Petersburg.

—DeLesseps has sailed to Africa to begin surveys in connection with the project to turn the vast Desert of Sahara into an inland sea.

—The composition of Portland cement, and the philosophy of its hardening in contact with water, are among the mysteries which science has not yet solved.

—It is not generally known that over three thousand miles of ocean cable have been laid on the Pacific coast, connecting Peru and other South American States with Panama, Mexico, and California.

—There is yet an immense field for discoveries of means for economizing fuel. A reliable authority asserts that only about one-tenth of the coal consumed in the furnace of a steam boiler can be utilized in mechanical work.

—A scientific gentleman who recently proposed to the British Association a new method of constructing a tunnel, by which the cost might be reduced more than two-thirds, and the rapidity of the work increased in still greater proportion, has discovered that this method was proposed more than sixty years ago by a poor blacksmith, who suggested it as the best method of constructing the Thames Tunnel.

—Mr. C. C. Gilman of Eldorado, Ia., has invented an article known as "terra-cotta lumber." It is formed by combining saw-dust with kaolinite, or "top clay," which is found in large quantities in some sections of New Jersey. It is mixed somewhat like dough, formed into blocks, and burned like ordinary brick. It is said to possess greater strength and tenacity than oak timber, while it can be worked as easily as spruce or pine; plastering will adhere to it, thus obviating the necessity of laths. A specimen submitted to "white heat" in a furnace, and afterward cooled in water, which was then evaporated as steam, when saturated with petroleum burned steadily for several minutes. It was then sawed in two, and found not materially different from others which had not been subjected to the test.

The Vibraphone.—A telegraph operator in New Mexico has discovered a new form of device, by means of which vocal sounds can be transmitted as with the telephone.

Blasting with Quicklime.—Quicklime is being introduced into coal mines as a substitute for powder for blasting, and is found to give excellent satisfaction. It breaks up the coal without explosive violence, and produces a very small amount of dust.

The Sparrow "Must Go."—*The American Garden* for February has the following severe paragraph about "English Sparrows":—

These imported birds are an unmitigated nuisance, which seems to baffle all attempts of eradication. Destroying their nests does but little good, as they drive other birds from their nests and take possession of them. It has been recommended to scatter poisoned grain about the places frequented by them; but as this would kill friends and foes alike, it is rather a doubtful proceeding. At the last meeting of the New Jersey State Horticultural Society, the sparrow had not a single friend, and a resolution recommending its extermination was passed, as "it drives away insect-destroying birds, while it eats our grains and fruits."

—Utilizing a Glacier.—Some enterprising merchants have purchased the right to cut up the immense glacier, *Fonor Svartisen*, in Norway, for the purpose of conveying the ice to European ports. The glacier covers nearly one hundred and twenty square miles.

Rings not Year-Marks.—It has been popularly supposed that the rings of a tree furnish a reliable record of its age in years. But Dr. A. L. Child writes to the *Popular Science Monthly* that this idea is erroneous. His experiments go to show that the formation and thickness of the rings depend upon the changes in the atmosphere, and the more frequent these changes the greater the number of rings. Trees which he knew to be only twelve years old proved, upon being cut, to have from thirty-five to forty rings.

Action of Ozone on Germs.—Recent experiments have shown that ozone, the disinfectant constituent of the air, produced by the action of electricity and various other natural agencies, is powerfully destructive of germs. "Mr. E. Chappuis has filled flasks with beer yeast, and stoppered them, some with cotton which had been exposed to the action of ozone, and the remnant with cotton not so prepared. The latter became turbid in the course of a few days, while those stoppered with ozonized cotton remained limpid after twenty days."

Darwinian Man.—The following is a description of the evolutionist's ideal primitive man, as given by Mr. Allen, an English evolutionist:—

"We may not unjustifiably picture him to ourselves as a tall and hairy creature, more or less erect, but with a slouching gait, black-faced and whiskered, with prominent, prognathous muzza, and large, pointed canine teeth, those of each jaw fitted into an interspace in the opposite row. These teeth, as Mr. Darwin suggests, were used in the combats of the males. His forehead was no doubt low and retreating, with bony bosses underlying the shaggy eyebrows, which gave him a fierce expression, something like that of the gorilla. But already, in all likelihood, he had learned to walk habitually erect, and had begun to develop a human pelvis, as well as to carry his head more straight on his shoulders."

How much more inviting is this picture than that drawn by the inspired writer of the first man? We are decidedly prejudiced in favor of Adam as our ancestor rather than the prognathous, gorilla-like descendant of a *megatherium*, whom our Darwinist friends regard as "the great-great-great-great-great grandfather of the human family."

GOOD HEALTH.

BATTLE CREEK, MICH., APRIL, 1883.

J. H. KELLOGG, M. D., EDITOR. TERMS, $1.00 A YEAR.

A PESTILENTIAL JAIL.

A FEW weeks ago we were called on to act upon a committee appointed to visit a county jail, concerning the unhealthfulness of which complaint had been made. The complaint was made, however, not in the interest of the prisoners confined in the jail, but of the jailer's family, who occupied the first floor of the building, the prisoners being confined on the second floor. A very foul odor was present in the room occupied as a parlor, and in the bedroom adjoining. It was present also, although in a less degree, in all parts of the lower portion of the house. The cellar was also redolent with foul smells. But it was on ascending to the second story that we discovered the depths of sanitary total depravity exemplified in the structure. The air in the portion devoted to the keeping of the prisoners was exceedingly foul. On looking for the fresh-air inlets, we were at first able to discover none except the windows, which were tightly closed to exclude the cold, the temperature being in the vicinity of zero. Neither was there any opening for the escape of foul air. The unfortunate transgressors of the law were huddled together in exceedingly close quarters, sometimes more than half a dozen being locked at night in a single cell intended to accommodate but one person. The air of the apartment was of course exceedingly vile. The reason for its peculiar foulness we did not, however, at first discover. Inquiring for the location of the water-closet, we were shown a door leading into a little recess the back end of which projected into a shaft about six feet in diameter, which was built up of brick against the back side of the jail, and which constituted the vault, the contents of which were removed when the space between the ground and the second story became filled, which was once in two or three years. Noticing an increase in the foulness of the air as we approached this place, and detecting a slight draft, we suspected that this might possibly be the avenue for the entrance of air to the apartment; and applying an anemometer which we happened to have with us, we found that a current of air was entering the room from the privy-vault at the rate of three hundred feet a minute. Here was the only source of air supply to the prison, and the prisoners were obliged to breathe this poison-saturated atmosphere over and over again, without change, except when the windows were occasionally opened for a few minutes, or when the jailer entered through the double door to inspect his charge or to introduce a new addition to the company.

An examination of the premises outside showed that the walls of the house, against which the vault was built, were saturated with its poisonous contents; and the circumstantial evidence was very strong that an opening had occurred through the foundation wall, allowing the foul contents to partly fill the space under the house inclosed by the foundation wall; this, however, could not be determined with certainty, as no means of ventilation had been provided. The well upon the premises had been thoroughly poisoned through the same source, being situated not more than thirty feet away,

and the soil being of a loose, porous character.

It is perhaps hardly necessary to add that the committee thought it wise to recommend that the building be utilized for a political bon-fire, as nothing less than purification by fire could accomplish the disinfection of so foul a place.

DIET IN THE ARCTIC REGIONS.

It has long been claimed that the diet of seal's blubber and bear's grease adopted by the Esquimaux, is necessary on account of the intense cold of that region. Much has been made of this fact by writers upon diet. Theological writers have also used this supposed fact as an illustration of the wonderful adaptation of natural conditions to the necessities of life in this part of the globe. Some travelers who have visited the Arctic regions have reported that they have found advantage from the adoption of the Esquimaux's mode of life. The unfortunate Capt. Hall was perhaps the most enthusiastic advocate of blubber as a food in the Arctic regions. His own death from apoplexy on his last expedition, however, does not speak well for the beneficial effects of such a diet upon himself; and Lieut. J. W. Dannenhower, one of the survivors of the unfortunate Jeanette expedition, asserts that the diet of civilized life, as afforded by canned meat and vegetables, was not only more acceptable to all, but more wholesome than bear's meat and seal's blubber. He states this, notwithstanding the fact that the cans containing the canned provisions, were made of tin containing lead, which gave rise to lead-poisoning in several instances.

COAL-GAS POISONING.

It has long been known that one of the most poisonous constituents of coal-gas is the carbonic oxide which it contains, the result of the imperfect combustion of a portion of the coal incident to the process of manufacture. Quite recently, however, Prof. Probek, of Breslau, has shown that this substance is the *only* poisonous element of coal-gas. This discovery renders it a matter of great consequence that some means should be devised by which the presence of carbonic oxide in coal-gas for illuminating purposes should be prevented. Whether this can be permanently accomplished or not we are not aware, but the danger may be avoided by the use of gas manufactured from gasoline or some other of the numerous products of petroleum which are wholly free from poisonous properties, and possess as high illuminating properties as the gas manufactured from coal. Gasoline gas has been employed at the Sanitarium for several years, and gives perfect satisfaction. Although introduced as an experiment, and in opposition to the advice of many knowing individuals interested in the manufacture of coal-gas, it has been a success from the start, and never gave better satisfaction than at the present time.

A STOMACH THAT NEEDED WASHING.

Among the additions to modern medical appliances is an apparatus for washing out the stomach by means of a simple contrivance suggested by an eminent foreign physician. Persons suffering with gastric catarrh, cancer of the stomach, ulceration of the stomach, and some other maladies of this organ, may wash out their stomachs daily with benefit, and almost as conveniently and painlessly as the hands and face are washed.

Some time ago a new use for this appliance was suggested to us, as we were examining an engraving which we had had made of the apparatus in question. An old toper who happened to be peeping over our shoulder, inquired the use of the article, which we accordingly explained to him. "Well, I declare," said he, "that is a bright idea. I wouldn't wonder if some of us fellows had better come up and have our stomachs washed out." It is clearly evident that the speaker knew very well that what he was daily, almost hourly in fact, pouring into his stomach,

did not belong there; and it was not so very remarkable, after he had been busily engaged in thus defiling his stomach for a quarter of a century or more, that it should occur to him as a very proper thing that it should be washed out. Why could he not take the next step in the same train of reasoning, and reach the conclusion that it might be well not to incur further the necessity for washing it out?

MEDICAL EXPERIMENTATION.

THERE can be no doubt that facts having a most important bearing on the prevention and treatment of human maladies have been gained by medical experimentation upon animals, and otherwise. We are not going to dispute that it may be justifiable to sacrifice the lives of lower animals when necessary to the elucidation of useful truths which may save human lives, and we may even find a ready apology for the man who in his enthusiasm for the advancement of his chosen profession makes himself the subject of experimentation with the same end in view; but when doctors take the liberty to conduct experiments upon those who have been placed under their care as patients, we think it time to raise an earnest protest. A few years ago a Western physician who happened to have under his care a patient, a portion of whose skull had been removed by an accident, embraced the favorable opportunity to conduct a series of experiments with electricity upon the man's brain, in imitation of similar experiments conducted by an eminent English physiologist upon the brains of monkeys whose skulls had been removed for the purpose. Some words of disapprobation were uttered by a few members of the profession, but we do not think the perpetrators of this shameless outrage were made to feel the censure to a sufficient degree to incline them to a different line of conduct under similar circumstances if another opportunity of the kind should present. At any rate, the disapprobation of the profession at large was not sufficiently well defined to prevent the physicians in charge of a large Eastern hospital from conducting a series of experiments still more mercilessly cruel a year or two later. Wishing to ascertain the effect of a powerful drug in large doses, the medical gentlemen referred to, selected from among the patients in their wards such as they thought would die sooner or later, and heartlessly proceeded to hasten the moment of dissolution, not by a possibly justifiable euthanasia, but by the aggravation of their suffering by the poisonous influence of a powerful drug administered in huge doses. The result reached was simply that human beings may be killed by sufficiently large doses of quinine, and that in these cases death is sometimes the result of inflammation of the membrane of the brain; but at what a cost were these facts elicited? How many unsuspecting, confiding, suffering human beings were offered up as victims to the Moloch of medical curiosity? Perhaps a half dozen, perhaps twice as many, perhaps a score. It matters not whether there were more than one, we should still raise our protest that *murder is not justifiable even for medical purposes.*

We might mention numerous other instances of a similar character, but wish to notice a different kind of medical experimentation, which we regard as equally unjustifiable. We refer to the almost endless experimentation at the present time carried on by physicians in all parts of the country in the use of what are termed *new remedies.* A doctor discovers a new weed, makes a decoction from it, and begins trying it first on one patient then on another, until after a time he discovers, or thinks he discovers, that he finds certain cases in which it is beneficial. The latter cases are published to the world, and the new remedy is extolled to the skies. But what about the cases that were not benefited? Did the nauseous draught, which, confiding in their medical adviser, they were obliged to swallow, do them good, or harm? If not benefited, were they not injured? Who has faith in a remedy which "will do no

harm, if it does no good"? What right has the man who has a title which secures to him the confidence of his suffering fellow-men to make them the subjects of experimentation for the simple purpose of adding to his store of knowledge, or of gratifying morbid curiosity? If the medicines were always the highly potentized pellets invented by the father of homeopathy, the plea of harmlessness might be urged in extenuation of the violation of that sacred confidence which a helpless victim of disease naturally places in his medical adviser; but when it is considered that the medicinal agents employed are frequently of a highly poisonous character, capable of inducing disease when administered to the well, there can be found no such palliation for the crime. We doubt not that we shall greatly offend somebody's high sense of propriety by these remarks; but the constant and rapid growth of this evil is too apparent to be longer endured, and compels us to speak out.

The history of chemical nomenclature informs us that the word *antimony* obtained its name from the unfortunate results of the experiments of that father of medical quacks, Paracelsus. Wishing to learn the properties of a newly discovered substance, he administered it in varying doses to several of the monks of a neighboring Spanish convent. Within a short time all of the objects of his experiments had ceased their counting of beads, repeating of rosaries, and chanting of Ave Marias, and were themselves the subjects of the pious incantations of their surviving fellows, who sought thus to hasten their journey through the purgatory to which their medical adviser richly deserved an introduction. Observing its disastrous effects, the experimenter attached to the new drug the name of *antimonie*, *monie* being the Spanish word for *monk;* hence we have *antimony*, literally meaning anti-monk. But notwithstanding the significant title attached to this deadly drug by the discoverer of its anti-vital properties, numerous medical advisers, regardless of their professional responsibilities, and reckless of the results, have again and again repeated the same experiments with similar results, not only with this drug, but its strongly related and still more deadly conjurer, *arsenic*. We have no doubt but that the reckless manner in which the last-named drug has been prescribed for various forms of skin disease during the last few years, is responsible for no small number of functional and organic derangements of organs, the integrity of whose functions is of vastly greater consequence than that of the skin. Physiological experiments upon animals, and observations of persons who have suffered with acute and chronic poisoning by this drug, show that it induces almost universal tissue changes in the body, notably the change known as fatty degeneration in the liver and kidneys. If arsenic will produce its poisonous effects when inhaled for a few weeks or months in the air of a room the walls of which are covered with a paper bearing arsenical colors, why should not the same result be occasioned by the systematic daily swallowing of the drug as a remedy during a period of one to three years, as we have frequently known it to be prescribed?

We are glad to know that Profs. Wood and Fourment of Philadelphia are at present engaged in an extensive series of investigations respecting the effects upon the tissues of various medicinal agents, and we shall expect that the results obtained through this investigation will be such as to induce every intelligent and honest physician to consider with more than ordinary care, the necessity of perpetually plying his patients' stomachs with agents, the results of which may be far more extensive than at the present time they are understood to be.

— Dwellers in Winnepeg are puzzled to know how their milk-men are able to get four thousand gallons of milk, the quantity daily sold, from the six hundred cows kept in and about the city. The mystery is probably explained by the fact that the Red River flows near by.

Consumption and Fine-Flour Bread.—Recent scientific researches seem to show that a predisposition to consumption may sometimes result from a deficiency of the so-called inorganic elements, of the food. This might be inferred from the fact that persons who have died from consumption show a great deficiency of the inorganic elements, while the very opposite is true in death from starvation. According to Prof. Church, a pound of white flour contains only forty-nine grains of mineral matter, while a pound of whole-wheat meal contains one hundred and nineteen grains, or more than two and one-half times as much. It is important that this fact should become generally known, as one of the most effective means of combating the alarmingly rapid spread of that most deadly of maladies, pulmonary consumption. It may be suggested that beef-steak and other forms of animal food combined with fine-flour bread, will answer the purpose equally as well as the use of whole-wheat meal. This is an error, as animal food is not only likely to communicate the disease, but, on account of its overstimulating character, it is decidedly inferior to whole-wheat meal as a source of nitrogenous inorganic food. It is, of course, to be understood that the term *inorganic* is used in an accommodated sense, referring to the partially organized mineral elements found in combination with the gluten of wheat and the nitrogenous constituents of other grains.

The Abused Chinaman.—A friend of ours living on the Pacific coast recently called our attention to the fact that some time ago the average Chinese citizen was misrepresented in our columns by a paragraph quoted from a prominent newspaper, in which it was stated that the Chinaman is not overcleanly in his habits. We felt a little doubtful as to the correctness of the statement when it was admitted to our columns, but did not strike it out, on account of the respectability of the authority on which it was made. Our friend, however, assures us that the statement was certainly incorrect, and that the average Chinaman is decidedly ahead of the average American in his love of cleanliness, usually setting his employer a wholesome example in personal sanitation, by taking his morning bath as regularly as he takes his breakfast. We are very sorry to have done any injustice to so excellent a sanitarian as our Celestial brother seems to be, and hence this explanation.

Female Sports.—It is announced that fencing is becoming a favorite pastime among fashionable young ladies in New York City, who visit gymnasiums, and go through all the evolutions of the acrobat, dressed in male attire. Probably if some one should suggest to these young women who are so much interested in physical culture, the idea that they might secure equally useful exercise by engaging in the ordinary domestic duties of the household, it would at once be pronounced "too old fogyish for anything."

Took his Own Medicine.—It is sometimes useful for doctors to get a dose of their own compounds, as by so doing they are better able to sympathize with the woes of patients, which are not infrequently augmented rather than mitigated by the mixtures which their medical advisers compel them to swallow. According to the *Medical Record*, a Vermont doctor "lately prescribed for a patient who soon after returned ailing more than ever, and suggested that the medicine was poison. Dr. Smith remarked that he had 'just as lief take a pint;' so putting the bottle to his lips, he drank half its contents. Then the doctor's head began to whirl, and he rushed to the drug-store for an emetic, which saved his life."

Fortunately in this case both the patient and the doctor survived, but we have known of instances in which the patient was not so fortunate.

—A case of death from tetanus excited by vaccination, is reported in a Southern medical journal.

Ice in Diphtheria.—A French physician, M. de Blynie, announces that he has found ice a most effective and valuable remedy, being almost uniformly successful in the treatment of diphtheria. The treatment consists simply in giving the patient ice-pills every ten minutes. The use of the ice is begun with the first symptom of the disease, and is continued until the false membrane disappears.

We have employed this method of treatment for years with success, but have supplemented it by the application of ice to the outside of the throat during the inflammatory stage of the disease, followed by fomentations after the inflammatory stage has passed.

Death in a Holy Well.—Devout Mohammedans make long pilgrimages for the privilege of drinking water from the sacred well of Mecca, which is graciously distributed to them by the priests in attendance. An eminent chemist has recently examined some of the water from this holy well, and finds that it contains five hundred and seventy-nine grains of solid matter to the gallon, a great portion of which is organic in character, making it seven times as bad as the filthy water which flows from the sewers of London. We have met with several wells the condition of which was not very much superior to that of the well of Mecca, but none which enjoyed so favorable an opportunity for spreading broadcast the disease and death lurking in its waters.

Sickness from Decomposing Saw-Dust.—According to the *Sanitary Engineer*, the State Board of Health of New York, at its meeting in November, considered the complaint that a nuisance had been created by the large deposits of saw-dust at Fort Edward and other places in that State, the decomposition of saw-dust giving rise to considerable sickness, and decided that the complaint was fully supported by the evidence. The subject has been referred to the Attorney General for legal advice. We shall be interested in watching the results of the case, as there is every reason for believing that danger from this source is much greater than is generally supposed, and that legal action will become necessary in a large number of cases as soon as a precedent has been established.

Health of the Jews.—The statistics of London show the mortality of the Jews in that city to be one-half that of the general population. For an explanation of this remarkable fact it is only necessary to refer to the excellent sanitary teaching of the books of Moses, and to recollect that many of the rules there laid down, have been strictly adhered to by the Jewish nation through all their wanderings.

The mortality in the city of Memphis, Tenn., reached sixty for one thousand last autumn, a fact which was due to filthy drinking-water. This degree of mortality is five times as great as is observed in favorable conditions of life, and must be due to criminal neglect on the part of somebody.

Incubator for Babies.—According to the following paragraph from the *London Lancet*, incubators may be as usefully employed for babies as for chickens:—

"M. Tarnier, the surgeon of the Maternity Hospital in Paris, struck by the great mortality among infants prematurely born, and those which are very sickly after birth, has conceived the ingenious idea of constructing a box which is almost exactly similar to the incubators used for poultry. This box is divided into two compartments, the lower one being used as a reservoir for hot water, while the infant is placed in the upper one, which is well stuffed at the sides, and fitted with a sliding glass cover. The temperature is maintained at 86° Fahr., and M. Tarnier has found that by keeping infants in the incubator for a period varying from two days to six weeks, their vitality is enormously improved. He has made experiments upon five six-months' children, six seven-months,' and thirteen

eight-months' children, and he has only lost two of them, whereas, according to his statement, three-fourths of them would have died but for this adventitious aid to vitality."

A Sudden Death.—From the following paragraph it will be seen that the terrible *anthrax*, malignant pustule, which has been so great a scourge in foreign countries, is making its appearance in this country. The rapidity with which the disease accomplishes its fatal work, suggests the importance of exercising the greatest care over the health of cows kept for dairy purposes.

"A cow apparently well one day, and milked the same evening, died the next morning. The spleen was found gorged with blood ; and the day following the death, was found by Professor Joseph Leidy, who communicates the facts to the Philadelphia Academy, to teem with *Bacillus anthracis*. The Bacilli were actually more numerous than the blood corpuscles."

Women Physicians in Boston.—There are at the present time one hundred and eighty women physicians in Boston, many of whom are doing credit to the profession of that city, several having attained considerable eminence as surgeons in connection with the Women's Hospital of that city. The eminent Dr Bowditch, of Boston, at a meeting of the Suffolk Medical Society, recently proposed a resolution censuring the authorities of Harvard University, and the Massachusetts Medical Society, for not admitting ladies.

Talks with Correspondents.

Is Catarrh Curable?—Several correspondents ask, "Is catarrh curable?"

We are aware that nasal catarrh, to which we suppose our correspondents refer, is generally considered one of the most difficult to cure of all curable maladies, notwithstanding the numerous "sure cures" advertised in the newspapers. We have been acquainted with many physicians who express it as their decided opinion that this malady is not amenable to any form of treatment, and only yields to a change of climate. Within the last few years there have, however, been such advancements in the methods of treating this malady, and in the invention of facilities for the application of special remedies, that we may with confidence say that nasal catarrh is one of the most curable of diseases, provided the patient can be placed under proper conditions, and can avail himself of the use of the necessary means. There is no panacea of the disease. No one remedy will cure every case, and perhaps a good remedy may not benefit any two of a half dozen individual cases. Every case must be treated by itself, and with relation to the causes and morbid conditions peculiar to the case. We feel justified in speaking thus confidently with relation to the treatment of this disease, from our experience in the management of several hundred cases of catarrh of the nose and throat during the last few years. Not every case was cured, but all were benefited. Those who continued the treatment for a sufficient length of time were quite cured.

How to Treat Jaundice.—A lady writes us from a Western State requesting us to describe the proper treatment for jaundice.

It will be impossible to lay down a course of treatment by means of which all cases of jaundice may be successfully managed; but our correspondent will find marked out in the "Home Hand-Book of Domestic Hygiene and Rational Medicine" a plan of treatment which will be found successful in the majority of cases. Indeed, we have never failed of success, except in cases in which the jaundice was due to cancerous disease of the liver, or some other structural disease of that organ. The principal features of this mode of treatment, which is original with us, and those to which we attach greatest importance, are the employment of large quantities of hot water internally by the mouth and by the enema, and the employment of such measures as will build up the general health. Vapor baths two or three times a week are useful, as a means of cleaning the skin, relieving the intolerable itching, and aiding elimination. A fruit and grain diet should be adopted.

For the Sick Room.

—Oil of peppermint painted over the affected part is an excellent means of relief for neuralgia ; but no remedy is so generally useful as hot fomentations.

Crick in the Back.—This curious malady is sometimes relieved as quickly as produced, by stretching the back by bending backward across a log or fence. Hot fomentations, with vigorous rubbing, usually give relief quite readily.

Stitch in the Side.—This difficulty is of the same character as the preceding. Hot applications usually give prompt relief. A tight flannel bandage should be worn about the trunk after the fomentation has been given.

Albumen Water.—Dissolve the whites of two eggs in a pint of cold water. Sweeten by the addition of a little glycerine, and flavor, if desired, with a little liquorice root or some other herb. This will be found a very valuable preparation, especially in treating the digestive disturbances of infancy.

Warts.—If the wart is small, it may be cured by touching it with the end of a stick which has been dipped in strong acetic acid. The application should be made several times a day until it is destroyed. If large and old, apply nitric acid in the same way. Lunar caustic and caustic potash may also be used.

Chapped Hands, Feet, and Lips.—Wet, cold, and dirt are the chief causes. The use of poor soap, and imperfectly drying the hands before exposure to cold, are the exciting causes of chapped hands in most cases. To cure, keep them scrupulously clean. Wash them with castile soap and soft water. After wiping them nearly dry, rub them with finely powdered starch.

Washing the hands with water to which a handful of bran or corn meal has been added, is a good remedy.

Another remedy : After thorough washing and drying, at night, apply glycerine, adding a few drops of soft water, and rubbing in well. WEAR GLOVES DURING THE NIGHT.

Sweet cream is another common remedy. Honey is warmly recommended by some. The wet bandage is one of the best of all.

The same remedies are to be used for the lips and feet as for the hands. When fissures, or cracks, occur, keep the edges together by means of adhesive plaster.

A New Remedy for Ivy Poisoning.—Poisoning by ivy is so common in some parts of the country it is quite important that some efficient remedy be ready at hand for immediate use when required. A physician writing to the *New York Medical Journal* recommends sassafras root as an excellent remedy. He states that he has used it upon himself, and in the cases of a great many patients, and prefers it to all other remedies. A strong infusion is made of red sassafras root, allowed to cool, and then applied frequently by means of cloths wet in it. Recovery may be expected within twenty-four hours.

Toothache.—This painful affection is often closely connected with face-ache. It may be due to a decayed or ulcerated tooth, or to disease of the dental nerve. As a remedy, apply hot applications. Bottles filled with hot water, hot bricks or stones wrapped in papers or cloths, hot cloths, bags filled with hot sand, salt, or corn meal, and rubber bags filled with hot water, are convenient methods of applying dry heat. In addition, apply half of a steamed fig (hot) to the diseased tooth. A bit of cotton saturated with laudanum or creosote, and crowded into the cavity of a carious tooth, will often give speedy relief.

Sleeplessness.—Eat an early and light supper of easily digested food ; or, better, eat no supper at all. Do not engage in exciting conversation or amusements during the evening. At an early hour prepare to retire, determined to sleep. Just before going to bed, soak the feet for ten minutes in a pail of hot water. Cool the water a little just before taking them out. This will relieve the brain of a little of its surplus blood. Go to bed at peace with all the world, close the eyes, and fix the mind steadily upon some familiar object until sleep comes. Don't allow the mind to wander if possible to prevent it. If unsuccessful, in addition to the above have hot wet cloths applied to the head after going to bed. A dripping-sheet bath just before retiring sometimes affords excellent results. Gently rubbing the

temples with the hand, and rubbing the spine from above downward and the feet and limbs in the same direction, have a very soothing effect. The warm full-bath is an excellent soporific.

Protection from Mosquitoes.—Annoying bites by mosquitoes are frequently a source of very great inconvenience, especially to invalids, who are little able to bear the disturbance of rest occasioned by these pests. A writer in a scientific journal asserts that a solution of quassia applied to the exposed parts of the body, constitutes a very perfect protection from the bites of these insects: "A weak solution on a child's face, which had become grievously tormented, worked to a charm, preventing the gray-backed suckers from dining on the baby's rosy dimples. All that is necessary is to moisten the face with the solution of quassia."

A Point in the Treatment of Whooping-Cough.—This common malady of children, while not often fatal, frequently seriously impairs the constitution of its victims, and very often leaves behind morbid conditions which predispose to disease of the lungs in after-life.

These considerations, together with the distressing character of the disease, render important every measure which can in any degree ameliorate its symptoms and shorten its duration. An eminent German physician has recently proposed the use of a mustard plaster applied the whole length of the spine every night for a week, to be followed the next morning by sponging of the spine with ice-water. It is recommended that the mustard plaster be applied only long enough to produce slight redness of the surface and no raising of the skin.

We have never employed this means of treatment, but have secured very material relief in these cases by means of alternate hot and cold applications to the spine, which we believe operate on the same principle as the remedy suggested, namely, by stimulation of the nerve centers, and possess the advantage that no harm can result, while the mustard plaster, if neglected, may produce a greater degree of irritation than is desired, which would probably do harm rather than good. However, if used in the manner directed, no harm could come from the use of the mustard plaster, and we think the remedy is worth a trial.

Health and Temperance.

LESSON DEPARTMENT.

THIS department has been added to the journal at the suggestion of the Executive Committee of the American Health and Temperance Association. It will contain each month a lesson on the subject of health or temperance, together with a synopsis of the lesson, articles relating to the subject-matter of the lesson, and suggestions respecting the conduct of health and temperance schools and club meetings.

ALCOHOLIC DRINKS.

(Continued.)

1. WHAT is the effect of alcohol upon the liver?
2. What is the effect of alcohol upon the kidneys?
3. What is the effect of alcohol upon the heart?
4. Is alcohol a preventive of consumption?
5. What is the relation of alcohol to chloroform and ether?
6. What is the effect of alcohol upon the nerves when applied directly to them?
7. Does alcohol, when habitually used, also produce degeneration of the nerves?
8. What is the effect of alcohol upon the brain?
9. Is the use of alcohol a cause of insanity?
10. Does the use of alcohol shorten life, and to what degree?
11. Are the effects of intemperance hereditary?
12. Name as many diseases as you can which have been traced directly to the use of alcohol.
13. What is the effect of moderate drinking, as the use of beer, ale, wine, and hard cider?

SYNOPSIS.

IN the lesson for March we learned something of the nature of alcohol and its effects upon plants and the lower animals, and also upon some of the tissues of the human body. This month we continue the study of the physical effects of alcohol.

When taken into the stomach, alcohol is quickly absorbed, and comes in contact with the liver, in passing through which it works great mischief, at first causing irritation and congestion, and ultimately resulting in enlargement and fatty degeneration. The final result is not infrequently contraction and hardening of the organ, destroying its function altogether, and producing what is known as the "hob-nailed," or gin liver, so frequently found in drunkards. One of the most frequent symptoms of these conditions is dropsy, which is very common in drunkards.

The kidneys suffer very much in the same way as the liver. In the beer-drinker, the usual effects are enlargement, and fatty, or waxy degeneration of the kidneys in which their proper substance is changed to waxy or fatty material. The use of gin or other strong liquors causes contraction and hardening of the kidneys. A very great increase in the frequency of disease of the kidneys in late years is justly attributable to the extensive use of beer and other alcoholic drinks. The disease of the kidneys is

much more frequent in drunkards than in any other class of persons.

The most frequent effect of alcohol upon the heart is to produce the fatty degeneration, or change of its proper tissue to fat, by which it becomes weak and unable to perform its proper functions. Serious affections of the heart are exceedingly common among drunkards.

It has often been asserted that alcohol is a preventive of consumption; but Dr. Richardson of England, and other eminent authorities, have recently shown that it is a cause of disease of the lungs, and in no way operates to prevent diseases of this organ.

A significant fact in relation to the effect of alcohol upon the nervous system is that it possesses anæsthetic properties, that is, it has the power to so benumb the nerves as to destroy proper sensation. Both ether and chloroform, the two great anæsthetics, are manufactured from alcohol, to which they are closely allied.

Applied directly to the nerves, alcohol produces an entire loss of sensation through its paralyzing influence. Alcohol applied to the brain of a pigeon which has been laid bare by the removal of a portion of the skull, instantly produces paralysis of the part to which it is applied. When applied to the base of the brain, the pigeon will act, as nearly as a pigeon can, like an intoxicated man.

When habitually used, alcohol produces diminution of the proper sensibilities of the nerves, and particularly of the brain. An eminent authority states that the habitual use of alcohol produces progressive paralysis of the judgment and also of the will. The habitual use of alcohol also leads to changes in the brain and nerves which may result in complete paralysis of some portion of the body, softening of the brain, or fatty degeneration, a change similar to that which takes place in the heart, muscles, liver, etc.

The effect of alcohol upon the brain when habitually used is often to harden it to such an extent that it is possible to distinguish the brain of a drunkard from that of a total abstainer by the sense of touch alone, in an examination after death. The moral effects of alcohol will be considered in a future lesson.

Statistics show beyond room for doubt or question, that the use of alcohol is one of the most frequent causes of insanity. According to statistical authorities, more than one-third of all the cases of insanity among males in France is due to alcoholic drinks; and some authorities state that one-half the inmates of the Dublin Insane Asylum were made insane by intemperance. Some English authorities present a still darker picture of the effects of alcohol upon the mental faculties.

The statistics of insurance companies show that between the ages of twenty-one and thirty the mortality of spirit-drinkers is five hundred per cent greater than that of total abstainers. Between these ages, fifty-one intemperate persons die to ten that are temperate. This fact is now so generally known that the best of the insurance companies will not insure a person who habitually uses alcoholic liquors.

Alcoholic drinks affect not only the user, but also his children. The records of hospitals and insane asylums show that the children of drunkards are particularly subject to various forms of diseases which shorten life, but particularly to diseases of the nervous system, insanity being more common in the children of drunkards—themselves not intemperate—than among their intemperate parents.

Numerous diseases have been traced to the use of alcoholic drinks, among which may be mentioned heart disease, dyspepsia, diseases of the lungs, liver, and kidneys, apoplexy, paralysis, epilepsy, cancer, idiocy, and numerous other diseases involving every portion of the body.

It should be generally understood that all the worst effects of alcohol are produced by its so-called "moderate use" as well as what is generally recognized as excess. The eminent Dr. Chambers asserts that "the action of frequent divided drams is to produce the *greatest amount of harm* of which alcohol is capable, with the least amount of good."

[Additional information respecting the physical effects of alcoholic drinks may be gathered from the study of "Alcoholic Poisons," and the various temperance tracts for sale at this office, of which every teacher ought to possess an assortment.]

LITERARY NOTICES.

THE STUDENT. — This monthly educational journal is devoted to the interests of education in the Society of Friends. We like its tone, and are especially pleased to note a great many common-sense suggestions relating to health and proper physical and mental development. We trust this periodical will receive the pecuniary support it deserves, and that it may flourish well and long.

THE AMERICAN SETTLER'S GUIDE.—The third edition of "Copp's Settler's Guide," a popular exposition of our public land system, is before us. It is edited by the well-known author, Henry N. Copp, of Washington, D. C. Its price is only 25 cents in paper and 75 cents in cloth: 8vo, 114 pp. The chapter on Surveys is illustrated, and shows how to tell township and section corners, etc. The chapters on Homesteads, Pre-emptions, and Timber Culture contain the latest rulings and instructions. Every settler and land-man should have a copy of this valuable little book.

THE AMERICAN MONTHLY MICROSCOPAL JOURNAL is published by Romyn Hitchcock, F. R. M. S., 53 Maiden Lane, New York.

This monthly is by far the ablest periodical of the kind in this country, and is largely taken by active microscopists in the United States and Canada.

Publishers' Page.

☞The editor reports himself and party as having arrived safe in London, none the worse for the ocean voyage, which was an unusually pleasant one, and very advantageously located in the most salubrious portion of the metropolis of the world. He promises an article upon ocean travel and London for the next number.

☞The physicians and patients at the Sanitarium were made happy on the 22d by the return of Miss Hattie Sanderson, from the Medical College at Ann Arbor. Miss Sanderson is quite at home in her work at the Sanitarium, and her assistance, always valuable, is especially acceptable at this time.

☞Mrs. L. M. Hall arrived at the Sanitarium, from California, on the 19th. She returns in good health and spirits, and will occupy the position of matron. Mrs. Hall possesses executive ability of a high order, while her varied experience eminently qualifies her to fill the position assigned her.

☞All purchasers of the new Alcohol and Tobacco plates are entitled to a copy of Dr. Kellogg's Lake Bluff lecture on the "Physical Effects of Alcohol and Tobacco." Copies have been sent to purchasers of the plates so far as their addresses were known. If there are any who have not received the lecture, we should be glad to hear from them, and will see that a copy is sent at once.

☞New patients are constantly arriving at the Sanitarium. Although the physician-in-chief is greatly missed, a feeling of confidence in the competent corps of physicians left in charge seems to prevail. A spirit of hopefulness and good cheer is noticeable among the patients, indicating that the possessors are conscious that they are nearing the goal of their long-cherished hopes,—good health.

☞A private letter from Mrs. Dr. Kellogg, written in London soon after their arrival, mentions some incidents of the voyage. She says: "We had a very pleasant passage, that is, as pleasant as an ocean voyage is apt to be. The first three days were exquisitely lovely and balmy. The fourth day we were in the Gulf Stream, and a warm rain began falling in the night, so by morning the sea was quite turbulent, and the waves were high and angry. We had a beautiful calm sea nearly the whole of the remaining voyage. Some days there was scarcely a ripple to break the smoothness of the water's surface. We were just thirteen days on the ocean, and in most respects they were very enjoyable days." The Doctor and his party expect to remain in London a month before pursuing their journey on the continent.

☞Wanted at the Sanitarium, half a dozen young women to learn nursing, massage, the use of electricity, and other branches of the practical medical department. None need apply except persons who are strong. Applicants must possess the following qualifications: 1. Good health; 2. Fair intelligence and education; 3. They must be able to give first-class recommendations; 4. They must be willing to contract to remain from two to five years at reasonable wages. The position offered is a good one, and the knowledge acquired will not only be of great practical value to the individual, but can be made valuable anywhere as a ready and easy means of gaining a livelihood. Persons who wish to avail themselves of this excellent opportunity should at once address Sanitarium, Battle Creek, Mich., giving full particulars as to age, health, character, etc.

☞An entertainment was given in the Sanitarium Parlors, Thursday evening, the 22d, consisting of music by the Battle Creek Orchestra, recitations, and vocal and instrumental music.

☞The *Medical Temperance Journal*, published quarterly at the National Publication Depot of London, is one of the most useful helps for temperance workers with which we are acquainted. The subscription price is $1.00 a year. Orders for the *Journal* may be addressed to Miss Julia A. Colman, 76 Bible House, New York.

☞A letter received from a temperance lecturer informs us that as the result of a temperance lecture from our new "Temperance Charts," which illustrate the effects of tobacco and alcohol upon the human system, fifty young men renounced the use of tobacco. The charts are meeting with general favor wherever they have been introduced.

☞The patients at the Sanitarium had the pleasure, a few mornings since, of listening to Mrs. D'Arcamble, Superintendent of the W. N. C. T. U. work in prisons. The parlor was well filled with attentive listeners, and the earnest words of the speaker were calculated to awaken philanthropic sentiments that should ever find expression in good works. Her audience is favorably impressed at once by her energy, sincerity, ability, and refinement.

☞We are glad to hear from a number of our temperance workers, that there is considerable interest in our Health and Temperance Lesson Department. We shall be pleased to receive and publish reports of meetings of clubs that use the lessons, and shall also be happy to receive suggestions respecting the subject matter of the lessons, and other items of interest to health and temperance workers. Many of the papers read in the clubs will undoubtedly be valuable for publication in GOOD HEALTH. We shall be glad to receive articles from the members of clubs, and will doubtless make use of most of them.

☞The weather prophets seem to have been mistaken this time, at least. The terrible storm predicted to occur this month did not happen according to the prediction, although the devastation from the great floods along the Ohio River undoubtedly resulted in the destruction of as much property and as many lives as the predicted storm would have done. In speaking of the floods, it occurs to us that it may not be out of place to suggest to the drowned-out inhabitants of the low-lands along the Ohio, that it would be well for them to act upon the hint which Nature has given them so broadly, that such a site is not a healthy one to build upon. The great flood is so openly destructive that every one's attention is called to its results. The actual destruction occasioned by the flood of waters is a very small item compared with the death and disease which result from the more insidious influences constantly at work in such low, damp localities as the greater portion of the flooded district is most of the time.

☞Everything is progressing as satisfactorily as usual at the Sanitarium. There are fully as many patients as in any previous year at this season. March 22d there were twelve arrivals.

☞In the next number of GOOD HEALTH will appear another of the Parlor Lectures delivered at the Sanitarium by J. H. K., entitled "THE LIVER." It can also be had as a 4-page tract, size of GOOD HEALTH page.

☞MRS. LAMSON, who for the past six years has occupied the position of matron at the Sanitarium, feeling the need of rest and change, will in a few days accompany her son and wife to their home in Dakota. She will be greatly missed. The good wishes of her many friends follow her.