THE

HEALTH REFORMER.

Nature's Laws, God's Laws; Obey and Live.

VOL. 12. BATTLE CREEK, MICH., MAY, 1877. NO. 5.

Life Sketches.

ELDER J. N. ANDREWS.

THE remarkable experience of Elder J. N. Andrews in health reform, and the wonderful cure of his only son by simple hygienic agencies alone, attracted considerable attention to the subject in circles where the father was known, and awakened the spirit of inquiry in many minds respecting the true healing art. As early as 1871 a personal friend requested him to write his experience for a friend in Providence, R. I. Of this Elder Andrews says:—

"In asking me to write directly to his friend, my correspondent truthfully remarks that 'many people will not believe what appears in papers or periodicals, but a personal account will always suffice to remove old prejudices.' Now there is a reason for this unbelief and distrust that is certainly very weighty. The press teems with accounts of wonderful cures wrought by such and such medicines; and the point of each of these statements is this: 'If you would have health, buy this marvelous remedy.' Sensible people long ago decided that these certificates were in the great majority of cases entirely unreliable, and that they were formed for the manifest purpose of enriching the proprietor of 'the matchless sanative' that they respectively extol.

"Now, why should not health reformers be as generally and as promptly discredited as should the venders of the various 'magic cordials' and 'healing balsams' everywhere offered 'for the relief of suffering humanity'? They should if they can be justly classed together. And if the same principle governs the action of each, then let them share in the same condemnation. But observe the contrast:—

"The advocates of the hygienic system declare, as a fundamental principle, that health can be regained or preserved only upon condition that we 'cease to do evil and learn to do well.'

"The dealers in the aforesaid wonderful preparations severally state, as one of the most convincing reasons for the use of their respective medicines, that 'no change of diet or of habits of life is required in order to be benefited by this wonderful remedy.'

"The first party declares that the restorative power exists only in the vital forces which God has given us; the other that it is to be found in drugs. The one affirms that the restorative power within ourselves can alone give us health, but will do it only upon condition of abstinence from wrong habits, and of simple obedience to the laws of our being. But the other replies, in derision, 'This is all humbug; you may eat, drink, and act as you will without any danger of evil consequence, provided you freely use my healing balm.'

"Which of these parties is entitled to our confidence? One of them asks no money, but insists that we govern ourselves by the laws which the Author of our being has established within our own organization. The other bids us freely disobey, and promises immunity from evil consequences on condition that we use the medicines which they desire us to buy at their hands.

"We know which of these two kinds of teaching is the more enticing to the multitude; but would it not be well to ask

'Which is the more reasonable?' One of them declares that obedience to the laws of life is the one condition upon which we can have health; the other asserts that God has provided means whereby men may deliberately disobey those laws, and yet escape the consequences of that disobedience; and that that means is something known only to the ones who say this, and to be had only on condition that you pay them well for it. On which side is reason and common sense? On that of self-control, or on that of self-indulgence? And which of these two classes are attempting to get your money upon false pretenses?

"I am a firm believer in the principles of health reform. I have cause to be such. My judgment is convinced that its principles are reasonable, and just, and true. Moreover I have proved them true by the test of actual experience. In this thing, therefore, I speak not merely that which I have heard, but I also do testify that which I know. I believed in the health reform when I first learned its principles, because to me they were self-evident truths. But there is no teacher like experience. Ever after I was first instructed in this system, I believed it to be true; but the experience of seven years enables me to speak now as one who knows whereof he affirms.

"I do not attempt to instruct the people in physiological and hygienic science. There are plenty to do this who are fully competent to the task. I speak rather as members of the church bear testimony after the sermon of their pastor, not to give instruction in the doctrines set forth, but to declare that I have proved these very things to be true, and to testify that I know the certainty of that wherein we have been instructed.

"And why should I not speak with much assurance? I know what were the difficulties under which I labored eight years since, and I well understand that my present condition is in marked contrast with my state at that time. Then I was a feeble man from head to foot. Now I have found entire relief from all the difficulties under which I suffered, and in God's merciful providence have excellent health.

"Though I have never at any period of my life suffered to any considerable extent from fevers, or dangerous attacks of acute disease, yet I can hardly recall any period of my early life in which I was the possessor of firm health. In boyhood, my growth was rapid, but I never saw the time when my physical strength was fully equal to that of most of those of my years. I loved severe study much more ardently than I did any of the sports and pastimes of my associates. From my earliest childhood I was taught to shun evil associates, and was warned against intemperance in every form in which my parents understood it to exist. But I was not instructed in the principles of hygiene, for my father and mother had neither of them any just knowledge of these.

"I was kept from the use of tobacco, and from even tasting strong drink; but I learned almost nothing of the evils of unwholesome food—at least, of such as was common in our own family. I did not know that late suppers, and 'hearty ones' at that, were serious evils. I had no idea of any special transgression in eating between meals; and though this was mostly confined to fruit, I did herein ignorantly transgress to a very considerable extent. I thought salt as 'good' for food as 'for the land' or 'the dunghill;' and so of the various articles used to 'season' and to 'flavor food,' nearly all of which I used quite freely. I supposed old cheese was good to aid digestion! Do not smile at my folly; unless my memory is at fault, I had learned this out of 'standard medical works.' As to mince-pie and sausage, I had no thought that these were unwholesome, unless too highly seasoned, or as it was termed, 'made too *rich*.' 'Hot biscuit and butter,' doughnuts, pork in every form, pickles, preserves, tea, coffee, etc., etc., were all of common use. Of ventilation I understood almost nothing. And I might continue to enumerate the particulars of my ignorance of vital hygienic truth, but it would be easier to tell what I knew, than to attempt to mention that which I ought to have known but did not.

"But I must also expose my ignorance in confessing that I had little other idea of headache, dyspepsia, nausea, fevers, etc., than that these were things that for the most part were wholly out of our control, and that like the various phenomena of nature they were ordered by God's hand, and man had gener-

ally no agency therein. Do not smile at this strange notion. It is strange, indeed, that such ideas should prevail; but that they do prevail, even now, you may satisfy yourself by calling out the ideas of the very next person you meet.

"When I entered the Christian ministry at the age of twenty-one, I did not enjoy firm health. Though in no sense an intemperate man, as the word is commonly used, I did, nevertheless, have no just idea of Christian temperance. However much I lacked in other respects, I did not lack in zeal to labor in the work I had undertaken; and I think that I may say in truth I felt some degree of the responsibility of my calling. My anxiety of mind was constant and oftentimes extreme. Associated with a few others in the *defense*, or rather in the attempt to *advance*, an unpopular truth, there fell to my lot a heavy burden of anxious care, and the necessity of much overtaxing labor, oftentimes requiring not the day merely, but much, or even all, of the night.

"But one cannot violate the laws of his being, even in the best of causes, without suffering the consequences; and so I found to my own cost. Had I understood the laws of life in the right use of food, and in the principles of hygiene generally, I could have gone longer than I did in the exhausting labor which I attempted to sustain. But the short of my story is this: in less than five years' time I was utterly prostrated. My voice was destroyed, I supposed permanently; my eyesight was considerably injured; I could not rest by day, and I could not sleep well at night; I was a serious sufferer from dyspepsia; and as to that mental depression which attends this disease, I think I have a sufficient acquaintance with it to dispense with it in time to come, if right habits of life will enable one to do so. On arising in the morning it was very generally the case that the sensation in my stomach was as though a living creature were devouring it. Often, without apparent reason, very great prostration would come over me. My brain, from severe taxation and from ignorance on my part of the proper manner of performing brain labor, had become much diseased and seemed to be undergoing the process called 'softening.' It was only at times that I could perform mental labor to any extent. I was considerably troubled with salt-rheum, which made the middle finger of each hand raw on both sides, much of the time. I had plenty of headache, though I thought little of that. But I had one difficulty which made life a heavy burden to me. I had catarrh to such an extent that my head seemed to me incurably diseased. I will not describe its disagreeable peculiarities, but will simply say that I have not often seen persons who have it in so very bad a form as mine. No other ill of life ever gave me such trouble as this. My general strength was prostrated, and I was a burden to myself, and could not but be such to others.

"Some nine years of my life elapsed after my general prostration before I learned anything of consequence respecting the subject of health reform. During this time, from laying aside mental labor to a large extent, and working in the open air, I had received considerable benefit so far as my general strength was concerned. But in the meantime I had fastened upon me catarrh in some of its worst forms. I have sufficient acquaintance with this distressing, and as I then supposed incurable, evil. I need not further state my own troubles in the past. Thank God that I can say, 'In the *past*.' For the opportunity to say this, I am indebted to the health reform." J. W.

The Physics and Metaphysics of Sunshine.

BY B. FRANK TAYLOR.

"THE world wants more sunshine in its disposition, in its business, in its charities, in its theology. For ten thousand aches and pains of men and women we recommend sunshine. It soothes better than morphine. It stimulates better than champagne. It is the best plaster for a wound. The good Samaritan poured into the fallen traveler's gashes more of this than wine or oil. Florence Nightingale used it on the Crimean battlefield. Take it into the alleys, on board of all the ships, and by the sick-beds. Not a vial full, but a *soul* full. It is good for spleen, liver complaint, for neuralgia, for rheumatism, for fallen fortunes, for melancholy. We suspect that Heaven itself is only more sunshine."—*The Medicine of Sunshine.*

There is a world of truth in the above

paragraph, and it is as true in the physical as in the spiritual sense. Men and women do want more sunshine, as well for their bodies as their souls. The idea of Swedenborg, that "light is the shadow and emblem of God," contains, undoubtedly, emblems of truth; and he who would be well, physically, equally with those who seek moral renovation, must "turn to the light."

Medicine is dear. The various schools are at variance as to the means to be employed in the cure of disease. The science of chemistry, of botany—all sciences, in fact—are invoked to aid the physician in his office of healing. We seek for the remedies for disease through occult processes; through dark and difficult labyrinths of research. The herb, the mineral, the elements of water, of fire, of electricity, are questioned and applied. Nature is ransacked in the search for the "grand arcanum" whose touch shall yield the gold of health. But still men die before their prime; still the tyrant laughs too often at the leech's skill, and the sepulcher "opes her ponderous and marble jaws," to receive her countless guests into her halls of darkness and of silence.

Yet, all around us in the bright, fair world, in the meadow, on the hill, and in the sunny vale, by rushing stream, and mountain side, nature is pouring from her heavenly vials, her streams of golden and all-healing medicine. And while man is vainly seeking panaceas for his ills in the darkened halls of science, she casts all around him, even at his very feet, the unheeded, yet all-powerful balsam—the simple medicine of sunshine.

That the physiology of plants and animals is in some respects similar is an accepted fact in science which of late years has been proven beyond controversy. Circulation, nutrition, assimilation, growth, maturity, decay, death, go on alike in the animal and vegetable kingdoms; and to both the "medicine of sunshine" is the great vivifier, reviver, and restorative. The pale and sickly plant in the dark cellar, the feeble and cadaverous prisoner in the windowless dungeon, alike are wasted and destroyed by want of sunlight; and many a poor sufferer whose ailments baffle the art, and resist the power of the drugs, of the physicians, languishes out long years of pain and feebleness, who, could he but bathe in the sunny rays, under the fair blue sky of cloudless days, would spring again speedily into a new life of ruddy health, as the plant which, when borne from the cavern to the sun-lit skies of bright meadows, revives under the sweet influences of the warm and life-imparting rays, loses its pale and haggard hue of death, and buds and blossoms once again in luxuriant growth and vigorous life.

The nomadic tribes and wandering nations of all climes and all ages have been celebrated for their freedom from disease; for their stalwart forms, their power of physical endurance, their longevity, their rugged health. The wild denizen of the plains of Scythia, the Arab of the desert with his lean and wiry frame, the red Indian of the western wilderness, the herculean "backwoodsman" of our frontiers,—all these—living in tents or in the open air—dwell under the rays of the bright sunshine of the prairie or the mountain, or under the burning rays of the desert land; and all these are healthy, strong, enduring, long-lived, brave, and free from those "thousand ills which [metropolitan] flesh is heir to."

It is true that pure air, habits of constant exercise, and simple diet have much to do with this physical perfection; but these are the companions and concomitants of sunshine, and he who seeks the one will naturally find the others also. The Esquimaux, who dwell where the sun's rays are feeble, and who, for a large portion of the year, are deprived of the light of day, are feeble, diminutive, and lacking in the energy and prowess of body and mind which are possessed by the inhabitants of sunny climes and radiant skies.

The wonderful results of the "blue-glass treatment," whatever may be the merits of that treatment, self-considered, are undoubtedly due, in large measure, to the exposure of the patient to the *unaltered* sunlight, as it comes from the Giver; even though that light be not improved (?) by artificial tintings, and changes of electrical conditions. The "violet ray" may impart vitality; the red beams may contain the elements of heat; the "blue" may combine both life and caloric; but God's sunshine *holds them all;* and, like Him of whom it is the emblem and the gift, descends only to bless, to heal, and to say to the souls and bodies of the children of men, "Let there be *light*"—the glow and the glory of health and happiness. "*Sana mens in corpore sano*" shall be given to him who seeks it from God's sunbeams, with a heart of faith to believe in the "power benign" of Nature, the great Healer, whose medicine is *sunshine.* The chilled frame, which impaired circulation has agued, shall feel the *warmth* of returning vitality; the pale cheek shall renew its roses, as the summer beam colors and tints the ripening peach; and the whole nature, physical, mental, and moral, shall mature to the image of perfected being, and be as "the precious fruits of the earth, brought forth *by the sun.*"

In the treatment of disease, the mind, the

soul, as well as the body, must receive the thoughtful attention of the wise physician.

"Canst thou not minister to a mind diseased?
Pluck from the memory a rooted sorrow?
And, with some sweet, oblivious antidote,
Cleanse the charged bosom of that perilous stuff
That weighs upon the heart?"

This is a question mutely asked of the physician by the looks, the actions, the inward pleadings of many a poor sufferer. The answer should be, Yes! there *is* sunshine for the *soul*, as well as for the outward being. But it is not to be found in drugs, in anodynes or stimulants, in narcotics or exhilarants, nor within the walls of darkened chambers. The bright beams of the morning sun shine not alone to gladden the eye, they brighten the *spirit* also. And even thus do words of hope and comfort, and kindly, cheering smiles, and the gentle ministrations of loving hearts, shed upon the downcast soul of the feeble sufferer a light that, like sunlight, has power to chase away the mists of darkness and of fear. This psychological light the physician should endeavor always to carry with him, taking it to the bedside, to the couch of pain and sorrow, and letting it drop, like a healing balm, into weary hearts. The patient also, himself, should cultivate it, should look away from the black side of things, and turn the eyes of his spirit toward the sun, and to the good Father whose nature is light and love. Bring the body into contact with the physical, the spirit into union with the moral, radiance, and both shall be strengthened, healed, and shall receive the desired blessing. The demons of disease which lurk in the darkness of being shall flee before the inpoured glory, and the mists that have hung so heavily over the sufferer through the long night of sickness shall fade away before the growing brightness of a coming day of gladness, health, and hope.

Better than the waters of Spa, of Chittenhara, of Brighton or Saratoga, are the tonics of physical and mental sunshine; and no chalybeate can redden the blood, and bloom the cheek, or cheer the soul, like the "medicine of sunshine." Try it, dear, suffering reader, as the author of this imperfect sketch has tried it to his joy, and find in that sun which God "causeth to shine on the just, and on the unjust," and in the light which he can shed into sorrowing hearts, the joy of life, and the priceless boon of *health*.

The opening spring, with its balmy airs, and its wakening blooms, its song of birds, and its birth of flowers, its resurrection of nature, its new-born glories, and its warm sunlight, is calling you forth with its thousand tender voices, to take the life-renewing medicine of God. Waste not, then, the precious moments, but come! come to the fair hills, and the flower-dotted valleys; to the silvery sheen of sun-bright brooks, and the breezy charm of tinted meadows; and let the renovating beams of the great light that rules the day shine alike on body and on soul; and, as it wakes to life the lilies of the field, and the sweet birds in their sylvan homes, so will it waken *you*, for whom God made it also, in whose parental eyes you are "of more value than many sparrows," and who wants you to "come unto the light" and be healed by his "medicine of sunshine."

From the earliest ages of the world the beneficent power of the "god of day" has been recognized. The Magians of early Persia adored his rising beam as the source of light, and warmth, and life, and scattered their votive offerings of flowers upon the bright waters of Iranistan and Shiraz, as a tribute to the hour of his advent in the east. So we, with better knowledge, and a holier and loftier faith, should offer to the God whose wisdom formed the solar radiance those morning flowers of the soul, faith, hope, and love, seeking bodily health in the life-giving sunshine, and the spirit's well-being in his light that shineth upon the spirit "more and more, unto the perfect day."

A Cold Bath before Preaching.

BY ELD. W. M. JONES.

THE following paragraph is quoted from Dr. Joseph Parker of London, Eng., by the Moray *Weekly*:—

"How do you use cold water, inside and out? Do you drink half a tumbler at a time? That is a mistake. Sipping is the way for a speaker, and the way for anybody whose throat needs a tonic. Take a sip of iced water every five minutes if you want to have a throat to work with. It is better than spraying the throat with bromine, or inhaling pine-oil, both excellent things in their way, but not much needed by the man who sips iced water. If my throat wants a little special petting in a heavy service, I keep a little raspberry vinegar in the pulpit. Some discerning and agreeable people have observed this, and called the colored liquid claret. I have never corrected them, and I beg that you never will. Why spoil their omniscience? And as to the external application of cold water before preaching, there is nothing equal to the cold sitz bath. Mark, cold. Not seventy degrees, but cold as the weather runs. Give me that, and I am physically

master of any congregation that ever assembled. I have come down to this place sometimes hardly able to stand, but one dip has made a man of me again. I have the most perfect bathing arrangements on these premises, and to them I owe no little of my comfort. First of all, take a good foot bath. This is of great importance. Stand in cold water; if you get a block of ice, so much the better. Stand in it till the feet are red and numb. Having done that, sit down in another bath, and then get your bath-man to pour a pail of ice-cold water upon the last joint of the spine, get him to rub you till you think he is tearing your skin off, and I guarantee you will preach with vigor and comfort. I do something like this every time I preach in the City Temple; and if I did not do it, the City Temple would soon be too much for me. I never preach with comfort out of my own pulpit on this very account. I believe in hydropathy rightly administered. But where is it rightly administered? I don't know. I have seen it administered in a most ignorant and shameful way, greatly to the cost of the unhappy patient. Is there a cloud upon your brow just before preaching? Lay a wet cloth on the forehead, and the cloud will go! It is not quite gone? Then the ice foot bath will clear it off unquestionably. Don't doubt it, try it."

[No doubt the plan suggested by Dr. Parker works admirably with him, a man of rare physical power, and it is undoubtedly far preferable to the use of stimulants, which is so common among clergymen and lecturers as a preparation for public speaking. Nevertheless, we would not recommend it for general adoption. The temperatures employed are too extreme, and the treatment of the skin is too rude, for any except the most robust persons. Few constitutions could endure such treatment long. Milder measures are equally efficient in attaining the desired end, and are both safer and much more agreeable.—Ed.]

We have listened with pleasure to Dr. Parker's sparkling wit and plain gospel talk, interluded with the touch of that immaculate white 'kerchief wiping so gently the perspiration from his forehead, but taking good care not to disturb the splendid toilet-lay of his bushy, black hair. His hands, too, are so white, for it is a long time since they held a plough-handle, if ever they touched one, and that diamond ring on the left hand flashes so much light, and the gown and bands are all in place; and, still further, for a penny we were accommodated with an abridgment of the sermon about to be preached, on Sunday mind you, in the London City Temple. We said, "with pleasure." To tell the truth, we wondered, for the doctor preaches temperance, of which there is an amazing need in this great babel of gin palaces; and, therefore, we did not suspect him of preparing for his three-hundred-guinea pulpit-exercise by a bibulous acquaintance with brandy, or any of its kin—the kind of thing said to be done *occasionally* by certain first-class pulpit orators, and many who are not such always have their glass of wine on coming out of the pulpit; but now we have the key to the doctor's power for filling the Temple: it is water! Yes, water. Why didn't we think of this before? for grimy, sooty London makes white black so soon. We have often washed our hands twelve times a day; but, thanks to frankness and a full confession for his neighbor's benefit, *water*, dear reader, does the business for the doctor, and, depend upon it, he is no humbug.

With the exception of "the most perfect bathing arrangements on these premises," and the "little raspberry vinegar in the pulpit," our experience is not so very unlike the doctor's,—except, again, that the doctor is pedobaptist, while we are baptist. Beginning to preach when a boy, our first ceremonial service was to baptize a chubby playmate, five years old, in a spring of water—a hollow bubbled full of cold water under a shady hillside—on an American summer's day. Although one year older than the candidate, our slender frame was not equal to the exigencies of the administrative office, and so, overbalancing, we tipped in head foremost, whence both candidate and officiate soon bawled lustily for help. (Subsequent and maturer knowledge taught us to walk with the candidate *into* the water.) Ever after, when we did preach, we first longed for a plunge into cold water, or an ablution, yes, a scrubbing and rubbing with soap, water, and crash towel, to take away the fret and fidgets of skin and spirit. As such an extravagance (!) was not always to be had, we sought and obtained conveniences for a wash-up of face, neck, hands, and feet; and then, saying our prayers as best we could, (and we can always pray better after a good wash), bright and cheery have been our feelings, and confident our trust in the Divine One while delivering the great message to our fellow-men. Our pulpit has seldom been constructed to accommodate a tumbler of water, and certainly not for the extra one of the "little raspberry vinegar," for it has been oftener the earth with the sky for the ceiling, or a log,

stump, chair, barrel, barn-floor, ship's deck, etc.; but good water we have found in all climates and in various countries sufficient to bathe the whole person every morning, and to wash the extremities between times. As for drinking while speaking, we seldom do it. It is decidedly an unnecessary habit, and especially the ice-water, except for tobacco-chewers. Drink before and after preaching if you will, but bathe before preaching; by all means take a good wash. It will be with a hearty relish that we shall listen hereafter to the doctor, being assured that he will stand complete in a clean skin, and speak with a thoroughly clean mouth, thanks to the habitual use of water.

Mill Yard, London, England, March 14.

Physiology of the Feet.

BY DR. W. J. FAIRFIELD.

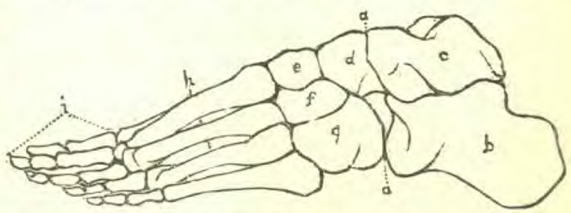
IT is pernicious taste that will clothe any part of the body in such a way as to interfere with its function, or tend to deform it. Proper development of the body should be the first care of the parent in giving attention to the child; for it is a very easy matter to hinder or change in a child the form of a growing part.

Man was made perfect—in the image of his Maker—every part of his whole organism being perfectly adapted to its place and work; but "man has sought out many inventions," and the necessity of our first parents in providing clothing for their bodies is lost sight of in the present multitude of extravagant forms of dress that fashion dictates for the body, some of which have been in use so long that they have become established as customs. In this latter class the present mode of clothing the feet might well be included. Perhaps there is no organ of the body that is more abused by improper clothing than the feet. We bestow compassion upon the Chinese women who have to suffer from that nation's cruel custom of deforming the feet, while we are entirely oblivious to the fact that our own feet are subjected to a refined torture that must be graciously borne because imposed by that imperious goddess, than to be at variance with whom one would "better be out of the world."

The feet of domesticated animals of burden have received the most careful attention from man, while those of his own species have been sadly neglected. Horses and mules especially have their feet carefully cared for, the shoe provided for them being adapted to the shape of the hoof; and while it affords protection it does not in any way interfere with the function of the part, but is an aid rather than a detriment to the pedal extremity.

Notice the foot of a little child. How comely in shape! We see no imperfections. The toes have perfect freedom of motion, no overriding of one another, no contortions of the joints, no flattening of the arch of the foot, as is the case when high-heeled boots or shoes have been worn for a time. There is no ingrowing of toe-nails, no corns, bunions, etc. We see it plump and healthy, not pale and emaciated, as it inevitably will become by being incased in the cruel vise fashion will soon impose upon it, by which the blood-supply necessary for the healthy maintenance of the organ will be greatly interfered with.

Now, notice the foot of an adult. Imperfections, none of which were present before, are here painfully striking. The beautiful curves, delighting us in the child's foot, are gone; the graceful arch is very much flattened; the toes are twisted and crowded together; and the unseemly joints look like so many knots protruding where they are not wanted. To judge the condition of the body by the appearance of the foot, one would think it was in a very emaciated condition.



a a The medio-tarsal articulation. *b* The os calcis. *c* The astragalus. *d* The scaphoid. *e* Middle cuneiform. *f* External cuneiform. *g* Cuboid. *h* The metatarsal bones. *i* The phalangeal bones.

It is deplored by artists that there can scarcely be found at the present time a living model foot. A well-known artist and writer says: "A well-formed foot is rarely to be met with in our day, from the lamentable distortion it is doomed to endure by the fashion of our shoes and boots. Instead of being allowed the same freedom as the fingers, to exercise the purposes for which nature intended, the toes are cramped together, and of little more value than if they were all in one—their joints enlarged, stiffened, and distorted—forced and packed together, often overlapping one another in sad confusion, and wantonly placed beyond the power of service. As for the little toe and its neighbor, in a shoe-deformed foot they are usually thrust out of the way altogether, as if con-

sidered supernumerary and useless, while all the work is thrown upon the great toe, although that, too, is scarcely allowed working room in its prison-house of leather. It is, therefore, useless to look for a foot that has grown under the restraint of leather for perfection of form." In the works of sculpture, only, handed down to us from the ancients, can we find a perfect model foot; and it is from the antique that modern artists study the human form in its perfection. The Farnese Hercules, the Antinous, the Gladiator, and the Venus de Medicis are admired by all artists, for in them are found copies of undistorted and natural beauty.

Taste comes, at least to a great extent, from education. The Chinese have educated themselves to admire the short, thick, stubbed foot, and consequently they resort to means in violation of nature that will produce this form in their females. More enlightened nations should, however, show better taste. No artist would dare to represent the human foot but in its perfection; but paint a modern-shaped shoe, and the shape of the foot vanishes. The true artist, in painting the human form, does not, in disposing of the drapery and clothing, lose sight of the figure. He does not make a drawing of the dress or clothing first, but he draws the figure first, then adapts the clothing to the form. So the shoe-maker should, in making the shoe, adapt it to the shape of the foot, not having the foot shaped to the shoe.

We should study the natural shape of the foot as a part of the body and having a definite part or function to perform; and to set forth more clearly to the mind of the reader the natural shape in contrast with the distorted shapes of the foot, we will consider briefly its bony structure. The foot contains in all twenty-six bones, which are divided into three classes; viz., tarsal, metatarsal, and phalanges. The tarsal bones, which form the heel and what is commonly termed the instep, are seven in number, short and irregular, being closely fitted to one another and strongly fastened together by ligaments, which, while allowing the bones a very limited yet necessary motion of sufficient extension and expansion for ease and elasticity in locomotion, give great strength to them as a base of support for the superincumbent weight of the body. The metatarsal bones are the same to the foot that the metacarpal bones are to the hand, occupying corresponding positions. Being five in number, one corresponding to each toe, they fill the space between the tarsal and the bones of the toes. They come under the class of long bones, being nearly straight, having two extremities, and a middle portion called the shaft. They are arranged nearly parallel to one another, their posterior extremities articulating with the anterior row of tarsal bones, while to their anterior extremities is joined the first row of phalanges, thus forming the first joints of the toes.

These two sets of bones, tarsal and metatarsal, form a strong double arch. With the foot placed on a level surface, supporting the superincumbent weight of the body, we observe that it rests, principally, on three prominences—posteriorly the heel, which is immovable, and anteriorly the first and fifth metatarso-phalangeal articulations, which, being slightly movable, give increase to the base of support, thereby adding to the security of the body, while by this very action giving elasticity in locomotion. Between the anterior and posterior prominences is the double arch, the concavity of which forming what is commonly termed the hollow of the foot. The chief arch lies from before backward, passing from the balls of the toes, which are formed by the metatarso-phalangeal articulations, to the os calcis, or heel bone. The other arch is lateral, and occurs in the middle and anterior tarsal, and posterior and middle portions of the metatarsal, bones. The arch being nicely and delicately adjusted in all its parts, showing wisdom, design, and workmanship in its adaptation, furnishes a beautiful example of a complicated machine combining great strength with graceful mobility. The arching of the foot also affords a recess for important soft parts, namely, muscles, nerves, and blood-vessels, which otherwise would be exposed to injury, and gives protection to the nervous system in its elasticity, which lessens shocks from walking, running, and jumping, that might otherwise be injurious.

The phalanges, which extend the length of the foot anteriorly, serve to more effectually raise the body over the foot, and propel it forward in the act of walking or running, and aid in clinging more firmly to uneven surfaces.

The natural inference would be, the metatarsal bones being nearly parallel, that the phalanges, or toes, would also be parallel; and so we find it in the normal foot. Indeed, it is necessary that this should be, in order that when covered with the soft parts, or flesh, they shall have room to touch the ground and to bend without interference. This is the way the toes of a child will grow if they are not interfered with, being allowed sufficient space for proper development, and without crowding the parts in any direction.

Japanese Agriculture.

[WE copy from the *Pen and Plow* the paragraphs given below, which are quoted from a report made by Dr. H. Maron, member of the Prussian East Asiatic Expedition, to the Minister of Agriculture of Berlin. The facts stated are of especial interest from their bearing on the question of diet, showing as they do very clearly that the use of animal food is neither necessary to the maintenance of human life nor the successful prosecution of agricultural pursuits.—ED.]

"Among the great questions which still remain in dispute with us, while in Japan they have long since been settled in the laboratory of an experience extending over thousands of years, I must mention, as the most important of all, that of manuring. The educated, sensible farmer of the old world, who has insensibly come to look upon England, with its meadows, its enormous fodder production, and immense herds of cattle, and in spite of these, with its great consumption of guano, ground bones, and rape-cake, as the beau ideal and the only possible type of a truly rational system of husbandry, would certainly think it a most surprising circumstance to see a country even much better cultivated, without meadows, without fodder production, and even without a single head of cattle, either for draught or for fattening, and without the least supply of guano, ground bones, saltpeter, or rape-cake. This is Japan.

"I cannot help smiling when I remember how, on my passing through England, one of the great leaders of agriculture in that country, pointing to his abundant stock of cattle, endeavored, with an authoritative air, to impress upon my mind the following axioms as the great secret of true wisdom: 'The more fodder, the more flesh; the more flesh, the more manure; the more manure, the more grain!' The Japanese peasant knows nothing of this chain of conclusions; he simply holds fast to one indisputable axiom, viz., without continuous manuring there can be no continuous production. A small portion of what I take from the soil is replaced by nature (the atmosphere and the rain), the remainder I must restore to the ground; the manner in which this is done is a matter of indifference. That the produce of the land has first to pass through the human body before it can be returned to the soil, is, as far as manuring is concerned, simply a necessary evil, which always involves a certain loss. As to the intermediate stage of cattle feeding, which we deem so requisite in our system, the Japanese farmer cannot at all see its necessity. He argues in his way that it must cost a great deal of unnecessary and expensive labor to have the produce of the field first eaten by cattle, so troublesome and expensive to breed, and that this system must involve more considerable loss of matter than his own. How much more simple it must be to eat the corn yourself, and to produce your own manure! * * * * *

"The religious belief of the two great sects in Japan, the Sintoists and the Buddhists, forbids the eating of flesh, and not alone of flesh, but of everything derived from animals (milk, butter, cheese); this prohibition, of course, disposes of one of the principal objects for which cattle are bred. Even sheep, if kept for the wool alone, would not pay, as our farmers begin to find out even in Germany.

"The very limited area of the homesteads in Japan also makes the maintaining of cattle superfluous. The smallness of the farms must not be attributed, however, to any excessive tendency to subdivision of landed property, but to the fact that the land belongs to the great princes, or Daimios, of the country, who have bestowed it in fee upon the lower nobility. The latter again, being precluded, by the institutions of the country, from farming their own estates, have parceled the land out, apparently from time immemorial, on perpetual leases, among the peasantry of the country. The size of these farms varies from two to five acres; the limitation having most likely been determined either by their natural position, or from the course of some brook or rivulet. Now, as this limited area is intersected moreover by drains and ditches, it will readily be seen that there is hardly a plot of ground to be found where the use of beasts of burden might be profitably had recourse to.

"We have a notion that we could not possibly exist in health and vigor without a considerable consumption of meat, although we have the fact constantly before our eyes, that our laborers, who assuredly require as much strength as any other class of society, are, for the most part, involuntary Buddhists."

—The practice of many physicians is in harmony with the sentiment expressed by a German professor at Jena, who declared that "the science of medicine does not exist in order to cure diseases, but there are diseases in order that there should be a science of medicine."

LITERARY MISCELLANY.

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

TEMPERANCE.

FATAL effects of luxury and ease!
We drink our poison, and we eat disease;
Indulge our senses at our reason's cost,
Till sense is pain, and reason hurt or lost.
Not so, O Temperance bland! when ruled by thee,
The brute's obedient, and the man is free.
Soft are his slumbers, balmy is his rest,
His veins not boiling from the midnight feast;
Touched by aurora's rosy hand, he wakes
Peaceful and calm, and with the world partakes
The joyful dawnings of returning day,
For which their grateful thanks the whole creation pay;—
All but the human brute: 'tis he alone,
Whose works of darkness fly the rising sun.
'Tis to thy rules, O Temperance! that we owe
All pleasures which from health and strength can flow,—
Vigor of body, purity of mind,
Unclouded reason, sentiments refined,
Unmixed, untainted joys without remorse,
The intemperate sinner's never-failing curse.

—*Mary Chandler*, 1687.

The Primal Cause of Intemperance.

SECOND PAPER.

BY MRS. E. G. WHITE.

ONE who fills the sacred office of father or mother assumes the responsibility of teacher. Upon no account should the marriage relation be entered upon until the parties have a knowledge of the duties of a practical domestic life. The wife should have culture of mind and manners that she may be qualified to rightly train the children that may be given her. It should be the mother's aim to educate her precious charge to take a position in society to elevate the sinking standard of humanity; and for this reason there should be no more children in the family than can be properly cared for and educated. For the sake of their children, if for no other reason, mothers should cultivate their intellects, for they bear a greater responsibility in their work than does the king upon his throne. Few mothers feel the weight of the trust that is given them, or realize the efficiency they can attain for their peculiar work through patient, thorough effort in self-culture.

And first, the mother needs to strictly discipline and cultivate all the faculties and affections of the mind and heart, that she may not have a distorted or one-sided character, and leave the marks of her deficiency or eccentricity upon her offspring. Many mothers need be roused to see the positive necessity of a change in their purposes and characters in order to perform acceptably the duties they have voluntarily assumed by entering upon the married life. The channel of woman's usefulness can be widened and her influence extended to an almost unlimited degree if she will give proper attention to these matters, which affect the destiny of the human race.

The mother needs the most perfect self-control; and in order to secure this she should take all precautions against any physical or mental disorder. Her life should be ordered according to the laws of God and of health. As the diet materially affects the mind and disposition, she should be very careful in that particular, eating that which is nourishing but not stimulating, that her nerves may be calm and her temper equable. She will then find it easier to exercise patience in dealing with the varying tendencies of her children, and to hold the reins of government firmly yet affectionately. Children should virtually be trained in a home school from the cradle to maturity. And, as in the case of any well-regulated school, the teachers themselves gain important knowledge, the mother, especially, who is the principal teacher in the home, should there learn the most valuable lessons of her life.

Well may the mother inquire with deep anxiety, as she looks upon the children given to her care, What is the great aim and object of their education? Is it to fit them for life and its duties, to qualify them to take an honorable position in the world, to do good, to benefit their fellow-beings, to gain eventually the reward of the righteous? If so, then the first lesson to be taught them is self-control; for no undisciplined, headstrong person can hope for success in this world or reward in the next. Children should be taught that they must not have their own way, but that the will of their parents must guide them. One of the most important lessons in this connection is the control of appetite. They should learn to eat at regular periods, and to allow nothing to pass their lips between these stated meals,

which should be served twice or at most three times a day.

For more than twelve years we have taken only two meals each day, of plain, unstimulating food. During that time, we have had almost constantly the care of children, varying in age from three to thirteen years. We worked gradually and carefully to change their habit of eating three times a day to two; we also worked cautiously to change their diet from stimulating food, as meat, rich gravies, pies, cakes, butter, spices, etc., to simple, wholesome fruits, vegetables, and grains. The consequence has been that our children have not been troubled with the various maladies to which children are more or less subject. They occasionally take cold by reason of carelessness, but this seldom makes them sick.

We have, as an occasional experiment, changed the number of their daily meals from two to three; but the result was not good. In the morning their breath was offensive; and after testing the matter for a few weeks, we were thoroughly convinced that the children were better upon two meals a day than upon three; and we therefore returned to our former system, with marked improvement in the health of the children as a result. If tempted with the sight of food prepared for others, they incline to think they are hungry, but usually they do not miss or think about the third meal. Children reared in this way are much more easily controlled than those who are indulged in eating everything their appetite craves, and at all times. They are usually cheerful, contented, and healthy. Even the most stubborn, passionate, and wayward, have become submissive, patient, and possessed of self-control by persistently following up this order of diet, united with a firm but kind management in regard to other matters.

Parents will have much to answer for in the day of accounts because of their wicked indulgence of their children. Many gratify every unreasonable wish, because it is easier to be rid of their importunity in this way than in any other. A child should be so trained that a refusal would be received in the right spirit, and accepted as final. Children are generally untaught in regard to the importance of when, how, and what they should eat. They are permitted to indulge their tastes freely, to eat at all hours, to help themselves to fruit when it tempts their eyes, and this, with the pie, cake, bread and butter, and sweetmeats eaten almost constantly, makes them gormands and dyspeptics. The digestive organs, like a mill which is continually kept running, become enfeebled, vital force is called from the brain to aid the stomach in its overwork, and thus the mental powers are weakened. The unnatural stimulation and wear of the vital forces make them nervous, impatient of restraint, self-willed, and irritable. They can scarcely be trusted out of their parents' sight. In many cases the moral powers seem deadened, and it is difficult to arouse them to a sense of the shame and grievous nature of sin; they slip easily into habits of prevarication, deceit, and often open lying.

Parents deplore these things in their children, but do not realize that it is their own bad management which has brought about the evil. They have not seen the necessity of restraining the appetites and passions of their children, and they have grown and strengthened with their years. Mothers prepare with their own hands and place before their children food which has a tendency to injure them physically and mentally. Unwholesome diet makes a poor quality of blood. The appetite continually indulged is constantly craving something more stimulating; with the weakening of the moral powers bad associates are made, and the young man who has thus gone from bad to worse finds in the saloon that which meets the unnatural wants of his appetite. It then becomes a lion that can be tamed by no common means. Shame vanishes and manhood is sacrificed to an insatiate desire.

There is a general mourning that intemperance prevails to such a fearful extent; but we fasten the primal cause upon fathers and mothers who have provided upon their tables the means by which the appetites of their children are educated for exciting stimulants. They themselves have sown in their children the seeds of intemperance, and it is *their* fault if they become drunkards. What account in the day of final Judgment will that father and mother give whose child has become corrupt and dissolute in life through their indulgence of his appetite, and neglect to cultivate the moral attributes of his mind! Parents see that something must be done, for anguish has entered their homes, so they attempt to seize the monster of intemperance and hold it with their feeble strength; but they find it too strong for their feeble hands to conquer. In their ignorance they nourished and strengthened it until it is beyond their control. Could parents realize the great responsibility resting upon them when their children are innocent babes in the home, much sin and misery might be averted; temperance would then be taught at the fireside, and the table would afford practical lessons repeated every day. Line upon line,

precept upon precept, children should be taught the necessity of self-control and self-denial; and then true reform would make rapid progress.

Parents may, by earnest, persevering effort, unbiased by the customs of fashionable life, build a moral bulwark about their children that will defend them from the miseries and crimes caused by intemperance. Children should not be left to come up as they will, unduly developing traits that should be nipped in the bud; but they should be disciplined carefully, and educated to take their position upon the side of right, of reform and abstinence. In every crisis they will then have moral independence to breast the storm of opposition sure to assail those who take their stand in favor of true reform.

Individual effort on the right side is needed to subdue the growing evil of intemperance. Oh! that we could find words that would melt and burn their way into the heart of every parent in the land! Mothers can do much toward sweeping away the cloud of darkness and iniquity that settles down over the earth like the pall of death. Mothers, can we not do our work better? Can we not labor more faithfully to bring up our children to real usefulness in the world? Let us teach the little ones to help us while their hands are small and their strength is slight. Let us impress upon their minds the fact that labor is noble, that it was ordained to man of Heaven, that it was enjoined upon Adam in Eden, as an essential to the healthy development of mind and body. Let us teach them that innocent pleasure is never half so satisfying as when it follows active industry. If we teach our children to be industrious, half the danger is over; for idleness leads into all manner of temptation to sin. Let us educate our children to be simple in manner without being bold, to be benevolent and self-sacrificing without being extravagant, to be economical without becoming avaricious. And above all, let us teach them the claims which God has upon them, that it is their duty to carry religion into every department of life, that they should love God supremely, and love their neighbor, not neglecting the little courtesies of life which are essential to happiness.

How earnestly and perseveringly the artist labors to transfer to canvas a perfect likeness of his model; and how diligently the sculptor hews and chisels out the stone into a counterpart of the copy he is following. So the parents should labor to shape, polish, and refine their children after the pattern given them in Christ Jesus. As the patient artist studies, and works, and forms plans to make the results of his labors more perfect, so should the parent consider time well spent that is occupied in training the children for useful lives, and fitting them for the immortal kingdom. The artist's work is small and unimportant compared with that of the parent. The one deals with lifeless material, from which he fashions forms of beauty; but the other deals with a human being whose life can be shaped for good or ill, to bless humanity or to curse it; to go out in darkness, or to live forever in a future sinless world.

Holidays Among the Canyons.

BY MARY L. CLOUGH.

(*Concluded.*)

WE were all well mounted, and dashed off at a swinging pace down the canyon, which now widened into a grassy meadow several miles long and from half a mile to a mile in width, without stick or stone. This was "Goss' Ranche" and the residence of the proprietor occupied the center of the natural park. Heavily timbered hills, tier upon tier, walled it in upon all sides, but dropped down so low at the head of the park that a grand view of the Snowy Range faced us like a marvelous picture at the end of a long dusky gallery. Capping the dark forest lay leagues upon leagues of the bleak upper mountains, sharpening into snow-slashed peaks or stretching off into magnificent distances, gray, barren, and rolling, without tree or shrub, or any other object to break their smooth, flowing contour. The sun glittered on the snow-fields, and lighted up the naked granite of the peaks and spurs, till every rock stood out bold and distinct in the transparent atmosphere.

Leaving "Goss' Ranche" we now entered the celebrated main Boulder Canyon, claimed by travelers to present some of the finest scenery in the world. The canyon is deep, narrow, and winding. Boulder Creek, almost a river, occupies the greater portion of its bed, and the road is crowded against the rocky wall, sometimes built out over the stream, and sometimes excavated in the side of the mountain, crossing and recrossing the creek on corduroy bridges, and climbing up on rocky shelving to get out of its way. And all the while the creek seemed hunting the road down mercilessly, chafing against its rock embankment, gathering its forces and rushing upon it white with rage and full of hoarse complaining. With a noise like an avalanche it leaps over craggy precipices, and struggles and rages through narrow passes,

fretting over its banks occasionally and lapping the road with eager tongues. It rushes down the steep grade, tearing itself into a thousand foamy fragments over the piled-up boulders in its bed.

It is a magnificent stream—one that madly beckons and invites you to throw yourself into its depths and see what short work it will make of you. It talks to you like a human voice, and says, "Life has nothing for you, nor ever will have, but cares, disappointments, and sorrows; it is all a dreary farce, a purposeless struggle; jump in, and end it all at once. See how white I am, how full of force! I will rock you to an eternal slumber, an everlasting '*in pace.*'" That latent grain of insanity in our natures is aroused sufficiently by this challenge for one to feel a mad, momentary longing to obey this summons, and leap into eternity from those green banks. Once amid that boisterous current, no human hand could save. The force is tremendous, and the first dash would probably be against some monstrous uprising boulder that would effectually stun, and send on down the seething current an inert mass, which a moment before had been full of life, and hope, and thought.

A few weeks previous to our visit, Dr. Sweet and another gentleman from Central City had visited the falls, and were returning to the road. The nearest way was across a foot-log, large but stripped of bark and slippery from the spray that dashed over it, for the water was very high on account of the spring thaws in the mountains above. They had crossed this bridge in safety going over, but in returning the doctor's foot slipped, and in an instant he was in the boiling caldron of water. To make the matter worse, a loose cloak that he wore floated over his head, pinioning his arms, and before his friend, who had already crossed, could come to his assistance, he was whirled down among the boulders and out of sight. His friend followed down the stream and searched unavailingly for hours, then rode on to town leading a riderless pony. A party started out immediately upon receiving the news, and the next evening they found his drowned and mutilated body seven miles below, drifted into an eddy formed by a huge rock and some logs that had lodged against it. The doctor was well known; he had been one of those social good fellows who win a host of friends; besides he had lately married a young wife, and the news of his sudden and shocking death cast a gloom over the whole town.

One of the principal attractions of the main Boulder Canyon is Haystack Mountain. It rises almost perpendicularly from the roadside to the skies. It has a cowl-like form, and is bare of vegetation except a little clinging moss and ferns in the fissures. It looks like a gigantic stack of prairie hay, both in shape and color. The circumference of the base is about one hundred rods, and the height of the rock is six hundred feet. It is inaccessible, unless one would risk his neck to perform the feat of a Rocky Mountain goat. The road, the rock, and the stream occupy the whole breadth of the canyon. A sudden turn brings you directly opposite it, and almost near enough to touch it with your hand across the brook. You throw back your head, and look up along a rocky wall of hundreds of feet, that seems ready to topple over and crush you. It is almost painful to look upon, rising so abruptly from the smooth and comparatively level canyon. It stands like a mighty giant, its base nestled among the daisies and wild roses, and its top piercing the heavens. It is planted there gloomy and defiant where all else is smiling and fair. The sun falls softly on the hurrying water, the forest spreads upward calm and unbroken, all about is a carpet of brilliant green, with here and there a flowery shrub or willow; but gloomy and grand this giant lifts his solemn head above all this beauty and bloom. Worn and scarred by the storms and changes of centuries, what tales he could tell of fiery convulsions, and the throes of a past world, before earth crystallized into its present state, and he emerged from the wreck of matter, sphinx-like and terrible! If he could speak how would the theories of wise scientists dwindle and grow pale! No doubt he would upset the deductions of geology, and annihilate our pet ideas of creation. But happily for our self-esteem he is silent as changeless. Other things renew their youth. Nature decks the landscape freshly every year; new flowers blossom, new birds warble, even the enduring pines drop slowly into decay, and new ones arise in their places; the mighty rocks that form the bed of the stream are gradually displaced, and it cuts for itself a new channel; but, grim, and ancient, and heavy, defying wind and weather, time and change, the granite veteran keeps endless guard over the canyon, with never a relief of sentry through the ages.

The scenery grows rougher as we proceed. Rocky bastions rise from the road-side from forty to a hundred feet high; mountains stretch upward, steep and heavily wooded. We are threatened by overhanging crags, upon the top and sides of which stunted fir-trees cling, taking root nobody knows where, and seeming to thrive on bare granite. Suddenly a turn in the road brought us to North

Boulder Canyon, opening up among the hills on the left. Here we dismounted, for the path was rugged and narrow, and, hitching our horses, proceeded on foot. At the entrance we found Mr. Chamberlain, photographic artist from Denver, who had pitched his tent, and was taking advantage of the perfect weather to get up a series of stereoscopic "Boulder Canyon Views," which were afterward pronounced very fine.

The ascent to the falls was laborious; a narrow path skirted the side of the canyon, from fifty to one hundred feet above the stream. The footing was perilous; sometimes we crossed wide sloping ledges where it was difficult to avoid slipping, as the soles of our boots were soon worn smooth. Sometimes we passed under sylvan bowers formed by interlapping branches of cedar. All about us the hardy wild rose bloomed and glowed, clinging tightly to the unfriendly rocks, willing to give all its beauty and fragrance for such rude support, reminding us of some soft-eyed women we have known. The stream grew more rapid, as it passed swiftly down the steep descent, until, at a sudden angle, we came face to face with the falls. We found ourselves standing at the head of the canyon, on a wide shelf of rock that extends half way around a circular basin below. We were hemmed in by almost perpendicular mountain walls that climbed up to the very heavens, and seemed to shut out the outer world as effectually as did those of Rasselas' "Happy Valley." Over the top of this barricade, almost opposite us, a sheet of water fifteen feet wide dashes with the thunder of accumulated force into the reservoir beneath our feet. There it raged, a white, foaming mass, seething, boiling, and sending up a cloud of spray that fell far and wide in a fine shower. From this caldron the water finally escaped in a deep, wide stream, over rocks and boulders, hurrying to its confluence with the main creek.

The fall is about sixty feet; nothing wonderful in height or power, but rivaling Yosemite in picturesque beauty. We stood on the scooped-out gallery of rock, drenched with spray, the thunder of the water in our ears, the etherealized torrent churned into froth at our feet, around and above us an encircling mountain, upon the steep and rugged sides of which trees clung as if for life; a thick underbrush of sweet brier, burning with blossoms, striving to hide the rough rocks which protruded abruptly, looking over as if to ascertain where they had best tumble if they lost their hold. Far up, a mile or more, the green and granite mass struck sharply against the clear sky, deep and purple as if seen from the bottom of a well. The intensity of coloring was wonderful in its effect. About forty feet up, the fall is interrupted in its descent by a great projecting rock, and is broken into a sheet of spray, glittering white as snow against its dark green background, and flashing off into a shower of light where the sunshine struck it into myriads of diamonds.

We remained enjoying this glorious scene until we were stunned by the noise and drenched by the spray, then slowly picked our way back to the road, deeply impressed by this gem of nature in a Rocky Mountain setting. Going down we visited the log where poor Dr. Sweet got his death, and shuddered to see how the hungry waters lashed its sides, and occasionally dashed over the top as if looking out for more lives. We remembered how only a few weeks before, glowing with youth and health, fresh from the kisses of his bride, he had sought the falls, and looked with awe upon the scene for the first time. How the volume of water, swelled by the spring rains, must have roared and heaved, while he stood there and looked upon Death, and then went out to meet him, fearless and unsuspecting, in the waning afternoon. We fancied him battling with the angry flood, his agonized face upturned amid the white foam of the breakers, only for a moment, and then the water rushing on the same as before.

We found our horses all right, bade Mr. Chamberlain good-by, and cantered slowly off, a little quieter than when we came, a little softened by our communion with the miracles of nature, feeling that our human strength was weak and puny when compared with the power of the elements, and the wonders of God's handiwork. As we retraced our way, the declining sun shed a glory over our path that I never saw equaled. The broad creek was struck into a stream of red gold. Each wave came up with a crest of fire, and sank into the molten flood again a billow of light. The effect was indescribable; for miles a line of gold threaded a sea of emerald. There was not a cloud in the sky, and the sunlight falling at an acute angle presented this gorgeous vision to our eyes. The ride was delightful. We were all practised equestrians, who enjoyed a gallop for its own intrinsic pleasure and the glow of vivacity it creates; but to ride through scenes of the Arabian Nights, over an enchanted land, by a river of light, under a canopy of purple and gold, was the last, crowning delight of a perfect day.

We reached camp about sunset, having ridden twenty miles without any fatigue to speak of. We found that Mr. Root and Sheppard had arrived before us, and a steaming supper of trout tempted our sharpened appetites.

We decided that our representative fisherman had done a wise thing in foregoing the beauty of Boulder Falls.

The next morning we took up the line of march for home, where we arrived safely in due time. Thus ended our Fourth of July vacation—a gem in the heart of the mountain summer.

"Miserable, Thank You!"

"SHE was a plump, jolly-looking matron, of the shade they call coffee-color, and her eyes and mouth were always overrunning with laughter and fun, except when you asked her, 'How do you do to day?' Then invariably was Aunty's answer the same. Down dropped the corners of her lips, doleful grew the pleasant face, solemn became the poise of her head: 'I'se pretty miserable, thank you!' she would reply; and if you were patient and sympathetic she would proceed to relate the latest and most particular 'misery' which had laid its withering hand upon her. She was not aware of inconsistency between her speech and behavior, although the next minute might behold her at the wood-pile, cleaving a knotty stick with mighty strokes, or pouncing down in wrath on a bevy of negro children, or throwing together with careless confidence the materials for some marvelous cake. Aunty was in the habit of performing her day's duties as they came along, and she was in the habit of enjoying them, too; but it would have been beneath her dignity, as a respectable member of society, to acknowledge that she felt well. The most robust of her acquaintances never got beyond being 'tol'able,' and the occupants of the highest seats were always ailing. 'Miserable, I thank you,' was a sort of badge which confirmed her right to a place above the vulgar rabble.

"We sometimes wonder whether there are not a good many people who subscribe to Aunty's creed. The other day we were compelled, in a street car, to listen to a long catalogue of the ills to which flesh is heir, drearily enumerated by a lady for the entertainment of a gentleman: 'She never expected to be well again. The doctor said her nervous system was completely gone.' Curiosity to see a person who had lost her nervous system, yet was able to endure with fortitude the jolting of a car, caused us to look around. Our neighbor was a pretty little woman, with bright eyes, black hair, rosy cheeks, and the counterfeit presentment, at least, of excellent health. We concluded that she thought it interesting to be a semi-invalid, like the school-girls of the last generation, who used to eat slate-pencils and sip vinegar to make themselves pale. Often as we hear a person going over with minute detail and earnest effort of memory every painful symptom he or she can remember, for the gratification of a friend, we think that sickness has acquired a brevet rank of its own, and that 'Miserable, thank you,' is in that mind regarded as genteel.

"A morbid desire for sympathy is no doubt at the bottom of half the useless complaints in the world. It is sweet to be pitied, and the cheapest way to get pity is to tell over your troubles. So there are some who are forever retailing their afflictions. Some of them are real enough. It is an exceptional lot in which there is no crook. Few roses bloom which are not set round with briers. But in most cases there are compensations, unless we willfully shut our eyes and refuse to recognize them. One trial may be ours, or two, or six, or seven, yet we have joy and gladness to balance it or them, and we are not crushed. By needless iteration in the ears of the kindest listener, we may double the extent of our misfortune. If speech is silvern, silence is golden, as regards the inevitable vexations, defeats, and calamities of life. Even Job, with heaps upon heaps of distressing events to distract him, never really gave up till his three friends opened their mouths and tried to comfort him."

The above life-like picture was drawn by the vigorous pen of Dr. Talmage. I doubt not almost every one has seen the original somewhere. By means of such feelings and actions many destroy their health and induce the very evils of which they complain. Ills which are at first imaginary become real by being nursed and brooded over, because the system in time takes on the condition which the imagination conjures up. Healthy men have been prostrated by disease, and in some cases their lives have been sacrificed, by working on their imaginations. As a sanitary measure, people should keep themselves in a hopeful and cheerful frame, and avoid fretting and a self-pitying mood.

Another great evil grows out of this "Miserable, thank you" habit. To establish their claim to a miserable condition, the subjects must "take something" for their numerous ills, and so the doctor is called or patent nostrums are procured, and no wonder if the patient is soon too miserable to be thankful!

And some carry this mania so far as to be jealous of any who are really afflicted. They come to regard misery as their special pre-

rogative, and no greater insult can be offered them than to express in their presence compassion for a suffering neighbor. They feel that they ought to be the object of that sympathy, and they have been despoiled of their right. Their only happiness consists in being miserable; and he who would persuade them to greet the sunshine, to appreciate the blessings which everywhere surround them, is an unwelcome intruder. If they should speak out their real feelings they would answer, "I am happy to say I am very poorly this morning."

If they could enjoy their misery alone, it would hardly be worth while to make an effort for their recovery, as it is a thankless task. But their chief delight is, generally, to make all miserable around them. If they cannot succeed in this, they are miserable indeed; 'tis no longer an imaginary evil with them. Poor creatures; victims of a terrible hallucination. Beyond the reach of help, because their ill feelings are guarded as their most sacred treasure. I never come into the presence of one such, without having my convictions strengthened that we are a fallen race. J. H. WAGGONER.

Discontent.—Said Freeman Hunt, many years ago, "The other day I stood by a cooper who was playing a merry tune with his adze around a cask. 'Ah!' said he, 'mine is a hard lot—forever trotting round like a dog, driving away at a hoop.' 'Heigho!' sighed our neighbor, the blacksmith, in one of the hot days, as he wiped the drops of perspiration from his brow, while his red-hot iron glowed on the anvil, 'this is life with a vengeance, melting and frying one's self over the fire.' 'Oh that I were a carpenter!' ejaculated a shoemaker, as he bent over his lapstone; 'here I am, day after day, working my soul away in making soles for others, cooped up in this little seven by nine room.' 'I am sick of this out-door work,' exclaims the carpenter, 'broiling and sweating under the sun, or exposed to the inclemency of the weather—if I were only a tailor!' 'This is too bad,' perpetually cries the tailor, 'to be compelled to sit perched up here, plying my needle—would that mine was a more active life!' 'Last day of grace—the banks won't discount—customers won't pay—what shall I do?' grumbles the merchant; 'I had rather be a dray horse—a dog—anything!' 'Happy fellows!' groans the lawyer, as he scratches his head over some perplexing case, or pores over some dry record—'happy fellows! I had rather hammer stone than cudgel my brain on this tedious, vexatious question.' And through all the ramifications of society, all are complaining of their condition—finding fault with their particular calling. 'If I were only this or that or the other, I should be content,' is the universal cry—'anything but what I am.' So wags the world, so it has wagged, and so it will wag."

Learn the Value of Money.—A silver dollar represents a day's work of the laborer. If it is given to a boy, he has no idea of what it has cost, or of what it is worth. He would be as likely to give a dollar as a dime for a top or any other toy. But if the boy has learned to earn his dimes and dollars by the sweat of his face, he knows the difference. Hard work is to him a measure of values that can never be rubbed out of his mind. Let him learn by experience that a hundred dollars represents a hundred weary days' labor, and it seems a great sum of money. A thousand dollars is a fortune, and ten thousand is almost inconceivable, for it is far more than he ever expects to possess. When he has earned a dollar, he thinks twice before he spends it. He wants to invest it so as to get the full value of a day's work for it. It is a great wrong to society and to a boy to bring him up to man's estate without this knowledge. A fortune at twenty-one, without it, is almost inevitably thrown away. With it, and a little capital to start on, he will make his own fortune better than any one can make it for him.—*Hunt's Merchants' Magazine.*

The Koran.—The Koran, or Alcoran, is one of the most remarkable works extant. It was written about A. D. 610, its professed author being Mahomet, who claimed to be the apostle of God. The book was written in Arabic, and is said to possess rare qualities as a literary production, being especially remarkable for its richness in synonymns. It uses a thousand different words for sword and five hundred for serpent. Other words have nearly an equal number of synonymns.

The Koran recognizes the existence of God, the divinity of Christ, and the mission of Moses. Mahomet claimed that the book was given to him by the angel Gabriel, who communed with him during a period of twenty-three years; but it is the general opinion of learned writers that Mahomet was assisted in its composition by a Dominican friar, a Nestorian monk, and a learned Jew.

The work consists of three thousand verses, which are comprised in one hundred and fourteen sections. It contains many excellent maxims and beautiful similes.

A Mysterious Clock.—The *Scientific American* states that Mr. Robert Heller, the conjurer, has lately been exhibiting a clock of his own invention, the mystery of which no one, we believe, has yet fathomed. It is a clear disk of glass, marked with the usual numbers. The hands have no bulb or other enlargement at the center, where it might be imagined mechanism could be concealed, and appear to be simply pivoted to the face. A ring like that of a watch suffices for the support of the clock from two cords suspended from the ceiling. At the command of its owner the clock marks any hour, moves backward or forward, and otherwise behaves in an astonishing manner. The use of the cord naturally suggests concealed wires and electricity, which is probably the secret of the movement. But this theory is somewhat damaged when the magician removes the clock from its cords, and, holding it with two fingers at arm's length, carries it in the midst of his audience, and causes it to continue its performances under the very eyes of the people, allowing the closest inspection. One clock like that would serve as an invaluable aid to an exhibiting spiritualistic medium, and would cause wide-spread rejoicings among the elect.

Curiosities of Dreamland.—Those cases in which the brain is hard at work during sleep, instead of being totally oblivious of everything, may be called either dreaming or somnambulism, according to the mode in which the activity displays itself. Many of them are full of interest. Some men have done really hard mental work while asleep. Condorcet finished a train of calculations in his sleep, which had much puzzled him during the day. In 1856, a collegian noticed the peculiarities of a fellow-student, who was rather stupid than otherwise during his waking hours, but who got through some excellent work in geometry and algebra during sleep. Condillac and Franklin both worked correctly during some of their sleeping hours.

The work done partakes, in many cases, more of the nature of imaginative composition than of scientific calculation. Thus, a stanza of excellent verse is in print which Sir John Herschel is said to have composed while asleep, and to have recollected when he awoke. Goethe often set down on paper, during the day, thoughts and ideas which had presented themselves to him during sleep on the preceding night. A gentleman one night dreamed he was playing an entirely new game of cards with three friends. When he awoke, the structure and rules of the new game, as created in the dream, came, one by one, into his memory, and he found them so ingenious that he afterward frequently played the game.

Coleridge is said to have composed his fragment of "Kubla Khan" during sleep. He had one evening been reading Purcha's "Pilgrim;" some of the romantic incidents struck his fancy; he went to sleep, and his busy brain composed "Kubla Khan." When he awoke in the morning, he wrote out what his mind had invented in sleep, until interrupted by a visitor, with whom he conversed for an hour on business matters, but, alas! he could never again recall the thread of the story, and thus "Kubla Khan" remains a fragment.

Dr. Good mentions the case of a gentleman who, in his sleep, composed an ode of six stanzas, and set it to music. Tartini, the celebrated Italian violinist, one night dreamed that the devil appeared to him, challenged him to a trial of skill on the fiddle, and played a piece wonderful for its beauty and difficulty. When Tartini awoke he could not remember the exact notes, but he could reproduce the general character of the music, which he did in a composition ever since known as the "Devil's Sonata." Lord Thurlow, when a youth at college, found himself one evening unable to finish a piece of Latin composition which he had undertaken. He went to bed full of the subject, fell asleep, finished his Latin in his sleep, remembered it next morning, and was complimented on the felicitous form it presented.

To Develop Talent.—Place a man in a position that will fearfully tax him and try him, a position that will often bring the blush to the cheek and the sweat to his brow, a position that will overmaster him at times and cause him to rack his brain for resources. Place him in a position like this. But every time he trips, go to his rescue; go not with words of blame or censure, but go with manful words of encouragement; look him boldly in the eye, and speak them with soul and emphasis. This is the way to make a man of a boy and a giant of a man. If a man has pluck and talent, no matter if he ever filled a given position or not; put him in, if worthy, and he will soon not only fill it, but outgrow it. Put him in a position with a faint heart. This is the way to kill him. Put him in grandly with unmistakable confidence. Drop no caveats, but boldly point the way, and then stand by with the will and countenance of a true friend. Thus try twenty men, such as have been named, and nineteen will succeed.

DIETETICS.

"Eat ye that which Is Good." As a Man Eateth, so Is he.

Vegetable Fats.

MANY people suppose that the great objection to fats as articles of food is found in their animal origin. This supposition is unfounded, for the essential constituents of most fats are identical, whether their origin is animal or vegetable. Nevertheless, it should be noted that fats of animal origin are likely to be contaminated with the products of disease while vegetable fats are of course wholly free from such deleterious elements. This, however, is not the great objection to the use of fats as food. The objection is not against fat, *per se*, but against taking it in a free state. When taken in the form in which nature presents them, inclosed in cells in such vegetable foods as maize, oatmeal, nuts, and some fruits, fats are wholesome and nutritious elements of food. It is only when separated from the other elements and taken in a free state that they become unwholesome. When taken into the stomach in the form in which nature furnishes them, they offer no obstacle to digestion. It is only when taken as free fats that they become a means of producing disturbance of the digestive functions.

When taken in their natural state, vegetable fats are likely to be taken only in such quantity as they can be digested and appropriated; but when taken in a free state, they are almost invariably taken in excess. It makes little or no difference, so far as the interference with digestion is concerned, whether the fat is animal or vegetable. The results of excess in quantity are also essentially the same, whichever may be the origin.

In view of these facts, the persistent efforts of individuals to discover some cheap vegetable substitute for butter and lard are painfully ludicrous. Nothing would be gained if such substitutes could be discovered, for they would be open to the same objections as the articles which they were intended to replace.

Olive-oil has frequently been proposed as a good substitute. In addition to the reasons already given, it may be remarked that it is next to impossible to obtain pure olive-oil in this country. The pure article is sold only in small quantities, and commands a high price; and many a bottle which bears a French label as a guarantee of its genuineness contains not a drop of the oil of olives. The common article, and much of that which passes for the pure oil, is either lard or cotton-seed oil or mixtures of the two.

In some portions of the Southern States cotton-seed oil is used in place of lard. A firm in a Northern State has recently advertised an oleaginous substance which is denominated "vegetable lard." The manufacturers claim that it is of exclusively vegetable origin, but do not state from what source it is obtained. We surmise that it is from cotton seed; however, its origin is not important. In appearance it resembles mixed firkin butter. It has a faint nutty odor and flavor, and is no doubt fully as wholesome as lard. If people will use grease of some kind, we would recommend "vegetable lard" in preference to hog's lard. Nevertheless, we do not recommend the use of any free fat; and we presume that people will continue to prefer lard from its swinish source to this new product, notwithstanding the more cleanly origin of the latter.

Vinegar.—Everybody does not know that vinegar is diluted acetic acid, usually with many impurities added, and sometimes substances much worse than mere impurities. Acetic acid is a caustic. A drop of it placed upon the skin will destroy it in a few seconds. This property makes it a very excellent remedy for curing warts, but is no special recommendation for it as an element of food. As before stated, common vinegar, even pure cider vinegar, is simply acetic acid with water. Acetic acid is formed by a process of decomposition or fermentation, being produced from sweet or starchy elements.

One of the properties of this acid is the power to dissolve some kinds of animal tissues. If a portion of white fibrous tissue—such as composes tendons—be placed under the microscope, it will be seen to be made up of an immense number of minute fibers. Now if a drop of acetic acid be added, the fibers will disappear. They will be dissolved by the acid, and reduced to a pulpy mass.

This fact accounts for one of the effects of vinegar upon the stomach. When taken for any length of time in any but the most minute quantities, it produces softening of the mucous membrane of the stomach, probably much in the same way that it produces a

similar effect on a small portion of fibrous tissues, since the mucous membrane of the stomach is largely composed of this kind of tissue.

Vinegar hardens vegetable products, and thus renders them less digestible than they would otherwise be. This is the reason why pickles of all kinds are so difficult of digestion.

The appetite for acids is a natural one, and it can be satisfied without resorting to the use of vinegar. Lemon juice, and the juice of pie-plant and other sour fruits—answer the purpose admirably. Perhaps the most perfect substitute is verjuice, which is the expressed juice of immature grapes.

One of the objections to vinegar is its liability to adulteration. Commercial vinegar is seldom pure, even though it professes to be pure cider vinegar. The addition of sulphuric acid has become so common a practice that the English food laws permit the use of a certain quantity.

Raisins.—Raisins are grapes in a dried state. The process of drying is effected either by exposure to the sun or by the heat of an oven. The sun-dried grapes are the sweeter and better of the two. Sometimes the stalks of the ripened bunches of grapes are partially cut through, and the fruit allowed to dry spontaneously upon the vine. The *muscatels*, which form the finest sort and are eaten at the dessert table, are prepared in this way.

Sultanas are characterized by an absence of stones, whereby they save a great amount of trouble in the kitchen, but they are not sufficiently rich in flavor and sweetness to be advantageous for employment alone in puddings. Raisins abound more in sugar and less in acid than the fresh fruit.

The so-called *currants* which are used in cakes and puddings constitute the dried fruit of a vine which grows in the Ionian Islands (especially Zante and Cephalonia), and yields a very small berry. The word currant, as here employed, is a corruption of Corinth, where the fruit was formerly produced. After being gathered and dried by exposure to the sun and air, the currants are heaped together and stored in magazines, where they become so firmly caked as to require digging out for packing into casks for exportation.—*Pavy.*

Pie-plant.—One of the earliest of acid vegetable productions is the rhubarb or pie-plant. The juice of the fleshy leaf stalks affords a very pleasant acid which is as wholesome as agreeable. Many err in adding too much sugar to sour sauces of this sort. The effect is to entirely destroy the valuable properties of the acid by disturbing digestion. Enough sugar may be added to make the food palatable, or an equivalent quantity may be added instead. Many prefer the latter method. The intense acidity of pie-plant may be greatly modified by pouring upon the stalks, after they are prepared for sauce, a quart or two of hot water. Allow to stand fifteen or twenty minutes, then turn off the water and stew the stalks. The acidulated liquor thus obtained makes a very pleasant drink with the addition of a little sugar.

Economy of Hygienic Living.—A very brief experience in simple living will convince any one that the articles most necessary for sustaining life are by no means the most expensive. The superfluities, the useless luxuries of life, are by far the most expensive. One who has never tried the experiment would be surprised, upon making a practical trial, to find how small a sum would procure every real necessity for healthful and comfortable subsistence. But if a person wishes to live very cheaply, he must live simply, and must be a vegetarian, at least in great measure. The use of animal food is expensive and wasteful. One dollar would support life at least four times as long when invested in oatmeal as when expended for beefsteak. Butter, lard, and condiments generally, are quite unnecessary.

It is not advisable, however, to recommend what is termed a hygienic diet on account of its cheapness. The chief excellence of this sort of a dietary is its healthfulness. Those who adopt it from mercenary motives are quite apt to make a failure by attempting to live upon what may be termed an impoverished diet. Nevertheless, it is true that a person may live well upon hygienic food at less expense than upon the ordinary diet. A hygienic dietary is especially adapted for students, both on account of its healthfulness and its possible cheapness.

We have received from two young ladies in Cleveland, Ohio, an account of their experience in hygienic living during ten weeks of the last winter. They state that they lived well, took two meals a day, and did not eat between meals. They send a list of the articles eaten, which shows that they had a good variety of fruits, grains, and vegetables, which constituted their principal diet. They took meat once a week. Upon summing up the expense of living, they found it to be sixty cents a week for each person, including the cost of kerosene oil for lights. They state that they worked all the time, walking a distance of two and one-half miles daily and enjoyed good health.

THE

HEALTH REFORMER

BATTLE CREEK, MICH., MAY, 1877.

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

More Victims of the Pork Parasite.

IT would not be unreasonable to suppose that after the dangers from the use of pork as food had been so often and so thoroughly exposed as they have been during the last few years, swine's flesh would be pretty generally discarded as an article of food. It is surprising, nevertheless, with what apparent indifference people seem willing to risk their lives in persisting in the use of an article never designed for food, eating the flesh of an animal whose nature is that of a scavenger, and whose body, at its best, abounds in diseased products.

WHY THEY USE IT.

This reluctance to relinquish the use of pork may be attributed, in large measure at least, to two reasons :—

1. There are thousands of people who have no faith in the existence of such creatures as trichinæ. They have read descriptions of the parasite and of the terrible effects which follow its reception into the body; but they will not be satisfied with anything but personal experience; and must see the worm for themselves before they will believe in its existence. We have seen such people frequently, and have often had the privilege of satisfying their desire to see for themselves by giving them an ocular demonstration of the existence of this terrible parasite both in pork and in human flesh. One such individual, after contending stoutly that the trichina was a myth, when compelled to admit its existence by a glance through our microscope at a portion of hog's muscle which was infested by them, declared in triumph that he was not afraid of such tiny things as those. They had no teeth and of course could not bite! He was not going to be frightened until some more formidable beast than that could be produced.

2. A second reason why people still continue to eat pork, thus giving frequent occasion for the description of cases of poisoning from this source, is the unwise advice that has been given, almost without exception, by the newspapers and other periodicals with reference to this subject. After detailing a case of poisoning from the use of trichinatous pork which may have resulted in several deaths, the usual conclusion is a caution respecting the cooking of pork. Attention is called to the fact that trichinæ, like other members of the animal kingdom, will die when subjected to a sufficiently high temperature—will be killed by heating them to the boiling point. Nothing is said of the appetizing qualities of fricasseed parasites or broiled worms! In this way the popular fears are quelled; and the little excitement occasioned by a half-dozen deaths from trichinosis in a community is speedily quieted, and people continue to consume their matutinal ham and eggs with rolls of sausage as before.

But we must come more directly to the chief object of this article, which is to call attention to a recent case in which there were

A WHOLE FAMILY POISONED AND TWO PERSONS KILLED BY TRICHINÆ IN PORK.

Nearly a month ago we received the following letter from a gentleman residing at Port Andrew, Wis. :—

"DR. KELLOGG :

"*Dear Sir*, A family of our neighbors have been sick and two of them have died. The attending physician did not know what ailed them unless it was trichinæ in their pork. They examined it with some small glasses, which were of insufficient power to detect the worms if there were any in it. I send you a bit. Please examine it, and, if not too late, report through the HEALTH RE-

FORMER for April; that is, if there are any in it. If too late, please drop me a card.

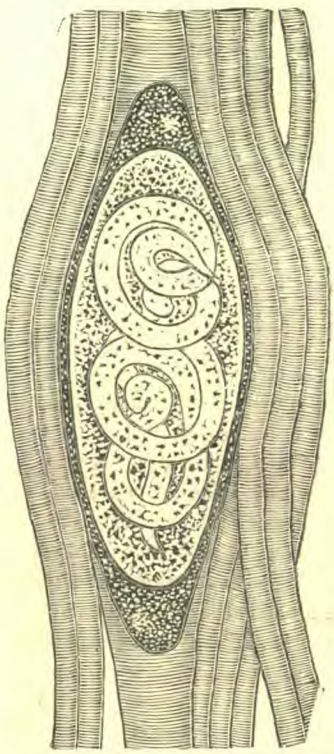
"P. S. The patients were taken with vomiting and running at the bowels; had as high as thirty passages an hour."

We were so severely pressed with professional duties at the time of the receipt of the letter that we were unable to give it attention for several days, and thus did not notice it in the April number. About a week after receiving the letter we spent an evening in examining, by the aid of a good microscope, the bit of pork sent to us inclosed in the letter. After an hour's patient labor in "teasing" out the muscular fibers, we discovered multitudes of the worms snugly coiled up in their capsules.

A PICTURE OF THE PARASITES.

In order to give our readers a correct idea of the appearance of the infested flesh when seen under the microscope, we employed an artist to make a drawing and an engraving of the view presented by the instrument, which is here seen, and represents the worm as viewed under a $\frac{2}{3}$ inch objective with a No. 2 eye-piece, which would give an amplifying power of one hundred and fifty diameters, or 22,500 times the actual size. A little explanation of the picture may be necessary to make it entirely intelligible. The greater portion of the picture is made up of rounded structures running nearly parallel with each other. These are muscular fibers. It will be noticed that a fiber which lies in the center of the cut is much larger than the rest, and has in its central portion a very prominent elliptical expansion. In the center of the latter will be seen two small coils lying close together, which look much like small bundles of earth-worms. These are trichinæ. The cell in which they are inclosed is called a capsule. Usually a single worm occupies each capsule. It occasionally happens that two of the worms lie so close together that a single capsule surrounds both, as in this case. As seen here, the trichinæ are not fully developed.

When flesh which contains the worms is taken into the stomach, the gastric juice dissolves the capsule and thus liberates them. They then develop rapidly, and in a few days produce live young, which bore their way into the tissues in all directions. While they are penetrating the walls of the stomach and intestines, the most violent disturbance of the whole alimentary canal is produced. The patient vomits and purges with a violence dependent upon the number of trichinæ taken into the stomach. After the worms have penetrated into the muscles, which is their destination, their migrations produce all sorts of wandering pains, and, of course, a general



[PORK PARASITES (*Trichina Spiralis*).

fever. There may be muscular twitchings in various parts of the body, together with a variety of other symptoms.

WHY THE DISEASE IS NOT DISCOVERED.

Since it has no symptoms which are absolutely peculiar to itself, the disease is easily mistaken for some other malady, as diarrhea, dysentery, typhoid fever, cerebro-spinal meningitis, rheumatism, and a variety of other affections. Some physicians state that not more than one in thirty of the deaths really due to this cause are attributed to it.

One reason why the disease is not detected more frequently is that when it is sus-

pected and an examination of the pork is attempted, such weak or otherwise defective microscopes or magnifying glasses are employed that the examination is fruitless.

Another reason for failure to find the worms is lack of skill in the use of the microscope, even if the instrument be a good one. Every physician ought to be possessed of a good microscope and should be competent to use it efficiently; but it is a lamentable fact that it is quite rare to find a good microscope in a physician's office, and still rarer to find in the physician himself a good microscopist.

A third source of error is the fact that the worms may be present in certain portions of the animal but absent from others, or very abundant in some parts and scanty in others. They are usually most numerous in the hams and shoulders. Hence the portion examined might happen to contain none of the parasites while other parts were teeming with them.

The latter source of error is well illustrated in the present case. Wishing to obtain a larger supply of the infected pork than was sent in the letter referred to, we requested our correspondent to send us a larger piece. He did so, but although we have examined the second portion very carefully we have been unable to detect in it a single worm. The second piece was taken, we suppose, from the same lot of pork which furnished the first specimen; but it may have been taken from another hog, or it may have been from a portion of the body which did not contain the worms. It is certainly a fact beyond all question that the small portion first examined contained numerous specimens of the parasites—upward of 50,000 to the cubic inch we should estimate.

We have dwelt thus at length upon this case, not only for the general interest of our readers, but for the special advantage of the people of the community where the case occurred. Our correspondent informs us that the physicians of that vicinity are very positive that the pork contains no trichinæ, having found none in their examinations. We suppose that the reason of their not finding the worms will be found in one of the sources of error mentioned above; which one we will not presume to say. We have still in our possession the greater portion of the infected piece, and will be very willing to submit a portion of it to any competent microscopist for examination, if our professional friends are not satisfied with the *fac simile* drawing given with this article. We have shown the worms to scores of persons in this city, who are ready to testify to what they have seen.

We shall be happy to receive specimens of pork for examination in any case similar to the above with which our friends may become acquainted.

The "Blue-Glass Mania."

THE popular interest in blue glass is still kept up by the free discussion of the subject in the newspapers and scientific journals. There are already evidences, however, of waning confidence in the efficacy of the commodity as a remedy for disease, and it is destined to survive the test of practical experience but a very brief time. We had at the outset no faith in the claims made for blue glass, for they were not supported by scientific experiments, and were utterly at variance with some of the best-established facts in science. Hence we had no hesitancy in pronouncing it, unqualifiedly, a "humbug." Thus far no scientist of any standing has indorsed the claims of Gen. Pleasonton or taken any stock in his theory. On the contrary, all scientific authorities who have spoken on the subject have called attention to its patent absurdities and utter disagreement with established scientific facts.

For the benefit of some of our readers who thought us a little severe in our criticisms last month, we quote the following on "Pleasonton and the blue-glass cure" from the *Popular Science Monthly*, the foremost scientific journal in this country:—

"We think that the man is a pestilent ignoramus, and his book the ghastliest rubbish that has been printed in a hundred years. He may be entirely honest, but that is no reason why we should give attention to his egregious folly. Pleasonton, however, it must be confessed, serves one important function: he gauges for us the depth and density of American stupidity. De Morgan says, somewhere, that certain men appear occasionally to play the part of 'foolometers' in the community, that is, to measure the number

and quality of the fools furnished by any given state of society. Pleasonton has done this for us with an accuracy that leaves nothing to be desired. Our showing in this respect is on a very handsome scale, fully commensurate with the length of the Mississippi, the sweep of the prairies, the glory of the Centennial Exhibition, the grandeur of the national debt, and the splendid proportions of our system of education. He is a public benefactor, in that he has given us another 'big thing.' The interesting point just now about 'blue glass' is psychological. It is an exponent of popular intelligence, an index of culture, a register of common-school work, and a test of the influence of colleges. Our collective schools produce in the community a certain state of mind; 'blue glass' indicates it. There is evidently a very close connection here, and the problem deserves to be worked out. If the Intercollegiate Literary Association will offer an additional prize for the best essay on the connection between the study of Latin and Greek and the 'blue-glass' mania, the *Popular Science Monthly* will furnish the money for the purpose."

Relations of Light and Heat to Clothing.—Dr. Krieger, a German scientist, has been making some interesting experiments on this question, some of the results of which we give. It was observed that, taking the amount of heat absorbed by a white covering as 100, the amount absorbed by a fabric of a pale straw-color was 102; dark yellow, 140; light green, 155; dark green, 168; Turkish red, 165; light blue, 198; black, 208. These results were obtained when the heat was received directly from a luminous source; as a flame or the sun. In the shade, the differences noticed disappear. It was also ascertained that the color of the clothing does not affect radiation in any marked degree.

It will be seen at once that it is quite important to have a proper regard to color in making a selection of clothing at any season of the year. In summer, white or very light-colored clothing will be found much cooler than dark-colored clothing, especially when the body is exposed to the direct rays of the sun. Of course the hat should be of a light color for summer. It need not be white, necessarily, for there is no important difference between the amount of absorption by white and a pale straw-color. In the winter, when we wish to conserve heat as much as possible, black or dark-colored garments will be better in harmony with the teachings of science on this question. Dr. Krieger also found that the material of which garments may be composed has very little influence upon absorption.

Illumination.—A German experimenter has been investigating the contaminating effects of combustion in the use of various illuminating substances. Those employed were stearine candles, rape-seed oil, petroleum, and coal gas. It was shown by the investigation that the products of incomplete combustion were of a much more important source of deterioration of air than carbonic acid. Of the various illuminants employed it was found that petroleum, when burned in a suitable lamp, produced less of the products of incomplete combustion, as well as of carbon dioxide gas, than any other in furnishing a given amount of light. Petroleum also increased the temperature of the air of the room less than any other agent, with the exception of candles.

These experiments contain a useful hint to all interested in sanitary science, and ought to lead to the invention of some practicable means for either consuming or otherwise disposing of the products of combustion so as to prevent their admixture with air to be employed in respiration.

The Brain.—In a recent lecture in Glasgow, Prof. Allen Thompson is reported as saying that we have "no direct evidence from anatomy, physiology, or pathology, of any mental act being formed apart from the brain."

Men's Hats.—Hats are a modern invention. They were first made, according to the *Journal of Chemistry*, by a Swiss in Paris, in the year 1404. A century later they were worn in England. Doubtless their use is one of the chief causes of the great prevalence of baldness at the present time.

PEOPLE'S DEPARTMENT

Devoted to Brief Discussions of Health Topics, Individual Experiences, and Answers to Correspondents.

A Good Exchange.—A gentleman writes from Iowa :—

"I am very much pleased with the REFORMER this year. I felt last fall that owing to the hard times I should be obliged to discontinue the journal; but when the time came, I concluded that I could not give it up. So I gave up drinking tea and coffee, and take the REFORMER."

How many thousands there are who might make the same profitable exchange! and many would gladly do so if they only knew the benefit which they would receive.

Encouraging Words.—Prof. J. P. Sample, of Tenn., writes : "I am perfectly delighted with the HEALTH REFORMER."

A lady, writing with reference to the January number, says : "'How to Treat Diphtheria' is alone worth many times the price of the journal for a year. Oh that I were able to send it to each of my friends! How much suffering might be avoided."

A gentleman who became acquainted with the HEALTH REFORMER by receiving a copy of the Almanac through a missionary society, writes that he has been restored from "a condition bordering on imbecility to good health by the observance of hygienic regulations."

Cured by Hygienic Living.—In renewing his subscription to the journal, Mr. Samuel H. Merrill says :—

"The REFORMER comes as a welcome visitor each month. Two and one-half years ago I was nearly dead with bronchitis and consumption. Now I am well and strong, my lungs are *all right*, and my throat only troubles me a little occasionally. My diet is fruits, grains, and vegetables; no coffee, spices, grease, salt, and but very little sugar. God speed the REFORMER."

No Thanks to Drugs.—Another correspondent writes :—

"Two years ago I was a slave to my appetite. I had used tobacco forty-five years. Tea, coffee, and other condiments I used every day, until I could not sleep nights. My digestive organs were all out of order, and my weight was greatly reduced. But now I have abandoned my idols. My health was never better. My weight is one hundred and eighty-five pounds, and no thanks to drugs, but merely practicing your rules of common sense as set forth in the HEALTH REFORMER."

Dyspepsia Cured.—A gentleman who was found by the HEALTH REFORMER, as he says of himself, "polluted with tea, coffee, tobacco, pork grease and condiments," writes as follows :—

"Some of your readers have made an estimate of what the HEALTH REFORMER has saved them. I have taken it for several years; I can make no estimate. The good Lord only knows how many doctors' bills I should have been obliged to pay, or to have charged against me, if it had not been for the knowledge I have received from the HEALTH REFORMER. Perhaps there is no person who can any more appreciate the monthly visits of the REFORMER than myself; for when I first received it I was where life was a burden to me,—a poor, miserable, broken-down dyspeptic, no company to myself nor anybody else. I do believe I should have been lying in the grave long ago if I had not changed my diet. In conclusion, I would say that my general health is better than it was twenty-five years ago. Thank God for the light on health reform."

A Good Testimony.—A few days since, in company with others, I was stopping with an aged couple of seventy-seven and sixty-four years, respectively. As they had become interested in the health reform, when it came meal-time the conversation naturally turned upon that subject, and with a deal of apparent pleasure they informed us that they had left off the use of tea and coffee after using them many years. The lady was asked if she did not feel just as well without them. "Oh!" she replied, "I feel better." "Why," said she, "when I used to lie down to rest me after dinner sometimes my heart would bump so that I could n't get to sleep; but now I can lie down and my heart do n't bump at all," and they seemed as pleased as little children to think they could get along so nicely without their tea and coffee.

They had been reading the REFORMER for a while, and I thought their example a good

rebuke to some younger persons who think they must have these poisonous beverages, as well as an encouragement to health reform workers in their efforts to circulate the HEALTH REFORMER. S. B. WHITNEY.

What I Heard.—I heard an earnest health reformer say, "As the result thus far of lending a few numbers of the HEALTH REFORMER, I have received eleven dollars, sent to me with names to be forwarded to the Office of publication as subscribers for that journal."

Such results are very gratifying, and no doubt the subscribers will feel their money well invested. If men and women cannot go out as canvassers for this valuable journal, they can keep a supply on hand and canvass around their own fireside. Let us all be instant in season and out of season.

A. S. HUTCHINS.

Self-Evident Truths.—Such, to my mind, are the principles of the hygienic system. All restorative power, excepting that which is miraculous, resides in the living system. Drugs have no power. They cannot act; they never cure disease. Their presence in the system causes a new disturbance; and hence the symptoms are changed, and the patient is in a worse condition than before, having more enemies to contend with and expel. Nature must do the work of restoration, or it is not done. Nothing from without can do more than to make the condition and surroundings as favorable as possible; then, if the vital power is sufficient to remove the cause of disturbance, restoration will follow.

If we study nature's laws, and follow them in all things—in eating and abstinence, exercise and rest, clothing and cleanliness, breathing pure air, drinking pure water, and seeking regular repose and sleep—we have done all that is in our power toward recovery, and we may better calmly wait for nature to do the rest. Yet many who can but see the truth of these principles get impatient, as patients are apt to do, think the hygienic practice in their own cases a failure, before they have given it a fair and faithful trial, and are carried about with every wind of doctorin', vainly hoping to obtain a cure from some bold pretender who happens to have the faculty to raise a breeze of excitement among the people.

The world is moved by impulses, and reason is forgotten in the general excitement. Perhaps one real hygienic agency, as electricity, is singled out and made the one thing needful—the panacea—and more batteries are put in motion than were in the great rebellion. Again, some one revives the practice of the German water doctors, a practice which had its day and ran its race in this country more than forty years ago. And immediately a great multitude of little bottles of wine, from which to diagnosticate, are sent in, and marvelous things of the symptoms of the patients are told, and, flattered to intoxication by such knowledge and skill, they forget the self-evident truth that drugs never cure disease, and imagine that the nostrums of one so skilled in disease and its symptoms will certainly do equal wonders in effecting a cure.

It is probably true that much can be discovered, by this class of physicians, of diseases; and they may be learned and apt in describing symptoms; but in the work of restoration nothing but nature is efficacious; and all that any one can do is to supply, by the use of natural healthful agencies, the best conditions of the patient, so that nature will not be obstructed in her work.

A steady faith in self-evident facts and principles is the thing which is needed. Those who have such faith have no need to be swallowing nostrums; but those who are deficient in faith feel the need of doing something to satisfy the mind with the idea that they *are* doing something for themselves. Some harmless preparation, like bread pills, may relieve the mind, and, as a consequence, do the body good. It is very well if nothing worse is administered.

R. F. COTTRELL.

Questions and Answers.

Catarrh and Laryngitis.—J. H. R., Ill., says: I was examined by a physician and he tells me that I have the laryngitis extending down the bronchial tubes and up into the nasal passages, with a mild form of nasal catarrh. He advises a rich diet composed of butter, eggs, fresh meat, etc., also cod-liver oil, eggs, and whisky, mixed together. Please inform me what to do in my case.

Ans. Do as nearly opposite as possible to the advice given you. Live out of doors. Abstain from condiments and all irritating foods. Eat plenty of such wholesome food as oatmeal, graham bread, with grains, fruits, and vegetables generally. Improve the general health in every way possible, and take good care of your stomach and liver. A few weeks' treatment at a good health institution would be of great service to you.

Dates.—E. B. L., Mich., asks: 1. How and by whom are dates prepared for the market? 2. Do you not think there is danger of diseases being conveyed by them?

Ans. 1. Dates are the product of the date-palm, which grows in Egypt, Arabia, Persia, and some portions of Spain. The fruit is packed where it is grown, and shipped to this country. 2. We never heard of disease being communicated by them.

Veils.—F. G. C., O., wishes our opinion respecting veils.

Ans. They are often of great service in cold, windy weather, protecting both the face and the lungs from the cold. People who spend most of their time in-doors, in the winter season will often find them of real service for the purpose named. At other seasons of the year they cannot be considered as in any way conducive to health. They protect a delicate skin from the effects of exposure to the sun; but this is of no advantage healthwise. They are quite objectionable for two reasons: 1. They injure the eyesight; 2. They confine the exhalations of the breath, not allowing the expired air to be swept away by the surrounding air as promptly as it should be.

Worms.—J. F., Ont., asks: 1. What causes worms in children? 2. What will cure?

Ans. Worms do not usually infest children who are in good health. Indigestion and costiveness produce conditions favorable for their development. 2. Give a teaspoonful of fluid extract of spigelia and senna three times a day for a few days, or until the worms are discharged. Improve the general health.

Perspiring Feet—Morbid Appetite, etc.—J. G. V., Tenn., asks: 1. Is there any particular bath that will prevent the feet from perspiring? 2. How long does it usually take for a person with a morbid appetite to be relieved of it under hygienic treatment? 3. Is it well for one suffering with nervous dyspepsia to engage in some business that will tend to divert his mind from his disease? 4. Is it not bad for an invalid to eat more than one kind of vegetable, fruit, or bread at the same meal? 5. Is it injurious to read while lying down?

Ans. 1. Use the alternate hot and cold foot bath, ending with a dip in cold water and a vigorous rubbing. 2. From three to six months. 3. Nervous invalids need to have their minds diverted by pleasant occupation; but they should not be burdened with cares or anything requiring wearing mental labor. 4. Some dyspeptics can take but a single article of food at a meal without injury; but most people can eat one or two kinds of grain, and as many kinds of fruit without any injury if the food is properly prepared. Persons with weak stomachs will do well to avoid fruits and vegetables at the same meal. 5. Yes.

Ventilation.—H. J. N., Phila.: There is a difference of opinion respecting the proper plan of ventilating. Some remove the foul air at the top of the room, others at the bottom. The cause of the difference is this: Carbonic acid gas, when first exhaled from the lungs, is lighter than the surrounding air, being warmer, and rises. As it cools, it becomes heavier and settles nearer to the floor. Both plans of ventilation are good if well managed.

A. F. H., Cal.: Probably your wife has dyspepsia and a torpid liver.

T. B., Me.: Probably the child's difficulty is of a nervous character which it will outgrow in time.

Mrs. L. S., Ohio: You had better place your child under the care of a skillful physician, as the difficulty will probably require treatment which you will be unable to give.

W. G. B.: Apply fomentations to the ears and tepid injections twice a day. If the internal structures of the ears are not involved in the abscess, hearing will return as it subsides.

J. F. F., Cal.: Your wife is suffering from general debility of the nervous system. Your eyes will improve with the improvement of your general health. Bathing them in cool water every morning will be found useful.

T. T. B. R., Ind.: The best remedy for ague cake is a course of hygienic treatment, with careful living. You may get some relief by applying a fomentation every day for fifteen minutes, and wearing the abdominal girdle for three months—wearing it only during the night.

A. L. H., Ohio: 1. Sylvester Graham died at the age of fifty-eight, not because he was a hygienist, but because he was human. He was naturally feeble, and wore himself out prematurely by excessive labor. 2. Your sleeplessness may be the result of excessive labor or of some other unhygienic practice. The most wholesome dietary will not insure a person against the penalties of transgression in other particulars.

FARM AND HOUSEHOLD.

Devoted to Brief Hints for the Management of the Farm and Household.

Killing Curculio.—Saturate a few corn cobs in a strong solution of molasses and water. Hang the cobs among the leaves of the plum-trees as soon as the pests appear, and they will gather about the cobs so generally that no injury will be done the fruit.

To Cure Warts.—Touch the wart with solid lunar caustic every day or two for a week, and it will soon disappear. Nitric acid is also an excellent remedy, but it must be used with caution. Even acetic acid is effective if applied for some days in succession.

Test for Poisonous Peas.—Last month attention was called to the practice recently detected among parties who put up peas in tin cans, of adding salts of copper to give the peas a bright green appearance. As before remarked, copper is a most virulent poison. When taken in small quantities for some time, it produces paralysis and many other disorders. Pickles are also frequently colored with copper.

The presence of copper can be easily detected in peas by adding a little ammonia water, which will develop a blue tint if any copper is present. Pickles may be tested in the same way, but a larger quantity of ammonia is required to neutralize the acetic acid of the vinegar.

Poisonous Wall-Paper.—At this season of the year we are almost daily reminded of what most people seem very prone to forget, the danger of using arsenical wall-papers. The danger has been made public so frequently that all should be fully informed and careful to use the information to advantage. All green papers should be suspected of being poisonous. They should be carefully tested before being purchased, at any rate, and this is the manner of doing it:—

Place upon the green portion of the paper a few drops of ammonia water. If arsenic is present, it will be combined with copper, and the green color will be changed to blue. Arsenic is also used in other colors as well as green. To test for it, soak a piece of the paper in a little ammonia water. Place a little of the solution upon a piece of glass, and drop into it a crystal of nitrate of silver. If arsenic is present, a yellow precipitate will appear around the crystal.

Flower Gardens. — Everybody ought to have a flower garden who has a spot of land large enough to put a trowel into. The influence of flowers is ennobling, refining. Besides the pleasure which they afford by the profusion of beautiful colors and delightful odors which they may be made to produce, they are conducive to health by inviting healthful and invigorating exercise in their culture. We would advise every one of our readers who can do so to engage in the culture of flowers, even though it must be in a very limited manner. It will pay well for the small outlay of time and money required. Those who wish to purchase seeds or bulbs that will be sure to grow and to give entire satisfaction should send to James Vick, Rochester, N. Y. If you cannot decide just what you want, send to Mr. Vick for a catalogue, which will tell you.

Look Out for Germs.—Every prudent housewife will be busily engaged at this season of the year in hunting out the lurking places of germs of all sorts. A thorough search should be made of the entire premises. From cellar to garret, a close inspection should be made of every possible hiding-place for germs. Sinks should be well cleansed, wood-boxes emptied, carpets taken up and well beaten and scoured, beds furnished with new straw, walls covered with new paper (free from arsenic), cellars cleared and whitewashed, cisterns thoroughly cleansed and disinfected, etc., etc. In the general house-cleaning do not forget the closets and clothes-presses.

The back door-yard should also receive attention. If any garbage has accumulated, have it carted away at once, together with all the rotten chips, moldy bark, and other debris from the wood pile. Examine the cess-pool. Thoroughly disinfect it with chloride of lime, or copperas water. If necessary, have a new one made, and take care to see that it is well ventilated. Do not stop the search within ten rods of the dwelling-house if possible to prosecute it so far. The barn-yard should be well cleared, if this has not been already done, and should be kept clear during the warm months. The "commode" should be kept free from sources of disease by the free use of dry earth and tri-weekly removal of its contents.

Nearly all of the diseases incident to summer originate in a neglect of the precautions mentioned; and if the people of any community will unite in observing good sanitary rules they may be exempt from the diseases with which those who are careless and negligent will certainly suffer.

Cleansing Blankets.—It is quite as important to have the blankets on our beds clean as it is to have the sheets pure and white. "Put two large tablespoonfuls of borax and a pint of soap-suds into a tub of cold water. When dissolved, put in a pair of blankets and let them remain over night. Next day rub and drain them out, and rinse thoroughly in two waters, and hang them out to dry. Do not wring them."—*Sel.*

POPULAR SCIENCE.

In this Department Will Be Noted the Progress of Science, New Discoveries and Inventions.

A Brilliant Light.—The electric light has recently been applied as a means of illuminating the streets of several cities in France and Germany with excellent success. The carbon points used in the light consist of rolls of charcoal surrounded with an insulating material which melts quite slowly, thus exposing only the proper amount of the carbon, which is slowly consumed under the action of the electric current.

Two of these electric burners will supply the place of one hundred gas-jets, and a single electro-magnetic machine (run by steam) will maintain the light of twenty burners. This light costs only one-half as much as gas, and is so intense that a single burner will cause a gas-jet to cast a shadow half a mile distant.

Experiments with a Rat's Tail.—A Frenchman has been conducting a series of experiments upon a rat's tail, for the purpose of studying some perplexing questions relating to the physiology of the nervous system. In one case he removed the skin from the end of a rat's tail and then made the denuded extremity fast in an incision made in the back of the animal. In a short time the parts became firmly united, compelling the rat to wear its tail like a jug handle. After a few months the loop was cut in two, when it was found that if the cut extremity of the portion of the tail attached to the back was irritated, as by pinching, the sensation was transmitted to the nerves of the back, the animal showing evidences of pain, thus proving that the usual direction of the nerve current in sensory nerves was reversed.

It is said that a Western frontiersman some years ago also experimented upon the caudal appendage of the rat, and astonished the officers of the Smithsonian Institute by the presentation of a rat without a tail but possessing a long proboscis. Upon investigation the proboscis proved to be the missing tail, which had been transplanted from its usual position to the animal's nose. It is fortunate for these experimenters that they are outside of Mr. Bergh's jurisdiction.

Curious Ants.—All ants have many very curious habits; none, perhaps, is more curious than the mode adopted by the little brown garden ant for obtaining its food. Like all ants it is very fond of sweets. By some means it has learned that the aphides which infest many plants collect a sweet liquid. Apparently taking a selfish advantage of this fact, the ant ascends a twig on which the aphides abound, approaches one of the insects and gently strikes it with one of its antennæ, which causes the aphis to emit a drop of sweet fluid, which the ant eagerly drinks. In order to maintain this easy supply of food, the ant takes great care not to injure the aphis, and even protects it from the attacks of other insects. Sir John Lubbock has been studying the habits of ants and has discovered many remarkable things about them in addition to the above.

Motion of Molecules.—The experiments of modern physicists have been carried to such a degree of delicacy that it is not only possible to determine the composition of invisible molecules, to ascertain the kind and number of their component atoms, but to measure their size, their weight, and the distance between them. It is even possible to determine the rate of motion with which these infinitesimal bodies oscillate among themselves. It is estimated that the molecules of air move with a velocity of about 1,500 feet per second. Those of hydrogen

gas travel 6,000 feet in the same period. As the distance between the molecules of air at ordinary temperature is but about $\frac{1}{400,000}$ of an inch, it can be easily estimated how brief a period would be occupied in the vibration of a molecule between two adjacent molecules. The effect of heat is to increase the distance between the molecules, and the rapidity of their motion. In this way a gas is rendered lighter by raising its temperature.

News and Miscellany.

—Large quantities of olive-oil are now manufactured in California. It is chiefly sold under foreign labels.

—An exchange suggests that remittent would be a very beneficial disease for subscribers who are in arrears.

—The royal family of England have cost the British government over $100,000,000 within the last forty years.

—It is reported that President Hayes is a total-abstinence man and will not provide wine for his guests at the White House.

—A preacher in Llaudyfodwg, Wales, was recently fined for swearing by the local magistrate, at the rate of $25.00 for each curse.

—New York City pays annually to its officials a sum of more than $11,000,000, which a local paper thinks is "more than they are worth."

—The carnivorous proclivities of the English are well indicated by the fact that Great Britain consumed seventeen hundred tons of meat in 1875.

—April 11, the Southern Hotel of St. Louis, one of the largest structures in the city, was consumed by fire, with about twenty of its inmates.

—The hostile Indians are rapidly surrendering their arms and ponies to Gen. Crook. About one thousand laid down their arms April 14.

—The temperance movement in Sweden is being attended by excellent results. In many counties the sale of liquor has been entirely prohibited.

—A telegraph line is being constructed across the continent of Africa, which will place the Cape of Good Hope in immediate communication with the rest of the world.

—A new industry is reported in Indiana. Persons are said to be scouring the country resurrecting the porcine victims of "hog cholera" for the purpose of making their carcasses into soap.

—The Supreme Court have decided that the $1,500,000 appropriated to the Centennial Exhibition must be paid back into the Treasury before the stockholders can claim any share in the profits.

—The endowment fund of the Smithsonian Institute has been so judiciously managed that it has now $714,000 to its credit, notwithstanding its liberal expenditures in scientific research and discovery.

—Niagara suspension bridge has recently been thoroughly examined by competent engineers and is pronounced perfectly safe. It was found that the original strength of the structure had diminished but a fraction of a per cent.

—A compound has been discovered which when thrown upon a fire or into a burning building will by its own combustion develop gases which instantly extinguish the flames. Practical experiments have demonstrated its utility, and it is being manufactured for general use.

—Twenty years ago one-third of the registered births in Paris were illegitimate. For obvious reasons it is quite supposable that the larger proportion of births of the latter class were not reported to the registrar. In a single year more than ten thousand new-born infants were found by the police in the sewers of Paris.

—The increased consumption of opium, as indicated by increase in the quantity imported, is a just cause for serious apprehension. In 1873 the quantity received into the country was 152,000 pounds, costing, in gold, $734,000. Last year the importation reached 228,000 pounds, representing a value of more than $1,000,000, a gain of one-half in three years.

—Russia has declared war against Turkey, and hostilities have already begun. The Turks are making preparations for a vigorous defense, and the sultan has called upon the khedive of Egpyt for troops for active service. England has signified her unwillingness to support the independence of Turkey longer, the porte having forfeited all claim to the protection which England has formerly guaranteed.

—Cleopatra's Needle, the famous obelisk presented to the British government by Mehemet Ali many years ago, is to be removed from its sandy bed beside the Nile, where it has lain prostrate for centuries, to the Thames Embankment in England. It is to be inclosed in an air-tight cylinder ninety-five feet in length and fifteen feet in diameter, which will be rolled into the water, manned as a sailing vessel, and navigated to England.

—The Bureau of Health of the German Empire reports that the number of deaths to each hundred thousand of the inhabitants of the cities named below, during the last week of January, was as follows: Berlin, 42; Dresden, 38; Vienna, 52; Prague, 95; Paris, 53; Copenhagen, 58; Naples, 61; London, 40; Liverpool, 55; Alexandria, Egypt, 85; Madras, Spain, 121; Bombay, 65; New York, 47; Philadelphia, 32; Boston, 37; San Francisco, 58.

—The Turks believe that an eclipse of the moon is caused by a monstrous dragon who attempts to swallow that luminary. During the last eclipse there was great consternation in Constantinople, according to a correspondent

of the *Temps*, of Paris, among rich and poor. Muskets and revolvers were fired, and a hideous tumult was created by the shouting of men and women, the beating of tin pans, brass kettles, and noisy instruments for the purpose of frightening the dragon away. When the eclipse was over there were loud and general congratulations over the success achieved.

—A feat has recently been accomplished in this country which has never been equaled elsewhere. Two steam-boats were built last winter at Greenpoint, N. Y., each of which was 220 feet long and 40 feet beam. One of them recently arrived in San Francisco *via* the overland route, and the other is to follow immediately. After being put together, the vessels were taken in pieces for transportation by rail, each piece being numbered so that they could be placed together again without difficulty. One hundred and twenty freight cars were required to carry one of them.

Literary Notices.

GOSPEL TEMPERANCE. New York: National Temperance Society.

A useful little pamphlet of 114 pp. It treats the subject in a very thorough manner, and might be read with profit by all. Like most writers, however, the author confines his remarks wholly to the use of alcoholic drinks. In our opinion, the subject of "gospel temperance" has a much broader significance than that given to it in this pamphlet. Nevertheless, we will not condemn the work because it does not tell the whole truth.

PETERSON'S COUNTERFEIT DETECTOR. Philadelphia: T. B. Peterson & Bros.

A semi-monthly publication which claims to describe all counterfeit notes as soon as they are detected. It also contains lists of all the national and State banks in the country, financial news and items, etc. A very valuable publication.

MONTHLY REPORT OF THE KANSAS STATE BOARD OF AGRICULTURE. Topeka, Kansas.

This seems to be a very useful work for farmers in Kansas. It discusses the value of various crops, gives directions for raising crops to the best advantage, and contains much other important information of a very practical character. The work gives evidence of an unusually efficient board of agriculture, and well comports with the admirable exhibit of home products made by the State at the Philadelphia Exhibition last year.

THE SCIENCE OF ASTRONOMY. By Arthur K. Bartlett, Battle Creek, Mich.

A neat little pamphlet of thirty-six pages. The author has evidently read the works of Proctor and Tyndall with considerable care, and has enriched his essay with many choice quotations. Its composition and general style is quite creditable.

EFFECTS OF PSYCHOLOGICAL INFLUENCE UPON DISEASE. By T. A. Foster, M. D., Portland, Me.

The subject-matter of this pamphlet constituted a report made by the author to the Maine Medical Association on the subject named. It is a subject which has always been of deep interest to earnest thinkers. Although we are not prepared to indorse all of the theories advanced by the writer, we are much pleased with the original and thoughtful manner in which the subject is treated. Some of the author's views may be understood from the following paragraphs, which we quote:—

"I find no evidence in the works of nature that the mind is a spiritual identity that never changes; a something that feels, perceives, reasons, and wills without being itself changed by the process; and I therefore have no faith in any such theory."

"If it were possible for force and matter to exist separately, I should believe in the primary existence of force, but as I can find no evidence of such independence of existence, I can only consider them co-existent and co-eternal; that which we call force being to us only the manifest properties of matter, as changeable in its modes of action as is the matter of which the universe is composed. Hence, the human mind may with propriety be said to have its germinal state, its period of growth, its maturity, and its decay, just as the human body has.

"To me, all the experiences of life and all the observations of time go to prove this theory. I can now see no way that mind can manifest itself, except through the action of the nervous system; directly, to self-consciousness by the processes of thinking, reasoning, and willing; indirectly, by physical action.

"Every particle of matter in the universe has belonging to it a certain amount of force, and it is through the manifestation of this force that we are enabled to evolve the rules of material action upon which the various branches of physical science are founded."

"The mind, being the aggregated force of the nervous system, must be dependent upon the condition of the nervous tissue for its manifestation. Through the connection of the nervous system with the voluntary muscles, it controls the actions of the body to a very great extent. But it cannot directly control the actions of any other body. It cannot leave its own material body and enter another. But indirectly, through the various faculties of expression, it may influence the minds of others to almost any extent."

"If the mind or spirit does exist in a state of identity after the body dies, I can see no reason why it should not make itself known to the living through its influence upon the embodied mind, and such influence might properly be called spiritual inspiration. Of such spirit existence or influence I have never yet seen any weighty evidence."

Items for the Month.

☞ A BLUE CROSS by this paragraph signifies that the subscription has expired, and that this number is the last that will be sent till the subscription is renewed. A renewal is earnestly solicited.

☞ We would acknowledge our indebtedness to an esteemed friend in Washington, D. C., who has enriched our library by the addition of thirteen of the valuable volumes which constitute the annual reports of the Smithsonian Institute.

☞ For the illustrations in this number we are indebted to our friend and associate, Dr. W. J. Fairfield, of the Health Institute at this place. We have no doubt our readers will agree with us in thinking that the illustration of trichinæ, the pork parasite, is one of the best that has ever been published.

☞ Miss M. L. Clough continues her felicitous descriptions of Colorado scenery, which will undoubtedly do not a little to increase the population of that alpine State. For consumptives who need a change of climate, there is, probably, no better locality in which to spend the summer months.

☞ "Plain Facts" is meeting with an unexpected degree of popular favor. Canvassers report that it sells rapidly. One canvasser—a novice at the business—sold seven copies the first day and twenty the next. Those who wish to secure the agency for one of the best-selling books now offered, should send for an outfit at once, not omitting to state the territory wanted. See advertisement of the book on next page.

☞ We have printed several hundred extra copies of this number, that we may be able to supply those who may wish to procure copies to circulate among their pork-eating friends. A great deal of good might be accomplished in this way. Those who wish extra numbers for this purpose will be supplied at the rate of five cents per copy. Each subscriber to the REFORMER could use five or ten copies in his immediate neighborhood.

☞ "The Primal Cause of Intemperance," by Mrs. E. G. White, will be found one of the most interesting and instructive articles in this number. The writer strikes at the root of some domestic and social evils which, though evidently of the most serious importance, are seldom ever noticed. We are pleased to note that Mrs. White's plain, practical instruction is so well appreciated, as evidenced by the fact that they are copied by many of our most excellent exchanges. The article in the present number is one of her best.

☞ Plans for the new main building for the Health Institute of this place are being rapidly perfected, and a builder is daily expected to begin the work of erecting. The Institute is in a very flourishing condition. Patients are arriving rapidly and the prospects for the present summer are most flattering. A recent excursion to Goguac Lake, a lovely retreat near by, was greatly enjoyed by all who were strong enough to participate in it.

☞ It is encouraging to note the increasing interest manifested in the circulation of hygienic literature by missionary societies in various parts of the country. A society located in this city circulates nearly two hundred copies of the HEALTH REFORMER, besides hundreds of health tracts. Of the latter, there have been circulated, chiefly by these societies, several hundred thousand copies within the last two years.

A gentleman in Wilmington, Del., has just sent us $15.00, for which he wishes health tracts for private distribution. The sum named will procure him 24,000 pages of tracts on most of the cardinal points of health and temperance.

☞ Many readers will be deeply interested in the experience of Eld. Andrews in hygienic living which is continued in this number. Another testimony to the benefits of hygienic living in his case may be drawn from his recent experience. When his vital forces were somewhat weakened by long-continued and excessive overlabor in establishing his mission in Europe, he was suddenly prostrated with typhoid pneumonia, one of the severest forms of this type of lung disease. Situated as he was, in a foreign land, among those not familiar with the methods of treatment which are found to be the most successful in this disease, his condition was made about as unfavorable as possible. Nevertheless, he recovered, after being brought to the very verge of the grave, thanks to the freedom from gross impurities which he had maintained in his system by his hygienic mode of living. We have no doubt that a person of less careful habits would have speedily succumbed to the disease.

We received a letter from Eld. Andrews a few days since, in which he pronounces himself as able to resume his labors; and he is rapidly regaining his accustomed strength. We are more than pleased with the promise of contributions from his pen at no very distant day.

OUR BOOK LIST.

The following books, published at this Office, will be furnished by mail, post-paid, at the prices given. By the quantity, they will be delivered at the express or R. R. freight offices at one-third discount, for cash. SPECIAL TERMS TO AGENTS.

Plain Facts about Sexual Life.—A work which deals with sexual subjects in a new and instructive manner. Printed on tinted paper and handsomely bound. 360 pp. $1.25. Pamphlet Edition, 50 cts.

Hygienic Family Physician. "A complete guide for the preservation of health and the treatment of disease without the use of medicine." Bound in cloth, 500 pp. Price, $1.00.

Uses of Water in Health and Disease. This work comprises a sketch of the history of bathing, an explanation of the properties and effects of water, a description of all the different kinds of baths, and directions for applying water as a remedy for disease. Price, 20 cents. Bound in cloth, 50 cts.

Proper Diet for Man. A concise summary of the principal evidences which prove that the natural and proper food for man consists of fruits, grains, and vegetables. Pamphlet. Price, 15 cents.

The Evils of Fashionable Dress, and how to dress healthfully. Price, 10 cents.

Alcoholic Poison, as a beverage and as a medicine. An exposure of the fallacies of alcoholic medication, moderate drinking, and of the pretended Biblical support of the use of wine. 20 cts.

Health and Diseases of Woman. By R. T. TRALL, M. D. Price, 15 cts.

The Hygienic System. By R. T. Trall, M. D. Price, 15 cents.

Tobacco-Using. By R T. Trall, M. D. 15 cts.

Healthful Cookery. A Hand-Book of Food and Diet; or What to Eat, How to Eat, When to Eat. The most complete work on Hygienic Cookery published. Price, 25 cents.

Science of Human Life. This is a valuable pamphlet, containing three of the most important of Graham's Lectures on the Science of Human Life. Price, 30 cents.

Health Tracts. The following tracts are put up in a neat package and aggregate, in all, nearly 250 pp.: Dyspepsia; Healthful Clothing; Principles of Health Reform; Startling Facts about Tobacco; Twenty-five Arguments for Tobacco-Using Briefly Answered; Tea and Coffee; Pork; True Temperance; Alcohol: What is it? Alcoholic Poison; Moral and Social Effects of Alcohol; Cause and Cure of Intemperance; The Drunkard's Arguments Answered; Alcoholic Medication; Wine and the Bible. Price, 30 cents per package.

These tracts will be furnished, postage paid, at the rate of 800 pages for $1.00. A liberal discount by the quantity.

The Health Reformer. A monthly journal for the household. $1.00 a year. Specimen copies sent free.

Bound Volumes of the Health Reformer, $1.50 each.

Address, **HEALTH REFORMER,**
BATTLE CREEK, MICH.