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THE BLACK HOLE OF CALCUTTA.

ALL of our readers have read of the Black Hole of Calcutta, where one hundred and forty-six men were imprisoned in a small, unventilated prison, in which the greater number died in a few hours, destroyed by the poisonous emanations from their own bodies. The following account of this horrible experience is from the pen of the commanding officer, Mr. Holwell, who was one of the few survivors:—

"Figure to yourself the situation of a hundred and forty-six wretches, exhausted by continual fatigue and action, crammed together in a cube of eighteen feet, in a close, sultry night in Bengal, shut up to the eastward and southward (the only quarter whence air could reach us) by dead walls, and by a wall and door to the north, open only to the westward by two windows strongly barred with iron, from which we could receive scarce any the least circulation of the fresh air. . . . We had been but a few minutes confined before every one fell into a perspiration so profuse you can form no idea of it. This brought on raging thirst, which increased in proportion as the body was drained of its moisture. Various expedients were thought of to give more room and air. To gain the former it was moved to put off their clothes; this was approved as a happy motion, and in a few moments every one was stripped—myself, Mr. Court, and the two young gentlemen by me, excepted. For a little while they flattered themselves with having gained a mighty advantage; every hat was put in motion to gain a circulation of air, and Mr. Baillie proposed that every man should sit down on his hams. This expedient was several times put in practice, and at each time many of the poor creatures, whose natural strength was less than that of others, or who had been more exhausted, and could not immediately recover their legs when the word was given to rise—fell to rise no more, for they were instantly trod to death or suffocated. When the whole body sat down, they were so closely wedged together that they were obliged to use many efforts before they could get up again. Before nine o'clock, every man's thirst grew intolerable, and respiration difficult. Efforts were made to force the door, but in vain. Many insults were used to the guard to provoke them to fire on us. For my own part, I hitherto felt little pain or uneasiness, but what resulted from my anxiety for the sufferings of those within. By keeping my face close between two of the bars, I obtained air enough to give my lungs easy play, though my perspiration was excessive, and thirst commencing. At this period, so strong a urinous volatile effluvia came from the prison, that I was not able to turn my head that way for more than a few seconds at a time.

"Now everybody, except those situated in and near the windows, began to grow outrageous, and many delirious. *Water! water!* became the general cry. An old Jemantdaar, taking pity on us, ordered the people to bring us some skins of water. This was what I dreaded. I foresaw it would prove the ruin of the small chance left us, and assayed many times to speak to him privately to forbid its being brought; but the clamor was so loud it became impossible. The water appeared. Words cannot paint the univer-

sal agitation and raving the sight of it threw us into. I flattered myself that some, by preserving an equal temper of mind, might outlive the night; but now the reflection which gave me the greatest pain was that I sawno possibility of one's escaping to tell the dismal tale. *Until the water came, I had not myself suffered much from thirst, which instantly grew excessive.* We had no means of conveying it into the prison but by hats forced through the bars; and thus myself, and Coles, and Scott supplied them as fast as possible. But those who have experienced intense thirst, or are acquainted with the cause and nature of this appetite, will be sufficiently sensible it could receive no more than a momentary alleviation: the cause still existed.

"Though we brought full hats through the bars, there ensued such violent struggles and frequent contests to get it, that before it reached the lips of any one, there would be scarcely a small teacupful left in them. These supplies, like sprinkling water on fire, only seemed to feed the flames. Oh! my dear sir, how shall I give you a just conception of what I felt at the cries and cravings of those in the remoter parts of the prison, who could not entertain a probable hope of obtaining a drop, yet could not divest themselves of expectation, however unavailing, calling on me by the tender considerations of affection and friendship. The confusion now became general and horrid. Several quitted the other window (the only chance they had for life) to force their way to the water, and the throng and press upon the window was beyond bearing; many, forcing their way from the farther part of the room, pressed down those in their passage who had less strength, and trampled them to death.

"From about nine to eleven I sustained this cruel scene, still supplying them with water, though my legs were almost broken with the weight against them. By this time I myself was near pressed to death, and my two companions, with Mr. Parker, who had forced himself to the window, were really so. At last I became so pressed and wedged up, I was deprived of all motion. Determined to give everything up, I called to them, as a last instance of their regard, that they would relieve the pressure upon me, and permit me to retire out of the window to die in quiet. They gave way, and with much difficulty I forced a passage into the center of the prison, where the throng was less by the many dead, amounting to one-third, and the numbers who flocked to the windows; for by this time they had water also at the other window. . . . . I laid myself down on some of the dead, and, recommending myself to heaven, had the comfort of thinking my sufferings could have no long duration.

"My thirst now grew insupportable, and the difficulty of breathing much increased; and I had not remained in this situation ten minutes before I was seized with a pain in my breast, and palpitation of heart, both to the most exquisite degree. These obliged me to get up again, but still the pain, palpitation, and difficulty of breathing increased. I retained my senses notwithstanding, and had the grief to see death not so near me as I had hoped, but could no longer bear the pains I suffered without attempting a relief, which I knew fresh air only would and could give me. I instantly determined to push for the window opposite to me, and by an effort of double the strength I ever before possessed, gained the third rank at it—with one hand seized a bar, and by that means gained a second, though I think there were at least six or seven ranks between me and the window. *In a few moments the pain, palpitation, and difficulty of breathing ceased,* but the thirst continued intolerable. I called aloud, '*Water for God's sake.*'

"I had been concluded dead; but as soon as the men found me among them, they still had the respect and tenderness for me to cry out, '*Give him water!*' nor would one of them at the window attempt to touch it till I had drunk. *But from the water I had no relief; my thirst was rather increased by it;* so I determined to drink no more, but patiently wait the event. I kept my mouth moist from time to time by sucking the perspiration out of my shirt sleeves, and catching the drops as they fell like heavy rain from my head and face; you can scarcely imagine how unhappy I was if any of them escaped my mouth. . . . I was observed by one of my companions on the right in the expedient of allaying my thirst by sucking my shirt sleeve. He took the hint, and robbed me from time to time of a considerable part of my store, though, after I detected him, I had the address to begin on that sleeve first when I thought my reservoirs were sufficiently replenished, and our mouths and noses often met in contact.

This man was one of the few who escaped death, and he has since paid me the compliment of assuring me he believed he owed his life to the many comfortable draughts he had from my sleeves. No Bristol water could be more soft or pleasant than what arose from perspiration.

"By half-past eleven the much greater number of those living were in an outrageous delirium, and others quite ungovernable, few retaining any calmness but the ranks near the windows. They now all found that water, instead of relieving their uneasiness, rather hightened it, and 'Air! air!' was the general cry. Every insult that could be devised against the guard was repeated to provoke them to fire on us, every man that could, rushing tumultuously toward the windows with eager hopes of meeting the first shot. But these failing, they whose strength and spirits were quite exhausted, laid themselves down, and quietly expired upon their fellows; others, who had yet some strength and vigor left, made a last effort for the windows, and several succeeded by leaping and scrambling over the backs and heads of those in the first ranks, and got hold of the bars from which there was no removing them. Many to the right and left sunk with the violent pressure, and were soon suffocated; for now a steam arose from the living and the dead, which affected us in all its circumstances, as if we were forcibly held by our heads over a bowl of strong volatile spirits of hartshorn until suffocated; nor could the effluvia of the one be distinguished from the other.

"I need not ask your commiseration when I tell you that in this plight, from half an hour after eleven till two in the morning, I sustained the weight of a heavy man with his knees on my back, and the pressure of his whole body on my head; a Dutch sergeant who had taken his seat on my left shoulder; and a black soldier bearing on my right,—all of which nothing would have enabled me to support but the props and pressure equally sustaining me all round. The two latter I frequently dislodged by shifting my hold on the bars, and driving my knuckles into their ribs; but my friend above stuck fast, and, as he held by two bars, was immovable. The repeated trials I made to dislodge this insufferable encumbrance upon me, at last quite exhausted me, and toward two o'clock, finding I must quit the window or sink where I was, I resolved on the former, having borne truly, for the sake of others, infinitely more for life than the best of it is worth.

"I was at this time sensible of no pain and little uneasiness. I found a stupor coming on apace, and laid myself down by that gallant old man, the reverend Jervas Bellamy, who lay dead with his son, the lieutenant, hand in hand, near the southernmost wall of the prison. Of what passed in the interval, to the time of resurrection from this hole of horrors, I can give you no account."

At six in the morning the door was opened, when only three-and-twenty out of the hundred and forty-six still breathed. These were subsequently revived.

"IS CONSUMPTION CATCHING?"

A WRITER in *Health* offers some interesting facts respecting this very important question. We quote as follows:—

"There has long existed a belief in the popular mind—founded, no doubt, on that untrained experience which is in itself a powerful teacher of facts—that consumption is 'catching.' People have long possessed the idea that it is not a good or wise practice to permit the consumptive and the healthy to sleep together; and, as we shall see, there is apparently every justification for this idea. If the *bacilli* are the causes of consumptive disease; and if, as experiment proves, they are coughed up from the lungs of patients, and pass out in the breath, it is by no means a far-fetched supposition that they may be inhaled by persons whose 'predisposition' (or bodily tendency) or health is such as to adapt them to become infected. If, as we thoroughly believe, consumption *is* infectious in this sense, the *bacilli*, or microscopic living particles, passing from sick lungs to other lungs, susceptible in one way or another to their influence, constitute the means of infection.

"But very recently there has been laid before the medical profession an interesting series of observations connected with the communicability of consumption. 'The Collective Investigation Record' of the *British Medical Association* has supplied us with a variety of cases illustrating this latter tendency. Leaving out doubtful cases, and those in which no evidence tending, one way or the other, for the infectious nature of the disease has been noted, there remains a list of cases, recorded by medical men, in which the

evidence for the infectious nature of consumption is singularly complete.

"In 119 cases the disease is recorded as having been transmitted from husband to wife, and in 69 from wife to husband; while in 130 of these cases, it is stated, there was no family tendency to the disease in the partner to whom the disease was conveyed. In 32 cases there was infection between brothers and sisters, and *vice versa*. What, however, are we to think of strange cases, such as the following? A servant nurses her master and mistress; the former contracting consumption from his wife, and the servant dying in turn of the disease. A dressmaker, aged 48, 'living in rather a lonely cottage,' had three girls, apprentices, *not related to one another*. These girls resided in turn, for a week at a time, with the mistress, occupying the same bed as the latter. During their apprenticeship, the mistress died of consumption; and, *in less than two years afterward, all three apprentices died of consumption*. There was no tendency to the disease in the history of any of the girls. A healthy servant girl, aged 19, slept for several months with a fellow-servant. The latter left her situation on developing consumptive symptoms; and the healthy girl ultimately developed consumption, and died of the disease, no other member of her family having been affected before or since. A child, having an absolutely healthy family history, was nursed by a consumptive servant. The child contracted the disease, which, as might be expected, ran a rapid course, and ended fatally.

"It is needless to prolong the list of such cases, which, in their plain, unvarnished statement of facts, taken along with the scientific history of the disease, supply a clearly affirmative answer to the question which heads this article. That which is of supreme importance, as a practical deduction from the latest facts of science, is the health knowledge we acquire from a study of consumption and its history. We may sum up our health-maxims concerning consumption as follows:—

"1. In any case of chest-trouble of consumptive nature, it is highly improper for the patient to occupy the same room with another person.

"2. This holds especially true of the case of the young, who should be carefully supervised in their relations to possible sources of danger from nurses and others.

"3. The ventilation (and disinfection) of the rooms occupied by consumptives should be continually practiced. The disinfection of all matters brought up from the lungs should also be thoroughly carried out.

"4. The high importance of maintaining the *general health* is also indicated; for it may be laid down as a general rule that consumption (and all other diseases, in fact) is more likely to attack us when our health is below par, than when we are in good health. A low condition of the general health is, in fact, the borderland leading to many diseases."

THE IMPROVEMENT OF THE MEMORY.

BY DR. ANDREW WILSON.

NATURALLY enough, the topic of memory-improvement forms the end and focus of all thoughts, reflections, and considerations regarding the recollective powers. Of all complaints of body and mind, that of a "bad memory" is perhaps the most commonly bewailed. The only surprising part of the practice in question appears to consist in the fact that, despite the avowal that the memory is deficient in exactitude, there is often illustrated an utter carelessness respecting its improvement. This indisposition to better the memory powers arises, I believe, chiefly from the idea that the recollective powers are little, if at all, susceptible of cultivation, education, or improvement. People, as a rule, are content to jog on in their accustomed way, feeling their memory deficiences acutely, and regretting their inability to "remember" the details of business or life at large; but, at the same time, making no effort whatever to bestir themselves in the matter of improvement. The idea that a bad memory "comes by nature," and is insusceptible of improvement, has become fixed in the minds of the majority of persons. Until this exceedingly false notion is removed, and replaced by the true idea,—namely, that, under ordinary circumstances, the memory may be wonderfully improved and cultivated,—mental progress will be retarded, and intellectual growth fail to reach even a moderate degree of possible development.

One of the points most necessary of recognition and remembrance in connection with the memory and its culture, is that which insists on the mutual interdependence of memory upon the bodily state

and physical organization. In this respect, memory does not stand alone. Like every other mental trait, the memory shares, under ordinary circumstances, the health of the frame which owns it. There is a material basis of healthy mind, apart from all considerations of a metaphysical kind, in healthy brain-structure, in pure blood, fresh air, and well-nourished nervous tissue. This much no one may deny. Hence, one prolific cause of some memory-ailments of very frequent occurrence, is simply bodily ill-health. Ordinary and slight ailments of body, loss of tone, weariness, fatigue, and especially overwork, are each and all powerful causes of memory-weakness.

The class of subjects who most frequently exhibit memory-weakness from these causes, are undoubtedly professional men. The busy lawyer, doctor, clergyman, teacher, or the worried merchant, are especially liable to failures of recollective power from ordinary ailments of body. And among such ailments, overwork is perhaps, in its turn, the most common. The tired and jaded brain will, in time, refuse to exert itself. The effort to recollect becomes even painful. The pen of the journalist, in such circumstances, pauses in the endeavor to recollect appropriate words, terms, and expressions, which, at other times, and in a healthy state, literally flow from his brain. The doctor forgets the details of the cases he sees; his patients have to remind him, greatly to his disgust, of directions and orders he formerly gave. The clergyman or lecturer fails to hit the continuity of thought necessary for fluent expression. The lawyer cannot easily piece together the details which form his "case," and so on.

The memory-troubles which are most common and most troublesome are really the offspring of overwork, mental lassitude, or bodily ailments of common-place kind; and it should be borne in mind that such memory-troubles are not the least important, because they arise from well-known causes. On the contrary, it is because they are often readily recovered from, that they are apt to be neglected; and it is because they are apt, by frequent repetition, to grow in intensity, that they demand special notice here.

Sir Henry Holland has placed on record a highly illustrative example of the effects of over-exertion on the recollective powers. He descended in one day two very deep mines in the Hartz Mountains, remaining underground for some hours in each mine. "While in the second mine," says the author, "and exhausted both from fatigue and inanition, I felt the utter impossibility of talking longer with the German inspector who accompanied me. Every German word and phrase deserted my recollection, and it was not until I had taken food and wine, and been some time at rest, that I regained them again.'

Now, in this case, it is evident there was loss of memory from sheer physical exhaustion, the case being that of a highly-cultured man. What was seen in an extreme degree in Sir Henry Holland occurs frequently, in a less marked degree, in the subjects of overwork and loss of nervous and bodily tone at large. It is not uncommon to find examples of the same kind in the young. In school-children, over-anxious as regards their work, and especially in those preparing for examinations and competitions, loss of memory from combined over-exertion and inattention to bodily nourishment is only too well known. The boy or girl who is so eager to learn that meal-times and play are together regarded as unwelcome occurrences in the day's round of duties, is a subject who deserves careful, and even stern, parental treatment. These are the subjects who, crammed to repletion with knowledge, often well enough digested, and by no means gained by rote, find their memories fail them, for the simplest matters, at the examination-table; and these are precisely the cases in which absolute rest, attention to diet and digestion, with perhaps the addition of a simple tonic, suffice to restore the mental powers to their wonted activity.

I have frequently known cases of students, who, under circumstances similar to those above described, have "burned the midnight oil" successfully enough as regards the acquirement of knowledge, but unsuccessfully as regards their mental health. On appearing at the examination-table, and on being questioned by the examiner concerning the simplest and most trivial details, they stumble, hesitate, and finally break down. In such cases the examiner's duty becomes clear, and personally I have frequently acted upon this rule with unvarying success; namely, to request the student to return home, to eschew books and studies entirely for the day and night, and to return to the examination-hall after twenty-four hours' complete rest of body and mind. The candi-

date reappears refreshed and eager for his trial, and finds no difficulty in satisfactorily answering questions of which the day before he had lost all cognizance. The case of the wearied child at the close of a long day spent in a heated and often ill-ventilated school-room is precisely similar. The teacher may threaten as he likes, no result is produced, save, perhaps, that of tears. The child's physical nature is exhausted, overstrained, and weary; and a scamper in the fresh air, with no thought of lessons, is, in such cases, the only medicine of any avail in restoring the jaded powers of mind.

The more clearly the interdependence of body and mind is discerned, the less surprised or astonished will we feel on learning, by the experience of our own state or by that of others, the immense harm which physical overstrain effects in the case of the recollective powers. It might be added that failure of the memory-powers in the ordinary individual is frequently the first sign and symptom of that overwork and loss of tone which demands rest as its sovereign remedy.

The business or the professional man who begins to notice memory-failure in his own case, usually observes also that he is clear-headed each morning, after the rest of the night, but fails as the day wears on. These indications, neglected month by month, it may be, result in memory-disorganization. Brain, like body, is longsuffering enough, but there is a limit to the endurance of both. Hence, when the memory fails in the active individual, he should seek rest. The sea-breezes or the mountain-side should allure him from his desk or study; and the quiet, which, if wise, he will seek, will be found the only safe and effective means for restoring those powers which are our willing servants,—so long, indeed, as we treat them reasonably and well.—*Health.*

FLAVORED CIGARS.

"MOST people like a flavored cigar," said an Indianapolis druggist to a reporter, who had stepped in to buy a weed. "Try one of these; I think you will like it." The reporter took one of the brand recommended to him, lighted it, and began to smoke.

"I have to put up considerable cigar flavor," continued the drug man, "and I suppose some men would n't find it so difficult a thing to quit smoking if they knew what the popular flavors are made of. On second thought, though, I don't think it would make any difference. The fact that 'snipes'—that is, old cigar stumps—are worked over into cigarettes and smoking tobacco, though thoroughly ventilated in the newspapers, never cured a smoker of the habit. Awhile ago it was shown that some nasty diseases were contracted from smoking cigars made in low tenement houses and by leprous Chinese; but the smokers never flinched, but smoked calmly on."

"Tell me something about these flavors," said the reporter.

"Well, since you insist on it, I will. A flavor I have made a good deal of—it's a flavor that, in the language of the trade, makes a 'ten cent cigar for five cents'—is made as follows: Gum guaiac, gum tolu, tonqua beans, and essence of pine-apple, of each one ounce; valerian root, two ounces; laudanum (tincture of opium) one ounce; oil of rose, six drops; Jamaica rum, half a pint; macerate for thirty-six hours, and pour off, using one ounce to a pint of port-wine to blow on the fillers.

"A good many men who get attached to a certain brand of cigars don't know what chains them. It's the opium; and they get in the habit of using it unconsciously. Valerian taken habitually renders the heart's action more rapid, but feebler, causes hurried respiration, and may occasion congestion of the kidneys. If its use is long-continued, it may paralyze the spinal cord, so the books say. Its action on the tongue and throat is more prompt and apparent, frequently causing epithelium. As to opium, its infernal effects are well known. It would take an almanac to enumerate all the diseases it occasions. It produces contraction of the pupils of the eyes, affects the digestive functions by blunting the gastric sensation, checking all tissue changes. It tends to constipate the bowels by diminishing the proper secretions of the liver and pancreas; and the blood, being but partially oxygenated, is rendered unfit for a return to the heart, and stagnates in the lungs. Opium has a tendency to augment Bright's disease, diabetes, and other diseases of the kidneys. It's opium and valerian that makes the artificially flavored cigar popular."—*Indianapolis Journal.*

—"Alternate rest and labor long endure." "Soon fire, soon ashes."

BUTCHER OR BAKER?

THERE is remarkable vitality in a question, which, after twenty-five hundred years of agitation, comes up smiling and vigorous before the bar of public opinion.

According to historical records, in the year 607 B. C., the king of Babylon besieged Jerusalem, and succeeded in capturing the king of Judah, as well as a number of his subjects. Instead of putting his captives to death, in the orthodox style of old kings, the conqueror selected four of the wisest and strongest among them, with a view to educating them in the highest style of the art of education as it obtained at that period. He was in no hurry, however; and before their higher education began, he determined that the four should be as strong and healthy in body as it was possible to make them. To this end, he gave orders that their bodies be carefully attended to for three years, and they be fed on the same food, meats, and wines as he consumed himself. At the end of three years they were to come before him for inspection. A eunuch named Ashpenaz was responsible for their welfare, having been given plainly to understand that if the captives did not present a first-class, A 1 appearance at the end of the preparatory period, his head would be shorn from his shoulders.

Under the circumstances, imagine the chagrin, not to say terror, of Ashpenaz, when one of the captives positively refused to eat a morsel of meat of any kind!

"But you must eat meat and drink wine, my dear sir!" cried Ashpenaz, in effect. "If you do not do so, you will grow weak and emaciated; your face will look sad, and when the king takes note of your appearance, my head will be in danger."

It was in vain that the captive, Daniel by name, declared meat to be a curse instead of a blessing, and assured Ashpenaz that he would thrive much better on a vegetable than on an animal diet. The eunuch had no faith in such doctrine; but finally, in order to convince Daniel of his mistake, he consented to make a test of the matter for ten days, and for that length of time he fed the four captives upon pulse (wheat) and water alone, while four others were fed upon meats from the king's table.

At the end of ten days the vegetarians were fairer, fatter, and more vigorous in every way than the flesh-eaters. Convinced by the testimony of his own eyes, Ashpenaz was won over. For three years, Daniel and his companions subsisted upon pulse and water. When, on the appointed day, they were presented before the king, the vigor of their frames, and the beauty and health shining in their faces so pleased him that he—but we have no space for the continuation of the story. It may be found in the first and succeeding chapters of the book of Daniel. It is enough that we have shown how highly the nourishing qualities in a grain of wheat were appreciated twenty-five centuries ago.

Of course, the bread at that time was manufactured in such a primitive manner that its nourishing qualities can compare in no way with the bread upon our tables to-day, especially that upon the tables of those who use flour manufactured from hard Minnesota wheat, by the newly-discovered process of milling without mill stones—the Hungarian process. To quote from the New York *Sun*, of May 11, 1884: "Take a grain of wheat, view it through the microscope, and what do you see?—A rough, bristling structure, as shaggy as the bark of an old oak, much dust and dirt, many insects' eggs stored away in the crevices, and shaggy hairs on one end that hold in their embrace any quantity of dirt. You feel certain that these substances were never designed for human food. Chemistry indicates nothing nutritive in wheat shells (bran), and even the flavor of the grain is absent. You put some of the bran in your mouth, and the particles of glass (for that is what they are) furrow into the membranes, and irritate and inflame them.

"To-day, instead of the old mill-stone, rollers made of steel or chilled iron are used, and the wheat is reduced to flour by several successive breaks. By this method,—the Hungarian process,—nothing goes into the flour barrel but the pure flour."

In their bread, Daniel and his companions necessarily devoured the dirt and wheat shells described above, and in consequence, to an extent, failed to get as much benefit from the pulse diet as we get to-day. In fact, the new process of milling is the only one which furnishes flour perfectly free from the glassy particles of bran, and hence it is only for the past few years that we have been able to have perfect bread. If the baker could prove his food products superior in point of nutriment to those of the butcher thousands of years ago, how much more easily can he do the same to-day!

In fact, it does not devolve on baker or miller to prove the superiority of bread over meat. From the memoirs of the Royal Society of France, we find that Dr. Geoffry, an eminent French physician and professor of chemistry in the best of French educational institutions, has done this very thing, and made an exhaustive series of experiments to decide upon the relative proportion of nourishment in the two. We have no room here to publish the entire table, which he furnishes as the result of his labors, but an extract will serve our purpose. He finds the following nutriment in—

	Oz.	Dr.	Gr.
1 pound beef	0	7	8
1 pound veal	1	1	48
1 pound mutton	1	3	16
1 pound chicken	1	4	34
1 pound bread	4	1	0

which makes the relative values of one pound of beef, 7; veal, 9; chicken, 12; bread, 33.

Taking these figures as a basis, our grocers might sell their flour at the rate of 75 cents per pound, and at the same time the buyers would pay no more for it, relatively, than they now pay for beef. The table shows that the nutritive element in bread is five times that in beef, by which we may at once see that one pound of flour is worth five pounds of beef. Putting the average price of beef at 15 cents per pound, we have our statements verified, 5 times 15 being 75.

The extravagance of beef-eating is certainly not popularly appreciated.

"But we cannot live without meat!" cries the unthinking element of the world in a chorus. "The structure of man's body proves that he was meant to be a flesh-eating animal. His pointed canine teeth are evidences of this."

Baron Cuvier, perhaps the most eminent authority on comparative anatomy in the world, says in effect:—

"In his organs of digestion, man resembles no carnivorous animal. The structure of his frame is that of one fitted to a purely vegetable diet in every essential particular."

The monkey race and the herb-eating camel have canine teeth much more highly developed than they are in man, and who is willing to declare that the monkey or camel should eat meat in order to be vigorous?

After years of total abstinence from animal food of all kinds, Dr. W. A. Alcott, well known in New England, says:—

"I have no doubts of the vast importance that would result to mankind from the universal and exclusive use of vegetable food. I believe such a course would be the means of improving our race physically, intellectually, and morally beyond anything of which the world has yet conceived."

"Our proof," says Rousseau, "that the taste of meat is not natural to the human palate, is the indifference which children have for that kind of food, and the preference they give to vegetable aliments, such as milk, pastry, bread, fruits, etc."

That animal food is eaten, and serves for the nourishment of the human species, proves nothing at all. Horses, sheep, and oxen are universally allowed to be herbivorous animals; and yet there are instances of their learning to live upon flesh. The Norwegians feed fish to their domestic animals, and it is no uncommon sight in Norway to see a cow gnawing a bone like a dog. In his "History of the Earth," Goldsmith says: "The appetite of domestic animals may be changed, and those that feed only on grass may be rendered carnivorous. I have seen a sheep that would eat flesh, and a horse that was fond of oysters;" all of which goes to prove that the baker out-ranks his sanguinary brother as a producer of aliment, and should make our readers thoroughly alive to the value of wheat products.—*The Chicago Grocer.*

CARE FOR THE WHOLE MAN.

TEMPERANCE reformers are sometimes apt to regard abstinence from drink the *alpha* and *omega* of temperance. It is encouraging to see, now and then, an evidence that at least a few of those engaged in this noble reformatory work are sufficiently broad in their ideas to grasp the whole truth, as well set forth by the following extract from a sermon by an English clergyman:—

"We hear much, in these days, of intemperance; but how are we to understand what intemperance means, if we do not study God's will as shown in our constitution? I have no doubt—nobody can doubt—that intemperance in eating or drinking is a bad thing. What I wish, however, to point out, is that men may ruin their health and do themselves an injury in many other ways besides eating

and drinking. Intemperance may mean energetic action kept up too long in any one part to the injury of the rest or some other part. Teetotalers are apt to think that they can get wrong only through energetic drinking. But hard study will concentrate nervous power on the brain, and in consequence, weaken a man's stomach, as well as too much drinking. This is, indeed, the simple explanation of the common and well-known fact of so many literary men suffering from indigestion. Many of our great men have died at a comparatively early age from this overbalancing of energy. I do not doubt that a very great number, probably the greatest number, injure their bodily framework through excessive drinking. But this is only one form of intemperance. The lesson, the general lesson, for taking a broad and general view of the subject of the human body, is that God meant us to study it, and avoid undue pressure upon any one part or function which might bring damage to another part. The system is a natural balance, which we cannot disturb without loss. We need prudence in all things. My only objection to teetotal nostrums is this—that being partial, they are not philosophical—not based upon principles of a sufficiently wide application to be considered philosophically. I have no doubt good is done by total abstinence or temperance in drink, because harm is done by the opposite. But I have noticed so great a tendency to something like fanaticism or infatuation among temperance advocates, that I have an opinion that some of them, having put the gag upon drink, have run riot, and injured their own constitution in other ways. Temperate in what they drink, they have fallen into a want of temperance in what they say. It is of little use to preach temperance in drinking, if we do not practice it in speaking. Let us, then, be temperate in all things, as well as in what we eat and drink. You will not misunderstand my remarks. I am no opponent of temperance societies. They do a partial good in so far as they restrain men from excesses who could not be otherwise restrained. But I am wishful to-night to take a wider philosophic view, advocating care for the whole man."

—Calisthenics may be very genteel, and romping very ungenteel; nevertheless, the one is but the shadow, and the other the substance, of healthful exercise.

MOTHERS.

THERE is one class of the community for whom a vegetarian diet is necessary, even though all others refuse to abstain—women who expect to become mothers. The habits of an expectant mother have great influence on her offspring; women who live on a gross diet, and indulge in every food for which they have an inclination, entail a gross habit of mind and body on their infants. If women have any bad habits, they should repress them at that time; they should fight against selfishness, self-indulgence, cruelty, and ill-temper, because indulgence of these passions entails the same dispositions on their offspring; and under such circumstances they add to the world, not a blessing, but a curse. Women who are expecting to become mothers should live purely. They should look alone to fruit and the cereals for their diet. They should be careful that no blood is shed for them, and that no cruelty is practiced that they may feast; for such practices bring pain and misery on themselves at the time of birth, and cause evil dispositions in their children. We read of many illustrious births in the Scriptures, wherein the women were warned to live purely, and these injunctions had a far higher meaning than many at the present day understand. When children were set apart to be prophets and messengers to the Divine, the mothers were commanded to abstain from all gross living; for how can mothers produce anything but gross creatures when gorging themselves with dead carcasses, drinking wine, indulging in laziness and ill-temper? What could children of such mothers be but mere animals? Mothers who are affectionate and loving, who wish to keep their offspring, and who wish them to grow up a blessing to themselves and to their neighbors, spare the young of the creatures that God has made; do not rob the ewe of her lamb, the cow of her calf, or the hen of her chickens; spare to them the joys of maternity, if you wish to enjoy yours; and though others may be the cause of shedding blood, let it not be shed for you. If you are wise and temperate and merciful, the little ones will come without pain to yourself, or anxiety to others, and you will not be troubled with those awful diseases which afflict flesh-eating mothers; you will have no little coffin lids to close down, and your offspring will be full of life and intelligence, free from disease and deformity.—*Vegetarian Almanac.*

OUR HEARING POWERS.

BY E. H. RICHES, L. L. D., F. R. A. S.

To understand the way in which our organs of hearing perceive the effect of a sound, and the manner in which such sound is caused, it is necessary to deal with some of the principles of the science known as *acoustics*. The word itself comes from a Greek verb which means *to hear*. When vibrations in the air are caused by any impulse or shock, or when any solid substance, being in direct or indirect contact with the drum of the ear, is suddenly struck, a sound is heard; but it must be noted that the vibrations produced in the air are the *cause* of what we understand as sound. This drum, or tympanum, is a wonderful structure of thin membrane closing the aperture of the ear, and in order to understand how it is that the sensation of sound is produced by this drum of the ear being struck by the vibration of air, it will be well to bear in mind that there are various tubes and cavities behind the drum of the ear, situated in the bone forming the side of the head, in which it has been ascertained that small fibres of the auditory nerve are distributed. Now this drum of the ear will vibrate freely by reason of the sonorous undulations of the external air acting upon it; and the vibrations thus produced are communicated by the action of minute bones, muscles, and fluids contained in the cavities of the ear, to the nerve, and from thence the impressions are conveyed to the brain. It must not be supposed, however, that *air* is necessary to the production of sound, although most sounds owe their origin to vibrations of the air, for even *under water* sound can be produced; and it is further known that *all bodies* are, to a certain extent, capable of producing those sound vibrations already spoken of, and also that there are many cases where air is neither the best nor the quickest conductor of sound. There is a simple but interesting experiment as to sound, which may be made with a receiver exhausted of air, in which a bell may be rung without its producing any sound whatever; and the reason why no sound is produced is at once explained by the fact that, as there is no air, there can, therefore, be no vibrations to be received or transmitted. And it may be further noted that what is understood by *loudness* of sound when conveyed by air, depends upon the *density* of the air; for example, a whisper uttered in a diving-bell is always heard with greater distinctness than under ordinary conditions, for the reason that the air in the diving-bell is greatly condensed by the pressure of water, and consequently receives and transmits vibrations with great readiness. So also at any great altitude, where the air is not so dense as it is lower down, the loudness of sound is always in proportion diminished. With reference to the statement made above, that sound may be produced even under water, it is an easy matter to show that there are sonorous vibrations in liquids; for if a glass half-filled with water be placed on a table, and one finger, being wetted, be steadily rubbed round the edge of the glass, a sound will be at once produced, and the surface of the water will be covered with minute undulations. The loudness of sound produced in liquids depends upon the increase or decrease of their specific gravity. We know by experience that sonorous bodies (that is, bodies which produce sound), which possess the property of sonorousness in the highest degree, are those metals and their alloys which have the greater amount of elasticity and hardness. For instance, in the case of the triangle, which is a steel rod bent into a triangular form, we have an example of the sonorousness of iron; in the case of cymbals, that of brass; and in the case of Chinese gongs and bells, which are made of an alloy of three parts copper and one of tin, we have an example of the sonorousness of bell-metal. We hear of savages putting their ears to the surface of the ground to listen for the approach of the enemy, and they do this for the reason that they can hear with greater distinctness; but although *smooth* surfaces, such as ice, water, or hard ground, are the best adapted for the transmission of sound, it must be remembered that in the case of solids, when they possess *elasticity*, sounds are conveyed to the ear far more readily by them than by gases or liquids. The vibrations in the air produced by a sound, move in a series of concentric circles, and the average rate at which sound travels is 1,120 feet in every second; and so it is that the flash of a gun fired at a distance from an observer is seen *before* the sound of the report is heard, for the reason that light travels much faster than sound, the former traveling at the rate of 192,000 miles in every second. It will be thus seen that this knowledge of the velocity of sound may be made applicable to the measurement of distances. For instance, suppose the report of thunder reached us two sec-

onds after the flash of lightning is seen, and remembering that sound travels at the rate of 1,120 ft. a second, we may calculate that the point of the thunder-cloud which gave forth the flash is 2,240 ft. distant. Now, according to the same law as gravitation, sound diminishes in intensity from the center where it originates; that is, under ordinary conditions, at double the distance it is only one-fourth as loud, and at three times the distance, it is a ninth. Thus it is if we want to shout to a friend at a distance, in order to condense the vibratory circles we use a speaking-horn, or put our hands together to shout through them. This is fully exemplified in the case of long speaking-tubes used in offices and large buildings, by which means we can speak to a person in a distant room or part of the building. The vast utility of the speaking-trumpet and the ear-trumpet may be readily gathered from the consideration that the sounds are reflected from the sides of the tubes, and, in the case of the ear trumpet, are brought to a focus at the end which enters the ear. A striking example, showing that iron, for instance, is a better conductor of sound than air, may be seen if the ear be placed to one end of a long iron tube, and a sound be transmitted through it from the other end, when a double sound is produced, for the reason that the iron conveys the sound more readily than the air, and the second sound (namely, that conveyed by air) takes more time to travel.

When we speak of a *solid* vibrating, it must be remembered that such actually takes place, otherwise the *air* would not be affected. For instance, the metal composing a bell is solid; but it is a fact that every time it is struck, *it really changes its form*, and the particles composing it are thrown into motion. And this may be the more readily understood when we remember that no two particles of matter are in *actual contact*, for there are minute spaces existing between all those combinations of matter which are parts of the universe, as we know it; and this, too, in the case of such substances as ivory and granite, the component parts of each in reality are in a state of separation, and are, moreover, *in constant motion*. Thus it is that as the bell vibrates, the air to a certain distance round it is *compressed* at each vibration. The air then *expands* again, and, in so doing, repeats the pressure on the air next in contact with it, and so on; and as these concentric circles increase in number, their force is diminished, and the sound gradually dies away. In the case, then, of a bell's being struck, these vibrations of air are produced as just shown; and this air, reaching the ear in an agitated state, acts with similar effect upon the drum, and the mind thereupon receives the impression of *sound*.

It has been often noticed that previous to a thunder-storm the air appears to be unusually quiet; and this may be accounted for from the fact that the air is suddenly and very greatly rarified, and, as before remarked, the denser the air the louder the sound, so under these altered conditions the power of the air to produce sound is greatly diminished.—*Health*.

WHICH ARE THE HEATHEN?

THE esteemed and honored Mrs. B., recently a missionary in China, tells of a significant incident, which occurred while she was laboring among the "benighted" Celestials. One day, while she was holding her class of native women, one of them picked up a copy of *Harper's Bazaar*, which lay upon the table, and looked long and intently upon the deformed women pictured on its pages. At last, she spoke with flashing eyes, and, pointing to the attenuated waists of the "model figures," said, "Life—squeeze—wicked." Then, dropping the paper, she seized her own substantial waist, and said, "Life here—heathen woman no squeeze. You say we heathen—we squeeze feet. No life—feet. No wicked—squeeze feet. But life here"—pressing her bosom reverently, "Christian woman squeeze God's life."

Mrs. B. was obliged to admit that the "Christian" women were, indeed, behind their heathen sisters in this respect.

—If we consider the amount of ill-temper, despondency, and general unhappiness which arises from want of proper digestion and assimilation of our food, it seems obviously well worth while to put forth every effort, and undergo any sacrifice, for the purpose of avoiding indigestion, with its resulting bodily ills; and yet, year after year, from the cradle to the grave, we all go on violating the plainest and simplest laws of health, at the temptation of cooks, caterers, and confectioners, whose share in shortening the average term of human life is probably nearly equal to that of the combined armies and navies of the world.—*Richardson*.

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.

LIVING.

To know some life is brighter for the life we daily live,
To know some heart is lighter for a joy that we can give;
To ease a weary footstep, some burden's weight to bear,
For one who wanders sadly, oppressed by many a care,—
These are the sweetest blessings this life of ours can give;
This is the great, grand secret of knowing how to live.

To feel a heavenly Father's love securely round our own;
To know our prayers are heeded, and answered from his throne;
To plead his precious promises, and find them all made sure;
To live not only by our sight, but by our faith secure;
To know when this life endeth, that, then, to die is gain,—
Such living, as I count it, is not to live in vain.

— *T. D. M., in Home Guardian.*

SKETCHES OF TRAVEL, NO. 16.

BY MRS. E. E. KELLOGG.

LAST GLIMPSES OF ROME.—THE CAPITOL.

HISTORICALLY a most interesting spot is the Capitoline hill, one of the seven upon which ancient Rome was founded. To modern sight-seers its attractions consist of three separate palaces, arranged around the three sides of a small square, or *piazza*, as it is called in Italian, which is especially noted as the spot where Romulus is said to have founded his asylum; where the popular assemblies were wont to be held; where the blood of the Roman citizens was first shed in civil warfare on the occasion of the suppression of the revolt of Tiberius Gracchus, B. C. 133; and where Brutus harangued the people after the murder of Cæsar. A flight of asphalt steps leads from the street to this *piazza*, at the foot of which are two handsome lions of Egyptian porphyry, and at the top two colossal statues of Castor and Pollux, which once adorned the theater of Pompey. At the left of the highest steps are kept a pair of wolves in a cage, in reminiscence of the story, which every child has heard, of the wolf that nourished the twins, Remus and Romulus, Rome's half-mythical founders.

In the center of the square is the celebrated bronze equestrian statue of King Marcus Aurelius, the only perfect ancient equestrian statue in existence. Beyond this statue is the palace of the senators, built upon the ruins of the Tabularium (repository of the state archives) of ancient Rome, and containing a spacious senate hall, the offices of the civic administrators, and an observatory.

The palace on the right is called the *Conservatori*, and contains an extensive collection of antiques and bronzes, and a portrait gallery of eminent Italian poets, scholars, painters, architects, and sculptors. Here is the celebrated bronze "Wolf of the Capitol," "The Thunder Stricken Nurse of Rome," with the rent in the right hind leg, which Cicero mentions, in his description of the figure, as having been caused by a stroke of lightning in his own day. That mental cramming is not wholly of modern origin is apparent from the fact that we find here preserved an ancient tombstone to a boy of eleven and one-half years, who, according to the Latin inscription, worked himself to death extemporizing in Greek verse, after having gained the prize over fifty-two competitors.

Here is the cinerary urn of the beautiful Agrippina, mother of the infamous Caligula; but her ashes must long ago have been scattered to the winds, for the urn was employed in the middle ages as a measure for corn. More cheerful objects are the beautiful statues of the *Thorn Extractor*, a boy removing a thorn from his foot; *St. Sebastian*, a celebrated painting by Guido; and the masterpieces of such other painters as Tintoretto, Veronese, and Guercino, which adorn the walls of the several rooms of the *Conservatori*.

Just across the square from this palace is the *Capitoline Museum*, comprising a collection rich in admirable works, though much less extensive than that of the Vatican.

Among the most noted of the statuary is the Dying Gladiator, found in the sixteenth century, and representing a Gallic warrior reclining on his shield, while the blood pours from a wound in his breast which he has evidently inflicted upon himself, preferring death to captivity. Here, too, is the beautiful Faun by Praxiteles, made memorable in modern times by Hawthorne's description in his "Marble Faun." It is the figure of a youth in an attitude of grace, with his garment, a lion's skin, thrown over his shoulders.

The *Venus of the Capitol*, also said to be the workmanship of Praxiteles, a most marvelous statue in which "the marble flows like a wave," and the oldest Mosiac in existence, a representation of *Doves on a Fountain Basin*, sometimes

called Pliny's dores because mentioned by him, are among other objects of special note.

A fine collection of busts and statues of Roman emperors, empresses, scholars, warriors, and philosophers, hundreds in all, make one of the most interesting portrait galleries in the world.

TRIUMPHAL ARCHES.

Spanning the highest point of the ancient *Via Sacra*, which leads from the capitol to the southern gate of the city, the route by which triumphal processions passed to the temple of Jupiter, rises the magnificent Arch of Titus, constructed of Grecian marble, and erected A. D. 70, to commemorate the conquest of Jerusalem. Of all the gala days of ancient Rome, those on which the victories of successful generals and commanders were celebrated, were unparalleled in splendor and jubilation. Pageantry was a special feature of the occasion; especially were the spoils of war and the trains of chained captives paraded before the eyes of the people; and so we read that upon the occasion of the return of Titus from the war with the Jews, a hundred thousand captives, with sad, despairing faces, followed the train of the proud conqueror, bearing the most holy treasures of the temple at Jerusalem—the great golden candlesticks, the silver trumpets, and other sacred utensils—as trophies of the conquest. Upon one side of the interior of the imposing arch erected to commemorate this triumph, is traced in wonderful bas-relief, a representation of this triumphal procession, with the captive Jews, the table of shew-bread, and golden candlesticks, incense vessel, and jubilee trumpets,copied in all probability from the originals. On the opposite side is a relievo of the emperor, Titus, seated in a triumphal car, attended by Victory, who is in the act of crowning him with laurels. To this day no Jew will pass under this arch, but turns aside with averted countenance, and in detestation spits upon it as he passes by.

Rome abounds in triumphal arches; but one erected in commemoration of the victory of Constantine over Maxentius at the Ponte Molle in 311, when Constantine declared himself in favor of Christianity, which spans the *Via Triumphalis*, is said to exceed in magnitude any other triumphal arch in existence. It has three passages, but its delicately cut bas-reliefs and decorations, which were plundered from an arch originally erected in honor of Trajan, contrast strongly with the rude additions made in the time of Constantine.

THE MARMERTINE PRISON.

In connection with the triumphal arches, one can hardly help but think of the Marmertine Prison, the terrible place to which, as the triumphal processions began to ascend the capitoline hill, the most illustrious of the captives were led aside, and in its dark, damp dungeons doomed to die. It is one of the oldest structures in Rome, and consists of two vaults, one above another, the lower of which was originally reached only through a circular opening, or "man-hole," in the stone floor. This lower chamber is ten feet wide, nineteen in length, with a height of less than seven feet, of which the historian Sallust says, "Its uncleanliness, its darkness, and its noisome smell, make it indeed a truly disgusting and terrible abode." Here Jugurtha, king of Manritania, was starved to death; here the accomplices of Cataline were strangled; here Vercingetorix, the enemy of Cæsar, suffered, and Simon Bar Gidras, the last defender of Jerusalem; and here it is tradition places the scene of the apostle Paul's final imprisonment, and where it is believed he addressed his immortal farewell to the Christian world. If this be the identical place, we wonder not that the damp, chill atmosphere of the dungeon made the apostle feel the need of the cloak which he had left at Troas.

The papal legends assert that St. Peter, too, was imprisoned here, and that a spring of water which we saw in the floor of the lower cell burst forth miraculously to furnish water for the baptism of one of the jailors converted through his instrumentality.

NATURE'S GRAND ENTERTAINMENT.

FAIR Nature comes out with her annual pageants
In the field, in the wood, by the highway side;
The birds are her volunteer traveling agents,
They sound her advertisements far and wide.

The wide-spreading sky is her grand pavilion,
Whose blue she nightly gems over with stars;
Her vocal musicians she counts by the million;
No discord her entertainment mars.

She wears her gorgeous midsummer dresses
Of purple and violet, crimson and gold;
Bright flowers she wears in her sunny tresses;
The wealth of her diamonds cannot be told.

She spreads out her carpets of crimson clover,
Her violet-embroidered robe she wears;
With her cloudy lace curtains floating above her,
What queen with our wildwood queen compares?

Oh, come from the smoke-scented air of the city,
On the soft lap of Nature your weary head rest;
She waits to enfold you with soft arms of pity,
Like a child on its mother's own cherishing breast.

She stands at her flowery threshold to meet you.
Come, breathe her sweet odors distilling so free.
Her roses and lilies are smiling to greet you;
Her choir chants a welcome to you and to me.

Come out, drooping friends, ere the season is over;
She woos you with music and landscapes most rare;
Come, kneel at her feet, her companion and lover,
Drink gladness and health in her lifegiving air.

MRS. R. C. BAKER.

—According to a prominent New York City newspaper, there has been a considerable falling off in the consumption of beer since the recent exposures of the poisonous adulterants which are used in its manufacture.

GROWTH.

BY MARY MARTIN.

THE best part of every man's education is that which he gives himself.— *Walter Scott.*

I have made as much of myself as could be made out of the stuff.—*Richter.*

There are many kinds of growth aside from the vegetable and animal, the varied forms of which awaken a deep and absorbing interest in the mind of the student of nature. Every one should possess a knowledge of the laws that govern the physical structure which God has given; but we are no less "fearfully and wonderfully made" morally and mentally than bodily, and it is of this formation that we wish to speak more particularly.

There are many young people of both sexes who are perfectly satisfied with the position and personal gratification which is theirs by inheritance, without making one individual effort to secure that which lies beyond. There can scarcely be a more pitiful sight, unless it be the lower forms of vice, than that of a man or woman accustomed to the luxury which wealth affords, when overtaken by a reverse of fortune. Not more than one out of ten—perhaps I might safely say a hundred—have had a course of training in practical life or mental discipline that will enable them to pass the trying ordeal of a financial crisis, and grapple with the stern realities of life successfully. This is because there has been a failure to build on all sides. The cube is not a cube at all—scarcely a square, for there has been growth only in certain directions.

Then there is the "bone and sinew of the world,"—the laboring classes,—who, we may safely say, rarely take in this subject of *growth* in its varied and broadest bearings. How many accept what seems to them the inevitable; and because circumstances are not as favorable as they could wish, consider it useless to aspire to what they cannot attain, and spend all their time and thought upon "What shall we eat? or, What shall we drink? or, Wherewithal shall we be clothed?"

Symmetry can only come by uniform development of each part; and unless the mind comes in for its share of attention, we have a one-sided character. The prize-fighter may be a fine specimen physiologically, but the better part of the man has been neglected until we have a creature so animalized that higher, holier thought shrinks from his companionship. The world has produced representative men and women in the fields of art, science, and literature, whose life-work might have been an inestimable blessing to mankind had not their brilliant achievements been more than counterbalanced by a lamentable deficiency in fine moral distinctions. If the entire effort is concentrated upon the physical nature, we have simply an animal; if upon the intellectual, we find a knave; if the spiritual, a fanatic; but let each receive its legitimate share of attention, and a noble man or woman is the result.

But how shall this be attained?—By thought, by practice, by unceasing effort. It is not enough to suppress a tendency in one direction, but there should be a corresponding cultivation in another. The weeds are not only to be uprooted, but the good seed must be sown, and the tiny germ protected by sufficient warmth and moisture, until the latent life develops, after which much pains-taking will be necessary in supplying conditions, if hope is ever rewarded by flower or fruit.

The nineteenth century intellectual paragon smiles at Pythagoras's theory of transmigration; and yet, who knows that the idea may not be simply a perversion of a self-evident truth, of which we are reminded by each recurring springtime. The seed which we cover in the moist earth must perish before the new blade emerges; and as all vegetable growth is preceded by decay, so must it be in the realm of mind as well as matter. The death of the seed or tuber from which the farmer reaps his harvest is emblematical of the process essential to the finest character building. Original tendencies must be broken up, and cultivated habits eradicated ere the germs of a fairer, nobler growth can thrive in the garden of the heart.

The sturdy yeomanry of New England devote their tillage land, not only to the cultivation of corn or wheat, but various cereals, fruits, and vegetables; while a thousand little things that go to make a home are not neglected. Thus while few amass fortunes, most secure a competence. It remains for ambitious settlers in the new States and territories to lay out every acre to some one crop, and realize a fortune, or, failing, become disheartened nondescripts.

Concentration is one of the most useful attributes, while too great diffusiveness will render "null and void" the creations

of the rarest genius; yet who would be in favor of a curriculum that included only music, painting, etc., while mathematics in every form were banished? Even a Herschel cannot live upon moonlight alone, and a breakfast must come at last to a Tanner. If you must go among thieves, and must carry money, it were wiser not to put it all in one pocket. Whatever the assurance that the vessel is seaworthy, or that it will make a safe and rapid transit, don't trust all to one cargo, or to any captain.

Many complain of lack of opportunity; but there can be no situation in life that precludes all possibility of growth. The desk, the farm, the workshop, the kitchen, must necessarily absorb much of both time and mind; but "the life is more than meat, and the body is more than raiment," and the moral and mental should receive cultivation at the same time with the physical and practical.

Hugh Miller performed his work in the limestone quarry as faithfully as any other man; at the same time those marvelous mental processes were taking place that were to enrich the world. How few men of leisure can claim to have achieved that which Elihu Burritt did while occupied at his blacksmith's forge? Bedford jail was not the most favorable place for Bunyan to preach the gospel; but the mind, untrammeled by circumstances, rose royally above its prison walls, and a literary work that has been translated into more languages than any other book, excepting the Bible, was the result. "The sweet singer of Israel," whose lofty strains have filled more hearts with joy and peace than any other poet whom the world has ever known, found his inspiration in the solitude of the fields, the blue heavens bending over, while attending to his duties as a humble shepherd boy.

Perfection in any direction is not a momentary, mushroom growth, but rather the result of patient, constant endeavor.

"Every wise observer knows,
Every watchful gazer sees,
Nothing grand or beautiful grows,
Save by gradual, slow degrees."

When we are called to account for the one, five, or ten talents intrusted to our keeping, how many of us will be able to say with Richter, "I have made all of myself that could be made out of the stuff"? Never, while life lasts, will there come a day when we may unclasp the sandals, and lay aside the pilgrim's staff and mantle. There will ever appear at intervals thorny thickets to be threaded, and loftier peaks to be scaled. The pean of victory can only be sounded from the summit, and the crown must come after Calvary.

"A sacred burden is the life ye bear;
Look on it, lift it, bear it solemnly;
Stand up, and walk beneath it steadfastly;
Faint not for sorrow, falter not for sin,
But onward, upward, till the goal ye win."

CARD-PLAYING AT HOME.

PLAYING cards for "pastime" or as an "innocent amusement" soon becomes a passion; and when once fixed, a man will forego home, family, business, and pleasure, and suffer the loss of his all for the exciting scenes of the card-table. That accomplished writer, the late Dr. Holland, said:—

"I have all my days had a card-playing community open to my observation, and I am yet unable to believe that that which is the universal resort of the starved in soul and intellect, which has never in any way linked to itself tender, elevating, or beautiful associations, the tendency of which is unduly to absorb the attention from more weighty matters, can recommend itself to the favor of Christ's disciples. The presence of culture and genius may embellish, but can never dignify it.

"I have this moment," says Dr. Holland, "ringing in my ear the dying injunction of my father's early friend, '*Keep your son from cards. Over them I have murdered time, and lost heaven.*' Fathers and mothers, keep your sons from cards in the 'home circle.' What must a good angel think of a mother at the prayer-meeting, asking prayers for the conversion of her son whom she allowed to remain at home playing cards for 'pastime'?"

The late Bishop Bascom, in denouncing all forms of iniquity, speaks of the "gambler, who, rather than not gratify his passion for play, would stake the throne of eternity upon the cast of a die,—who, unmoved by the tears and entreaties of her that bore him, the wife of his bosom, and the children of his own bowels, continues to indulge his hated passion, until the infatuated reprobate would table his game upon the tomb of his father, or shuffle for infamy upon the threshold of hell."—*The Safeguard.*

HOW BILLY TOOK HIS LAGER.

"Boy Billy" was the adopted son of Christian Zende, an honest German, who was much shocked one day at seeing the boy in a lager-beer saloon, tossing off a foaming glass of beer. He bade the boy go home, but said nothing till evening. After tea, Zende seated himself at the table, and placed before him a variety of queer things. Billy looked on with curiosity.

"Come here, Billy," said Christain Zende. "Why were you in the beer-shop to-day? Why do you drink beer, my boy?"

"O—O—because it's good," said Billy boldly.

"No, Billy, it is not good to the mouth. I did never see so big faces as you did make. Billy, you think it will taste good by and by, and it looks like a man to drink, and so you drink. Now, Billy, if it is good, have it. I will not hinder you from what is good and manly, but drink it at home, take your drink pure, and let me pay for it. Come, my boy! You like beer. Well, open your mouth. I have all the beer stuffs, pure from the shops. Come, open your mouth, and I will put it in."

Billy drew near, but kept his mouth close shut. Said Zende, "Don't you make me mad, Billy. Open your mouth."

Thus exhorted, Billy opened his mouth, and Zende put a small bit of alum in it. Billy drew up his face. A bit of aloes followed. This was worse. Billy winced. The least morsel of red pepper now, from a knife point, made Billy howl.

"What, not like beer!" said Zende. "Open your mouth." A knife dipped in oil of turpentine made Billy cry.

"Open your mouth; the beer is not half made yet."

And Billy's tongue got the least dusting of lime, and potash, and saleratus. Billy now cried loudly. Then came a grain of licorice, hop pollen, and saltpetre.

"Look, Billy! Here is some arsenic and some strychnine; these belong to beer. Open your mouth!"

"I can't, I can't," roared Billy. "Arsenic and strychnine are to kill rats! I shall die! O—O—O—do you want to kill me, Father Zende?"

"Kill him! just by a little beer, all good and pure! He tells me he likes beer, and it is manly to drink it, and when I give him some, he cries I kill him. Here is water. There is much water in beer."

Billy drank the water eagerly. Zende went on.

"There is much alcohol in beer. Here! open your mouth," and he dropped four drops of raw spirit carefully on his tongue. Billy went dancing around the room, and then ran for more water.

"Come here, the beer is not done, Billy," and seizing him, he put the cork of an ammonia bottle to his lips, then a drop of honey, a taste of sugar, a drop of molasses, a drop of gall. "There, Billy! here is jalap, copperas, sulphuric acid, acetic acid, and nux vomica. Open your mouth."

"Oh, no, no!" said Billy, "let me go. I hate beer. I'll never drink any more! I'll never go in that shop again. Oh, let me go! I can't eat those things. My mouth tastes awful now. Oh, take them away, Father Zende!"

"Take them away! Take away good beer, when I have paid for it? My boy, you drank them fast to-day."

"Oh, they make me sick," said Billy.

"A man drinks all these bad things mixed up in water. He gets red in the face, he gets big in his body, he gets shaky in his hands, he gets weak in his eyes, he gets mean in his manners."

Billy was satisfied on the beer question.

—*From the German.*

—A loyalty to God ennobles every duty. If those who complain of the pettiness of life were raised to higher positions, even to the ruling of kingdoms, they would find the duties equally irksome and monotonous. The great of this world have troubles and afflictions the same as the poorest, and all are equally honored of God according as they fill the place assigned them. Each should seek this place, and fill it in a manner suitable for time and eternity. People should not demean their own occupations, and look enviously at the condition or success of others. God makes no such distinctions. The real success of life is open to all. As has been said, "Knowledge is the hill which few can hope to climb; duty is the path which all may tread."—*Sel.*

—When you have a mind to advise with any one concerning your private affairs, examine well first how he has managed his own; for he that has been faulty in the administration of his own concerns, will never be able to advise well with reference to those of others.

Popular Science.

—Philadelphia is to have an electrical exhibition, to begin Sept. 2 and close Oct. 11.

For Poison Ivy.—Apply to the affected parts cloths saturated with Fluid Extract of *Serpeutarid*. This remedy is highly recommended.

A New Battery.—M. Bremond, of Paris, has invented a means of utilizing privy vaults as a source for electricity. Plates are lowered into the vaults, and the electricity is generated by the action of the products of decomposition upon the material of the plates.

Wild Camels may be seen on the desert lands at the head of the Gulf of California. These are a remnant of a herd which many years ago was imported by the Government to act as beasts of burden for the army in New Mexico and Arizona.

The Greely Expedition Rescued.—Two of the relief ships sent out by the government in search of Greely and his comrades, who left this country three years ago to establish a signal station in the region of eternal ice and snow, have arrived at St. Johns, N. B., bringing with them Lieut. Greely and six of his comrades, the only survivors of the ill-fated expedition, seventeen having died of disease and starvation, and nearly all since January first of the present year. The men had been forced to live for months upon soup made from their sealskin clothing with lichens and shrimps. Hundreds of lives have been sacrificed in the gratification of a curiosity as idle as that of the small boy who started off in search of the treasures which he supposed were hidden in the end of a gaudy rainbow. It seems to many people about time that a stop was put to this foolhardy business.

USEFUL NOTES ON WATER.

One gallon of distilled water weighs 10 pounds; one gallon of sea-water weighs 10.32 pounds; 1.8 cubic feet of water weigh one hundred-weight; 36 cubic feet weigh one ton, equal to 224 gallons; one cubic foot contains 6¼ gallons. (The English standard, or Imperial gallon, is here referred to.) The average daily consumption of water in towns is from sixteen to twenty gallons per head. In pipes, the square of the diameter in inches equals pounds' weight of water per yard. Example: a 3-inch pipe holds nine pounds per yard. One-hundredth inch of rain is about one ton's weight to the acre. A nominal horse-power for a boiler requires one cubic foot of water per hour. Circular apertures are most effective for discharging water, since they have less frictional surface for the same area. The *vena contracta* is the best form of orifice for discharging water. The ordinary speed to run a pump is from eighty to a hundred feet per minute. The pressure in pounds per square inch of a column of water is the hight in feet, multiplied by 594; or, for an approximation, one-half pound pressure per square inch for each foot of hight. Water in flowing through an aperture has a velocity equal to that acquired by a heavy body falling freely from a hight equal to the distance between the center of the aperture and the surface of the water. Doubling the diameter of an aperture increases the flow of the water four-fold. A man can raise water from a well ten feet deep at the rate of thirty gallons per minute. The approximate time occupied in discharging equal quantities of water under equal heads, through pipes of equal lengths, is 80 for a straight pipe, 200 for a curve, and 220 for a right angle. — *Popular Science News.*

POMPEII.

The most marvelous relic of Roman times is Pompeii, one of the buried cities, a considerable portion of which is being excavated by the Italian Government. The work of excavation is still being carried on, and new and interesting relics are being discovered nearly every day. A traveler, writing from Pompeii to the *American Architect*, remarks as follows respecting this interesting place:—

"One thing is difficult to conceive without seeing it, and that is the gorgeousness of the interiors of the private houses. The colors are now faded; the columns are broken; the mosaics of the floors are generally nearly destroyed; the fountains do not play; the flower-beds are destitute of flowers: yet, even as it is, one is continually amazed by the brilliant effect of the interior vistas. In one house, the view from a triclinium across two courts, both surrounded by gaily-decorated Corinthian columns standing before walls painted from top to bottom in a variety of colors, is really dazing to the eyes. The old Pompeians lived in a rainbow atmosphere.

"Another striking thing is the absolute cleanliness. You may say that the dirt has all been taken away by the Italian Government. That is true; but it is quite evident that, in the old times it never was there. Our modern houses are not made to be clean, as were the Pompeian residences. The walls, the floors, every corner of their homes, were finished with the most admirable workmanship. In their rooms no plaster ever fell; for it was of such excellent material, and so well put on, that it soon became like marble. They had no wooden walls, no cracks where dust could penetrate. Water for cleansing was found in every part of the house, and ran off through perfect drains. All the tables and bedsteads were of marble or bronze; even the well-curbs and the borders of the flower-beds were of hewn stone. Hygiene must have come naturally to the old Pompeian. He evidently had no chance to get a typhoidal attack. The only class of diseases he could not provide against were the eruptive, and one of these carried him off at last."

GOOD HEALTH.

BATTLE CREEK, MICH., AUGUST, 1884.

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

A HYGIENIST ABROAD.

SOME of you may have heard of the Ghetto. If any have ever visited it, you certainly recollect it most distinctly as the dirtiest place you ever beheld or smelled, unless, perhaps, we should except an Alpine Swiss cottage, where cows, goats, chickens, pigs, and human beings all live under the same roof. The Ghetto is that part of Rome inhabited by the Jews, formerly known as the "Jews' Quarter." It is close by the old theater of Marcus Aurelius, and is densely peopled with the most degraded representations of the Jewish race we have ever met. The filth of the narrow alleys, denominated *streets*, is beyond description. The filthy gutters are lined with half-naked children,—some of whom are nine-tenths naked, or more,—who wallow in the mud, and indescribable nastiness which flows in streams from the swarming tenements on either side. The front rooms of the lower stories of all the houses, are occupied as shops, where are found dry goods, notions, and second-hand clothing, which seems to be the trade specialties of the Jew, the world over. Into this filthy little corner are crowded all the disciples of Judaism who inhabit the holy city. Until recently, it was surrounded by a wall, the gates being locked daily at eight P. M. But the odor is becoming terrific. High above all the lesser smells of decaying vegetables, moldy walls, filthy pens, obscure gutters, and the great unwashed multitude, towers a stupendous and overpowering odor of garlic. How we long for a patent charcoal respirator to disinfect the pestilential air! How we marvel that, in this famous city of the gods, fastidious Hygeia has not long ago sent her serpent down among these shameless transgressors, to either annihilate them, or coerce them into a better observance of her laws!

One can hardly believe that, in a civilized country, the customs and ways of doing things could differ so widely as do those in Italy from what we are familiar with in America. For instance, here is a flour store. A boy turns a crank attached to a big wheel, which, being visible through the open door, attracts our attention, and we venture in. We find that the flour is only ground, and not bolted at the mill; and this little dark-eyed boy is the motive power of a bolting machine. The entire flour is brought to the store, and by means of a bolting apparatus similar to that used in other countries, but on a very small scale, is separated into first, second, and third grades of flour and bran. The first grade of finest and whitest flour makes bread for the rich; the second grade makes a somewhat coarser and darker bread, and is also used for macaroni; the third grade,—really the best of all,—makes bread and macaroni for the poor, who consequently are better fed than the rich. The bread made from this flour is rather darker than our Graham bread, being more nearly the color of rye bread, and, when well made, is palatable and wholesome. With corn bread, it constitutes the chief food of the poor in large cities. In the country, beans and other vegetables are the chief diet, with very rarely a taste of meat. In the north of Italy, the chief food is bread made from chestnut flour, a sample of which we were fortunate in obtaining through our friend, Prof. Biglia, and have brought home, together with other specialties from the various countries which we visited.

Another curious custom is the very common one of carrying on all kinds of household preparations out of doors. How odd it would seem to an American woman to see half a score of her Italian sisters standing up to their knees in a lake or river, industriously scrubbing their linen on the smooth face of a huge stone. Just across from our hotel in Naples, we may see a woman cooking the family dinner over a small charcoal stove, placed just in front of her door, upon the side-walk. She has no hesitation in letting people see the family bill of fare, for all the poor in Naples eat the same thing for dinner,—bread and macaroni soup,—provided they are fortunate enough to be able to obtain the macaroni to accompany the bread. One day, when we were riding about in quest of sights, we passed through a street where nearly everybody had their work out of doors. A laundress was doing up her linen on the front door-step; a seamstress had her sewing-machine exactly in the middle of the walk; a shoemaker had turned his whole shop out of doors into the street; and half a dozen cobblers were pegging away as industriously as their American brethren of the same craft.

One evening we made an excursion down into the poorest quarter of the city. We could not see that it looked much different from the rest, however, as Naples certainly contains more poverty to the square rod than any other city we ever saw or heard of. But perhaps in the "poor quarter," the poverty is a trifle more impoverished and more numerous than elsewhere. Here the lazzaroni of Italy appear in all their glory, which consists chiefly in dirt, disease and deformity, vice and vagrancy, rags and rascality. Never were we surrounded by such a set of ruffianly rag-muffins as gathered round our carriage when we came to a halt in the very heart of the most poverty-stricken portion of the poorest city in Christendom. Our cab had stopped just before the stand of a macaroni vender, who carried on his business at the edge of the side-walk, supplying his customers from a big pot, which he kept boiling by a little charcoal furnace. Thinking it would be the wisest policy to secure the good graces of our villainous looking spectators, we, through our guide, instructed the macaroni man to supply the crowd with boiled "pipe stems" at our expense. The thing was understood at once, and the mob made a rush for the macaroni vender which threatened to annihilate him. The poor fellow managed to keep his feet, however, and ladled out dish after dish of the limber food, which was no sooner dished up than devoured by the hungry fellows, who fought and scrambled for the steaming food as though it was the first atom of nourishment they had seen for a month. Sometimes, in the scramble, the pewter plate was upset, and the macaroni was squirming around on the dirty side-walk in consequence. But a little dirt, or a good deal, is evidently of small account in this country. At any rate, it did not seem to diminish the lazzaroni appetite in the slightest degree, and the slippery food was quickly rescued from the pavement, and by the aid of the fingers of both hands, which were constantly thrust into the wide-open mouth, disappeared into the unknown region of a lazzaroni stomach. We paid our bill,—seventy-five centimes (fifteen cents),—and drove off, leaving the wriggling, wrangling mass of humanity fighting for the last half inch of macaroni. Where else in the world is food so cheap as in Italy! and yet the poverty is so extreme that even the cheapest food is almost beyond the reach of thousands of persons in the larger cities, especially of Southern Italy.

This brings us to the subject of *beggars*, of whom the first thing we may say is that the beggars of Italy beggar description. One soon learns to recognize the Italian beggar, however, as he is omni-present, hovering about the doors of every hotel; swarming at the entrances of all the churches; peopling the interior of many of the sacred edifices; exhibiting his hideous deformities at every corner; darting upon you from hidden recesses, and from behind the broken pillars of old ruins; jostling you in the crowded streets, where men, women, and children, horses, wagons, and carts, are all mixed in inextricable confusion—crying forever "Signore, Signore," in the most plaintive voice, and with a countenance representing a picture of the most agonizing suffering, and the most despairing woe, and constantly rapping his lower jaw with his hand to signify his hunger. The beggar of Naples is the most numerous inhabitant. Covered with vermin, not more than half clothed by his filthy rags, pensive by habit, a hypocrite by trade, —for the majority of them are able-bodied, but too lazy to work,—the average beggar of this benighted country is a disgrace to his profession; and the daily contact of the traveler with him is well calculated to harden his heart, and destroy his little remaining faith in humanity. No doubt many of the beggars really fare better than the honest, laboring people who toil all day for a small pittance. In a good many instances, these beggars have been found to have accumulated considerable sums, although the majority probably spend the most of their gains in the purchase of lottery tickets, the sale of which is encouraged by the Government, which holds a monopoly of the lottery business.

Another time we will tell our readers our impressions of Italy from a health standpoint.

A Possible Cholera Outbreak.—The cholera is raging in Southern France, and it is predicted by Prof. Kock that it will extend to all Europe. The disease may also find its way to this country. Now is the time to get ready for it. Here are a few things to do: Avoid stimulants of every description. Exercise care in diet, to maintain a healthy condition of the stomach and bowels. To this end, flesh-meats, condiments, iced cream, and ices of every description should be avoided. The diet should consist mainly of milk, fruits, and grains.

Clean up the premises. Disinfect and fill up the old privy vault. Look carefully after the drinking water, to see that it is not contaminated by poisonous organic matter from your own or your neighbor's vault, cess-pool, or sewer. A recent investigation made by an Eastern health board, discovered one hundred and fifty wells thus poisoned, in two hundred and forty examined.

Be temperate and cleanly, breathe pure air, eat pure food, drink pure water, and you need not be afraid of the cholera.

DANGER OF BATHING WHEN HEATED.

THE London *Lancet* gives the following timely warning of the dangerous risk incurred in bathing when heated and perspiring:—

"A fine young fellow, a trooper in the 3d Dragoon Guards, then on the march from Edinburgh to Manchester, took advantage of the night's halt to have a dip in the Wear near that city. Being strong, and a good swimmer, he took an oar, at which he worked for some time in the sultry evening till he came to deep water, and in a suitable place took his plunge. That he was immediately seized with cramp is evident from the statements of his companions, who, alarmed at his cries, hastened to render assistance, but he had sunk before they reached him, and he never rose again. When the body was recovered, a considerable time afterward, it bore every evidence of the cause of the disaster. It was described as being "twisted"—that is, contorted; while the vessels of the head, especially in their gorged condition, pointed to congestion, in fact, to stagnation, of the circulation! That this young soldier lost his life by bathing when in an overheated condition, is quite clear.

"It would be well if soldiers and civilians would remember the lesson conveyed in the classical case of Alexander, quoted by Dr. Jones from Quintus Curtius, viz.: 'It was in the middle of one of the hottest days of a burning summer that Alexander arrived on the banks of Cydnus. The freshness and clearness of the water invited the king, covered with sweat and dust, to take a bath. He stripped himself of his clothes, and, his body all in a sweat, descended into the river. Hardly had he entered, when his limbs became suddenly stiff, the body pale, and vital heat seemed by degrees to abandon him. His officers received him almost expiring in their arms, and carried him senseless to his tent.'"

—Anxious thoughts disturb digestion.

Toothsome Beef.—A writer in the *Railway Review* thus describes the manner in which live stock are transported to Eastern cities. Such food is undoubtedly tender and toothsome, but no one would seriously undertake to defend it as healthful food for human beings:—

"The present fashion of transporting live stock is barbarous in the extreme; and if the cruelties perpetrated upon dumb beasts which are to be used as food were known, public sentiment would suppress the whole business in short order. The writer recently saw a live stock train, upon one of the trunk lines, which made him heart-sick. The cattle were crowded into a car as closely together as they could stand; it was a hot day; all the animals were gasping for breath; some, exhausted, had fallen, and were lying upon the filthy floor under their fellows. Whenever the train started, it jerked them back; and when it stopped, it threw them forward. In this way they were to be carried a thousand miles, and when they arrived, bruised, sick, and fevered, at their journey's end, the survivors were to be butchered to furnish meat for human beings."

Salt and Digestion.—Dr. G. Hurson, a French physician, has been investigating the effects of salt and other condiments upon digestion. His experiments show that salt, in any but the most minute quantities, very materially impedes digestion. Even so small a quantity as 0.5 grammes, or seven and one-half grains, is sufficient to retard digestion; and the larger the quantity, the greater will be the gastric derangement.

—A German writing master has devised a method of curing writer's cramp which he claims to be infallible. It consists in a combination of massage and gymnastics, or active and passive movements.

—The amount of water required daily by the average citizen for all purposes, is estimated by Dr. Parkes as about twelve gallons.

HEALTH OF FEMALE GYMNASTS.

Dr. Post, of New York, recently investigated the physical condition of a number of female circus performers. Three were bare-back riders, one a trapeze performer, and one an aerial gymnast, performing with ropes and rings twenty-five feet above the floor. All were married women, had borne children, and, with one exception, were enjoying excellent health. One had been injured by a fall, and was an invalid except when performing. Each of these persons had been in training for their profession from the early age of seven to ten years, and had apparently never suffered in any way from the violent exertion of their performances.

In view of this fact, why is it that so many school-girls are supposed to be seriously injured by a little exercise going up and down stairs? Is it not possible that other causes contribute to the decline of health so common among girls, much more than overstudy or overexercise? If girls were allowed the same freedom for exercise in the open air usually given to boys of the same age, we should see far fewer cases of breaking down at sixteen to twenty, and hear far less of "spinal disease," neurasthenia, hysterics, etc. All of the women seen by Dr. Post continued their violent performances without interruption on account of functions peculiar to their sex. Two of the riders who rode bare-back, standing on tiptoe, and jumping through hoops, making fifty leaps in six minutes, continued their usual work without interruption to within a few days of confinement, and without any apparent injury. All were accustomed to begin their performances within four to six weeks after confinement, not only without injury, but with apparent benefit.

We commend these facts to those mothers who are educating their daughters up to a life of chronic invalidism by allowing them to fritter away their time with trashy literature and piano thrumming, carefully shielding them from all the burdens of life, and giving them no instruction or experience in the practical arts of the household, because they are "so delicate." What sort of mothers will such girls make?

A Magnetic Experiment.—The query has long been made, whether the wonder-working magnet were capable of influencing a human body otherwise than through the imagination. It may not be generally known that the question was practically settled by experiment many years ago. Lord Lindsay obtained a magnet of enormous power, and of such shape and size that any person who wished to try the experiment could place his head between the poles. The result was most marvelous —nothing whatever was perceived. If a person approaches close to a large magnet, the watch in his pocket will cease to tick; but his heart goes on beating as regularly as though the marvelous reservoir of force were nothing more than ordinary iron.

In view of these facts, how much curative virtue is to be attributed to the so-called "magnetic water"?

Testing the Air.—One of the most useful devices exhibited at the Berlin Hygienic exposition last year was a simple instrument for testing the air for carbonic acid gas, invented by Dr. Wolpert. It consisted of a rubber ball and a test tube, the test consisting in the reaction of carbonic acid gas upon lime-water. The instrument is not manufactured in this country; but we have made some experiments with a somewhat similar apparatus, which we believe will give more accurate results. We will describe it in some future number.

—Socks of lamb's wool are a much better means of keeping the feet warm at night than hot bottles or jugs so much employed.

—The Great Eastern Railway Co. of England supplies its employees with oatmeal-water in place of beer, and with good results.

MILK FOR RHEUMATICS.

An important observation on dietetics was recently made in the London *Lancet*, by Dr. J. Milner Fothergill, of London. After remarking that persons afflicted with rheumatism or gout should carefully avoid nitrogenized articles of food, the doctor calls attention to the fact that this rule does not apply to milk, at least with the same force as to other albuminous articles of food. This he attributes to the fact that milk is chiefly digested in the small intestine by the action of the trypsine of the pancreatic juice; while meat is chiefly digested in the stomach by the pepsine of the gastric juice. It has been observed that the products of stomach digestion are more likely to produce uric acid than those of pancreatic digestion. Hence milk, peas, beans, and other foods containing albuminous food elements similar in character, are proper foods for persons suffering with gout, rheumatism, and torpid liver.

The constipating tendency of milk, which is not great, however, may be antagonized, when necessary, by the free use of fruits.

Barn-Cellar Pork.—An exchange recommends fattening pork in the barn cellar during the winter. The writer claims that hogs kept in the barn cellar during the winter will increase in weight from 40 lbs. in Oct. to 300 lbs. in May, and will keep the manure well trodden down. He does not say anything respecting the wholesomeness of manure-fattened pork, but this phase of the economic project is one which pork-lovers would do well to meditate upon.

—Great Britain has an infant insurance society, which must be related to what is known in this country as "graveyard" societies, as the medical officer reports the death of one hundred and two children under five years in sixty-two families. In one family ten children died, all of whom were insured.

—The National Health Society of England has devised a mackintosh overgarment to be worn by persons attending patients sick with contagious maladies, and when used in conjunction with a cotton respirator, it is said to be a very perfect protection from contagion.

—The lining membrane of the gizzard of the common fowl, dried and pulverized, is a favorite remedy for dyspepsia in China. It is also employed for the cure of ulcers, carious teeth, hemorrhoids, and many other diseased conditions.

—A foreign physician reports the discovery that pure water warmed to a proper degree is equally successful with blood for the purpose of transfusion. Another physician reports the same respecting a very weak solution of common salt.

—A doctor has just found a use for rattle-snake poison. He recommends it as a sure cure for tetanus; but his report shows that although one of his patients recovered from the tetanus, he barely escaped death from the rattle-snake poison.

—A Brazilian physician proposes to vaccinate against yellow fever. He has tried the experiment upon five human beings, after numerous experiments upon animals, but no results are yet reported.

—According to the *Lancet*, the vapors of chloroform and ammonia are capable of preserving animal substances suspended in them. The addition of coal gas will preserve the color of blood.

—An international exhibition, in part devoted to health and education, will be held at South Kensington, London, some time during the present year.

—A chemist reports the discovery of a method of making nicotine artificially; so pretty soon we shall hear of artificial tobacco and cigars.

Mouth-Breathing. — Few persons are aware that this practice, so very common, is specially harmful, and may be surprised when we say that it is exceedingly detrimental to health, even dangerously so. It is generally due to obstructions in the nasal cavities, either through thickening or swelling of the mucous membrane, or the existence of polypi or other morbid growths. Sometimes it is due to habit merely. A child catches cold. The nasal passages become obstructed, necessitating mouth-breathing during sleep, when respiration is involuntary, and hence less forcible than during the waking hours. The cold is soon recovered from, but the habit has been contracted, and is continued even to adult years, or during an entire life-time.

Enlargement of the tonsils is also a common cause of mouth-breathing.

Habitual mouth-breathing ultimately results in serious disease of the throat and larynx. It is also the cause of the peculiar malformation of the chest known as "pigeon's breast."

The remedy consists in the application of such measures as will remove the obstructions, if present. Polypi must be removed. Morbid growths must be removed or destroyed. Catarrh, if present, must be cured. If mouth-breathing is a habit merely, as is often the case, especially with children, care should be taken to instruct the child to breathe through the nose, and when it goes to sleep, the lips should be gently closed. By perseverance, the habit may be cured.

Money Counters' Disease.—Money counters of the Treasury Department at Washington are frequently found to be suffering with a disease of the hands and face, due to poisoning from the arsenic used in the printing inks.

—The Philadelphia *Record* reports the case of a young man who fainted in a horse car in that city in consequence of the tightness of his pantaloons.

—The Boston *Journal* is responsible for the astonishing statement that "recent examinations of a large number of wells used for drinking-water in different sections of New Hampshire, shows that ninety-five per cent of them are contaminated."

—Observations upon the habits of bees have shown that they maintain a regular system of ventilation in their hives, by means of relays of bees, stationed at various points, which produce a current of air by the rapid motion of their wings.

—A New York woman makes a business of treating wrinkles. One of the essential parts of her treatment is the advice, "You must not frown." Ladies over thirty, who are afraid of wrinkles, should bear this in mind.

—Accounts of death from trichinosis are becoming almost as frequent as of railroad accidents and bankrupt speculators. Ought we not to ask for a legislative adoption of the old Mosaic statute prohibiting the eating of pork?

—The oleomargarine business still continues in full blast. Large quantities of the stuff are being shipped to Holland. The stearine obtained in the process is used to adulterate lard and beeswax, and the refuse is fed to chickens.

—A set of test-types ought to be placed in every school, so that the first beginning of optical defects in the eye may be detected by the inability of the student to read the letters at proper distances.

—It is reported that a disease resembling leprosy has attacked the fish in Scotland. So large a proportion as twenty per cent of the salmon in some of the rivers is affected.

—Investigations conducted in England show a marked increase in the frequency of cancer in that country.

DOMESTIC MEDICINE.

NEW METHOD OF REDUCING FEVER.

For many years, eminent medical savants have sought earnestly through the vegetable and mineral worlds for some substance by means of which the high temperature often prevailing in typhoid, malarial, and other fevers, might be reduced with rapidity and safety to the patient. A few substances have been found which produce a decline in temperature when administered in enormous and frequently repeated doses; but such administration has often been found to be decidedly detrimental to the patient, producing not infrequently serious injury to the stomach, kidneys, and sometimes the nervous system. So great is the danger of such injurious results, few careful practitioners have cared to adopt the heroic "antipyretic" medication recommended by experimenters, preferring to allow their patients to burn with fever, mitigated only by such simple means as are commonly employed by nurses, than to require them to combat the poisonous influences of a drug in addition to the morbid element of the disease.

Happily, however, it is not necessary to leave the patient to the unaided efforts of nature. By cool sponging of the surface, persistently and thoroughly applied, by large, cool compresses placed over the abdomen and chest, or even the whole front of the body, and changed as often as warm, or every three to five minutes, by frequently repeated cool packs, by cold water drinking, by ice-packs to the spine, by constant application of ice or frozen compresses to the head, by forcing perspiration by copious hot drinks and a warm blanket pack,—by any or all of these means the temperature may be reduced with promptness in nearly every case. However, cases will now and then occur in which the temperature remains dangerously high, notwithstanding the thorough application of the above means. What shall be done?

Several years ago our attention was called to a series of experiments made by Dr. Winternitz, Professor of Hydropathy in the Medical University of Vienna, for the purpose of determining the influence upon temperature, of enemas of water of different temperatures in cases of fever. The results claimed by Prof. Winternitz were so striking that we improved the first opportunity to repeat his experiments, and with such results as have justified the continued use of this means of lowering temperatures in fevers, in cases in which the ordinary measures were not efficient. The only objection we have found to the method has been the inconvenience to the patient occasioned by the frequent use of the bed-pan. In a recent case in which we found it necessary to resort to this method, the nurse observed that if the tin can of the fountain syringe used in administering the enema happened to be lowered below the level of the bed on which the patient lay, water which had previously been introduced into the rectum returned readily through the tube into the can. On learning this fact, the attendants were instructed to employ the enema in this way. From one to two pints of water, of seventy or seventy-five degrees temperature, were allowed to pass into the bowels; and after being retained for five or ten minutes, or until the patient experienced uncomfortable sensations, it was made to pass out through the tube by simply lowering the reservoir to the level of the floor. A new supply of water of a proper temperature being introduced into the reservoir, it was again raised to the proper hight, and the operation so continued until six quarts of water had been used. Then the patient was allowed to rest half an hour or an hour, according to the hight of the fever, and the same process was repeated. Careful record was made of the temperature of the patient just before the treatment and immediately after. It was found to be invariably reduced from one to one and a half degrees by each treatment. The temperature, which had been exceedingly obstinate previous to the employment of this method, ranging from 104 to 105 degrees, during the intervals between the treatments would of course rise somewhat, but each time it stopped short of the point reached during the previous interval, so that in the course of a few hours the fever was brought down to very nearly a normal temperature. The temperature of the water, when taken after passing through the bowels, was found to have risen each time from ten to thirteen degrees.

The great capacity of water for absorbing heat renders it one of the most useful of all substances for lowering the temperature; and it is readily apparent that, by the means described,

heat may be abstracted from the body almost *ad libitum*, and the temperature may thus be controlled with a rapidity and a degree of certainty which cannot be approached by any other method. In a still more recent case, in which the same treatment was employed, the temperature of the patient had reached 106° F. in spite of the vigorous application of ordinary measures of treatment, such as cold compresses, etc.; but it was, in four or five hours, brought down to nearly 100° by the use of the cold enemas.

The advantages of this method are: 1. It may be employed without wetting or moving the patient; very frequently a patient will sleep continuously during the administration of the treatment; 2. It seldom causes chilliness, which is frequently a disturbing symptom, especially in fevers of a low type, and even, when the temperature is alarmingly high, causing the patient to dread the employment of sponging with cool or tepid water; 3. It is not necessary to employ cold water, a temperature of 80° or even 85° being thoroughly efficient. In the majority of cases, however, water of 70° or even 60° may be employed without danger. The water comes in such immediate contact with surfaces filled with large blood-vessels that a temperature but a few degrees below that of the body is more effective than very much colder water applied to the surface.

In cases in which the use of the cool enema is attended by chilliness, this uncomfortable symptom may usually be relieved by the application of a hot bag or fomentations to the spine or to the pit of the stomach.

The simple measures of treatment we have described will be found more effective in lowering the temperature than any or all other remedies which have ever been recommended for this purpose.

MAD-DOG BITE.

An English doctor gives the following advice respecting dog bites:—

"The bites of a healthy dog cannot cause hydrophobia. This is a well-established fact. As it is difficult to determine the state of health of a dog at the time he bites, the wound should be treated as if the dog were rabid. Dog-bites should be treated at once, by the person bitten or a bystander, by sucking the wound if possible; by enlarging the wound with a penknife to encourage bleeding; by hot-water fomentation; by free washing with cold water; by ligature, a piece of string tied between the wound and the heart. After bleeding has been encouraged and the wound washed, apply hot iron, as a heated penknife, a small key, etc., or caustics, as pure nitric, sulphuric or hydrochloric acid, nitrate of silver, acetic acid, carbolic acid, ammonia, salt, Condy's fluid, or a piece of hot cinder. If near a chemist's, the person bitten should run there, keeping his mouth to the wound, if possible, and spitting out the blood extracted; if near a medical man's house, run there at once; if in a part where the person bitten cannot apply his mouth, some bystander should suck the wound. No harm can follow from thus lending assistance. The dog inflicting the bite should be kept under observation for at least fourteen days. It will soon be seen whether he is healthy or not. If he is healthy, there is no fear of future development of hydrophobia. If the person bitten experiences shooting pain up the arms or other parts of the body, three or four Turkish baths should be taken; if he is nervous, he should place himself under the care of his medical attendant. I have treated some hundreds of cases of dog-bites from all parts of the country, and I am glad to say that those bitten have not experienced any after-symptoms."

Gentle reader, take our advice. Don't fall to sucking the calf of your leg, applying hot irons, aqua fortis, live coals, etc., unless you have reason to believe that you have been bitten by a mad dog. The chances are a thousand to one that the dog *is not* mad, and ten to one that no harm will come to you if the dog *is* mad, if he has bitten you through your clothing. A few months ago a traveling man called upon us to have us cure up an ugly sore which a doctor had made by cutting and cauterizing, because he had received a scratch from a cross dog. The dog's bite would have been well in a day or two; but the doctor's "bite" laid him up for a week. If you are bitten by a dog, don't become insane on the subject of hydrophobia, but use a little common sense.

ACCIDENTAL POISONING.

The human race is exposed to danger from poisoning on every hand. These enemies to life are not only produced in the various arts in which man is engaged, but are produced in profusion by nature under various circumstances, and often under such specious guises as to render the most constant vigilance necessary to avoid injury. The materia medica also affords

a long list of poisons, many of which are the most rapidly fatal of any known. Thus man is surrounded on every hand with danger to life from either direct or indirect poisoning, in addition to all the various other causes of disease to which attention has been more specially called in previous portions of this work.

In the strictest sense, a poison is any substance, which, when received into the body, occasions morbid action or disorders of the vital functions; since anything may become a poison if taken in sufficient quantity, as a person may be made sick by overeating, even of the most wholesome food. The general usage of the term, however, confines its application to such substances as when received into the body are capable of producing death or severe illness. An antidote is some substance capable of neutralizing, or favorably modifying, the injurious effects of the poison upon the system.

General Treatment for Poisoning.—Whatever treatment is employed, should be applied with the utmost promptness and thoroughness. As a general rule, the first thing to be thought of is an emetic. A teaspoonful of ground mustard, or an equal quantity of powdered alum in a goblet of warm water, generally acts with promptness. If neither alum nor mustard are at hand, a teaspoonful of salt may be taken in the same way, or tepid water alone may be employed; and if taken rapidly and in sufficient quantity, vomiting will be very likely to occur. In case it is not produced promptly, the throat should be tickled with the finger or a feather. An eminent physician has recommended the following as a general antidote for poisons. It renders insoluble such poisons as zinc, arsenic, digitalis, etc., and so makes them inert. A saturated solution of sulphate of iron, two ounces; calcined magnesia, two ounces; washed animal charcoal, or bone-black, one ounce. The iron solution should be kept in one bottle, and the calcined magnesia and charcoal in another. When wanted for use, add the contents of the two bottles to a pint of water, shake thoroughly, and take from three to six tablespoonfuls.

Sleeplessness.—This most annoying and exhausting symptom may be greatly relieved by attention to the following suggestions :—

1. Retire early, having taken, an hour or so before, sufficient muscular exercise to induce slight weariness.

2. Eat nothing within four hours of bed-time. If "faint" at the stomach, drink half a glass of hot lemonade, made as already directed. If this does not suffice, a mellow sweet or subacid apple may be taken an hour before retiring, unless fruit occasions pain or acidity.

3. If feverish, the skin being hot and dry, take a light hand bath with tepid water upon retiring.

4. If troubled with cold feet and hands, employ the means suggested for the cure of cold feet.

5. Sleep in a cool room, but take care to see that the bedding is well aired and dry, and the room well ventilated.

6. When nervousness causes loss of sleep, there are various methods of inducing slumber, one of the most efficient being slow, deep, and steady breathing. By this means the lungs are filled with blood, and the brain is thus relieved of the congestion which causes wakefulness.

Hot Milk in Diarrhea. — Dr. Benjamin Clarke states that in the East Indies great use is made of hot milk as a remedy for diarrhea. The milk need not be boiled, but should be taken hot as possible without discomfort. Hot milk is a most excellent remedy in many cases of dyspepsia. It can often be taken by persons who are unable to take milk in any other way. It is not likely to make a person "bilious," as many persons suggest when the use of milk is recommended to them. It is only necessary in the latter class of cases to note that care must be taken respecting the articles of food taken at the same time. When milk is used as a dietetic remedy, it must be made the principal article of diet. It agrees best with grain preparations. Vegetables, fruits, and meats of all kinds should be avoided when taking a milk diet. It may be taken in the quantity of one to three quarts *per diem*.

How to Give a Fomentation.—Fold a piece of flannel of sufficient size, four to eight thicknesses. Dip into hot water, taking care to saturate completely. Fold into a towel, and wring by twisting the ends of the towel. Throw across the part to be fomented a piece of flannel twice the size of the fomentation. Spread the hot flannel—which should be wrung so it will not drip—over the dry flannel, making it cover the part to be treated as accurately as possible, and fold over it the extra portion of the dry flannel so as to retain the heat. By this means the heat reaches the skin gradually, and a much higher temperature will be borne and with much less discomfort, than when the dry flannel is omitted.

The fomentation cloth must not be too large. It should only cover the part to be treated. It should not be too heavy when employed for feeble persons. Care should be taken to avoid exciting general perspiration, as this will often antagonize the effect desired.

Question Box.

All questions which are sent for answer in this department must be accompanied by the name and post-office address of the person sending the question. Otherwise they will receive no attention. It is necessary to insist upon the observance of this rule, as questions are sometimes received which should be answered, but cannot properly be noticed in these columns.

Constipation of the Bowels.—A Western correspondent, who is a traveling man and greatly troubled with constipation, asks for suggestions.

Ans. Inactivity of the bowels may be due to any one of several causes. One of the most common causes is a torpid state of the liver. In cases in which the stool is hard and dry, the immediate cause is deficiency of secretion on the part of the intestinal mucous membrane. The following suggestions will be found helpful: 1. Eat coarse food, such as cracked wheat, peas, beans, vegetables, etc. Avoid meat and condiments, tea, coffee, fats, pastry, and all unwholesome articles of food. 2. Drink two to four pints of water daily. The water should be taken an hour before the meal, and not within two hours after. 3. Wear at night a wet abdominal bandage, consisting of a towel wrung out of cold water dry enough so it will not drip, and covered with several thicknesses of dry flannel. The towel should be long enough to go around the body two or three times. It should be taken off in the morning, and the surface of the body rubbed for a while with the hand dipped in cold water. Two or three times a day knead and percuss the bowels with the hands for five or ten minutes very thoroughly. If these measures are not effective after a month's trial, please report, and other suggestions will be made.

What to Do in Case of Poisoning.—E. P. E. wishes to get directions what to do in case of accidental poisoning.

Ans. As a rule the first thing to do in case of poisoning is to secure vomiting, as the proper antidote is not always immediately at hand. This may be done by means of common salt, or better, by the use of mustard. A tablespoonful of mustard in a glass of water will generally secure a prompt emesis. A teaspoonful of common salt in a glass of warm water is also very effective. Poisons which produce insensibility may be successfully antagonized, in many cases, by hot and cold applications to the spine and general surface of the body. Many poisons have special antidotes, which should be known, and administered in each case. Will publish in future numbers some of the best known antidotes for common poisoning. See "Accidental Poisoning" on page 249.

Electricity—Massage.—A correspondent inquires whether we approve of the use of electricity for an individual suffering with consumption, who has occasional hemorrhages, and if it may be self applied. Wishes also to know the meaning of "massage."

Ans. Electricity is often very advantageous as a remedy in cases of consumption. Its chief value in these cases is through its use as a tonic, and as a form of exercise by which the muscles of the chest may be strengthened. The methods of application of this remedial agent, together with the other mentioned remedy, are fully explained in the Home Hand-Book, a copy of which the querist might profitably peruse if he wishes to become thoroughly acquainted with hygiene, and the rational methods of treating disease. A good battery for home use may be obtained by addressing the Sanitarium, Battle Creek, Mich.

Lemons — Cold Water - Drinking — Slow Digestion.—A patient inquires as follows: 1. Is the free use of lemons in any way injurious to health? 2. Why are lemons considered beneficial in cases of rheumatism, and other fruits injurious? 3. Is it necessary to health to drink cold water occasionally, while one is in the habit of freely using hot water as a drink? 4. Should a person in usual health, but with slow digestion, eat the second meal before the stomach seems empty, that is, before he feels hungry?

Ans. 1. No. Persons in ordinary health, as a rule, can take lemons freely. The best guide to their use is appetite. Those who have a craving for acid fruits of some kind, usually find the use of lemons advantageous.

2. We are not aware that this is the case as regards all other fruits. In cases of rheumatism, those fruits are injurious which the individual is unable to digest. When the urine is strongly acid, and a copious brick-dust sediment is present, raw acid fruits ought, as a rule, to be avoided, as they disagree with the stomach, producing acid indigestion, and, as a result, increase the amount of acid in the blood.

3. No.

4. As a rule, the work of digesting one meal should be completed before another is taken. It is not always easy to determine when the food is passed from the stomach. Frequently, when a person is suffering with very slow digestion,—three to four hours being required for the food to reach that stage of digestion where it leaves the stomach,—two or three glasses of hot water taken one or two hours before a meal will facilitate the emptying of the stomach, and make it ready for the succeeding meal.

Epilepsy—Soda-Water.—A correspondent inquires as follows: 1. What causes epilepsy, and what can be done by the inexperienced to alleviate an attack? 2. Do you regard the carbonic acid gas, with which various "temperance drinks" are charged, as a tonic to the stomach? 3. What do you think of soda-water as a beverage?

Ans. 1. The causes of epilepsy are various. It is a functional disorder, the disease being in some cases the result of hereditary pre-disposition. In the majority of cases, however, it is a functional disturbance of the nervous system, due to a disorder of the stomach, or liver, or both. It is frequently the result of excesses of various sorts. In some cases the disease is the result of organic changes of the brain. Such cases are of course incurable. When due to other causes, with the exception of marked predisposition, it is usually amenable to treatment. An attack can sometimes be avoided, when the patient has sufficient warning, by a vigorous effort of the will, by repulsive applications to the head, and by the use of certain remedies which are well known to the profession, and have long been in use for this purpose. Nitrate amyl is the most efficient of these remedies. One or two drops may be inhaled at the time the symptoms of an attack make their appearance.

2. No; carbonic acid gas is not particularly unwholesome, as it is the mildest of acids, and may be considered innocuous when taken into the stomach in the form of soda-water or otherwise.

3. Soda-water is rendered objectionable by the deleterious character of the syrups used with it, many of which are wholly innocent of any connection with the natural fruits from which they are named.

Sleep.—A correspondent makes the following inquiries: 1. Why do animals sleep after eating, and is it good for them? 2. Is it better to sleep on the back or on the side; and if on the side, which side?

Ans. 1. We have made some observations on the conduct of animals after eating, and are inclined to the opinion that the general supposition that sleeping after eating is a natural condition, is erroneous. The observations of physiologists show that digestion goes on very much more slowly during sleep than during waking hours. The horse, cow, and dog usually lie down after eating; but our observation is that they seldom sleep soundly. The dog lies behind the stove after eating dinner, and closes his eyes in a sort of after-dinner reverie, but seldom gives the appearance of sleeping soundly. If the animal falls into a sleep, it is a troubled, dreamy doze, as is indicated by groans, growls, and other marks of disturbance.

2. As a rule, lying on the side is the best position for sleeping. Which side, is a matter of indifference, unless a meal has been taken within two or three hours, in which case, the right side is preferable.

Mental Labor and Longevity.—The question is asked: "How does mental labor affect longevity?"

Ans. Carefully prepared statistics show that mental labor is conducive to longevity. The active mental worker who takes reasonable care of his health, has greater chance of long life than the man who devotes himself to muscular pursuits. Mental labor is stimulating to all the vital powers, and conducive to the best health.

Sprains.—A correspondent wishes to know if a sprained member should be exercised.

Ans. The proper treatment of a sprain is rest, continuing until the swelling has disappeared.

Yawning—Sleeping with Head Covered.—A subscriber asks the following questions: 1. What causes yawning? 2. What would you do with a child who sleeps with its head covered, and what is the cause?

Ans. 1. Sleepiness, as a rule. Sometimes it is the result of contagion. We have seen a yawn travel around a circle, each individual yawning in his turn.

2. The child should be taught to sleep with its head uncovered. Young children usually cover their heads to hide away from the "big black man in the dark," about whom they are told for the purpose of keeping them quiet when inclined to cry, or to make them tractable when disposed to be unruly. Nothing could be more cruel than the common custom of frightening children by stories about ghosts, spirits, and other mythical dangers which are supposed to lurk in the dark.

Glucose as a Food—Enlarged Veins—Shaving.—The following questions have been presented for answer: 1. Is glucose, as a food, healthful? 2. Are large veins a sign of heart trouble? 3. Is shaving the beard detrimental to health? If so, why?

Ans. 1. No. Glucose, or corn sugar, is not a natural product; and if it could be shown that glucose, in itself, is not harmful, it is rarely, if ever, free from mixture with sulphuric acid, which is recognized as deleterious.

2. Enlargement and *pulsation* of veins is an indication of one form of heart disease.

3. When a person has been accustomed to wearing a beard, shaving may facilitate the contraction of colds, particularly a cold in the throat. It is also possible that frequent shaving may maintain a sensitive condition of the face which will predispose to disease of the throat. We are not certain of this, however; yet we are positive that a man cannot suffer more from the absence of a beard than a woman, who naturally has no beard, provided both live under the same conditions. The beard is undoubtedly a natural and wholesome protection for the face and throat, but probably its chief service is æsthetic and distinctive of sex, rather than hygienic.

THE COOKING SCHOOL.

Conducted by MRS. E. E. KELLOGG.

A DINNER OF EIGHT COURSES.

PIES AND CAKE.

So much has been said and written about the dietetic evils of these articles that the very names, cake and pie, have almost come to be regarded as synonymous with indigestion and dyspepsia. That they are a prolific cause of this dire malady cannot be denied, and it is doubtless due to two reasons: first, because they are so generally compounded of ingredients which are in themselves unwholesome, and rendered doubly so by their combination; and, secondly, because tastes have become so perverted that an excess of these delicacies is consumed in preference to more simple and nutritious viands.

We do not wish to be understood as being in sympathy with that class of people who maintain that dyspepsia is a disciplinary means of grace, when, after having made the previous statement, we proceed to present our readers with recipes for preparing the very articles we have condemned. Pie and cake need not necessarily be utterly unwholesome articles, and, when prepared in a simple manner, may be partaken of in moderation by persons with good digestion, with quite as little detriment as many another article of food. Nevertheless, we shall not pretend to claim for them the wholesomeness of more simple foods, and believe with a lady instructor in cooking, whom we met last year at Chautauqua, that if women would supply their families with perfectly light, sweet, nutritious bread and plenty of fruits, the continual demand for cakes and pies would cease. However, if pies and cakes must needs be, let them be as simple in character as possible. We offer the following recipes as suggestions for articles of this class, which, while not to be recommended for dyspeptics, can scarcely be condemned as unwholesome for persons with average digestive ability:—

Paste for Pies.—Sift together equal parts of Graham grits and white flour (Graham flour will do if the grits are not obtainable, but the grits will produce a more crisp and tender crust), and wet with *very cold*, thin sweet cream or rich milk. Have the cream and flour both as cold as possible,—the colder the material the more crisp the paste,—and mix together very quickly and lightly into a stiff dough. Do not knead at all, but gather the fragments lightly together, roll out at once, fill and bake as quickly as possible, since much of the lightness of the crust depends upon the dispatch with which the pie is gotten into the oven after the materials for the crust are thrown together. The filling should always be in readiness before beginning the preparation of the crust. If for any reason it is necessary to defer the baking after the crust is made, place it at once in the ice chest till needed.

Fruit Pies.—Apples, peaches, and all small fruits and berries may be made into simple pies. The objectionable features of such pies are usually the rich crust, the excess of sugar used, and the addition of unwholesome spices and flavorings. For fruit pies, prepare a simple crust, fill with the fruit, using only just sufficient sugar to sweeten the fruit, add no spices, and bake quickly. If any flavor other than that of the fruit is desired, let it be the flavor of some other fruit; strong spices, such as nutmeg, cinnamon, and all-spice, form a most unsuitable addition to delicately flavored fruits. For apple pies, a teaspoonful or two of pineapple juice, a little grated lemon or orange peel, or a little strawberry or quince syrup may be used for flavoring. For pies made of apples, peaches, and fruits that are not very juicy, add a tablespoonful or so of water or fruit juice; but for very juicy fruits and berries dredge the under crust with a tablespoonful of sugar and a little flour mixed together, before filling. The heat necessary for baking will cause the flour and sugar, which will melt, to adhere together, and thus keep the fruit juice from coming in contact with the crust and saturating it.

Granola Crust.—For pies requiring an under crust only, the prepared granola manufactured by the Sanitarium Food Co. makes a superior crust. To prepare, moisten with thin sweet cream or rich milk,—one-half cup of cream for every two-thirds cup of granola is about the right proportion, and will make sufficient crust for one pie. Flour the board thickly, and lift the moistened granola on to it, spreading it as much as possible with the hands. Dredge flour over the top, and roll out gently, without turning, to the required size. The material, being coarse and granular, will break apart easily, but may be as easily pressed together with the fingers. Change the position of the rolling pin often in order to shape the crust without moving. When well rolled, carefully slip a stiff paper under the whole, first loosening from the board with a knife if necessary, and lift it gently on to the pan. Press together any cracks formed, trim around the edges, fill, and bake at once. Use just the least flour possible in preparing this crust, and bake as soon as made, before the moisture has become absorbed.

Orange Pie.—Rub smooth a heaping tablespoonful of corn-starch in three tablespoonfuls of water; turn over it a cup of boiling water, and cook until clear, stirring frequently that no lumps be formed. Add one cupful of orange

juice, a little grated rind, and the juice of one lemon, with sugar to taste. Lastly, when quite cool, stir in the well-beaten yolks of two eggs. Bake with under crust only. Meringue the top when baked, with the whites of the eggs well beaten with a tablespoonful of sugar, and a very little grated orange peel sprinkled over it.

Lemon Pie.—Take four tablespoonfuls of lemon juice (one large one or two small ones will yield about this quantity) and two-thirds of a cup of sugar. Beat lemon juice and sugar together. Braid a slightly heaping tablespoonful of corn-starch with as little water as possible, and pour over it, stirring constantly, one-half pint of boiling water—the water must be boiling so that it will sufficiently cook the starch to prevent it from settling. Add the lemon and sugar to the starch and let it cool, then stir in the yolks of two eggs and half the white of one well beaten together. Beat the mixture thoroughly, pour into a deep crust, and bake. When done, cover with the remaining whites of the eggs, beaten with one and a half tablespoonfuls of sugar, and brown lightly in the oven.

Prune Pie.—Wash the prunes thoroughly, and remove the stones. Add to them three times as much water as prunes, then place them in a porcelain kettle, cover closely, and simmer until perfectly tender and the juice thick. When cold, rub through a colander. Fill an under crust with the sifted prunes, and bake. This pie requires no sugar. The top may be ornamented with strips of crust or pastry leaves, or if desired may be meringued with the whites of two eggs beaten to a stiff froth with two tablespoonfuls of sugar and a little grated lemon peel.

Fruit Short Cakes.—Beat together one cup of thin cream, slightly warmed, a tablespoonful of yeast, and two small cups of flour. Set in a warm place till very light. Add sufficient warm flour to mix soft. Knead thoroughly for fifteen or twenty minutes. Divide into two equal portions, and roll into two sheets about one-half inch in thickness, making the centers a very little thinner than the outside, so that when risen they will not be highest in the center. Place in tins, and set in a warm place until perfectly risen, or until they have doubled their first thickness. Bake quickly. Spread one cake with fruit, and cover with the other. If the fruit is large, it may be chopped fine with a knife or mashed with a spoon.

Plain Buns—These are the simplest of all cakes. Dissolve half a small cake of compressed yeast in a cupful of thin cream which has been previously warmed to bloodheat, add two cupfuls of warm flour, and beat thoroughly together. Put in a warm place, and let it rise till very light. Add three tablespoonfuls of sugar mixed well with a half cup of warm flour, one-half cup of zante currants, and sufficient flour to make of the consistency of dough. Buns should be kneaded just as soft as possible, and from fifteen to twenty minutes. Shape into biscuits a little larger than a walnut, place them on tins far enough apart so they will not not touch each other when risen. Put in a warm place till they have risen to twice their first size, then bake in a moderately quick oven. If desired, the currants may be omitted, and a little grated lemon rind added for flavoring at the same time with the sugar, or a bit of citron may be placed in the top of each bun when shaping. When taken from the oven, sprinkle the top of each with moist sugar, if desired.

Delicate Cake.—Beat together the yolk of one egg, one cup of sugar, and one cup of thin sweet cream, until all of a foam; add a little grated lemon rind for flavoring; stir in slowly, beating briskly all the time, two cups of gluten flour. This cake contains no soda or baking-powder, and to make it light it requires the incorporation of as much air as possible. In order to do this, the beating must be continuous (any cessation will be likely to spoil the cake), not stirring round and round, but lifting the spoon in and out swiftly so as to make as many bubbles of air as possible. When all the flour is added, add lastly the well-beaten whites of two eggs, stirring only just sufficient to mix them thoroughly through the whole, no more; turn at once into small sheet-iron tins, which have been previously oiled and warmed, and bake in a moderately quick oven. This cake, if made according to directions, will be very light and delicate. It will not puff up much above its first proportions, but will be light throughout.

A nice cake may be prepared in the same manner with common Graham or even white flour by the addition of a heaping tablespoonful of corn-starch, sifted into the flour, in the way in which baking-powder is ordinarily mixed with flour before using. This may be baked in a loaf, but is best baked in hot gem irons.

Raised Jelly Cake.—Warm a cup of thin cream to blood heat, add one and a half cups of flour, a little salt if desired, one-fourth of a cup of sugar, and one-half a small cake of compressed yeast dissolved in a gill of thin cream, or a gill of liquid yeast. Set in a warm place, and let it rise till perfectly light. When well risen, add one-half cup of sugar, mixed with one-half cup of warm flour. Beat well, and set in a warm place to rise again. When risen a second time, add two eggs, whites and yolks beaten separately, and about one tablespoonful of flour. Turn the whole into three round baking tins, which have been previously oiled and warmed, and place where it will rise again for an hour or until it is all of a foam. Bake quickly in a moderately hot oven. Spread with fruit jelly.

This cake may be varied in innumerable ways. A gold and silver cake may be made of it by taking out one-third of it when risen the second time, adding the yolks of the eggs to the one third and the whites with some pulverized cocoanut to the other two-thirds. Make two sheets of the white and one of the yellow. Allow them to become perfectly light before baking. When baked, place the yellow portion between the two white sheets, binding them together with a little frosting. This cake may be varied also by adding a half cup of zante

currants to the yellow portion with the yolks of the eggs.

Apple Cake.—Beat together the whites of two eggs, one-half cup of sugar, the juice of one lemon, and two large, tart apples well grated. Heat in a farina-kettle until all are hot. Cool, and spread between layers of raised cake made as above. This should be eaten the day it is prepared.

Cocoanut Custard Cake.—Prepare a soft custard by heating just to the boiling point, one pint of rich milk, previously flavored with cocoanut. Stir into it a tablespoonful of corn-starch braided with a little milk, and let it boil until thickened. Beat together an egg and one-third of a cup of sugar, turn slowly into the hot mixture, and stir constantly till the whole thickens. Remove from the fire, and when cold, spread between layers of raised cake.

Literary Notices.

We have received the June number of the Countryside, which is with this issue consolidated with Indoors and Outdoors, a magazine established last year by the National Association for Sanitary and Rural Improvement. The first number of this new journal is filled with valuable articles on sanitary and rural topics, and the prospectus promises many excellent things for future numbers, which, from our previous acquaintance with both magazines, we feel sure will be fully realized.

Subscription price $1.50 per year. 40 Vesey St., New York.

The July Quarterly Journal of Inebriety presents its readers with a most interesting and instructive table of contents, in which we note an address on Inebriety by Dr. Alvert Day; Inebriety, Its Nature and Cure, by Dr. Norman Kerr; Alcoholic Insanity; and other valuable articles. This journal, which is published under the auspices of the American Association for the Cure of Inebriates, is devoted to the study of the nature of inebriety from scientific standpoints, and its cure by rational means. It is one of the ablest scientific temperance journals published, and should be read by all interested in the cure of the drinking habit. Subscription price $2.00 a year. Address, S. D. Crothers, M. D., Hartford, Conn.

Just as we are going to press, the mail brings us a copy of the True Educator, a monthly journal issued by the South Lancaster Academy, located at South Lancaster, Mass. This newly established school has, during the two years of its existence made, almost unparalleled progress, under the energetic management of its president, Eld. S. N. Haskell, together with the efficient corps of teachers. Its patronage has doubled and quadrupled, until the present season it has become necessary to erect a large school building and a capacious dormitory. One of the most prominent features of this school is its manual labor department, in which all of the students are required to participate. The young ladies attend to the household duties, while the young men work at farming and various trades. Circulars of inquiry should be addressed to South Lancaster Academy, South Lancaster, Mass.

The North American Review for August contains an article by Justice James V. Campbell on "The Encroachments of Capital" which will command the serious attention of all readers. Richard A. Proctor treats of "The Origin of Comets," and succeeds in presenting that difficult subject in a light so clear that persons who have little or no acquaintance with astronomy can follow his argument. "Are we a Nation of Rascals?" is the startling title of an article by John F. Hume, who shows that States, counties, and municipalities in the United States have already formally repudiated, or defaulted in the payment of interest on, an amount of bonds and other obligations equal to the sum of the national debt. Judge Edward C. Loring finds a "Drift toward Centralization" in the recent judgment of the United States Supreme Court on the power of the Federal Government to issue paper money, and in the opinion of the minority of the same court rendered in the suit for the Arlington property. Julian Hawthorne writes of "The American Element in Fiction," and there is a symposium on "Prohibition and Persuasion," by Neal Dow and Dr. Dio Lewis.

The August number of The Popular Science Monthly contains two brilliant and striking articles on the future of religion. The first, "The Ghost of Religion," is by Frederic Harrison, and is an attack on Mr. Spencer's "Unknowable," and the second, "Retrogressive Religion," is Mr. Spencer's reply. Grant Allen's "Hickory-Nuts and Butternuts," Dr. C. C. Abbot's "Some Rambles of a Naturalist," and M. J. Fischer's "My Monkeys" may be equally well described as lively or amusing essays, or as scientific articles, for they are both; and Dr. Peale's "The World's Geyser-Regions," with several full-page illustrations, is also readable, scientific, and instructive. The serials on "The Chemistry of Cookery," by Mattieu Williams, and "The Morality of Happiness," by Mr. Thomas Foster, are continued; and there is also a curious and interesting article on old-fashioned arithmetic, under the title of "The Mystic Properties of Numbers." Professor David S. Jordan contributes a sketch, enlivened by the warmth of personal friendship, of Don Felipe Poey, the distinguished Cuban ichthyologist. The Editor's Table is occupied with a discussion of the relations of "Science and the Temperance Reform."

New York: D. Appleton & Company. Fifty cents a number, $5 a year.

Publisher's Page.

☞ The patients at the Sanitarium are rejoicing in the use of the new gymnasium, of which they have recently taken possession. It is a magnificent room, 85 feet in length, 45 feet in width, and 16 feet high in the center. Eighteen large windows, and a cupola with ten windows, afford an ample supply of light and air. The walls of the new building have been finished, and the roof is being put on. The promenade deck is eighty-four feet above the ground, and affords a magnificent view of as pleasant scenery as can be found anywhere in the Middle States.

☞ A Normal of Hygiene and Heredity will be held this season in connection with the temperance convocation at Lake Bluff. The time set for the Normal is August 15 to 20. Among the speakers who have been engaged are: Dr. Sarah Hackett Stevenson, of Chicago, who will discourse on the subject of Causes of Ill-Health among Women; Dr. T. D. Crothers, editor of the *Journal of Inebriety*, who will deliver two addresses upon the Hereditary Effects of Alcohol; and Dr. Florence Hunt, who will speak upon the Development of the Human Body.

The Editor of this journal will give two lectures, one on the subject of Foods, the other on Household Hygiene. Mrs. E. E. Kellogg, Supt. of the Department of Hygiene, will read an address on Hygiene versus Intemperance.

These temperance convocations have been growing in interest each year, and it is believed that the one held the present season will excel its predecessors in practical results.

☞ At the beginning of the next school year, which opens the first week in September next, a Manual Labor Training department will be introduced as a part of the regular course of instruction in the Battle Creek College of this place. Several trades, including printing, book-binding, dress-making, and millinery will be taught. In addition, young ladies will receive thorough training in all departments of housekeeping, and young men will be practically instructed in gardening and farming. The introduction of this department has been contemplated by the Trustees for several years, and arrangements are now being perfected to carry it on in a manner, which, it is believed, will be thoroughly satisfactory and in every way successful.

It is expected, also, that a department for physical culture will be added, in which will be undertaken a careful supervision of the health of students. The establishment of the dormitory system, which will be rendered possible by the erection of a new building now in progress for this purpose, renders possible the supervision of the dietary and other healthful conditions in a manner not heretofore practicable. It is believed by the managers of the school that a very perceptible improvement in the general health and physique of the students may be made by careful attention to healthful conditions. The period of growth and development affords the best of opportunities for favorably influencing the constitution; and when such an experiment as the one proposed has been made in a rational way, the results have been in the highest degree satisfactory. We believe that the addition of the two departments named, will receive the hearty approval of all friends of the school, and will add greatly to its usefulness. During the last year, some five hundred students were in attendance, and there is every prospect that there will be a very large increase of patronage during the coming school year. There is no school in the country where the student can receive a more practical and thorough educational training, and where he will be surrounded by better moral and social influences than at Battle Creek. The annual catalogue will be in readiness in a few days, and may be obtained by addressing Battle Creek College, Battle Creek, Mich.

☞ The publishers would call especial attention to our advertising columns, in which will be found noticed many articles of practical interest to almost every one. Among the books and other articles receiving special notice in the present number, are the following:—

"The Home Hand-Book of Domestic Hygiene and Rational Medicine" is a work which ought to be in every family in the United States.

"Ladies' Guide in Health and Disease" has received a warm reception from sensible women wherever it has been introduced; and although published recently, it has already reached a very large sale.

"Plain Facts for Old and Young," a practical work dealing with most important subjects, has passed through fifteen large editions, aggregating over 75,000 copies.

"Sunshine at Home" is a very attractive work for children, and is meeting with a very large sale.

"United States in the Light of Prophecy" and "Matter and Spirit" are two very interesting and important works on theological subjects.

"Smith's Diagram of Parliamentary Rules" is highly recommended by a speaker of the U. S. House of Representatives, and is indorsed by eminent parliamentarians as the best work ever produced.

Dr. Kellogg's New Temperance Charts, consisting of ten large plates, are recognized as superior to anything which has been produced in that line heretofore.

The *Dietetic Reformer* is the best exponent of vegetarianism published.

We would also call attention to the list of popular health works, including books and tracts on a variety of topics of interest to everybody; and the list of popular journals which club with GOOD HEALTH may well be looked over before selecting periodicals for the household.

Under the head of "Invalid Foods" may be found a large list of most valuable food articles for persons who are in feeble health, particularly dyspeptics. The various articles presented are wholesome in the highest degree for persons who are in good health, as well as for those who are sick; and are so palatable that a fair trial is all that is required to secure continued use.

The Hygienic Skirt and Hose Supporters are articles which no lady can afford to be without. They contribute more to the correction of serious faults in woman's dress than any other inventions which have been made in this line.

The Syphon Syringe is recognized as the best syringe made, and is an article which is indispensable for every household.

The advertisement of the Anglo-Swiss Milk Food and the Columbus Buggy Company are worthy the attention of those who need anything in that line.

The Eureka Incubator is a marvel of simplicity, and is in every way satisfactory as a chicken hatcher. Two are in use on the Sanitarium farm.