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ANATOMY, PHYSIOLOGY AND HYGIENE.

BY THE EDITOR.

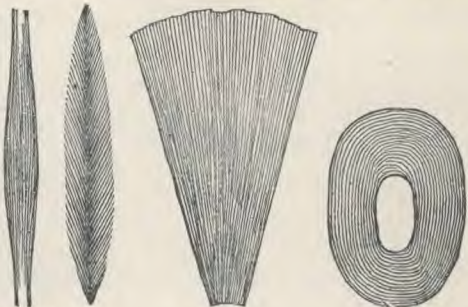
THE MUSCLES.

THE muscles constitute the flesh, or lean meat, of animals. Their general structure may be readily seen in the boiled leg of a fowl. By a little care the round mass of flesh forming the thigh may be separated into coarse fibers, which by careful manipulation can be still further divided into tiny threads. Under the microscope the finest fibers which can be seen by the naked eye are found to be composed of still smaller fibers, which are the anatomical elements of muscular tissue, and have already been studied. In a muscle these minute fibers are bound up in little bundles, which are again united into larger bundles, and these are bound up together in a common sheath to form the complete muscle.

TWO KINDS OF MUSCLES.—As already pointed out, there are two varieties of muscles, which are distinguished both by their structure and by their mode of action. They are known as *voluntary* and *involuntary* muscles. The voluntary muscles are chiefly located upon the exterior of the body, giving roundness and symmetry to the form. They are employed in all voluntary motions. The involuntary muscles are chiefly found in the interior of the body, in membranes, the walls of cavities, of blood-vessels, and of the various outlets of the body. Involuntary fibers also abound in the skin, being attached near the roots of the hairs. It is by their contraction

that the skin is made to assume the appearance of goose-flesh.

THE TENDONS.—In order to give the muscles strength and greater efficiency they are not usually attached directly to the bones with which they are connected, and in conjunction with which they give rise to the various movements of which the body is capable, but are united to them by means of tendons, which are white, glistening bodies composed of tough, inelastic, fibrous tissue similar to that which forms ligaments. Ten-



FIGS. 35, 36,

37,

38.

FIG. 35. Fusiform, or Spindle-Shaped Muscle, having a tendon at each end.

FIG. 36. Pennate, or Feather-Shaped Muscle.

FIG. 37. Fan-Shaped Muscle.

FIG. 38. Circular, or Orbicular Muscle.

dons are sometimes very short, but at other times are drawn out into long, thin cords, traveling some distance from the muscle before being attached to the bone.

FORM AND ARRANGEMENT OF MUSCLES.—The voluntary muscles are of various forms, as will be seen by reference to the accompanying cuts, Figs. 35, 36, 37, and 38. By

this diversity of form they are adapted to all the different positions in which they are required to act.

The voluntary muscles, with few exceptions, exist in pairs, the two halves of the body being symmetrical.

NAMES AND ACTIONS OF SPECIAL MUSCLES.



FIG. 39. General View of the Muscles.

Of the more than five hundred distinct muscles in the body we can mention but a very few of the most important. Indeed, the action of a large number of the smaller muscles is so obscured by others that it is hardly worth our while to attempt to study them closely. For the sake of convenience and brevity we will notice the action of each of the muscles named in immediate connection with its description, although this part more properly belongs to the physiology of the muscular system. See Fig. 39 for a general view of the muscles.

MUSCLES OF THE HEAD.—See Figs. 40 and 41. The muscles of the head, including those of the face, are among the most interesting of all in the body. Of the large number of special muscles in this region, only a few can here be mentioned by name.

The Occipito-Frontalis.—This muscle is attached to the skull at the back part of the head, and by means of a long, thin, flat tendon is carried over the top of the head to the forehead, the other end being attached to the skin of the latter region. The scalp is closely adherent to the tendon of the muscle. By contraction of this muscle the forehead is wrinkled and the eyebrows elevated. In

some persons the muscle is under such complete control that the whole scalp can be moved very freely.

The Corrugator Supercilii.—This might be

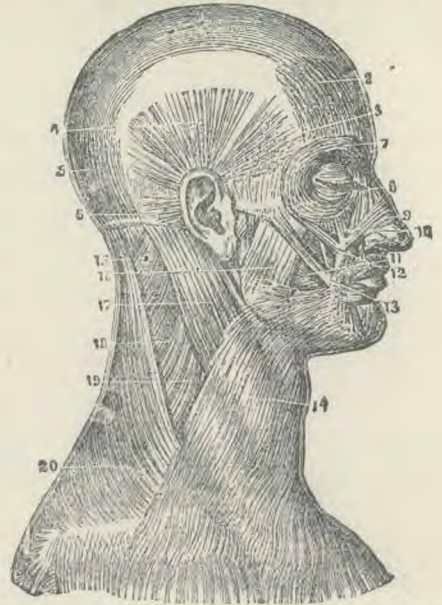


FIG. 40. 2 and 5, Occipito-frontalis; 3, 4, and 6, Muscles of the Ear; 7, Orbicularis Palpebrarum; 8, Levator Labii Superioris Alaeque Nasi; 9, Compressor Naris; 10, Levator Anguli Oris; 11, Buccinator; 12, Zygomaticus Minor; 13, Orbicularis Oris and Zygomaticus Major; 14, Platysma Myoides; 15, Splenius; 16, Masseter; 17, Sternocleidomastoid; 18, Levator Scapulae; 19, Scalenus Medius; 20, Trapezius.

called the frowning muscle. It is located near the inner and upper border of the eye. By its contraction the skin of the forehead is drawn down and wrinkled, as in scowling.

Orbicularis Palpebrarum.—The little muscle which bears this long name is the circular muscle of the eye. Its fibers surround and aid in forming the eyelids, and by their contraction the eye is closed. There are several other muscles connected with the external parts of the eye, which we have not space to mention.

Auricular Muscles.—There are three little muscles connected with each ear, located just beneath the skin, which seem to be designed to move the external ear in various directions; but practically they are of no use in man. In lower animals these tiny muscles are developed into large and useful ones, as in the horse, dog, and rabbit. There may occasionally be found a person in whom these mus-

cles are so well developed that the ear may be moved at will, though so slightly that no advantage can be derived from the action. Darwinian philosophers tell us that these rudimentary muscles are vestiges of the large, strong muscles possessed by man's primeval ancestors, who may have been able to use their ears as fly-brushes for the protection of the face.

Muscles of the Nose.—The soft parts of the nose are made up of muscles which compress its lower portion, elevate, and depress, and dilate the nostrils, each receiving a name descriptive of its particular function. One of the little muscles which operate upon the nose carries the most formidable name of any muscle in the body, being designated as the *levator labii superioris alaeque nasi*, which translated means the elevator of the upper lip and of the nostril.

Muscles of the Mouth.—Nine pairs of muscles operate upon the mouth and lips, their stationary ends being attached to the bones of the face adjacent to the mouth, and their moving ends being connected together by a circular muscle which surrounds the mouth, known as the *orbicularis oris*. The use of the last-named muscle is to aid in closing the mouth and to pucker the lips as in whistling.

Muscles of Expression.—Most of the muscles connected with the mouth and lips are chiefly useful in giving expression to the countenance. Through the action of these muscles, together with those of the external parts of the eye and nose, the face becomes a mirror of the mind. For instance, when feelings of joy or merriment are experienced, the muscles of the upper part of the face contract in such a manner as to drag the corners of the mouth outward and slightly upward, as in laughing or smiling. When opposite emotions are experienced, as in grief or sullenness, the corners of the mouth are drawn down, the muscles of the lower part of the face being contracted in such a way as to draw the lines of expression downward. All other emotions of the mind are indicated with equal distinctness, so that a person of any degree of experience in observing men and things can tell with almost absolute certainty the general tenor of the thoughts of one to whom he is speaking. So close is the

relation between the mind and the muscles of expression that it is absolutely impossible for a person to be strongly affected by any emotion without in some degree exhibiting the same in the face. For example, it is not possible for a person to be merry in mind and at the same time assume an appearance of grief upon the face which could not readily be detected as an attempt at deception.

Muscles of Mastication.—Besides the muscles of the face already mentioned, there is a set of muscles located at the back part of the cheek which are attached at one end to the skull and upper bones of the face, and at the other to the inferior jaw-bone. These are quite strong muscles, and their function is to move the lower jaw in talking, and particularly in mastication. The principal muscles for this purpose are the *temporal* and *masseter*.

Internal Muscles of the Eye.—The system of muscles by which the eye is moved is one of the most marvelous exhibitions of mechanism in the body. The motions of the eyeball are produced by six slender muscles which chiefly arise from the bottom of the socket behind the eye, and are attached to its outer covering. Four of these produce the movements of the eye upward, downward, to the right, and to the left. The other two are ingeniously arranged in such a manner as to roll the eye and to move it in an oblique direction, hence they are known as the oblique muscles of the eye. One of these, the superior oblique, operates by means of a pulley arrangement, its tendon passing through a loop and changing its direction before being inserted into the eyeball. By the combined action of these several muscles, all the different motions are obtained. All acting in rapid succession cause the eye to roll in its socket in such a way as to enable the sight to describe a complete circle. In persons who are cross-eyed or wall-eyed, some of the muscles just described are affected. For illustration of muscles of the eye, see Fig. 42.

Internal Ear Muscles.—Within the interior of the ear there are to be found three little muscles, the most delicate in the whole body, which operate upon the minute ear-bones and other parts of the middle ear in regulating the function of hearing.

MUSCLES OF THE NECK.—The muscles of the neck may be rudely divided into two sets; those in front, and those of the back part of the neck. The anterior muscles are



FIG. 41. This cut shows with greater distinctness some of the deeper Muscles of the Face, and those of its lower part.

useful in depressing the lower jaw, in raising the bone of the throat, in compressing the throat and controlling the organs used in speaking and swallowing, and to bend the head forward.

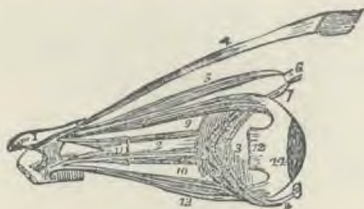


FIG. 42. Showing the Muscles of the Eye.

The muscles of the back part of the neck are chiefly useful for moving the head. By their action the head may be thrown backward or to one side. They are quite strong muscles, and are needed to enable a person to maintain the head in an erect position. A long, slim muscle which passes from the back part of the head to the upper end of the breast-bone, called the *sterno-cleido-mastoid* muscle, by contraction becomes the cause of wry neck, for which disease it is sometimes necessary to divide it by a surgical operation.

MUSCLES OF THE TRUNK.—These also may be divided into two groups, those found upon the front of the trunk, and those upon the

back. The muscles of the front form the principal portion of the abdominal walls. They are attached to the borders of the ribs and the breast-bone above, and to the edges of the pelvis below. They bend the body forward and assist in keeping it erect. They are also exceedingly useful in respiration, and aid in several other vital operations. Between each two ribs there is a double set of muscles which assist in the contraction and expansion of the thorax in respiration. The upper part of the chest also affords at-

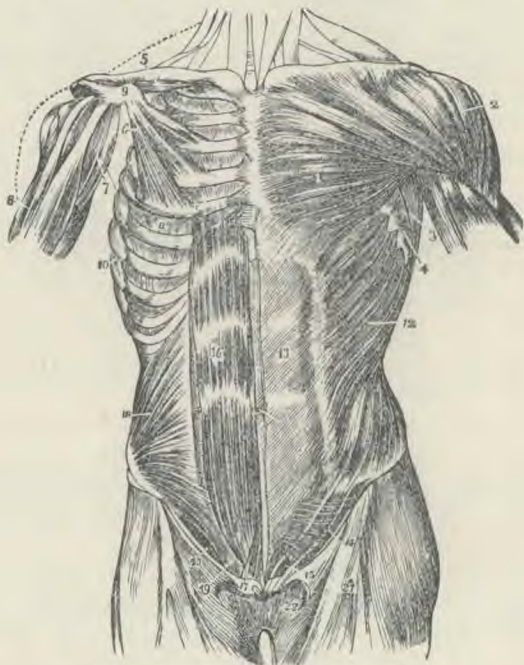


FIG. 43. Showing Muscles of the Trunk.

tachment to several large muscles which act upon the upper extremities. The muscles of the back are exceedingly numerous, being arranged in five distinct layers. They arise for the most part from the projecting points of bone which have been already described as being found in great numbers on the vertebræ which make up the spinal column. Some also arise from the skull, from the ribs, and from the pelvis. They hold the body erect, give to the trunk a great variety of movements, draw the head backward, assist in moving the arm, and aid in respiration. This is undoubtedly the most complicated part of the muscular system. For a view of the muscles of the trunk, see Fig. 43.

HOG CHOLERA.

DURING the present fall, a disease has been prevailing very extensively among the porcine race in this and neighboring counties. Many thousands of hogs have died a natural death, who would otherwise have been slaughtered and eaten; and there is good reason for believing that some of those which have died have been eaten, while many more have contributed the fat of their diseased bodies to the manufacture of oleomargarine. In some cases, whole herds have been destroyed within a few days. The real nature of the disease has not been understood until recently investigated by Dr. Baker, secretary of the State Board of Health, who, at the last meeting of the Board, was directed to investigate the matter. It has been suspected that the disease was, in some degree at least, communicable to human beings. This point, together with others, was investigated by Dr. Baker during a recent visit to the localities where the disease has prevailed the most extensively. The following brief summary of the results of the investigation by Dr. Baker we quote from the *Lansing Republican* :—

It has been ascertained that the disease could be communicated to mice, sheep, and chickens, and from each of these back again to the swine, although the disease affected sheep but slightly. Dr. Baker has found evidence in his recent investigations that it may also be communicated to rats, dogs, lambs, colts, and cats.

NATURE OF THE DISEASE.

The term "cholera" is a misnomer except as it conveys the idea of a communicable disease. Contagious typhoid pneumonia would more nearly represent the nature of the disease, but both those terms would probably be misleading unless the mode of communication of the disease is understood, which is by inoculation or by taking the specific virus into the body with the food. It is possible that the disease may be communicated by inhaling the poison, but of this there is not sufficient evidence.

The time which elapses after the entrance of the poison before the disease is noticed is about seven days, but it varies considerably, possibly depending upon the amount of poison

introduced and the susceptibility of the system to it. Young animals are most susceptible, and the mortality is greatest among them. The evidence of this was very marked in Dr. Baker's investigations. This is exactly analogous to the communicability of diseases which affect human beings, such as scarlet fever, measles, diphtheria, etc. Some of those who had observed the disease in Leroy township thought it was certainly diphtheria of the hog. Dr. Baker found in other places mention of swelling of the throat and difficulty in swallowing. Post mortem examinations did not reveal signs of diphtheria, however, but did reveal evidence of hog cholera.

THE SYMPTOMS

described in various places varied greatly, but are all easily explained when the nature of the disease is understood. The specific virus circulates through the body wherever the blood goes, and very rapidly reproduces itself. It tends to clog up the smaller blood-vessels throughout the body, and especially in any weak or injured place; therefore the symptoms necessarily differ widely, but the lungs almost uniformly suffer, becoming clogged up in nodules or by entire lobes, in many instances causing death in this manner. Another part of the body next most constantly affected is the large intestine and small intestine near it. Where the glands on the inside of the intestine are enlarged and sometimes ulcerated and inflamed, the adjacent lymphatic glands are enlarged, and the stomach is sometimes inflamed. In one case Dr. Baker noticed enlarged spleen, and the liver had a peculiar purplish appearance. Others have found similar appearances.

From this description, it is easily realized that there is not much hope in medicine being able to eradicate the disease, but as a matter of fact the

FARMERS ARE IMPOSED UPON

all over the country by quacks, and are trying all kinds of remedies. But what is found to answer in one case will not work in the next, indicating that there is no reliance to be placed upon remedies. On the contrary, it is productive of much mischief, as the attempt to keep the animal alive only tends to increase the cause of the disease. Intelligent

men say if they had killed all the first animals attacked, and placed them four feet under ground, it would have been money in their pockets by preventing the spread of the disease; but the question of its restriction is very complex, because of its existence among all classes of animals, and perhaps in human beings.

NOT RECOGNIZED.

Dr. Baker says the disease is not generally recognized by the people where he went. They say, when the cats have a disease which appears to him the same, that it is consumption. When the dogs had it it was "dog distemper;" when the colts had it it was "epizootic;" and when the lambs had it, as they did in some places, they attributed it to feeding on clover, or called it "grub in the head," and cited for proof the fact that after death the "grubs came out of the nose;" but this might occur in summer after death from any disease. The disease is probably spread very largely by mice, rats, and cats, which die and lie around unobserved, and to which chickens and hogs have access.

The question which Dr. Baker was especially requested to investigate, whether this disease is

COMMUNICABLE TO MAN,

is attended with much difficulty, because in the neighborhoods where it exists the people are very much afraid, and avoid contact with the disease, or eating the meat; but at nearly every point they ship animals of this character, and purchasers only require that the animal shall be alive when put on the cars. They are taken to Chicago, Detroit, and perhaps to other places, and the difficulty lies in deciding just which pork belongs to animals of that kind. One reason prompting this investigation was that sickness, and in one case death, was attributed to eating sugarcured ham in which careful search proved the absence of trichina. It has been found that

THE POISON OF THE DISEASE

is somewhat easily destroyed, but whether meat from animals that have died of this disease is capable of conveying the disease to human beings who eat it as it is ordinarily prepared, is a question of very great impor-

tance, but one upon which conclusive evidence cannot yet be obtained. Dr. Baker found one place where the first animals known to be sick were two cats. The next were the chickens, which died very rapidly, and the next was the man of the house, whose symptoms, as described, were not very different from those of the animals. The next were the hogs, not all of which were dead at the time of the doctor's visit. One was killed, and a post mortem revealed hog cholera, every point being verified under the doctor's eyes. At the time of this visit a son, the only male member of the family remaining, was sick. Whether his sickness bore any relation to the other disease it will be impossible to say, if he lives. Should he die, post mortem might determine the point. Further investigation will be greatly facilitated if persons having any knowledge of this subject will kindly communicate it to the secretary of the State Board of Health.

WOMAN AS A SANITARY REFORMER.*

BY DR. B. W. RICHARDSON, F. R. S., ETC.

Two of the wisest of men, and by necessity, therefore, both of them sanitarians, Solomon and Xenophon, have laid down rules bearing on the duties of women who rejoice in being called wives as well as women.

"A good wife," says Solomon, "worketh willingly with her hands." "She is like the merchants' ships, she bringeth her food from afar." She is an early riser, and sees that every one has an early breakfast: "She riseth also while it is yet night, and giveth meat to her household, and a portion to her maidens." By exercise she strengthens her limbs: "She layeth her hands to the spindle, and her hands hold the distaff." She knows that where there is poverty there can be neither health nor happiness: "She stretcheth out her hand to the poor; yea, she reaches forth her hands to the needy." She provides against the cold: "She is not afraid of the snow for her household; for all her household are clothed in scarlet." In clothing herself she combines artistic taste with usefulness, as every woman is bound to do: "She maketh

* A Lecture delivered in Victoria Hall during the Exeter Congress of the Sanitary Institute.

herself coverings of tapestry ; her clothing is silk and purple." "She maketh also fine linen and selleth it." "Strength and honor are her clothing." She combines common sense with gentleness. "She openeth her mouth with wisdom ; and in her tongue is the law of kindness." She is watchful and busy : "She looketh well to the ways of her household, and eateth not the bread of idleness." And these, says this wise sanitarian, are her rewards : "She shall rejoice in time to come ;" "The heart of her husband doth safely trust in her ;" and, light of perfected happiness, "Her children rise up and call her blessed."

The second of the wise sanitarians, Zenophon, tells his story of the good wife in somewhat different terms and manner, and, indeed, with difference also in detail. He makes Socrates and Critobulus hold a discussion which comes to this general understanding : that the ordering of a household is the name of a science, and that the science becomes the order and the increase of the house. Socrates, the master, recounts to his pupil that he once held a communication with a man who, indeed, might be called a good and honest man. He had already seen and studied the works of good carpenters, good joiners, good painters, good sculptors, and had seen how they attained excellence ; and so he desired to find out how those who had repute for goodness and honor attained their excellency. He looked for such a one first amongst those who were handsome, but it would not do ; for he found that many who had goodly bodies and fair visages had ungracious souls. Then he bethought him to look for a man who by general sentiment was reckoned upon as good, and at last he found Ischomachus, who was generally, both of man and of woman, of citizen and of stranger, called "the good."

Socrates is made to discover Ischomachus seated in the porch of a temple, and, discussing with him many subjects, asks him how it is he is called a good and honest man. At this Ischomachus laughs. "Why," he replies, "I am called good when you and others speak of me, I cannot say. I only know that when I am required to pay money for taxes, priests, or subsidies, they call me Ischoma-

chus ; and indeed, Socrates, I do not always bide in my house, for my wife can order well enough whatever is wanted there." "And did you yourself bring your wife to this perfection," asks Socrates, "or did her father and mother teach her?" "As she was but fifteen when I married her," returns Ischomachus, "She had seen very little, heard very little, and spoken very little of the world ; and therefore"—he continues some way further on—"I questioned, and then instructed her." "Methinks," says Ischomachus, "that the God hath caused nature to show plainly that a woman is born to take heed of all such things as should be done at home, and these are the reasons for the belief. He, the Maker, hath made man of body, heart and stomach, strong and mighty to suffer and endure heat and cold, or privation, to journey, and to go to the wars. Wherefore, he hath, in a manner, charged and commanded him with those things that be done abroad, and not of the house. He, also, remembering that he has ordained the woman to bring up young children, has made her far more tender in love toward her children than the man. And, whereas he has ordained that the woman should keep those things which the man getteth and brings home to her, and knowing also that to keep a thing safely it is not the worst point to be doubtful and fearful, he has dealt to her a great deal more fear than he did to man ; while to man, who must defend himself and his own, he has dealt out more boldness. But because it behooveth that both men and women should alike give and receive, he has bestowed on them alike remembrance and diligence, so that it is hard to discern which of them has the most of those qualities. He has, moreover, granted them indifferently, the power to refrain from doing that which is wrong, so that whatever either of them does better than the other is best for both ; and because the natures and dispositions of them both are not equally perfect in all these things, they have so much the more need the one of the other ; for that which the one lacketh, the other hath. Likewise the law shows, and the God commanded, that it is best for both to do their part. It is more correct for a woman to keep house than to walk abroad ; and it is more

shame for a man to remain skulking at home than to apply his mind to such things as must be done abroad."

Some lessons of economy are first to hand. The wife is to beware that that which should be spent in a twelvemonth be not spent in a month. The wool that is brought in is to be carded and spun, that cloth be made of it; and the corn that is brought in must be most carefully examined, that none which is musty and dirty be eaten as food. Above all, the same instruction that Solomon insists on is enforced with special fervor. The wife is to be most particular, if any of the servants fall sick, that she endeavor herself to do the best she can, not only to cherish them, but also to help that they may have their health restored to them.

A little further on, the philosopher touches on the importance of perfect order in the house as connected with the health and wealth of it. From these lessons he teaches his wife, and thereby all wives, matters that are more particularly of a sanitary kind. A house, he says, has an ordination. It is not ordained to be gorgeously painted with divers fair pictures, though these may be excellent, but it is built for this purpose and consideration that it should be profitable and adaptable for those things that are in it, so that, as it were, it bids the owners to lay up everything that is in it in such place as is most meet for the things to be put. Therewith he disposeth of places for things in due form, and assigns the uses of the various parts of the establishment, in such manner that the woman who presides over the whole shall know the parts in a truly scientific way. The inner chamber or room, because it stands strongest of all, is to be the strong room, in which the jewels, plate, and every precious thing in the belongings of the house must be securely located. The driest places are to be places for wheat, the highest places for such works and things as require light. The parlors and dining-places well trimmed and dressed, are to be cool in summer and in winter warm. The situation of the house is to be toward the south, so that in winter the sun's light may fall favorably upon it, and in summer it may be in goodly shadow.

The wearing apparel is to be divided into

that intended for daily use, and that required for special or grand occasions. Everything belonging to separate service—to the kitchen, the bakehouse, the bath-room—is to be assigned to its own place and use. All instruments which the servants use daily are to be shown to the servants in their right places, and are to be kept there when they are not wanted. Such things as should not be made use of except on holidays and rare occasions are to be left in special charge of an upper servant, who should be instructed beyond the rest of the servants to observe the same rules as the mistress herself would carry out. "At last, good Socrates," said Ischomachus, "I did express to my wife that all these rules availed nothing unless she took diligent heed that everything might remain in perfect order. I taught her how in commonwealths, and in cities that were well ruled and ordered, it was not enough for the dwellers and citizens there to have good laws made for them, unless they chose men to have the oversight of those laws. In like manner, then, the woman should be, as it were, the overseer of the laws of the house, as the Senate and the Council of Athens oversee and make proof of the men of arms."

Finally, Ischomachus touches on the mode by which his wife should maintain her own health. He observed about her, as a very strange habit, that upon a time she had painted her face with a certain unguent that she might seem whiter than she was; and with another unguent that she might seem redder than she was; and that she had a pair of high shoes on her feet to make her seem taller than she was. Whereupon, "Tell me, my good wife," said he, "whether you would judge me worthier or more beloved if I explained to you what we are precisely worth, keeping nothing secret from you, or if I deceived you by declaring I had more than I really had, showing you false money, chains of brass instead of gold, counterfeit precious stones, red instead of scarlet, and false purple instead of pure and good?" She replies, "The gods forbid that you should be such a one." He than recalled to her her own deceptions, and when she inquired how she should be fairer in reality, and not appear so only, he gave her as counsel, that

she should not sit still like a slave or a bond-woman, but go about the house like a mistress, and see how the work of the house goes forward; look after all the workers and sometimes work with her own hands, by which exercise she would have a better appetite for food, better health, and better favored color of her face.

While likewise the sight of the mistress, more cleanly and far better appareled, setting her hand to work, and, as it were, striving at times with her servants who should do most, would be a great comfort to them by leading them to do their work with a good will instead of doing it against their will. For they that always stand still like queens in their majesty will only be judged of by those women who are triumphantly arrayed. "And now, good Socrates," continued Ischomachus, in conclusion, "be sure that my wife lives even as I have taught her, and as I have told to you."

Good wives of the type of the wife of Ischomachus would, in one decade, make domestic sanitation the useful fashion and order of the nation they purified, beautified, beatified. I quote this basis of wifely work and duty, because I feel more deeply, day by day, that until it is admitted, and something more built upon it, sanitary progress is a mere conceit, a word and a theory, instead of a thing and a practice. It is in those million centers we call the home that sanitary science must have its true birth. It is from those centers that the river of health must rise.

We men may hold our congresses year after year, decade after decade; we may establish our schools; we may whip on our lawgivers to action of certain kinds; we may be ever so earnest, ever so persistent, ever so clever; but we shall never move a step in a profitable direction until we carry the women with us heart and soul. Adam had no paradise in Paradise itself until Eve became the helpmeet for him. We ought not to blame womankind because it seems that women are behindhand in the work. They are not, in point of fact, behindhand at all; they are rather the forerunners of the race. Long before the word "sanitation" was heard of, or any other word that conveyed the idea of a science of health, the good, the cleanly,

thrifty housewife was a practical sanitary reformer. Nay, if we come to the question of organization itself, we have in this country, in that admirable Institution, the Ladies' Sanitary Association, the first of the great sanitary societies, which by its publications, its practical aid to mothers, its outdoor recreative parties to the stived-up children of the metropolis, and by various other means, has set an example which will one day be historical as a part of the great movement in the promotion of which we are engaged.

There is not, therefore, one single difficulty in the way of making the woman the active domestic health reformer. The only thing that requires to be put forward is the method of bringing her universally into the work, and, if I may so express it, making the work a permanent custom or fashion, to neglect which would be considered a moral defect. There are in England and Wales alone six millions to be influenced. The first suggestion is that the beginning of the crusade shall be a beginning that shall not drive, but lead; that shall not dictate, but patiently suggest.

"Women should ne'er be taught a thing unknown,
It should be credited as all their own."

Nor can any finer or nobler occupation be imagined than is implied under this head of domestic care and nourishment of health. There are women who think it the height of human ambition to be considered curers of human maladies, content at best to take their place with the rank-and-file of the army of medicine, and not perceiving that the only feature in their career is its singularity,—a feature that would itself become lost if the wish of the few became the will of the many. I press this office for the prevention of disease on womankind, not simply because they can carry it out; not simply because it pertains to what Xenophon describes as their special attributes, their watchfulness, and their love; but because it is an office which man never can carry out; and because the whole work of prevention waits and waits until the woman takes it up and makes it hers. The man is abroad, the disease threatens the home, and the woman is at the threatened spot. Who is to stop it at the door, the man

or the woman? The house is her citadel. The majority of women will ask by what process of training can we help toward a triumph of science so beneficent? I devote myself from this point of my discourse to give some answer to that question.—*House and Home.*

A GENTLEMAN OF COLOR ON BROWN BREAD.

AN English paper, *Evans' Journal*, contains the following by an indignant "black man";—

"I nebber could understandify why I get out ob temper ober dis white bread question, but I do. When I tink how de people are 'frauded in dis matter, someting seems to burn up widin me wid all the furnace-power ob a ton o' coals. It makes me wonder what I'm made of. When dis poor old nig was n't much bigger than a good size nob o' coal, some one taught him dat man was made ob dust. Since den I've found out dere are a great many kinds ob dust, and derefore a great many kinds ob men; and I hab come to the 'clusion de kind dat I'm made ob must be coal dust, and dat's why I get so red-hot sometimes, in fact always, when I see folks being cheated.

"'Half a loaf is better dan none,' as de proverb-mongers say. Guess they mean half a quartern loaf. Seems to me dat most people hab only half a loaf, when nature meant dem to have a whole one. Dey hab de white half, dat is nearly all starch, and all de odder part is gibben to de rabbits and pigs. De good old Book says, 'Look not on de wine when it is red;' and I wish it said, 'Look not on de bread when it is white,' For de Englishman is worse dan cheated when he eats bread de same color as hisself. Say dat darkness am light, disease am health, write a big book to prove dat happiness and pain are bofe de same, but for goodness' sake, for breakfast's sake, for dinner's sake, for de sake of ebbery meal in de day, do n't call a white loaf de 'staff of life,' because it is a fib dat can neber come true.

"Dere are thirteen minerals in de human body, and dey are all packed away in dat lubly loaf called a grain ob wheat. Dey are

all in dat same little loaf, for good old Mother Nature hid dem dere wid her own kind hands. Den let no one in future steal anything from dis odd little bread-basket, which our Father has so richly stored wid physical blessings. In some tings it do n't matter whedder we'er cheated or not. Your hand will be jus as good and useful for all honest work if dat ring on your finger is arter all only worth forpence, though you paid twenty poun' for it. De smallest act ob kindness dat hand may bestow on the poor, God will bless, even if dere is no ring dere at all.

"Dere! I've said what I tink ob such willful unwiseness, and I'm willin' to len' my pen to any one who'll use it on de same topic. Let us foller up de subjec' right to de berry door ob ebbery baker in de land. Come, gelnnen ob de press, whose turn is it? Do n't let dis poor, untutorvated ole nigger hab de ink-bottle all to hisself ober dis vital question."

HOW GLUCOSE IS MADE.

As the manufacture of glucose and its use in the adulteration of sugar has now become so extensive that every person is familiar with the name, and more or less interested in the subject, we quote the following description of its manufacture from the *Scientific Record*:—

"The shelled corn is soaked in hot water for a period ranging from a day and a half to five days, if it is not to be fermented, or six or seven days if it is, according to the hardness of the corn. If not to be fermented, the water is changed when it begins to sour; it is then ground, while wet, with the ordinary burr-stones, and with a stream of water running into the hopper with the corn. The mixture is then run on fine vibratory sieves, with more water added; the finer, starchy part of the corn is washed through the sieves, while the hull, gluten, and woody fiber goes over the tail of the sieves, and after the water is squeezed from it by rollers, is sold for feed. The portion that went through the sieves is run into tanks and settled; the water is then drawn off, and the sediment again mixed with clean water and treated with alkali (caustic soda) to separate any trace of

gluten from the starchy matter. It is next run into long metal-lined troughs or vats, about 8 inches deep, from 3 to 15 inches wide, and from 100 to 150 feet long; these descend slightly, and most of the water runs off at the lower end, leaving the sediment at the bottom. The sediment is left to settle and dry somewhat, and is then shoveled out, and known as 'green starch,' about 50 per cent of it being water. It is now in a condition to be made either into starch or into glucose.

"The 'green starch' is mixed again with clean water, making it quite thin, when it is run into large wooden tanks called 'convertors,' in which it is treated with acid,—usually sulphuric, but sometimes muriatic or nitric, or even oxalic. The acid causes the starch to take up the elements of water by which it is converted into glucose; but the acid does not enter into chemical combination with the starch. During the conversion the liquid is kept at the boiling point by steam pipes. Chemical tests are applied at intervals to ascertain when the conversion is complete; after which the mixture is drawn off into other tanks, where the acid is neutralized with marble dust, chalk, whiting, or some form of carbonate of lime or other alkali.

"The mixture is now thin glucose syrup, but somewhat discolored, and containing certain impurities. It is cleansed and whitened by running it through cloth or canvas; then through iron tanks, about thirty inches in diameter, and eight or ten feet long, filled with bone charcoal.

"The syrup is next boiled down in a large, strong tank, or kettle, of iron or copper, with steam-pipes coiled inside for heating; and from this the air is exhausted by an air-pump, in order that less heat may be used for the evaporating of the water from the syrup, a temperature of from 100° to 125° F. only being required, instead of 212°. This economizes fuel, but it is done mainly to keep the syrup as light-colored as possible, the higher degree of heat browning it somewhat. After boiling down, it is put through a 'press filter' (sheets of metal with cloth between), and sometimes through bag filters and bone charcoal filters again. It is now glucose syrup, ready for the market. For making

grape-sugar, or solid glucose, the conversion is carried somewhat further, and the syrup, after being boiled down and purified, is left to harden into sugar."

AIR-STARVING.

THE most important of all foods upon which human beings, in common with all other animated creatures depend for existence, is pure air. The following very excellent remarks on this subject are from the pen of Mrs. Stowe in her "House and Home Papers:"—

"No other gift of God, so precious, so inspiring, is treated with such utter irreverence and contempt in the calculations of us mortals as this same air of heaven. A sermon on oxygen, if one had a preacher who understood the subject, might do more to repress sin than the most orthodox discourse to show when and how and why sin came. A minister gets up in a crowded lecture-room, where the mephitic air almost makes the candles burn blue, and bewails the deadness of the church,—the church the while, drugged by the poisoned air, growing sleepier and sleepier, though they feel dreadfully wicked for being so.

"Little Jim, who, fresh from his afternoon's ramble in the fields, last evening said his prayers dutifully, and lay down to sleep in a most Christian frame, this morning sits up in bed with his hair bristling with crossness, strikes at his nurse, and declares he won't say his prayers,—that he do n't want to be good. The simple difference is, that the child, having slept in a close box of a room, his brain all night fed by poison, is in a mild state of moral insanity. Delicate women remark that it takes them till eleven or twelve o'clock to get up their strength in the morning. Query, Do they sleep with closed windows and doors, and with heavy bed-curtains?

"The houses built by our ancestors were better ventilated in certain respects than modern ones, with all their improvements. The great central chimney, with its open fire-places in the different rooms, created a constant current which carried off foul and vitiated air. In these days, how common is it to provide rooms with only a flue for a stove?

This flue is kept shut in summer, and in winter opened only to admit a close stove, which burns away the vital portion of the air quite as fast as the occupants breathe it away. The sealing-up of fire-places and introduction of air-tight stoves may, doubtless, be a saving of fuel: it saves, too, more than that; in thousands and thousands of cases it has saved people from all further human wants, and put an end forever to any needs short of the six feet of narrow earth which are man's only inalienable property. In other words, since the invention of air-tight stoves, thousands have died of slow poison. It is a terrible thing to reflect upon, that our northern winters last from November to May, six long months, in which many families confine themselves to one room, of which every window-crack has been carefully calked to make it air tight, where an air-tight stove keeps the atmosphere at a temperature between eighty and ninety, and the inmates sitting there with all their winter clothes on become enervated both by the heat and by the poisoned air, for which there is no escape but the occasional opening of a door.

"It is no wonder that the first result of all this is such a delicacy of skin and lungs that about half the inmates are obliged to give up going into the open air during the six cold months, because they invariably catch cold if they do so. It is no wonder that the cold caught about the first of December has by the first of March become a fixed consumption, and that the opening of the spring which ought to bring life and health, in so many cases brings death.

"We hear of the lean condition in which the poor bears emerge from their six-months' wintering, during which they subsist on the fat which they have acquired the previous summer. Even so, in our long winters, multitudes of delicate people subsist on the daily waning strength which they acquired in the season when windows and doors were open, and fresh air was a constant luxury. No wonder we hear of spring fever and spring biliousness, and have thousands of nostrums for clearing the blood in the spring. All these things are the pantings and palpitations of the system run down under slow poison, unable to get a step farther. Better,

far better, the old houses of the olden times, with their great roaring fires, and their bedrooms where the snow came in and the wintry winds whistled. Then, to be sure, you froze your back while you burned your face, the water froze nightly in your pitcher, your breath congealed in ice-wreaths on the blankets, and you could write your name on the pretty snow-wreath that had sifted in through the window-cracks. But you woke full of life and vigor, you looked out into whirling snow-storms without a shiver, and thought nothing of plunging through drifts as high as your head on your daily way to school. You jingled in sleighs, you snow-balled, you lived in snow like a snow-bird, and your blood coursed and tingled, in full tide of good, merry, real life, through your veins,—none of the slow-creeping, black blood which clogs the brain and lies like a weight on the vital wheels!"

A SANITARY RETROSPECT.

ONE is better able to appreciate the progress which has been made in sanitary reform in modern times by a brief retrospect of past ages. Prof. Draper in his work entitled, "The Conflict of Science and Religion," thus describes the condition of two of the greatest cities of Europe:—

"In Paris and London, the houses were of wood daubed with clay, and thatched with straw or reeds. They had no windows, and, until the invention of the saw-mill, very few had wooden floors. The luxury of a carpet was unknown; some straw, scattered in the room, supplied its place. There were no chimneys; the smoke of the ill-fed, cheerless fire escape through a hole in the roof. In such habitations there was scarcely any protection from the weather. No attempt was made at drainage, but the putrefying garbage and rubbish were simply thrown out of the door. Men, women, and children, slept in the same apartment; not unfrequently, domestic animals were their companions; in such a confusion of the family, it was impossible that modesty or morality could be maintained. The bed was usually a bag of straw, a wooden log served as a pillow. Personal cleanliness was utterly unknown; great officers of State, even dignitaries so high as

the Archbishop of Canterbury, swarmed with vermin; such, it is related, was the condition of Thomas à Becket, the antagonist of an English king. To conceal personal impurity, perfumes were necessarily and profusely used. The citizen clothed himself in leather, a garment which, with its ever-accumulating impurity, might last for many years. He was considered to be in circumstances of ease if he could procure fresh meat once a week for his dinner. The streets had no sewers; they were without pavement or lamps. After nightfall, the chamber-shutters were thrown open, and slops unceremoniously emptied down, to the discomfiture of the wayfarer tracking his path through the narrow streets, with his dismal lantern in his hand.

"Æneas Sylvius, who afterward became Pope Pius II., and was therefore a very competent and impartial writer, has left us a graphic account of a journey he made to the British Isles, about 1430. He describes the houses of the peasantry as constructed of stones put together without mortar; the roofs were of turf, a stiffened bull's-hide served for a door. The food consisted of coarse vegetable products, such as peas, and even the bark of trees. In some places they were unacquainted with bread.

"Cabins of reeds plastered with mud, houses of wattled stakes, chimneyless peat-fires from which there was scarcely an escape for the smoke, dens of physical and moral pollution swarming with vermin, wisps of straw twisted round the limbs to keep off the cold, the ague-stricken peasant with no help except shrine-cure! How was it possible that the population could increase?

"Shall we, then, wonder that in the famine of 1030, human flesh was cooked and sold; or that, in that of 1258, fifteen thousand persons died of hunger in London? Shall we wonder that, in some of the invasions of the plague, the deaths were so frightfully numerous that the living could hardly bury the dead? By that of 1348, which came from the East along the lines of commercial travel, and spread all over Europe, one-third of the population of France was destroyed."

MAKE the best of everything.

INJURIOUS EFFECTS FROM TEA-DRINKING.

At the last meeting of the British Medical Association, Dr. Wolfe, of Glasgow, described a peculiar disease of the eye in which there is softening of some of its internal structures, which become filled with floating dark particles, the presence of which occasion the appearance of spots before the eyes. He had found the disease very common, especially among the mining population, wash-women, middle-aged laborers, shop and factory girls, and many persons belonging to the upper classes. He has observed, particularly, its great frequency among Australians. He could discover no legitimate cause for the disease in the eye itself, and stated that "it was only on directing his inquiries to their diet, and finding that they all agreed in consuming large quantities of tea, that he came to suspect its agency. A comparison of the numerous cases of opacity of the vitreous humor occurring among tea-drinking populations, with its less frequency in France and Germany, and its rarity among the Turks, tended to confirm his suspicions." He attributed the affection to the tannic acid. "This precipitated albumenoids from their solutions; hence it probably acted injuriously by precipitating some of the most important constituents of the food and also by affecting the mucous membrane of the stomach and alimentary canal, and thus preventing digestion and assimilation. Some observations had been made as to the effects of tea-drinking on the healing of wounds and ulcers, by a Glasgow surgeon, who had noticed that in persons addicted to this habit, they took on a sort of scorbutic character. Physicians also ascribed numerous cases of rebellious dyspepsia to the use of tea."

Dr. Peele, of Sydney, Australia, said that dyspepsia from this habit was very common there.

Clean Beds.—It must be a false idea of neatness which demands that beds should be made soon after being vacated. Let it be remembered that more than three-fifths of the solids and liquids taken into the stomach should pass off through the pores of the skin,

and that this escape is the most rapid during the night, while warm in bed. At least one-half of this waste or putrid matter must become more or less entangled in the bedding, of course soiling it, and that part of this may become re-absorbed by the skin if it is allowed to come in contact with it on the next night, as it must if the bedding is not exposed for a few hours to the air and light. We may well imitate the Dutch example of placing such bedding on two chairs near the window, in the sunlight; or in the window, that the best purifier known—the light of the sun—may dissipate their impurities or neutralize them. It is also desirable that the air should pass through open doors and windows, and that as much sunlight be admitted as possible to the room in which about one-third of the time is spent. In addition to these measures it is well to have the attic windows wholly or partly open, and the door open leading to it, so that a free current may pass through all the rooms, up the stairs, and out into the outer world, to become purified by vegetation, etc., before being again respired. Clothes thus aired and sunned will not demand more than half the usual washing, though they can scarcely be washed too often. Another means of promoting personal cleanliness is by an absolute change of all clothing, morning and night, wearing nothing by night that is worn by day.—*Sel.*

IMPORTANCE OF FRESH AIR.

[The following from a popular contemporary is a word in season. It would seem to be no wonder that so many children and infants fall victims to defective ventilation if wild beasts accustomed to exposure and hardships succumb so readily. We have seen monkeys in the Central Park collection of animals coughing in the last stages of consumption.—*Ed.*]

No matter how perfect are all other hygienic conditions, good health cannot be maintained if the air supply is insufficient. The purest air will become vitiated, resulting in disease, especially in consumption, unless there is a constant means of supply.

When the mortality from all causes among

the metropolitan police of London was only ninety in 1,000, that of the Foot Guards was 141 from consumption alone. The barracks furnished the latter only about one-fourth as much air per man as is allowed in prison-cells.

The armies of Europe generally are, from a similar cause, characterized by a large mortality. During the Crimean war, the rate in the English army was 23.2 per cent of the total strength; that of the French 30; while in our civil war with its open-air life it was less than six. Camp fever may be almost banished by cleanliness and fresh air.

In 1760, Dr. Brocklesby, having built a large shed as a hospital for wounded soldiers, and the mortality proving slight, though the treatment was otherwise the same as elsewhere, said: "I candidly ascribe their fortunate escape more to the benefit of a pure, keen air, which they breathed therein every moment, than to all the medicine they took." Thus, over a century ago, he stumbled on a law of hygiene now universally acknowledged by experts.

No expense was spared in the erection of a new house for monkeys in the London Zoological gardens, to make it as much as possible like an English gentleman's drawing-room. These animals had been wintered in England several years, and were healthy on entering their new house. But in one month fifty of the sixty were dead, and the rest were dying of consumption. The whole trouble was that the room was not properly ventilated.

Before 1836 the loss of horses in France by death was from 180 to 197 per thousand. Enlarged stables reduced the loss to sixty-eight—nearly two-thirds. In England the loss is reduced to twenty; in Germany to fifteen. Let it not be forgotten that where the lack is not such as to produce fatal results, it may variously impair the health.

Custom an Enemy to Reform.—Thomas Tryon, the author of "The Way to Health, Long Life, and Happiness," thus wrote respecting the opposition to reform offered by custom, or "the example of the crowd":—

"There is scarce anything in the world that has so much deprav'd and depriv'd man of his understanding, and led him aside from the

simple, innocent ways of God and Nature, since his original fall, as *Custom* and the *Example of the Crowd*. As in the government and ordering of Families, if the good man of the House say to his Wife, *It will be best for us to order the affairs of our House so-and-so*—yes (presently she answers) *it is true; but then what will People say of us? How strangely they will talk! And what a base Report we shall give occasion to be raised of us? If we do only those things that are proper and necessary to preserve the Health of our Bodies and Minds, how many stinging, sneaking Names will they call us, etc.?* And by this learned lecture the silly man is overpersuaded to continue on his old rode of *Excess* and *Superfluity*, to the Displeasure of God, Injury of Nature, Prejudice of his Families Health, bad Example to his Children, and impairing of his Estate; and all this merely to avoid the *Chat* and *Censorious Tattle* of a few *Gossips*, the wagging of whose tongues is no more to be valu'd by any Wise Man, than the *Chattering of Magpies*, or the *buz of flies* in Autumn."

Natural and Perverted Appetites.—We heartily endorse the following remarks by Justin Edwards; they offer a complete answer to the arguments of those who plead that the appetite is an infallible guide in the selection of food:—

"Natural appetites, such as are implanted in our constitution by the Author of nature, do not by their gratification increase in their demands. What satisfied them years ago will satisfy them now. But artificial appetites, which are formed by the wicked practices of men, are constantly increasing in their demands. What satisfied them once will not satisfy them now. And what satisfies them now will not satisfy them in the future. They are constantly crying, 'Give! Give!' And there is not a man, who is in the habitual use of ardent spirits, who is not in danger of dying a drunkard. Before he is aware, an intemperate appetite may be formed, the gratification of which may prove his temporal and eternal ruin. And if the practice should not come to this result in regard to himself, it may with regard to his children and to his children's children. It

may extend its baleful influences far and wide, and transmit them, with their innumerable evils, from generation to generation."

How People Get Sick.—An old writer on health, after exhorting his readers to take abundance of out-of-door exercise and to be satisfied with a simple diet, remarks very pungently,—

"But if you will be so habituated and wedded to your unhealthful Customs, that you value not whether Nature be weak and impotent, tender and unhealthy, then you may mix your food with all the *Varieties* that the *East* and *West-Indies* produce, you may make your drink as *strong and cordial* as you list, you may make all your *Preparations* *Alamode de France*, you may *Boil* and *Roast all your food to pieces*, till there can be no more *nourishment*; then you may wrap yourselves up in *Furs*, and wear a *brace of Night-Caps*, and *bury* yourselves every night *over head and ears* in a *Down-Bed*, *barricado'd* with a *double range of curtains*, keep your *House close*, and be sure that you screen yourselves up by a *lusty Cole fire*, and fortifie your windows with those *Shutters* that you may see no light, nor feel any Air; and when it is nine or ten o'clock in the morning, look that you have a good *rousing Fire* in your chambers, and *Breakfast ready*, and two or three hours after let a *plentiful Dinner* of varieties be made ready, with strong and inflaming *Liquors*: This is the Trade that many Thousands of this Nation use, as if they studi'd to bring Diseases upon themselves, and to *dig their Graves* with their own Teeth: for in the midst of all their Affluences, wherein they esteem themselves happy, they are yet most miserable."

What It Costs to Smoke.—What it costs to smoke is shown by the following computation, upon the basis of a weekly expenditure of \$1.00, the amount, \$26.00, being brought in as capital at the end of every six months, at 7 per cent per annum, compound interest. It amounts at the end of

5 years to	\$304.96	45 years to	\$15,680.59
10 "	735.15	50 "	22,423.98
15 "	1,341.97	55 "	31,936.19
20 "	2,193.91	60 "	45,354.11
25 "	3,405.37	65 "	64,281.41
30 "	5,108.56	70 "	90,980.22
35 "	7,511.08	75 "	128,641.54
40 "	10,900.07	80 "	181,773.12

LITERARY MISCELLANY,

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

BE CONTENT.

It may not be our lot to wield
The sickle in the ripened field;
Nor ours to hear, on summer eves,
The reaper's song among the sheaves;

Yet where our duty's task is wrought
In unison with God's great thought,
The near and future blend in one,
And whatsoe'er is blended is done.

And ours the grateful service whence
Comes, day by day, the recompense;
The hope, the trust, the purpose stayed,
The fountain, and the noonday shade.

And were this life the utmost span,
The only end and aim of man,
Better the toil of fields like these
Than waking dreams and slothful ease.

But life, though falling like our grain,
Like that, revives and springs again;
And, perished here, how blest are they
Who wait the future harvest day.

—Sel.

"A CUP OF COLD WATER."

"It's such a pity," said Mrs. Lee, and she turned her eyes from the window. A man had just passed, and it was of him the lady said, "It's such a pity."

"A greater pity for his wife and children," said Mrs. Lee's sister.

"Oh, dear! It's a pity for all of them," said Mrs. Lee, in quite a troubled voice. "Why doesn't the man drink cold water when he is thirsty, and not pour burning liquor down his throat? I've thought more than once of meeting him with a cool glass of water as he came by, hoping he would turn back to his shop, and not keep on to Huber's tavern."

"That would be too pointed," said the sister.

"It might do good," Mrs. Lee went on. "Suppose he did feel a little annoyed, he would hardly refuse the cool drink, and once taken he might not feel so strongly drawn toward Huber's tavern. The next time I

saw him coming, I'd offer the drink again, and with a pleasant word. I could ask about his wife, and children, and show that I felt interested. I'm sure, sister, good would come from it."

The sister did not feel so hopeful. "It will take more than a glass of water to satisfy his fiery thirst, and then, you know, Barclay is easily offended. He would understand just what you meant, I fear, and grow angry and abusive."

Little Kate, who had been listening to her mother and aunt, said quite earnestly, "I don't believe it would make him angry to offer him a cool drink of water."

The two women looked at each other, but did not answer her.

Mr. Barclay was a carpenter. He had been very well off, but would take a glass of liquor now and then. This led him into the company of those who visit taverns, and by them he was often drawn away from shop and home. So neglect of business was added to the vice of drinking, and the carpenter's way in the world turned downward.

Mr. Barclay had several children. The youngest was named Fanny, and she was just four years old. He was very fond of her, and often struggled with his appetite on her account. Many times had he gone backward and forward before the tavern door, love for Fanny pleading against love for rum, and urging him to spend the few pennies in his pocket for a toy, or some candies, instead of for beer. But the dreadful thirst for beer had always got the mastery. Poor man!

On the morning after Mrs. Lee and her sister were talking about him, it happened that Mr. Barclay was without a penny in his pocket. What was he to do? Not a single glass of liquor could be had at Huber's tavern, for he was in debt there, and they had refused to trust him until the old score was paid. But how was he to go through all

that day without drink? The very thought quickened his craving thirst.

He opened a bureau draw to get a handkerchief, when something met his eyes that made him pause with a strange expression of face. He stood gazing with an irresolute air, and then, shutting the drawer quickly, turned away to the other side of the room. For some time he remained there, his back to the drawer. A bitter struggle was going on in his mind. Alas! he was not strong enough for this conflict.

Slowly, step by step, listening, looking just like a thief, Mr. Barclay returned to the bureau, and opened the drawer.

What did he bring forth? It was a little wooden box, only a few inches square; he had made it himself of fine dark wood for his dear little Fanny. The pennies were few, but all that she had received for many months were in this box. She was saving them to buy a present for her father Christmas.

A desperate look was in Mr. Barclay's face as he clutched the box. Hurriedly he took from his pocket a small screw-driver, and in a minute the lid was off. Half the pennies were emptied into his pocket, and then the lid replaced and the box returned to the drawer.

He had scarcely taken breath while the box was in his hand. Now he sat down, like one suddenly robbed of strength, and panted. The dark flush went off his face, and he looked pale and guilty.

"Papa!" It was Fanny herself. The loving child came in and put her arms around his neck. It was as much as he could do to keep from pushing her with strong arms away.

"Are you sick, papa?" The child had caught a glimpse of his pale, disturbed countenance.

"I don't feel very well," he answered. His voice had so strange a sound to his own ears that it seemed as if some one else were speaking.

"I'm so sorry," and Fanny drew her arms tighter around his neck, kissing him.

This was more than the wretched man could bear. Rising hurriedly, and almost shaking off his child, he left the house and

started for the shop. He did not go to work immediately, but sat down on his bench. He had no heart to work just then.

"Oh, Jim Barclay! he cried out at last, in a tone of mingled shame and anguish, "that you should come to this."

He got up and walked about like one bewildered. Just then a man rode up to his shop. "Is that shutter ready for me?" he asked.

"It will be done to-morrow," answered the carpenter, hardly noticing what was said to him.

"Just what you told me yesterday," said the man roughly. "The fact is, Jim Barclay," the man added, "there's no dependence in you any longer, and I shall take my work somewhere else."

He was in no mode to bear patiently a hard speech from any one; so he replied as roughly, and the customer rode off in anger. Barclay stood looking after him, his excitement gradually cooling until the blindness of passion was gone.

"Foolish every way;" he muttered, turning slowly to his work-bench and taking his plane. "It was n't so once. No dependence in Jim Barclay."

He was hurt by the accusation. The time was when no mechanic in the neighborhood could be more depended upon. If Barclay promised a piece of work, it was sure to be ready. Alas! how changed! He was just as fair in promise now—just as sincere, perhaps, when his word was given—but in performance, how slow! He would start in earnest every day, and get on very well until the desire for liquor grew strong enough to tempt him off to Huber's tavern for a drink. After that, no one could count on him.

Some panels of the unfinished shutter lay on Barclay's bench. He began to grow worried,—just as it had been with him many times. But where to begin his day's work, which of his customers to serve first, he did not know. His hands were unsteady; a sense of heaviness weighed down his limbs; in body and mind he felt wretched. He thought of Huber's tavern and a refreshing glass. Just one glass, and his shattered nerves would be steadier for the day's work. Then he thought of the pennies in his pocket,

the treasure of his dear little Fanny, stolen from her that morning; and such shame fell upon his heart that he sat down upon his work-bench and groaned in pain.

"I'll get one glass," he said, starting up, for I must have something to put life into me. The pennies are only borrowed, and I'll return them two for one. Just one glass to make me all right," and off he started for the tavern.

Between the shop and the tavern was a pleasant cottage. Mr. Barclay was nearly opposite this cottage, when out ran a child, holding in her hands a small glass pitcher of water, her golden hair tossing in the wind. She was about Fanny's age, and beautiful as a cherub.

"Won't you have a cool drink, Mr. Barclay?" said the child, stopping before him and offering her pitcher, while her earnest, tender eyes, blue as violets, were lifted to his face.

Surprised and startled by this sudden vision of innocence and beauty, Mr. Barclay did not hesitate for an instant, but took the pitcher and drank almost at a single draught every drop of the pure cold water.

"Thank you, my dear," dropped from his lips as he handed back the empty vessel, and then he stooped and kissed the child. She did not turn from him and go back into the house, but stood between him and the little tavern gazing up his face. He took a step forward. The child caught his hand. "Oh don't Mr. Barclay! she cried eagerly, and in such a pleading voice that her tones went further down into his heart than human tones had gone for a long time.

"Don't what, little darling;" he asked, bending toward her in new surprise.

"Don't go to Huber's any more," answered the child.

Mr. Barclay drew himself up and stood still as a statue. The child looked at him with a half scared expression, but she kept firmly hold of his hand. Suddenly catching his breath, he stooped quickly and touched the child's fair forehead with his lips. He said not a word, turned resolutely and went striding down the road in the direction of his shop.

From the window of the cottage, mother and aunt looked on the scene in surprise. The act was her own. They had no hint of the purpose until they saw her cross the road with the pitcher of water in her hand. Her own act, did I say? Let me lift your thoughts higher. God's love and pity for the poor drunkard had flowed into the child's heart and moved her to do just what she did. So it was God acting through her just as he acts through every one of us when we try to do good to others. Think of this! God working mercy through us,—making us angels of mercy.

Mr. Barclay returned to the shop, took off his coat and went to work. The cool water, but more the good resolution the child had awakened in his heart, gave tone and refreshment to body and mind. His nerves, all unstrung when he started to the tavern, were steady now. No tremor ran through his hand as he grasped the mallet, chisel, or plane. He worked with a pleasure not felt for a long time.

After an hour this feeling began to wear off and the old heaviness and thirst for liquor returned. His thoughts went to Huber's tavern and the tempting liquor there. But there was something in the way that he could not pass; no fierce lions, but a pure and innocent child. He felt sure that when she saw him coming along the road she would meet him with her sweet pleading face and pitcher of water, and to pass by would be impossible. "Go around by the old mill," said the tempter, "and the child will not see you."

He hearkened a moment; then, with an almost angry tone, he said,—

"No, no, no! God's angel met me in an evil path and turned me back. I will not go around by any other way."

There was a spring not far from his shop. He drank freely at this, and then, refreshed, took up his work again. How clear his mind was,—clearer than it had been for a long time. Like a beautiful picture was the image of that beautiful child meeting him in the road and offering her pitcher of water. It was always before him, and the longer he looked upon it the softer his heart became, and the stronger his good resolutions.

For the first time in months, Mr. Barclay came home that evening sober and in his right mind. What throbs of joy his pulse gave as he saw the look of happy surprise in his poor wife's face, and felt the delight of dear little Fanny's heart as she sprang into his arms and hugged him in a way that told what a new gladness was in her soul. Not until he had returned the pennies to her box did the red spot of shame fade from his manly face.

Mr. Barclay was never seen in Huber's tavern again, nor any other tavern.

"If," he said to a friend, years afterward, "the old desire came back, and my thoughts went off to Huber's tavern, it never got past the white cottage, for out from its porch I would always see coming to meet me, pitcher in hand, that Heaven-sent child, and to have passed her would have been impossible."

PROF. BAIN ON CLASSICAL EDUCATION.

WITHIN the last few years many of our most prominent educators, especially those who have had their views of matters broadened by a liberal scientific education, have been getting their eyes open to the fact that most students who acquire what is termed a liberal education, spend a large share of their time in the study of Greek and Latin to no purpose except to obtain a mass of useless information, at least ninety-nine one-hundredths of which will be forgotten almost as soon as learned, simply because it cannot be utilized in the practical affairs of every-day life. One of the strongest arguments which has been urged by the supporters of the old methods of education is that a thorough knowledge of Greek and Latin is necessary to a proper understanding of English words. Prof. Bain, in his excellent work, entitled, "Education as a Science," thus effectively answers this argument:—

"There being several thousands of our words obtained directly or indirectly from the Latin, it may be supposed that we should go direct to the fountain head, and learn the meanings in the parent language. But why may not we learn them exactly as they occur in the mother tongue? What economy is there in learning them in another place? The answer must be, with a qualification to

be given presently, that the economy is all in favor of the first course. The reasons are plain. For one thing, if we learn the Latin words as they occur in English, we confine ourselves to those that have been actually transferred to English; whereas in learning Latin as a whole, we learn a great many words that have never been imported into our own language. The other reason is probably still stronger, namely, that the meanings of a great number of the words have greatly changed since their introduction into English; hence, if we go back to the sources, we have a double task; we first learn the meaning in the original, and next the change of meaning that followed the appropriation of the word by ourselves. The meaning of the word 'servant' is easiest arrived at, by observing the use of the word among ourselves, and by neglecting its Latin origin; if we are to be informed what 'servus' meant in Latin, we must learn further that such is *not* the present meaning, so that the directing of our attention to the original, although a legitimate and interesting effort, does not pertain to the right use of our language."

Russian Babies.—A correspondent of the *New York World*, speaking of Russian babies, describes as follows what one sees in the house of a Russian peasant:—

He looks curiously at one odd little bundle laid upon a shelf, another hung upon the wall on a peg, a third slung over one of the main beams of the roof and rocked by the mother, who has the cord looped over her foot.

"Why, that is a child!" cries the traveler, with a feeling similar to that experienced on treading upon a toad which was supposed to be a stone.

"Why, what else would it be!" answers the mother.

Having learned so much in so short a time, the inquisitive traveler wishes to inform himself about the habits of the creature in the bundle; but his curiosity being somewhat dampened by the extreme dirt of the little figure he inquires of the parent when it was washed.

"Washed?" shrieks the horrified mother, "washed! what, wash a child! You'd kill it."—*Sel.*

"CLEAR GRIT."

YOU are fortunate if you possess this quality, and still more fortunate if you are compelled to use it. Great success is not possible without great effort. If you meet with no trials, no resistance in your course, if you float lazily down the stream of time, all things seeming to join in aiding you on the way, and in warding you from every blow, you will live and die without an achievement worth recording. What you need is opposition, and the pluck to overcome it. If you are a stranger in a strange place, you must make acquaintances and friends, and, by deserving, keep them. If you are without money, you must rely upon your own honest efforts to procure it. If you are destitute of patronage in your calling, you must have the pluck to work and wait until you secure it by proving yourself worthy of it. Are you tempted to forsake the path of strict integrity and rectitude? You must stand firm. Does the task before you seem difficult,—do you think it impossible? Nerve yourself for the conflict, and resolve that you will succeed; human energy and perseverance will enable you to do so. I commend to you the words of Holmes:—

"Be firm; one constant element of luck
Is genuine, solid old Teutonic pluck.
Stick to your aim; the mongrel's hold will slip,
But only crowbars loose the bulldog's grip;
Small though he looks, the jaw that never yields
Draws down the bellowing monarch of the fields."

Like unto pluck, if not in fact a part of it, is self-reliance—a prominent characteristic of all really successful men. This quality you should cultivate. Learn to depend upon your own exertions, and you will develop a reserve power that will serve you in every emergency. If you cling to another whom you think stronger and wiser than yourself, you will always be a vine—never an oak. Like the oak, you will gain strength by breasting the storm, and of your own might resisting it. You are not, however, to scorn or reject the advice and assistance of those older and more experienced than yourself. On the contrary, you should accept them gladly and appropriate them, making them a part of your own strength. Thus used, wisdom, received by precept from others,

will increase rather than diminish your self-reliance. To this end, that you may have self-reliance, you must have self-respect. Think well of yourself. Do not depreciate your own powers. Remember that what man has done, man can do. Remember, too, that we all began life on a perfect equality, and that there is no royal road to success. Men are not born great, and, in this country especially, we may all take pride in saying that there is a fair, open field, with equal chances for all, and special favors for none. The victory in the end is for the most deserving, persevering, self-reliant and courageous workers.—*Geo. W. McCrary.*

True Education.—Education does not commence with the alphabet. It begins with a mother's look—with a father's nod of approbation, or a sign of reproof—with a sister's gentle pressure of the hand or a brother's noble forbearance—with a handful of flowers in the green and daisy meadow—with a bird's nest admired but not touched—with humming bees and glass bee-hives—with pleasant walks in shady lanes—and with the thoughts that are uttered in sweet and kindly tones, and words that mature to acts of benevolence, deeds of virtue, and to the perception of all good.—*Sel.*

Writing Materials.—The materials used for writing on have varied in different ages and nations. Among the Egyptians, slices of limestone, leather, linen, and papyrus—especially the last—were universally employed. The Greeks used bronze and stone for public monuments, wax for memorandums, and papyrus for the ordinary transactions of life. The kings of Pergamus adopted parchment, and the other nations of the ancient world chiefly depended on a supply of the paper of Egypt. But the Assyrians and Babylonians employed for their public archives, their astronomical computations, their religious dedications, their historical annals, and even for title deeds and bills of exchange, tablets, cylinders, and hexagonal prisms of terra cotta. Two of these cylinders, still extant, contain the history of the campaign of Sennacherib against the kingdom of Judah, and two others, exhumed from the Birs Nimroud, give a

detailed account of the dedication of the great temple by Nebuchadnezzar to the seven planets. To this indestructible material, and to the happy idea of employing it in this manner, the present age is indebted for a detailed history of the Assyrian monarchy; whilst the decades of Livy, the plays of Menander and the lays of Anacreon, confided to a more perishable material, have either wholly or partly disappeared amidst the wreck of empires.—*Sel.*

The Missing Saw-Mill.—The other day T. G. met an old friend, who was formerly a prosperous young lumberman up North, but whose habits of drinking resulted, as they often do, though he has since reformed, and is trying to do better.

“How are you?” said T. G.

“Pretty well, thank you, but I’ve just been to a doctor to have him look at my throat.”

“What’s the matter?”

“Well the doctor couldn’t give me any encouragement. At least he couldn’t find what I wanted him to find.”

“What did you expect him to find?”

“I asked him to look down my throat for the saw-mill and farm that had gone there.”

“And did he see anything of it?”

“No, but he advised me if I ever got another mill to run it by water.”—*Detroit Free Press.*

German Wives.—The culinary art forms a part of the education of women in Germany. The well-to-do tradesman, like the mechanic, takes pride in seeing his daughters good house-keepers. To effect this object, the girl, on leaving school, which she does when about fourteen years of age, goes through the ceremony of confirmation, and then is placed by her parents with a country gentleman, or in a large family, where she remains one or two years, filling what may be termed the post of a servant, or doing the work of one. This is looked upon as an apprenticeship in domestic economy. She differs from a servant, however, in this, that she receives no wages; on the contrary, her parents often pay for the care taken of her as well as for her clothing. She next passes, on the same conditions, into

the kitchen of a rich private family, or into a hotel of good repute. Here she has control of the expenditure of the servants employed in it, and assists personally in the cooking, but is always addressed as Miss, and is treated by the family with deference and consideration. Many daughters of rich families receive similar training, with this difference, however, that they receive it in a princely mansion or royal palace. There is a reigning queen in Germany at the present time who was educated in this way.—*Sel.*

Waste of Life by Intemperance.—Dr. Richardson gave it as his opinion, some time ago, that “were England converted to temperance, the vitality of the nation would be increased one-third in value; or, in other words, nearly 227,000 lives would be saved to us every year. This is a startling statement; but, after careful investigation, Dr. Kerr thinks it much nearer the truth than many were supposed to believe. His own calculations give 200,000 as the number of deaths resulting from drinking, of which 128,000 may be traced to drunkenness, and the rest to more or less moderate uses of alcohol.”—*League Journal.*

An Unsanctified Smell.—A Christian worker from Boston was holding some evangelistic services in a neighboring town. At the conclusion of one of the meetings a deacon of the church came to him and said,—

“So you think you are sanctified, do you?”

“Well, yes, I rather think I am.”

“Then you think that you can’t sin any more?”

“Oh, no! I do not think that; I am afraid I shall.”

“Well,” said the deacon, “I don’t think I am sanctified.”

“No,” replied the brother, with a little hesitation and deliberation, “I should not think you were; you don’t smell like a sanctified man.”

The deacon was soaked with tobacco from head to foot. The conversation closed; he went home and thought. For the first time in his life the idea dawned on him that there was any difference between the smell of a sanctified man and an old tobacco-user. He

could not readily dismiss the matter from his mind. The words stuck to him, until at length he renounced the filthy weed, and now it is to be hoped smells more like a sanctified man. Surely when men lay apart "all filthiness and superfluity of naughtiness," pipes and tobacco will be quite likely to be discarded with the other abominations.—*The Wayside.*

Life.—The mere lapse of years is not life. To eat, and drink, and sleep; to be exposed to darkness and the light; to pace round in the mill of habit, and turn thought into an implement of trade,—this is not life. In all this, but a poor fraction of the conscientiousness of humanity is awakened, and the sanctities still slumber which make it worth while to be. Knowledge, truth, love, beauty, goodness, faith, alone can give vitality to the mechanism of existence. The laugh of mirth that vibrates through the heart—the tears that freshen the dry wastes within—the music that brings childhood back—the prayer that calls the future near—the doubt which makes us meditate—the death which startles us with mystery—the hardship which forces us to struggle—the anxiety which ends in trust,—are the true nourishment of our natural being.—*James Martineau.*

—An exchange states that the "natives of the Orkney Islands are said to enjoy good health and to live long. For these blessings they are indebted entirely to the bracing climate and their own healthful out-door occupations. A young woman from one of these islands was asked recently whether her people were generally long livers. With an unconscious naivete she replied, 'Yes, they live to a great age; there's no doctor on the island.'"

—"You are always doctoring that clock," said a physician to one of Benson's men; "if I were to treat my patients so I should lose my credit." "Ah," retorted the man, "the sun discovers all my little blunders, but the earth covers yours."

—Old merchant (to his son)—"John, do you remember what the first duty on tea was?" John—"I should think, sir, that the first duty on T was to cross it."

POPULAR SCIENCE.

Ancient Agricultural Implements of Stone.

—In the rich, alluvial soil about the mouths of the Missouri and Illinois rivers are found many of those ancient stone implements used by the Mound-builders in their rude agriculture. They are all chipped from flint, or a hard, silicious limestone, and some of them beautifully made. Some are nearly a foot in length, and six inches wide at the broader end. Some are made to be fastened to handles, like our modern spades. Others resemble our modern hoes, having a deep, lateral notch, to facilitate the fastening to a handle. Some of these stone hoes are made with such ingenuity as to have been effective implements.

Other implements were evidently made to fasten to some kind of stock to be pulled through the ground like a plow. As these ancient people had no domestic animals for this purpose, it is probable that manual force was used to perform the work. The broad cutting edge of these stone implements was highly polished from long use by the attrition of the soil.

The evidence is very strong that these ancient people lived principally on corn and vegetables, which they cultivated to a considerable extent.—*Science.*

Depraved Brutes.—A writer in *Nature* thus describes a curious instance of perversion of taste in lower animals:—

"While living in Australia I kept at different times several koalas,—all taken young. One of these was inordinately fond of tobacco in any form. He would chew and swallow the strong Victorian black tobacco with the greatest gusto; and one, to which I gave a foul clay pipe saturated with tobacco oil, devoured the whole of the stem. Sitting on the nape of my neck, his usual place when I was writing or reading in the evening, 'Ka-koo' would frequently stretch out one hand, take the pipe from my mouth, and begin to chew it if not promptly interfered with. During the day he passed most of his time rolled up on the rafters of the roof, bush houses being devoid of a ceiling, and on hearing the clinking of glasses, which betokened the preparation of the evening glass of grog, he would hurry down from his perch to receive his modest share of whisky and water. If a spoon were dipped in the raw spirits and given to him, he would take it in both his paws and lick it dry with manifest apprecia-

tion, and could only be prevented from making a raid upon every glass on the table by being tied with a handkerchief by the leg to the back of a chair."

A New Breed of Hogs.—A correspondent of the *Forest and Stream* imagines that he is now at liberty to eat swine's flesh, notwithstanding the prohibition of Moses, because Prof. Cope has recently discovered in Western Texas "a breed of hogs raised there whose hoofs are not divided. The breed was raised from a single hog which unexpectedly was found to have this characteristic. This seems to be rather an instance of creation than of evolution."

Another Comet.—Prof. Swift, Astronomer of the Warner Observatory, at Rochester, N. Y., discovered another large comet on the evening of October 10th. Its rate of motion is quite slow, being in a north-westerly direction, so that it is approaching the sun. It has a very strong condensation on one side of the center, in addition to a star-like nucleus, which indicates that it is throwing off an extended tail. From the fact of its extraordinary size, we are warranted in presuming that it will be very brilliant, and the additional fact that it is coming almost directly toward the earth, gives good promise that it will be one of the most remarkable comets of the present century. This is the fifth comet which Prof. Swift has discovered. There is a possibility that further developments may prove this to be the great comet of 1812, which is being constantly expected, in which event astronomers will have an unusual opportunity to test the spectroscope for the first time upon these eccentric bodies, and ascertain certainly what they are.

Intellect in Brutes.—Not having seen any reference to Cowper's famous hares in any of the notices under this heading that have appeared in *Nature*, I am induced to refer to them, the more so as the creature is rarely credited with much gratitude or intelligence. My information is from Tegg's edition of "The Life and Works of William Cowper," p. 163. Describing, at this place, the capers of his favorite hare named "Puss," who "would suffer me to take him up and to carry

him about in my own arms," our poet adds that "he was ill three days, during which time I nursed him, kept him apart from his fellows, . . . and by constant care, etc., restored him to perfect health. No creature could be more grateful than my patient after his recovery, a sentiment which he most significantly expressed by licking my hand, first the back of it, then the palm, then every finger separately, then between all the fingers, as if anxious to leave no part of it unsaluted; a ceremony which he never performed but once again upon a similar occasion. Finding him extremely tractable, I made it my custom to carry him always after breakfast into the garden. . . . I had not long habituated him to this taste of liberty before he began to be impatient for the return of the time when he might enjoy it. He would invite me to the garden by drumming upon my knee, and by a look of such expression as it was not possible to misinterpret. If this rhetoric did not immediately succeed, he would take the skirt of my coat between his teeth and pull it with all his force." He "seemed to be happier in human society than when shut up with his natural companions," and if these traits do not betoken something more than instinct, it is hard to say where this ends and intellect begins.—*W. Curran.*

Fascination.—A very simple explanation may be offered of the seemingly mysterious facts of fascination, whether in man or the lower animals. Every one knows the old and ludicrous problem requiring us to decide what would happen to a hungry donkey placed at a spot exactly equidistant from two quite equally attractive bundles of hay. In theory, the creature starves, being unable to make up its mind to choose one bundle rather than the other without any reason for such choice. In practice, it is generally supposed that the unsteadiness of this world's affairs would speedily destroy the equilibrium of motives, and leave the donkey free to make its meal of one or the other of the bundles. But in critical emergencies, such as those mentioned in Mr. Curran's letter, when shot and shell are flying rapidly toward their victims, almost instantaneous decision is necessary. The circumstances are such that movement either to the right or to the left would be equally salutary and efficacious, but for the very reason that one movement would be just as good as the other, the mind makes its fatal pause of indecision.—*Nature.*



BATTLE CREEK, MICH., DECEMBER, 1880.

J. H. KELLOGG, M. D., EDITOR.

TERMS, \$1.00 A YEAR.

THE END OF VOLUME FIFTEEN.

ANOTHER year has rolled quickly around, and we find ourselves almost unexpectedly at the close of another volume. We cannot help but feel new courage and zeal in the good work of reform when we take a retrospective view. We have been intimately acquainted with the journal from its infancy, and watched its growth with interest from the start, being from the first interested in, and a thorough convert to, its principles. Fifteen years ago the *Health Reformer*, as the journal was then known, was just being planned. The first number had not yet made its appearance. The friends of reform were few, and it was still a question whether the enterprise would be a success or not. By the combined efforts of a few earnest workers the magazine made its appearance, however, and from that time to the present has appeared regularly twelve times a year. The subscription list which then numbered but a few hundreds, now numbers as many thousands. As we look over the lists we find the names of many still there who were among the earliest subscribers. They have held on faithfully till the present, and we hope are calculating to still continue with us.

The journal has passed through various vicissitudes during the last ten years. Sometimes prosperity has seemed to increase in a wonderful manner, then fortune would seem to frown for a time; but, on the whole, there has been a steady gain in strength, solidity, and we trust, in usefulness. The present circulation of the journal is nearly double what it was about seven years ago when we first became connected with it editorially. When we compare the volumes of the last two years with those of six and seven years ago, we think we can see a very marked change for the better; but the journal is still far short of our ideal, and during the year 1881, we hope to be able to approach a little nearer to what we believe a journal of the professed character of GOOD HEALTH should be. We trust that those of our old friends who have

stood by us so long will still give us their hearty support; and that our new acquaintances, made during the last year, will want to continue with us at least long enough to enable us to become better acquainted. We hope to keep all our old subscribers, and to get as many more during the coming year.

Another Danger from Cigars.—A writer in the Cincinnati *Lancet and Clinic* calls attention to a fact which is of interest to cigar-smokers, though it will not, probably, increase their enjoyment of “fragrant Havanas.” The writer remarks: “Public attention has recently been attracted, through articles in the New York secular press, to the danger of the propagation of syphilis through cigars manufactured by persons already the subjects of the disease. Special advantages for study of several thousand cases of syphilis have convinced us that the dangers referred to are not in the least chimerical, but are of sufficient importance to command the attention of medical men, and, through them, of the proper sanitary authorities.” The author of the article then goes on to give numerous illustrations of the danger to which every smoker is exposed, citing many cases in which the terrible disease has been communicated through this medium. It seems that tobacco, instead of in any degree neutralizing the poison, really increases its virulence.

A Classification of Gluttons.—A French doctor has been studying the subject of gluttony and gluttons, and has presented before the French Academy of Sciences the results of his studies. “First on the list of gluttons he places prelates and priests; secondly, diplomats; thirdly, magistrates; fourthly, superior State functionaries, such as State coun-

cilors and others of similar rank; fifthly, bankers and financial men; sixthly, independent persons, who live on their incomes in idleness; and lastly, artists and literary men. With regard to gentlemen of the brush and chisel, it is the painters who are more addicted to inordinate eating than sculptors, painters of what is called *genre* being more *gourmand* than landscape painters. Women are more greedy than men, milliners being decidedly greater gluttons than dress-makers."

An Error Exposed.—Some years ago an English scientist made some experiments from which he came to the conclusion that water in streams is purified by exposure to the air after it has flowed a few miles. Dr. Frankland and a Miss Halcrow have reinvestigated the matter in a very thorough manner, and at a late meeting of the London Chemical Society reported that this is a mistake. Impure water remains impure after flowing very long distances.

Graham Bread in History.—An exchange contains the following paragraph, which will be of interest to the reader:—

"During the administration of William Pitt, in England, there was a great scarcity of wheat, and in order to make it go as far as possible, Parliament passed a law that all the bread for the army should be made out of unbolted wheat meal. History states that the result was such an improved condition of health among the soldiers as surprised them, and also their officers and the surgeons. The latter declared that never before were the soldiers so healthy and robust, and that disease had nearly disappeared from the army. For a long time this kind of bread was used almost exclusively, but when wheat became once more abundant, its use was discontinued."

Consumption in Cows.—According to the *London Medical Record*, "Dr. Heath, president of the American Farmers' Club, recently read a very important paper before that society on the subject of tuberculosis in domestic animals, and some of its effects on human

health. He says that this disease prevails extensively among such animals all over the world, and especially in populous and crowded localities. Cows which are kept shut up in close, foul air, as is the case with large numbers in and about London, are very liable to it. He says that observations in Mexico have led to the conclusion that thirty-four per cent of all beasts slaughtered there are more or less affected with this disease, and he is of the opinion that fifty per cent of the cows kept in large towns are thus diseased. The fact that this is not more generally recognized is of course owing to the animals being slaughtered before the disorder has attained any very noticeable development. According to Dr. Heath, if cows, like human beings, were allowed to die from natural causes, the proportion succumbing to tuberculosis would be quite as great, and probably much greater."

Singular Homeopathy.—According to the *Pacific Medical and Surgical Journal*, the authorities in charge of the Sacramento county hospital recently discharged the homeopathic physician in charge on account of the large expense incurred by him for quinine, opium, and other drugs, and appointed a "regular" in his place for the purpose of economizing the expenses of the hospital.

Mohammedan Medical Treatment.—It is stated that the Sultan of Morocco lies ill from the effects of poison administered in his food. Being a good Mohammedan, he adopts a Mohammedan remedy for his malady, "and has sent a faithful dervish to Mecca with a bag of gold to endeavor to procure the loan of the broom with which the Sacred Kaaba is swept. The dervish is also instructed to bring back some pieces of the cloth which covers the holy stone. If the Sultan can get the broom to hang up in his bedroom and the bits of cloth to wear on his person as amulets, he thinks his restoration to health will certainly follow."

Of about equal service as remedies for disease are the little copper and zinc trinkets sold under various alluring titles, and supposed to accomplish almost miraculous cures

by generating electrical currents, which, it is claimed, work their way into the body "after the fashion of a corkscrew," or in some equally absurd manner. These remedies are equally as effective as the carrying of a horse-chestnut in the pocket to keep off rheumatism. They undoubtedly do accomplish some cures by exciting the imagination.

An Unwashed Multitude.—At the recent Sanitary Congress in England an eminent sanitarian remarked that "in Great Britain at this day thousands upon thousands of the poor are never washed clean from their birth to their death, unless they go to prison or to the workhouse," assigning as the reason that no bathing accommodation is supplied for the use of the poor, thus enabling them to obtain cleanliness "without money and without price." We very much like the suggestion made by the speaker that "there should be baths at all schools, and complete washing should be a part of education, as those who are accustomed to regular personal washing in youth will not subsequently abandon it."

There can be no reason adduced why the rules of health should not be taught, both theoretically and practically, as thoroughly as the principles of grammar and mathematics. We hope the time may soon come when the necessity of school instruction in hygiene will be more thoroughly recognized.

Buckwheat as Food.—According to the *American Miller*, a French scientist who has lately been investigating buckwheat gives the following as the result of his researches: "Buckwheat cakes are equal to pure white bread as regards the phosphates, or bone-making material, and nitrogenous principles which they contain, and are superior to bread in fatty matters."

Tobacco-Poisoning.—Dr. Wm. O'Neil reports in the *Medical Bi-Weekly* a case of a woman who nearly lost her life by poisoning from an application of tobacco to a wound to stop bleeding. When found, she was unconscious, and would doubtless soon have died, had not the doctor discovered the cause and removed the tobacco. It was only by the

greatest exertions, however, that she was saved from paying the natural penalty of her folly.

After so many examples of this sort, it is most astonishing that people can still be found who will argue that tobacco is not a poison; that it does not hurt them if it does other people; and that they "will die if they give it up." We unhesitatingly venture the assertion that no man ever yet died from giving up the use of tobacco. This fascinating poison holds in bondage thousands of human beings who really believe themselves dependent upon it for health, comfort, even life, while they are in reality all the time being made miserable, losing their health, and ultimately destined to die prematurely in consequence of their devotion to the filthy weed.

Intemperance and Crime.—The influence of the use of alcohol upon the frequency of crime is well indicated by the comparative number of violent deaths that occur in countries where the use of alcohol is very general and those in which a much less quantity is used. Such a comparison may be made between Italy and England. The former is on the whole a temperate country, as very little wine or other alcoholic beverage is used by the common people of that country. In England, the use of beer, wine, and other liquors is almost universal. The criminal records of these two countries show that in Italy the number of violent deaths occurring annually is 242 to the million, while in England there are 757 to the million, or almost three to one.

An English Physician on Tobacco.—Dr. Goly, an eminent English physician, writes as follows regarding tobacco:—

"There was another habit also in which my patient indulged, and which I cannot but regard as the curse of the present age. I mean smoking. I know of no single vice which does so much harm. It is a snare and a delusion. It soothes the excited nervous system for a time, to render it more irritable and feeble ultimately. I believe that cases of general paralysis are more frequent in England than they used to be; and I suspect that smoking tobacco is one of the causes of that increase. I believe, if the habit of smok-

ing advances in England, as it has done for the last ten years, that the English character will lose that combination of energy and solidity that has hitherto distinguished it, and that England will fall in the scale of nations."

Tobacco Not a Protective against Cold and Miasm.—In England the use of tobacco is often defended by the plea that it is necessary to protect the system from the deleterious influence of the cold and fog which are so common in that country in the winter and spring. The *London Lancet*, a leading medical journal, well exposes this fallacy by showing that tobacco does not destroy poisons in the air, and so does not protect the system from the miasmatic influence of the fog. It also shows that tobacco cannot protect the system against cold, since it greatly depresses the action of the heart and hence disturbs the circulation.

French Non-Smokers.—The celebrated Frenchman, M. Gambetta, has been a great smoker, but has recently been ordered by a sensible physician to abandon the habit. The Paris correspondent of the *Daily News*, in noticing this fact, remarks that "all the tough old Frenchmen still in the enjoyment of unimpaired mental faculties never smoked. M. Dufaure, M. Barthélemy, St. Hilaire, Victor Hugo, M. Etienne Arago (brother of the astronomer), belong to the non-smoking school of public men. So did M. Thiers, M. Guizot, M. Crémieux, M. Raspail, and the octogenarian Comte Benoit d'Azy, who lately died in full possession of his mental faculties."

A New Help for the Deaf.—Dr. Thomas, of Philadelphia, describes an instrument to aid the deaf in hearing, which he claims is much more effective than either the audiphone or the dentaphone. This instrument "consists simply of a small rod of hard wood—a convenient size being about two feet long and a quarter of an inch thick—one end of which is placed against the teeth of the speaker, the other resting against or between the teeth of the person hard of hearing. If the speaker now articulates in a natural tone of voice, the vocal vibrations will be transmitted in

great volume through the teeth and thence to the ears of the deaf person. Later observations show that it will also convey the voice distinctly when placed against the forehead or other portion of the skull of the hearer. It will also convey perfectly audible speech from the skull of one to that of the other, or in its absence such sounds may be conveyed by simply bringing the heads themselves in contact."

Tea-Drinking and Nervousness.—Dr. Fothergill, one of the most eminent of English physicians, expresses the opinion that the great increase in nervousness observable among English women, is very largely due to the use of tea.

ADULTERATION OF FOODS.

ADULTERATION OF BAKING-POWDERS.—The competition in trade and the cupidity of manufacturers, as might reasonably be expected in these days of wholesale and almost universal sophistication, has led to the wholesale adulteration of this widely used commodity. Some time since, Henry A. Mott, Ph. D., government chemist, made an extensive series of analyses of baking-powders and published the results, which showed that many of the most popular brands were largely adulterated with alum, the deleterious effects of which were well known. There was a great disturbance at once among the manufacturers of baking-powders, and it was not long before the attempt was made to convince the public that alum when used in this manner is in no way detrimental to health, it being claimed that the chemical reactions which take place when it is used in raising bread are such as to convert it into a different and wholly harmless substance. In order to answer these specious arguments conclusively and satisfactorily, Dr. Mott undertook an extended series of experiments with alum baking-powders upon animals. He selected healthy dogs and fed them upon biscuit made with the baking-powder. In every case the dogs became sick, some within a few hours, and others after a day or two. As a general rule, they would scarcely touch the biscuit after the first day, preferring starvation to poisoned food. The principal

symptoms arising from the use of the alum baking-powder were sickness, violent vomiting, loss of energy, and weakness of the limbs. The effects upon human beings have been shown to be, "headache, indigestion, flatulence, constipation, diarrhoea, dysentery, palpitation, and urinary calculi." Its effects upon young children are especially disastrous, causing a great increase of mortality through the production of diarrhoea. Among the numerous names of distinguished physicians who protest against the adulteration in question may be mentioned Dr. Willard Parker, Dr. Alonzo Clark, and Dr. Wm. A. Hammond.

Dr. Mott's experiments showed that alum interferes with digestion by rendering the gastric juice incapable of digesting food, and also causes congestion and inflammation of the mucous membrane of the stomach and bowels. By making an analysis of the internal organs of several dogs killed after being fed on biscuit made with alum powders for several days, he was able to detect it in considerable quantities in the stomach, spleen, liver, heart, and other viscera, and also in the blood.

Baking-powders are preferable to soda, saleratus, cream of tartar, and sour milk, in the way these substances are commonly used, and yet they can be avoided, and with benefit to the health. The alum powders are the worst of all compounds used for raising bread. They should never be employed. The presence of alum in baking-powders may be detected by testing for alum the bread made from it, as already directed.

CHEESE.—Like butter, cheese is now much adulterated by the oleomargarine process. Much of it is made of skim-milk to which tallow has been added to replace the cream removed. There is no means by which the fraud can be detected. Cheese is often colored with annatto, by which it is frequently rendered poisonous from adulteration of the coloring matter with red lead and salts of copper. Persons have been seriously poisoned by eating cheese rendered unwholesome in this way. The rind of cheese is often extremely poisonous, in consequence of having been washed with a solution of corrosive sublimate to prevent the attacks of

insects. Mercury has frequently been found in the rind of cheese.

CANNED FRUITS AND VEGETABLES.—Canned fruits and vegetables are often adulterated with coloring and flavoring substances of an unwholesome character. The most common are red coloring matters in tomatoes (not very common in this country), fuchsine and aniline in fruits, and salts of copper in peas and other green vegetables. It occasionally happens, also, that the solder with which the cans are closed, being carelessly used, causes contamination of fruits with lead, it being dissolved by the acid of fruits.

Within the last few years a recipe for preserving fruits has been widely sold which consisted in exposing the fruit to the fumes of burning sulphur, or immersing it in water which had become impregnated with sulphurous acid by such exposure. The deleterious influence of such a preservative is well shown by the fact that it destroys the color of fruit exposed to its action, and deprives it of its finest aromatic flavors. It should never be employed. The plan is not a new one, though presented as such. It has been well known for many years, perhaps centuries. Salicylic acid has been suggested as a preservative; but the quantities in which it would need to be used would render articles preserved with it unwholesome as food.

When the coloring matter is of an earthy character, some portions may be found in the bottom of the can as sediment. When fuchsine or aniline is present, it may be detected by placing in the juice of the fruit, as found in the can, a few threads of white woolen yarn or worsted. After half an hour, remove the threads, and if the coloring matters mentioned are present the threads will be colored red, as will not be the case if only the fruit juices are present.

Adulteration with copper may be strongly suspected if such vegetables as peas have a bright green appearance. The presence of copper will be proven if a bright strip of iron or piece of iron wire placed in the can over night, after adding a few drops of sulphuric acid is found to be coated with a copper-colored film in the morning. A very small proportion of copper may be detected in this way.

LITERARY NOTICES.

THE POPULAR SCIENCE MONTHLY for December opens with Herbert Spencer's second paper on "The Development of Political Institutions." Perhaps it would be well, now that the tumult of party politics is beginning to subside, if our thoughtful citizens would begin to give some serious attention to the science of government; and they can find no better introduction to this subject than these essays of Spencer in the *Popular Science Monthly*. Dr. George M. Beard has a curious and striking paper on the nervous phenomena exhibited by the "Jumpers," or "Jumping Frenchmen" of Maine, having made a careful experimental study of their singular doings on the spot. An extremely valuable series of illustrated articles, contributed by Charles M. Lungren on "Domestic Motors," is begun in the December *Monthly*. The concluding "Sketch of Professor Dumas," the celebrated French chemist (whose likeness is given), is a spicy fragment of biography by Professor Hofmann. The departments are fresh, varied, and full. New York: D. Appleton & Co. Fifty cents per number, \$5 per year.

OUR LITTLE ONES. Boston, Mass.: Russell Publishing Co.

This is one of the most interesting magazines for the little folks that we have ever seen. Its appearance is neat, and attractive; it is full of beautiful illustrations and is printed in large type which can be easily read by the children. Subscription price \$1.50 per annum.

KEY TO THE NATIONAL SERIES OF ELOCUTION CHARTS. Battle Creek: Review and Herald Pub. Co.

The series of Elocution Charts of which this little manual is the key are twelve in number, and are arranged to present in diagrams the general principles of elocution. The author, Prof. G. K. Owen, first prepared a set of charts for his own use in teaching; but finding a general demand for some convenient means of illustrating to the eye, before large classes, the principles of expression, he has now published them. They can not fail to be an invaluable help to all studying and teaching the art of elocution. The key contains some choice selections for elocutionary practice.

THE PLUMBER AND SANITARY ENGINEER. New York City, 140 William Street.

The increasing public interest in Sanitary questions, with the daily demands upon medical men to make or answer inquiries regarding the Sanitary condition of their patients' homes, renders it imperative that every physician should carefully read such a journal as the *Sanitary Engineer* which furnishes the fullest and most accurate information about Drainage, Plumbing,

Water Supply, Heating, Ventilation, etc. Its corps of contributors includes the ablest writers in their several departments in the United States and Great Britain. The journal also contains a large amount of practical information useful for plumbers, architects, and, in fact, everybody, and it ought to be well patronized.

NORTH AMERICAN REVIEW: New York City.

A significant article by the Hon. George S. Boutwell in the *North American Review* for December, entitled "The Future of the Republican Party," is sure to arrest public attention. Written after the result of the recent elections had been ascertained, this article defines the position which the Republican Party is, in logic and in policy, bound to assume toward the Southern States. The other articles in the December number of the *Review* are: "The Discoveries at Olympia," by Prof. Ernst Curtius; "Rational Sunday Observance," by the Rev. James Freeman Clarke; "Southern Statesmen and their Policy," by the Hon. John Jay; "The Ruins of Central America," by Désiré Charnay; "The Distribution of Time," by Dr. Leonard Waldo; "The Public-School Failure," by Richard Grant White; "The Validity of the Emancipation Edict," by Aaron A. Ferris.

APPLETON'S JOURNAL. New York: D. Appleton & Co.

The contents of *Appleton's Journal* for December presents its usual varied and interesting list of articles. The prospectus for 1881 of this popular journal announces that large space will continue to be given to literary and art themes, to discussions of social questions, to critical and speculative essays, to papers, original and selected, that in any way are likely to interest intelligent people, or which will reflect the intellectual activity of the age.

AMERICAN AGRICULTURIST. New York: Orange Judd Co.

This is a paper that every family, both in the city and country, will find it useful to read. It abounds in plain, practical, reliable information, most valuable for in-door as well as out-door work and comfort, and its 800 to 1,000 original engravings in every volume are both pleasing and instructive. In this respect it is pre-eminent and stands alone, and it should have a place in every household, no matter how many other journals are taken. Its illustrated department for youth and children contains much information as well as amusement. Its humbug exposures are invaluable to all classes. Subscription price, \$1.50 per annum.

GOOD COMPANY. Springfield, Mass.

Good Company is a monthly magazine, fresh, varied, and vigorous. It contains a large proportion of good stories by popular writers; also attractive sketches, poems and articles, including no reprinted material. Yearly subscription, \$3.00.

Publishers' Page.

A GRAND RALLY is what we want of all the friends of reform, to double our circulation in the next four weeks. It can be done. If each subscriber will send in his own name with one more, the feat will be accomplished. If one hundred persons will send us one hundred subscribers each, it will be accomplished; or if one thousand will only send us ten each. This would not be much of a task, and we are willing to pay liberally for the work. A number of persons are now engaged in soliciting subscriptions; and it is no uncommon thing for eight to twelve subscriptions to be taken in a day. Not one person in twenty can earn as much in any other way as by canvassing for **GOOD HEALTH**. Several of our agents for subscription books take orders enough for **GOOD HEALTH** to pay all their expenses. Try it, friends. Canvass your own neighborhood if you do not do anything more.

Now is the time to subscribe for **GOOD HEALTH**. We trust that none of our old subscribers feel able or willing to do without it. The subscription price is placed very low, to put it within the reach of every one. Any one who reads each number attentively would not take many dollars for the information found in a single number. Those who are wealthy certainly will not miss the small sum necessary to pay the annual subscription. The farmer, be he ever so poor, can certainly afford to spare one bushel of wheat, or two of corn or oats, in exchange for 384 pp. of reading matter of the character of that furnished in **GOOD HEALTH**. The laboring man can better afford to pay the \$1.00 than not to do so; for if the instruction received should but save him the loss of one day's work by the illness of himself or of his family, he would still be the gainer, for the one day's work would pay for the journal and the suffering would be saved. We have had hundreds of letters from those who voluntarily assert that the journal saves twenty times its cost every year.

A PREMIUM.—We renew the offer made last month to give to every old subscriber who purchases a copy of the Home Hand-Book before Jan. 1, 1881, their subscription to **GOOD HEALTH** next year free. The prices of the book are \$6.25 and \$7.25. It will be ready for delivery very soon. Those who wish to take advantage of this offer must send in the subscription price at once, stating their desire to do so. The Hand-Book is a complete encyclopaedia of hygienic lore, containing a large amount of information to be found in no other volume. It is a ponderous volume of over 1200 pages royal octavo size. The sale with which it is meeting exceeds the most sanguine expectations. The book is sold almost exclusively by subscription, and this is a special offer confined to old subscribers, either those who are now taking the journal or who have previously been subscribers.

GOOD HEALTH for 1881.—We are going to make the next volume of this journal the very best of any yet published. Every number will contain an illustrated article on some practical subject. A very interesting series which will be begun early in the year

will be the "Hygiene of Food." Under the head of "Diseased Food," much new and very interesting matter will be presented. We also have arrangements completed for the publication of a series of articles on the subject of ventilation from the practical pen of the Rev. Dr. Jaekes, a member of the State Board of Health. These articles will present new and original methods by which any dwelling-house, school-house, church, or other building can be cheaply and efficiently ventilated. We shall also have contributions from Dr. Azel Ames, an eminent sanitarian. As we have now got off our hands the large work upon which we have been engaged more or less for the last six years, we shall have more time to devote to the journal exclusively, and shall spare no pains nor expense to make it what its friends desire.

WHAT EVERY SUBSCRIBER WANTS.—A binding cover for **GOOD HEALTH**. Those who have saved the several numbers of the volume will now want to have them bound so that they can be preserved in permanent form. Those who are just commencing to receive the numbers of the new volume ought to be provided with a nice cover which will protect the numbers and keep them in condition suitable for binding at the proper time. Both wants can be supplied at once by the patent binder which is manufactured and supplied at this office. It is the simplest and neatest thing of the kind to be found anywhere. It is not manufactured elsewhere. The price is only 50 cts., and everybody should have it.

GET READY TO WORK.—Every person who wishes to take hold of the canvass for **GOOD HEALTH** ought to have an agents' outfit. Such outfits are now ready and will be sent by return mail on receipt of 25 cents. This small sum does not cover cost, as the outfit includes specimen copies, receipt book, and return blanks; but we make this offer so as to give every one a chance to do something. Take hold and help in the work, friends, and let others have a chance to share with you in the benefits of reform.

ANOTHER OFFER.—We will send a muslin-bound copy of the Home Hand-Book of Hygiene and Medicine on receipt of fifteen subscribers to **GOOD HEALTH** and \$15. A copy of the sheep bound will be sent for eighteen subscriptions. This offer is even better than the cash premiums paid to agents, which is more liberal than that paid by any other publishing house.

We must not forget to remind our friends of the danger of holiday transgressions of the laws of health. Thanksgiving, Christmas, and New Year's are generally devoted to gormandizing. Don't do it, friends. If anything, let the meals be more wholesome on these holidays, which are also idle days, so that the system really requires less nourishment than on other days and is less prepared to endure any sort of dietetic abuse. The mind may be feasted without detriment; but indulgence of the appetite injures both mind and body.

The season of the year has now come when diphtheria, the scourge of early childhood, will be most prevalent wherever proper precautions are not taken to restrict the extension of the malady. The popular little work on this subject published at this office is having a very large sale. Price 25 cts. Canvassers are doing well with it.

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THE AMERICAN Health and Temperance Association.

This Department is devoted to the interests of the American Health and Temperance Association.

THE TEETOTAL CERTIFICATE.

THE beautiful engraved certificate, concerning which so much has been said, and for which we have all waited so long, is at last completed, and on the opposite page may be seen a portion of it called "The Drunkard's Ladder." Those doubting ones who have felt so impatient about the unavoidable delay, will now be convinced that such a thing as the Teetotal Certificate really exists, and that in due time it will be sent to those who are entitled to it. We have been exceedingly annoyed by the delay, but it has been unavoidable. If we should recount one-half of the obstacles which have been surmounted in the completion of the engraving, our story would occupy a great share of this department. We will only say that we have done the very best we have been able to do under circumstances over which we had no control. Of the three artists who have successively had the work in hand, all have been taken sick with fever just after receiving the work, and being unable to report the condition of things, we were obliged to wait until the sick artists recovered sufficiently to write us. At one time we came very near taking a trip to Boston for the express purpose of hunting up the artist who had the work in charge, but from whom we could hear nothing after waiting nearly three months.

But the difficulties are now all overcome, and an edition has been printed, and is ready to be sent out. Some have been already forwarded to their destination. State Societies that have sent in the initiation fees collected will speedily receive their certificates.

The design of the certificate is so comprehensive that it preaches a good temperance sermon to every person who looks at it. The center-piece is a beautiful landscape showing

a lovely cascade in the foreground, from which the crystal water leaps down and spreads out into a calm and placid river. In the upper left-hand corner is a scene which represents tea, coffee, and condiments, with the paraphernalia of their use. In the upper right-hand corner, tobacco, opium, hashish, absinthe, and other narcotics, are represented in a similar manner. In the lower left-hand corner is an inside view of a well patronized bar-room. Everything represented is true to life. In the lower right-hand corner is that portion of the picture represented on the opposite page, "The Drunkard's Ladder." This view is made up, as the reader will readily see, of four smaller views, the first of which represents a family drinking tea or coffee. The young lad who is helping himself to a bottle of mustard, pepper-sauce, or something of the sort, is also drinking a cup of coffee. This is the first step,—the use of condiments and mild stimulants, such as tea, coffee, and similar drinks.

The second scene represents a company of persons using tobacco in its different forms. The two men in the foreground are taking snuff. The man in the rear was represented in the design as taking a chew of tobacco, but the engraver has made his tobacco-box into a cigar case; and the wad of tobacco he was putting into his mouth has been converted into a cigar. At the right is seen the boy who was taking coffee in the first scene, now progressed to the supposed dignity of a cigar smoker. At the extreme left, a lady is represented as indulging in the use of tobacco in the manner common in the South known as snuff-dipping, which consists in rubbing the teeth with a stick, the end of which has been chewed until it forms a sort of brush and then dipped in snuff. This is the second step down on the drunkard's ladder.

FIRST STEP.



SECOND STEP.



THIRD STEP.



FOURTH STEP.



THE DRUNKARD'S LADDER.

The third step is illustrated by a double scene representing at the left two men drinking hard cider, smoking, and preparing for a game of cards. At the right, in the same view, are two young men standing before a bar and about to drink the foaming glasses of ale which they hold in their hands. One of these is undoubtedly the same young man who is seen smoking a cigar in the preceding scene. He has acquired another "manly" (?) habit. This view represents what is termed moderate drinking.

It is not to be supposed that any of the persons seen in the three views described would disgrace themselves or their friends by getting beastly or even hilariously drunk; but they are in the downward road. They are going down to destruction on the drunkard's ladder, no matter how secure they may flatter themselves to be in their imagined superior self-control.

The fourth scene represents the last stages of the drunkard's career. At the left is seen a regular old toper filling his glass. His huge nose and bloated cheeks indicate unmistakably that he has for long years indulged his appetite for alcoholic stimulus. Perhaps he never gets so drunk as to be unable to manage his legs, but he has so long accustomed himself to drink that he can take a dozen drinks a day without being disabled for work. Virtually he is drunk all the time, though he might pass for sober with unobserving persons. His face has become coarse and brutal by his long indulgence, and his red eyes show that he is a hard drinker. If he has a family, the red eyes at home, the sorrowful face of his wife, the pinched looks of his children, and their ragged or threadbare garments, tell the same story. The second man, with his hat tilted back upon his head and his features drawn down, with bleary eyes and a generally dilapidated appearance, is a typical representative of the gutter drunkard. The smart and tingle of liquid fire are about the only pleasurable sensations of which his rum-preserved body is capable. It will be noticed that his hands are so unsteady that the contents of the bottle are pouring out upon the floor instead of into the glass. It would have been fortunate indeed if his hand had trembled as much when he attempted to take his first glass.

At the right is seen a man in the last stage of intemperance. Very likely he is the same boy seen at the right in the first view, now grown old in sin, just about to graduate in the school of sensual indulgence. Beginning with the mild stimulation of tea and coffee and highly seasoned food, mustard, pepper, vinegar, etc., he soon advanced to tobacco-stimulation, then to small tipping with hard cider and lager beer. Then he became a confirmed drunkard. He resisted all the entreaties of his friends to reform, and pursued unchecked his downward career, daily increasing his potations of alcohol, until nature could no longer endure the abuse, and delirium tremens maddened his brain. With his will set upon self-destruction, he is seen in the picture in the act of taking the last step. Having gone down to the very bottom of the ladder, in mad desperation he leaps from the last round, and plunges headlong into the abyss of everlasting ruin.

Just below the central portion of the engraving is printed the certificate of membership in the Am. H. & T. Association, together with the teetotal pledge. The certificate is signed by the President and Secretary of the Association, and the pledge by the person to whom the certificate is given.

We have given a very hasty sketch of the engraving, and have not done it half justice in the description, as all will say who have seen it. No pains nor expense have been spared to make it all that our friends could expect, and the chief reason for the long delay has been the great difficulty in finding good artists who could sufficiently appreciate the spirit of the enterprise to work up the details of the design in a satisfactory manner. We felt sure the friends of the H. & T. Association would prefer waiting until something satisfactory could be produced, to having anything so cheap and unsatisfactory as the certificate must have been if produced any sooner under the circumstances.

CERTIFICATES

For signers of Anti-Rum and Tobacco and Anti-Whisky Pledges.

THE question has been asked by one or two correspondents whether persons who sign the anti-rum and tobacco or the anti-whisky

pledge, paying the initiation fee, are entitled to one of the engraved certificates, and if not, whether they are to receive certificates. In answer to these inquiries we will say,

1. The engraved certificate would be quite inappropriate for a person who had not signed the teetotal pledge.

2. The teetotal certificate has never been promised to any but signers of the teetotal pledge. If any have misunderstood, we are not responsible.

3. All who sign either of the pledges will receive a certificate. Those who signed the anti-*rum* and tobacco pledge will receive an appropriate certificate, but not so elaborate and beautiful a design as the teetotal certificate. The same may be said respecting signers of the anti-whisky pledge.

THE EFFECTS OF TEA-DRINKING IN CAMP LIFE.

WE were in Florida, a party of eight, traveling from place to place, pitching our pretty red, white and blue tents wherever fancy led us to believe we should enjoy the most for a few weeks; hunting, fishing, sketching, etc., as the naturalists, artists, or invalids of our little family were inclined. There was plenty of game and a generous supply of stores, among which tea and coffee held an important place. Several months had passed pleasantly, and we were getting far away from the great tide of human life that surges south each year, and point after point of civilization was passed, until we found ourselves in unbroken wildernesses of vast pine forests or the dense hummocks of live oak draped in vines and Spanish moss which hung like a silvery veil over all. Our own boats were now the only means of transportation for ourselves and our goodly quantity of supplies. A colored cook accompanied us, and we found him a most important member of the fraternity. Night after night, the "tea things" having been cared for, he would entertain us all with quaint stories of his adventures with wild animals, and many were the interesting incidents of his long life in the wild woods to which we listened as we sat round the blazing camp fire of the huge pine knots. These entertainments grew more and more frequent, and the hours were kept later, as we all found

we could not sleep, when resort was at last had to our tents.

There were none in the party but found themselves affected in the same way; and thus matters went on for several weeks, the solution of the cause remaining unsolved. We grew tired and worn, and complaints of our loss of sleep and rest were the order of each morning, till one day a report from cook that our tea was all gone, raised a great hue and cry in camp, for how were we to do without this most important of our comforts? Plans were suggested for sending one of the party a long, hazardous journey alone to procure the article from another camp we had heard were "live oaking" up Indian Lagoon. It was, however, abandoned as impracticable, and we concluded to endure the privation as best we could. The very first night after the disappearance of the last tea-leaf we slept without disturbance till daybreak, and in a week were restored to our usual health and spirits. I have not the least doubt that much of the nervous debility we hear of on all sides at the present day is due to the evil effects of this stimulant so universally used; and if people really knew how pernicious it is, it would be abandoned forever.

HELEN S. FARLEY.

FIRST ANNUAL MEETING

Of the American Health and Temperance Association.

THIS meeting was held, according to appointment, Nov. 14, 1879, at 7:30 P. M. After prayer and singing by the choir, the Secretary's report was read, which showed a total membership of 5,625, as reported.

The Treasurer reported the total amount received to be \$721.17 and expenditures \$385.07. Balance in the treasury being \$336.10.

On motion, the Chair was empowered to appoint a committee of three to nominate officers for the next year. The committee appointed consisted of Eld. B. L. Whitney, chairman, Eld. M. B. Miller, and Eld. E. R. Jones.

After remarks by the President respecting the unexpected and remarkable prosperity which had attended the health and temperance work and the general favor with which it had been received, also in explanation

of the delay in the completion of the engraved certificates, a proof of the engraving was exhibited and explained, and the announcement was made that the work was now nearly completed.

On motion, the meeting adjourned to call of the Chair.

SECOND SESSION.

A second meeting was held Nov. 30. After opening of the meeting in the usual manner, Eld. Butler addressed the audience in a very interesting manner for about three-quarters of an hour, being followed by Eld. and Mrs. White who also made very excellent remarks.

A report of the nominating committee being called for, the chairman reported the following names as nominees for officers for the ensuing year:—

For *President*, Dr. J. H. Kellogg; *Vice President*, W. C. White; *Secretary*, Mrs. Nellie J. Fairfield; *Treasurer*, Dr. W. J. Fairfield; *Corresponding Secretaries*, Miss M. L. Huntley, Eld. John G. Matteson, Mrs. J. N. Loughborough, Miss Jennie Thayer, Mrs. Ella E. Kellogg; *Executive Committee*, Eld. James White, Eld. S. N. Haskell, Eld. G. I. Butler, Eld. D. M. Canright, Dr. J. H. Kellogg.

It being suggested by the chairman that it might be well to appoint a committee to revise the Constitution of the Association and make such modifications as might be suggested by experience in the work during the last summer, the Chair was by vote empowered to appoint such committee. The following persons were appointed, Eld. Geo. I. Butler, Eld. S. N. Haskell, Eld. S. B. Whitney.

Adjourned *sine die*.

J. H. KELLOGG, *Pres.*

W. B. SPRAGUE, *Sec.*

ANNUAL MEETING.

THE Executive Committee of the American Health and Temperance Association have appointed Jan. 4, as the time for the annual meeting of Health and Temperance Clubs everywhere. The work to be done at this meeting is as follows:—

1. A report of the work done since the organization of the club and its present standing.

2. The election of officers for the year 1880.

3. The collection of the annual dues of members.

4. The relation of experiences in the work of health and temperance reform.

The date appointed will be a very favorable time for the meeting, as a meeting will be held at that date in nearly every community where a club is organized, in connection with which, if necessary, this meeting of the club could also be held. This occasion will also be a most favorable time for securing names to pledges and organizing clubs where the circumstances will admit.

The number of clubs at the present time is about sixty. There ought to be at least two hundred; and we hope that as large a number as that will be organized between now and the time of the next annual meeting.

REPORTS OF THE STATE SOCIETIES.

BELOW is given a summary of the different State Societies which have thus far been organized. The statements made are as close approximations to the truth as can be made, and are nearly, if not quite, correct. Any corrections made will be gratefully acknowledged. Whatever errors there may be are due to the failure of some societies to send in a full report. It should be mentioned that as the reports were made only till the first of November it is quite probable that very large accessions to the membership have been made which do not appear in this report.

STATES.	Total.	Anti-Run and Tobacco.	Anti-Whisky.	Total.	Clubs Organized.	Cash Received.	Cash Paid Treas.					
California,	353	83	14	121	16	12	363	106	8	\$ 90 85	\$ 29 50	
Dakota,	32						32	1		8 00	7 75	
Georgia,	5						5				1 25	
Illinois,	121	65	15	1	121	81	2	29	00	29 00	29 00	
Indiana,	140	119	5	1	140	125	35	00	35 00	103 50	103 50	
Iowa,	14	140			414	140	103	50	103 50	48 00	48 00	
Kansas,	191	139	1	3	192	142	4	48	00	6 75	6 75	
Kentucky,	27	40			27	42		30	00	30 00	30 00	
Maine,	120	56	14		120	70		195	17	195 17	195 17	
Michigan,	760	660	20	47	13	750	720	10	20	60	15 00	
Minnesota,	107	183	1	35		108	218	3	27	00	15 00	
Missouri,	73	313	24	19	73	356	10	20	60			
Nebraska,	20					20					1 00	
New England,	253	88	3	7	3	256	98	5	58	75	58 75	
New York and Penn,	183					183			28	50	43 25	
Ohio,	112	82	1	8	1	114	96	3	28	50	24 00	
Texas,	1					1					25	
Virginia,	8					8					2 00	
Vermont,	134	69	1	6	1	135	76	1	35	75	35 75	
Wisconsin,	168	43	1			169	43		42	25	42 25	
W. T. and Oregon,	50		1			51					12 75	
State Unknown,											25	
Total,	3272	2080	33	187	7	46	3312	2313	47	\$787	62	\$721

† Full Members. † Pledge Members.

The figures given in the above summary have been corrected up to date.

If there are any discrepancies they are due to the fact that several States have not yet sent in their reports; or if a report of membership has been sent in, no money has been forwarded to the Treasurer of the General Association. It will be seen by reference to the table that we have societies now organized in twenty different States and Territories, a full teetotal membership of 3,272 and a total membership of 5,625, with 47 well organized local associations or Health and Temperance Clubs.

NAMES AND ADDRESSES OF OFFICERS OF STATE SOCIETIES.

INDIVIDUALS wishing instruction respecting the circulation of pledges, organization of clubs, and other information connected with the health and temperance work, can generally obtain the knowledge sought by correspondence with the President or Secretary of the Society organized in the State in which he lives.

The following is a list of the names and addresses of the officers of all State Societies which have been organized up to the present time:—

CALIFORNIA.

President—Eld. S. N. Haskell, Oakland (Pacific Press), Cal.
Secretary—Miss Barbara C. Stickney, Oakland (Pacific Press), Cal.

DAKOTA.

President—Eld. S. B. Whitney, Swan Lake, Dak.
Secretary—D. T. Biggs, Howard, Dak.

ILLINOIS.

President—Eld. R. F. Andrews, Gilman, Ill.
Secretary—Miss Lizzie S. Campbell, Belvidere, Ill.

INDIANA.

President—Dr. Wm. Hill, Rochester, Ind.
Secretary—Sadie Edwards, Kokomo, Ind.

IOWA.

President—Eld. G. I. Butler, Mt. Pleasant, Iowa.
Secretary—Miss Sarah Nicola, Richmond, Iowa.

KANSAS.

President—Eld. Smith Sharp, Ottawa, Kan.
Secretary—Eld. J. Lamont, Mound City, Kan.

KENTUCKY.

President—Eld. S. Osborn, Shepardsville, Ky.
Secretary—Bell Campbell, Elizabethtown, Ky.

MAINE.

President—Eld. R. S. Webber, Richmond, Me.
Secretary—W. H. Blaisdell, Rome, Me.

MICHIGAN.

President—Eld. M. B. Miller, Battle Creek, Mich.
Secretary—Miss Jennie Thayer, “ “ “

MINNESOTA.

President—Eld. H. Grant, Medford, Minn.
Secretary—Mrs. Nettie G. White, Medford, Minn.

MISSOURI.

President—Eld. J. G. Wood, Appleton City, Mo.
Secretary—D. C. Hunter, Nevada City, Mo.

NEW ENGLAND.

President—Eld. D. A. Robinson, S. Lancaster, Mass.
Secretary—Eld. G. F. Haines, “ “

OHIO.

President—Eld. D. M. Canright, Bowling Green, O.
Secretary—Wm. Beebe, Norwalk, Ohio.

PENNSYLVANIA.

President—D. T. Fero, Wellsville, Penn.
Secretary—Mrs. L. A. Fero, Wellsville, Penn.

VERMONT.

President—M. E. Kellogg, Berkshire, Vt.
Secretary—F. A. Porter, N. Fayston, Vt.

WISCONSIN.

President—Eld. G. C. Tenny, Kilborn City, Wis.
Secretary—Mrs. Mary F. Stillman, Madison, Wis.

NEW YORK.

President—M. C. Wilcox, Ox Bow, N. Y.
Secretary—Miss Isadore L. Green, Sackett's Harbor, N. Y.

TENNESSEE.

President—G. K. Owen, Edgefield Junction, Tenn.
Secretary—Julia F. Moore, Goodlettsville, Tenn.

TEXAS.

President—A. W. Jensen, Norman Hill, Texas.
Secretary—Frank Green, Peoria, Texas.

OFFICERS

Of the American Health and Temperance Association.

DR. J. H. KELLOGG,	<i>President.</i>
W. C. WHITE,	<i>Vice-President.</i>
MRS. N. J. FAIRFIELD,	<i>Secretary.</i>
DR. W. J. FAIRFIELD,	<i>Treasurer.</i>

CORRESPONDING SECRETARIES.

MISS M. L. HUNTLEY,
ELD. JOHN G. MATESON,
MRS. J. N. LOUGHBOROUGH,
MISS JENNIE THAYER,
MRS. ELLA E. KELLOGG.

EXECUTIVE COMMITTEE.

ELD. JAMES WHITE,
ELD. S. N. HASKELL,
ELD. G. I. BUTLER,
ELD. D. M. CANRIGHT,
DR. J. H. KELLOGG.

GENERAL INFORMATION.

A Generous Offer.—The publishers of *GOOD HEALTH* have generously offered to print the new temperance quarterly as a department in this journal and send it free of charge to all full members of the Association who are also subscribers to *GOOD HEALTH*. Those members of the Association who are not now subscribers to the journal can easily become so, and when sending in their names if they will mention the fact that they hold certificates of membership in the Association the new department will be added to the copy of the journal sent to them.

Health and Temperance Charts.—We have in course of preparation a series of charts illustrating the principles of health and temperance, for use by ministers, temperance lecturers, etc. Every school and every health and temperance club ought to have a set of these charts. There will be two series, of ten charts each, one devoted to health, the other to temperance. Price, \$10 a set, of ten charts, printed on cloth in colors, and well mounted. Orders will be received at any time. A good many have been taken already.

In consideration of the liberality of the publishers of *GOOD HEALTH* it is expected that every live member of the Am. H. and T. Association will take an active interest in the circulation of the journal, and see that their neighbors as well as themselves become subscribers.

We are now prepared to send certificates to the Secretaries of all the State Societies who are prepared to receive them. In order that they should be sent, two things are necessary; 1. That the initiation fees, which belong to the general association, be collected from the Clubs and soliciting agents, and forwarded to the Treasurer of the General Association, W. J. Fairfield; 2. That a list of the names and addresses—and the pledges signed—of all full members of the Association be sent in. Those who have sent partial lists should immediately send all additional names and the money received.

State Presidents and Secretaries of H. and T. Societies should be active in their efforts to effect the organization of clubs in every community where a sufficient number of signers to the teetotal pledge can be obtained. The winter is the best season of the year for this work, and it is fast passing. Do not let the interest and enthusiasm die out.

Persons who join the Association after Jan. 4, should be required to pay 35 cts. each, since the annual due of 10 cts. is to be paid at or after that time in addition to the usual initiation fee.

We would call the attention of our readers, and all members of the H. and T. Association, to a valuable article by Eld. W. H. Littlejohn on "Oaths and Affirmations" which will appear in the next issue of the *Review and Herald*. The objection to the pledge that it is essentially the same as the judicial oath is thoroughly and satisfactorily met. We regret that the article was crowded out of this department, for which it was intended.

APPOINTMENT.

ALL Health and Temperance Clubs are requested to hold their annual meeting for the election of officers Jan. 4, 1880.

The certificates due members of the Association will be sent at once to the Secretaries of the several State Societies for distribution.

The columns of this department will be open for the publication of reports of interesting meetings, of clubs as well as State Societies, and we hope that we shall receive at least fifty such reports within the next year. Interesting personal experiences are also solicited for publication.

Secretaries of State Societies should see that a supply of pledge papers is sent out to all points where they can be circulated to advantage before Jan. 4, 1880, which is close at hand. It is also important that arrangements should be made wherever practicable for the formation of H. and T. clubs at that time, as it will undoubtedly be a good opportunity, and ought not be allowed to pass unimproved. Ministers, T. and M. Directors, and other competent persons may be appointed and furnished with proper instructions for this purpose. The time is short for preparation, but prompt, energetic action will accomplish the work. Let there be no delay. State Secretaries who have not a supply of pledge blanks, etc., on hand should send for a supply at once.

Work for Club Leaders and Secretaries.—Every leader and secretary of a H. and T. club should make thorough preparation for each meeting of the club in which they are officers. This is important for every meeting, but is especially necessary for the annual meeting to be soon held. A special effort should be made to get out as large an audience as possible, and then to make the meeting so interesting that all will be anxious to come again. The exercises should be made entertaining as well as instructive, and should be varied so as to prevent dullness or monotony. Good music is a very important element in the maintenance of an interest, and pains should be taken to secure it. Good speakers should be secured whenever possible, and when they cannot be obtained, let a number of persons competent to do so, occupy each a few minutes. When this plan is to be adopted, each speaker who is expected to take part should be notified a few days beforehand so that he can make a little preparation. Occasional essays by members, readings, and other appropriate exercises may be introduced as the wants of the club may seem to demand.

Meetings of Clubs.—The time has fully come for the establishment of regular monthly meetings of the Health and Temperance Clubs. It is important that the meeting to be held Jan. 4, be the first of a series of twelve meetings to be held during the year 1880. The cause of health and temperance deserves attention at least once a month, if not more often. We have many other important enterprises, and this is likely to be crowded into the background, as it has been in the past, unless those who have an interest in the subject are wide awake to its importance and do all in their power to keep up a lively interest.

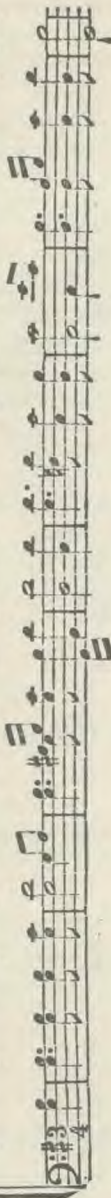
LOOK NOT ON THE WINE.

Words by F. E. BENDIX, 1878.

Music by D. S. HARRIS, 1878.



- 1 Look not up - on the wine That spark - les in its flow, For death is slumb'ring there, Beneath its rud - dy glow.
- 2 Be - hold the gi - ant fiend Who laughs in mock - er - y; He binds the strongest heart, And boasts of vic - to - ry.
- 3 Go thou, un - veil his form, And bid the err - ing flee; Oh, lift the de - mon's mask And let the tempted see.
- 4 Lift up the tempted soul Now fall - en in de - spair, Oh, lead his thoughts a - bove, To God who hear - eth prayer.



No hap - pi - ness it bring - eth, At last it on - ly stingeth; It bit - eth, and it wringeth The heart with bit - ter woe.
 No hu - man hand can sev - er His hands that loosen nev - er Un - til the soul, for - ever Rests in e - ter - ni - ty.
 Implore them to a - wa - ken Ere' hap - pi - ness be ta - ken; While fetters may be shaken, While yet they may go free.
 His arm in might - y pow - er Can bid the de - mon cower, And in temp - ra - tion's hour Will an es - cape prepare.



CHORUS.

Oh, look not on the wine, Oh, shun the glow - ing cup; A de - mon's arms entwine The souls of those who sup,



Attention, Club Secretaries!—Secretaries of clubs are specially requested to take great pains at the coming annual meeting to learn how many persons have been led to abandon the use of the several articles named in the three pledges. Let no effort be spared to obtain this information. This may be done by calling upon members, either publicly or privately, to state whether they have been led to make any reform through signing the pledge, and, if so, what article has been abandoned. Agents who are appointed to circulate pledges should take pains to obtain this information at the time of taking the name of the signer, when possible.

SPECIAL NOTICE.

ALL State Secretaries will please see that a complete list of the names of full members of the Health and Temperance Association is sent to this office immediately. This list is needed by the publishers of *GOOD HEALTH* to enable them to send numbers containing this department to those who are entitled to it. Lists should be forwarded to Miss M. L. Huntley, care of *Review and Herald*. Those who have sent full lists will not need to send again unless in the lists sent the names of pledge members and full members were not distinguished.