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EXPEDIENTS IN HEATING AND VENTILATING BUILDINGS ALREADY CONSTRUCTED.*

ILLUSTRATED.

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[We take great pleasure in presenting the following paper on ventilation by our friend Dr. Jacokes, who, as will be readily seen by the various devices described, is a thoroughly original and practical man.—Ed.]

To secure the greatest convenience, health and economy in heating and ventilating our private homes, and our churches, schools and other public buildings already constructed, is the object of the following paper. To accomplish this purpose two things are to be done,—

1. The warming of buildings with efficiency and economy.
2. The ventilation of buildings so as to secure pure air for the use of the occupants.

The supply of pure air for breathing purposes is of more importance to secure health than the amount of warmth, as breathing impure air is certainly known to be the cause of a large majority of diseases which afflict communities. It prepares the system for every contagious disease to which it may be exposed, and originates many other diseases from which we suffer.

It is not the design of this writing to fully discuss the results of breathing impure air

or living in ill-warmed rooms, but to call the attention of thoughtful persons to this sub-

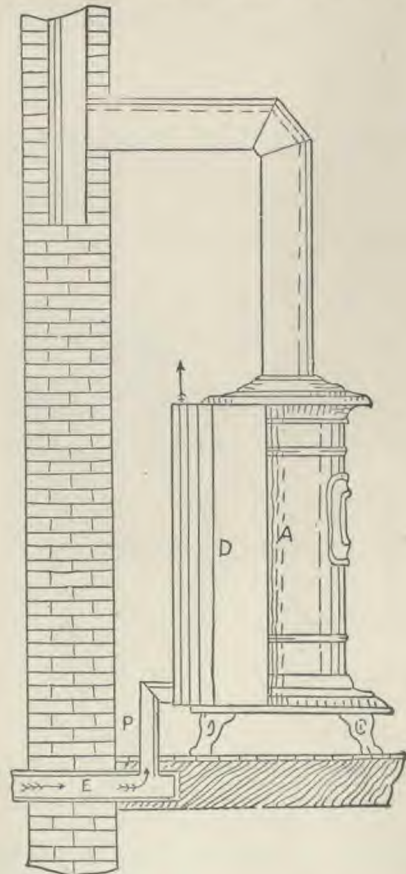


Fig. 1.—General View of Stove, the Plan of which is shown in Fig. 4. D, Sheet-Iron Jacket. A, Edge of Jacket Flitted Tight against Side of Stove. E, Wooden Box, 6x12 inches in the clear. P, Supply Pipe Conducting Outdoor Air against Back of Stove. Arrows Show the Direction of the Current of Air.

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ject in such a manner as to show more clearly the importance of properly warming and ventilating our homes, and to illustrate the manner of accomplishing this desirable object. It may be proper to inquire, in the first place, What constitutes pure air?

1. Pure air is composed of 79 parts of nitrogen and 21 parts of oxygen; there are also about 4 parts in 10,000 of carbonic acid. Air containing more than 6 parts in 10,000 of carbonic acid is considered impure and injurious.

Nitrogen is a transparent gas without

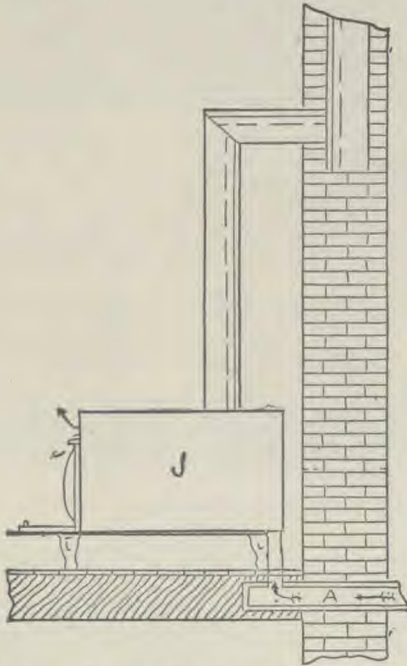


Fig. 2.—The Same Principles Applied to Box Stoves, the Jacket Enveloping the Entire Stove except the Front. A, Supply of Outdoor Air. J, Jacket. Arrows Show the Direction of the Current.

color or taste, noted for its chemical inertness, and is combined with other substances by indirect means. It does not support combustion or respiration; it will immediately extinguish a flame, and animals breathing it will die. In the atmosphere it dilutes the other gases by diffusion. It is a law that gases will intimately mix with each other, irrespective of their specific gravities; nitrogen thus minutely divides the oxygen, so as to secure to us its greatest benefit in respiration.

Oxygen is a colorless, tasteless, inodorous gas, a universal supporter of respiration, and is essential to combustion; without it all animals would die.

Carbonic acid, when inhaled, is a poison and destroys life; outdoor air contains about 4 cubic feet of this gas in 10,000. This is so diffused that it cannot do harm to the health of those who breathe it. If more than 6 parts in 10,000, the air is impure, and it would be unhealthy to breathe it. With pure air in our habitations and public buildings, we should be protected from most diseases which now destroy the health and lives of so many of our fellow-men.

2. We inquire into the composition of impure air.

The impurities in the air are commonly represented by carbonic acid exhaled from the lungs; there are other impurities produced by respiration, perspiration, combustion of oils, gases, organic matter, excess of water, exhalations from the sick, decaying matter, emanations from sewers, house drains, cess-pools, damp cellars. These, with more or less of the constantly increasing amount of carbonic acid, which in many instances in our dwellings, schools and churches, amount to from 30 to 70 parts in 10,000 of air, added to the continual decrease of oxygen, will invariably produce dangerous and often fatal results. Those who are exposed to this poisoned air are never in good health, and are subject to heaviness, headache, furred tongue, quickened pulse, febrile symptoms, thirst, loss of appetite, catarrh, bronchitis, consumption, typhus or typhoid fevers, diphtheria, scarlet fever, croup in children, and are prepared for any contagious disease to which they may be exposed, and their lives are invariably shortened. These are mostly preventable diseases. Such results should teach us the responsibility of securing, at any cost within our reach, pure air in our homes and public buildings. The possibilities of a vigorous, healthy life, who can estimate? Yet health and life, with all their possibilities, are endangered, if not quickly sacrificed, in the foul air of our homes. Pure air would save millions of money and diminish human suffering to a minimum.

The amount of fresh air necessary to keep

pure the atmosphere of occupied rooms will be about 2000 [3000] cubic feet per hour per person. The practical question now is, How shall this amount of pure, fresh, warm air be procured in our homes or public buildings already constructed,—1. During summer; 2. During the time when artificial heat is used for warming them?

I.—DURING SUMMER.

The great difficulty in summer is to distribute the fresh air equally through the

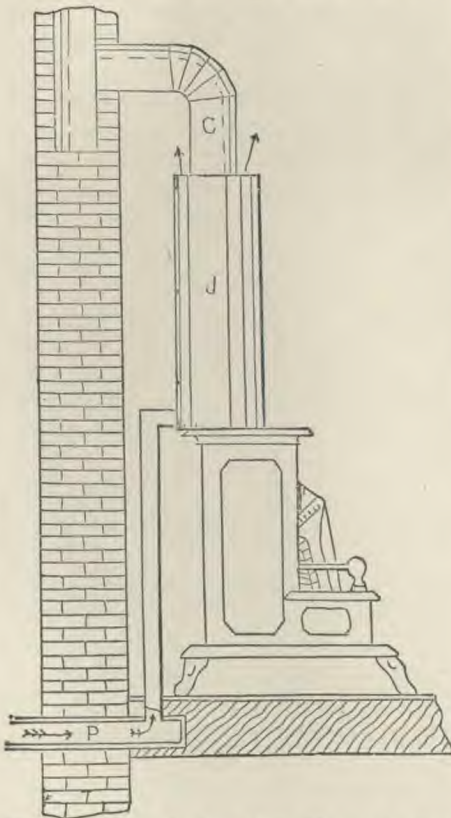


Fig. 3.—Heating Outdoor Air by Means of a Jacket around the Stove Pipe. C, Stove Pipe. J, Jacket. P, Supply of Outside Air.

room, so as to avoid producing currents of air, which are injurious to persons who are at rest, as standing, sitting or sleeping. This may, in whole or in part, be done by opening the windows or doors on the opposite side of the house from which the wind comes; also by lowering the upper sash of the window, having a curtain before it; or better, perhaps, by raising the lower sash about 4 inches and placing a board under

the sash so as to fill up the space entire. This will give an opening between the two sashes where they meet, which will admit the outdoor air without producing an im-

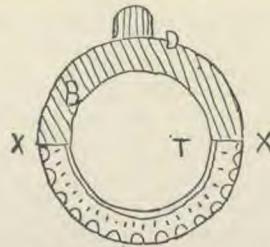


Fig. 4.—Application of a Jacket to an Ordinary Stove. D, Jacket Fitting against Sides of Stove a X, X. B, Open Space at Top. Corresponding Space at Bottom is Closed. T, Section through Stove.

proper or sensible current across the room. This method may be used day or night, whatever be the temperature or season.

II.—DURING THE TIME WHEN ARTIFICIAL HEAT IS USED.

During cold weather ventilation should be procured by the aid of heat. The following rules should be carefully observed in heating and ventilation:—

1. Conduct in some convenient manner, outdoor air against a heated surface.
2. Conduct the indoor air from the floor into a heated flue. In this manner a complete circulation of air may be had, and an abundant supply of pure warm air may be secured; provided, first, that the ducts be sufficiently large; and, second, that the dust

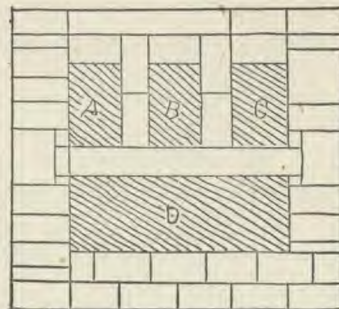


Fig. 5.—Construction of Chimney for both Smoke and Ventilation. D, Smoke Flue. A, Ventilation Flue for First Story. B, Ventilation Flue for Second Story. C, Ventilation Flue for Third Story.

in the air be not burned by a red-hot surface. If these rules are observed the heating and ventilating will be very economical

and satisfactory. Most of the buildings, public and private, for human use are constructed without any reference to ventilation; indeed, most of them seem to have been planned to prevent the possibility of either the light of the sun or the pure air of heaven entering them. There is, consequently, much difficulty in properly heating or ventilating them. Those who prefer health to the sight of the changes necessary in each case to secure such an end, must not object to see an additional pipe to convey foul air out of the room, and also a pipe to convey the pure outdoor air into it.

There are many buildings heated with a furnace. In these the pure outdoor air is properly heated; but where there is no preparation for ventilation, this may be secured in the same manner as when heated by a stove. The great majority of houses are heated by stoves. The outdoor air in such cases must be conducted to the surface of the stove, as illustrated in the preceding diagrams. These stoves have various shapes; whatever they may be, the principles will here be explained, so that any person may modify the method so as to secure the result desired. Fig. 4 will show how a sheet-iron jacket may be fitted to the back of a stove for heating the outdoor air brought within the jacket against the stove. The jacket is seen at the top of the stove, and is represented by the line marked D.

The jacket should never be more than $4\frac{1}{2}$ inches from the back of the stove, and should always be closed at the bottom, so that the air in the room will never be reheated and breathed over again and again. This should be remembered, whatever kind or form of jacket is used.

Fig. 1 illustrates the manner of conducting the outdoor air to the stove within the jacket for heating.

A wood stove may be jacketed in the same manner as a coal stove. In this case the jacket may be fitted to the sides of the stove very nicely, covering the back of the stove in the same manner as the wood stove, so that the sheet-iron jacket will be at an average distance of $4\frac{1}{2}$ inches from the back—never more than this.

Outdoor air may also be heated by con-

ducting it within a jacket around the stove-pipe of a wood or coal stove, as shown in section in Fig. 4.

In school-houses, where box stoves are mostly used, a sheet-iron jacket may inclose the stove excepting the front, which should be left open for the escape of the heated air. The space between the stove and jacket should be 4 inches—not more—on the sides and top; on the back the jacket may be as wide as the hole in the floor—6 inches. An opening should be made through the floor at the back end of the stove near the jacket, 6 by 16 inches, if the jacket is wide enough to cover it. A pipe the shape of the hole should be fitted so as to reach a little above the bottom of the stove, that the air may reach the heated surface at once.

VENTILATION OF HOUSES ALREADY BUILT.

Ventilation, according to rule second, should always convey the indoor air from the floor into a heated flue. If the chimney is properly constructed, this may be done with little expense or trouble. Usually, however, this is not the case. The general rule is to build chimneys very small—mostly 4 by 12 or 16 inches on the inside. This narrow space will soon be more or less filled with soot. In such cases ventilation will be difficult, if not impossible. If the chimney has been constructed with an apartment for ventilation, it will be sufficient to make an opening into it at the floor—that is, the bottom of the opening must in all cases be exactly even with the top of the floor, otherwise the ventilation will be imperfect; this will give good ventilation. All chimneys should be constructed with an apartment for each story, as shown in Fig. 5, and should be plastered smooth; the partition should be made of brick, and built single width, so that it will be 4 inches thick. This wall will be constantly heated to keep a continual draft in the ventilating flue.

(To be continued.)

Sportsmen on Tobacco.—The deleterious effects of tobacco-using is well recognized by the champion athletes, oarsmen, and marksmen of the world. They all assert that even the moderate use of tobacco, narcotics, or stimulants in any form, is injurious.

ADULTERATION OF FOODS.

PRESERVES, MARMALADE, ETC.—A large share of the preserves manufactured for the retail trade are adulterated more or less in one way or another. It is customary to make into preserves inferior fruit, or that which has spoiled by too long keeping, or is otherwise unfit for sale. In many cases, preserves are colored with fuchsine and aniline, as are some canned fruits. Marmalade often consists chiefly of apples flavored with orange essence. Copper is also sometimes found as in canned fruits, being usually accidental, however, its presence being due to the fact that preserves are generally made in copper kettles, some of the copper being dissolved by the juices of the fruits, the solution of the copper being facilitated by the heat and the stirring. A compound of sugar with copper is also formed when the two are long in contact. On this account, preserves should never be made in copper kettles. The presence of copper and coloring matter may be determined in the manner described for detecting these adulterants in canned foods. (See articles in previous numbers.)

JELLIES.—It is rare to find in the market such a thing as pure fruit jelly. If found, it will be held at a high price. The ordinary jellies sold are largely made up of gelatine, colored with aniline and other dye-stuffs, and flavored with various essences. Many of them contain not a particle of the fruit after which they are named. A less harmful but no less fraudulent form of adulteration is the use of apple jelly, flavored to suit the different varieties for which it is sold. The coloring matters may be detected by the methods described in previous articles; but as so few are pure, it is best to avoid them altogether.

FRUIT EXTRACTS.—The science of chemistry has lent its aid to the art of adulteration so effectually that almost, if not quite, every one of the principal fruit flavors is imitated by chemical compounds so closely that the difference cannot be detected by the taste, though, undoubtedly, the difference is readily noticed by the stomach. The following description of the composition of some of the principal flavoring extracts we condense from

a report on the subject in the Annual Report of the Mass. Board of Health for 1873:—

Pine-apple essence is a solution in alcohol of butyric ether, which is made by distilling butyric acid with alcohol and oil of vitriol. The butyric acid is made from decayed cheese.

Quince essence is a solution in alcohol of an ether obtained by treating oil of rue with aqua fortis, and digesting with alcohol the acid thus obtained.

Pear essence is made by distilling a mixture composed of fusel-oil, acetate of potash, and strong sulphuric acid, or oil of vitriol, and mixing the product with alcohol.

Apple essence is made from sulphuric acid, fusel oil, and valerianic acid.

The flavor of currants, bananas, raspberries, strawberries, etc., is imitated by mixing the various ethers known to chemistry, and combining with them camphor, acetic acid, vanilla, and the various essential oils.

Not only are these essences sold at retail for domestic use, but they are largely, in fact almost exclusively, used by bakers and confectioners. Pastry, jellies, and ices are made still more atrocious by the addition of these abominable mixtures. Serious illness and even death has frequently been caused by the use of articles containing the poisonous substances above mentioned.

A perusal of the above will be sufficient to satisfy any one that the so-called fruit essences are not suitable substances to be mingled with food. Sirups flavored with these essences are usually employed in the preparation of soda-water, a fact which certainly makes the use of this popular summer beverage exceedingly questionable on the ground of health. Candies also are flavored with the same vile compounds, together with jellies, as before mentioned.

CANNED AND POTTED MEATS.—Canned fish and other meats are often in a condition unfit for food when put up, and are further deteriorated by a peculiar kind of decomposition which it is scarcely possible to discover by examination, but which often produces most serious consequences when the meat is eaten. This condition of the contents of a can may be best determined before the can is opened, by observing whether the end

bulges outward or is drawn in. If there is bulging, the meat is bad. Potted meats are often colored for the purpose of hiding dirt, or to give the cooked meat a more lively appearance. All such meats are particularly unwholesome.

It has been discovered through the testimony of a manufacturer that large quantities of horses' tongues and flanks are worked up into potted meats as beef.

It has been known for a long time that sausages are often adulterated with horse-flesh, as well as that of dogs and other animals. A year or two ago the discovery was made in San Francisco that a prominent sausage-maker of that city was in the habit of working into his bolognas large quantities of cat flesh. This fact was discovered by the large numbers of cats which he was known to receive daily, and was acknowledged by him in court. We can hardly regard these additions as making the article any worse than it is originally, since we can imagine no animal whose flesh would be likely to be more unwholesome than that of the swine.

VINEGAR AND PICKLES.—Vinegar is very often adulterated with mineral acids, sulphuric acid being the most commonly used. Many specimens of vinegar offered for sale as cider vinegar have not a drop of apple juice in them. Vinegar is itself an unwholesome article; but it becomes tenfold more injurious when adulterated with strong acids, injuring not only the stomach but the teeth. The presence of sulphuric acid, or oil of vitriol, may be detected by the test given for this acid in sirups. It is said that it may also be detected in the following manner: Add to the vinegar a small quantity of sugar. Then put a drop or two on a clean plate and evaporate at a low heat. If the acid is present, the spot will become black, through its action on the sugar.

The following is a recently devised, and probably the best, test for mineral acids in vinegar: Pour into a test-tube or small vial two to four teaspoonfuls of the vinegar to be tested. Add twenty or thirty drops of a strong solution of salicylate of soda. If mineral acids are present, the salicylic acid will be separated from the soda and

will appear in the form of curds. The salicylate of soda may be obtained at any drug-store. A dram will be sufficient to test several samples of vinegar. The chloride-of-barium test may also be used.

Pickles are of course liable to contamination with the same acid to be found in vinegar, and in addition are subject to a very dangerous form of adulteration, the addition of some salt of copper to deepen the color. Very green pickles are sure to have more or less copper in their composition. The copper is sometimes added, perhaps more often derived from the copper kettle in which the pickles are made, through the action of the acid of the vinegar upon the copper. It is customary to make pickles in copper kettles for the purpose of giving them a green color. Some cook-books even recommend that a few copper pennies be boiled in the kettle with the pickles for the purpose of "greening" them. The practice is not only a most absurd one, since it in no way adds to the flavor of the pickles, but is very dangerous. Pickles are unwholesome and indigestible at the best; and when poisoned in this manner they become about the worst articles which can be put into the stomach. Copper and brass kettles should never be used in any way in connection with cookery.

The presence of copper in pickles may be easily detected by putting a clean bright iron wire for a few hours into the bottle containing them. If copper is present, it will appear as a thin film upon the wire.

LEMON AND LIME JUICE.—These valuable acids, sometimes preserved in the form of the juices of the fruits from which they are obtained, are not infrequently adulterated with sulphuric acid, which is intensely sour, and is also an active chemical poison. Sulphuric acid is not infrequently used by those who sell cheap lemonade at stands in the cities, as it is a much cheaper acid than lemon. We have known of instances in which serious poisoning has occurred from drinking this kind of lemonade which had been made in a zinc water-cooler, the poisoning being occasioned by the zinc.

The solution of nitrate or chloride of barium is a good test for sulphuric acid in all of these cases.

CAYENNE PEPPER.—Though an unwholesome condiment, and not an article of food, cayenne is the subject of a dangerous form of adulteration. In order to add weight, ground rice and other substances are employed; and then to produce the required intensity of color, red lead and vermilion or bi-sulphuret of mercury, both very poisonous substances, are used. We mention this fact as an additional inducement for abstaining from the use of cayenne as well as other condiments.

ARTIFICIAL CIDER.—In the West, large quantities of a mixture called cider are made by compounding sugar, tartaric acid, and yeast, and allowing fermentation to take place. It is a harmful beverage.

ADULTERATION OF TIN.—On account of the increased cheapness and convenience of manufacture, a large share of the tin plate made at the present time contains in it a large proportion of lead. As tin vessels are much used in cooking and other processes connected with food, this is a matter of very serious importance. Numerous examinations by eminent chemists have shown that milk pans, basins, dippers, cooking utensils, etc., are nearly all rendered dangerous by this means. The lead of tin-lined milk pans will not be affected to a sufficient extent to do any harm until the milk sours, when the lead is rapidly taken up by the acids formed. Acid fruits of any kind, and even sweet fruits, sirups, and preserves, when cooked or allowed to stand for any length of time may become contaminated with lead, and produce lead poisoning. Tomatoes, vegetables, and various fruits put up in tin cans, may become contaminated in this way. This kind of tin may be detected by a simple test which any one can apply. Place upon the metal a drop of nitric acid, spreading it to the size of a dime. Dry over a gentle heat, apply a drop of water, and then add a drop of a strong solution of iodide of potash. If lead is present, a yellow color will make its appearance very quickly after the addition of the iodide-of-potash solution.

The cheaper grades of tin are, almost without exception, adulterated in this way. On this account, we should by all means discourage the use of tin cans for canning either

fruit or vegetables, the danger of contamination being so great. For those who put up their own fruit, glass cans are fully as cheap, as they can be used many times instead of but once.

POISONING FROM FRUIT-JARS.—Another danger to which attention has been called very recently is from the use of glass fruit cans with zinc covers. Only those having glass or porcelain-lined tops should be employed. The danger of using those with zinc covers is shown by the following account of a case of poisoning, which we quote from a prominent sanitary journal of recent date (1880):—

“Four persons were poisoned recently in Brooklyn from eating canned cherries. Fortunately they all recovered by prompt treatment. Prof. Geo. W. Plympton made an analysis of the fruit left, and found the poison to be a salt of zinc formed by the action of the acid in the cherries on the zinc cover of the jar. The preserving had been done with scrupulous care, the jars were of a kind in common use, and the contents of several had been eaten without any unpleasant effects. On examining some which had not been before opened, one having a zinc top with a porcelain lining was selected and in it there was no indication of zinc. But on pouring a portion of the sirup of this jar into the zinc cover of the first, and warming it over a water-bath for three-quarters of an hour, the solution promptly yielded to the test for zinc. . . . The case is not without parallel, and the public should learn that the use of zinc or galvanized iron in the preparation or preservation of canned fruit or vegetables is not free from danger.”

LEAD GLAZING.—Within the last few years there has appeared a kind of glazed iron-ware which is in the highest degree unsafe on account of the amount of lead and even arsenic contained in the glazing. The quantity is so great that acid fruits would readily become affected. Crockery is also sometimes glazed with lead, making it dangerous to use except for dry substances. This ware may be tested in a manner similar to that suggested for lead-adulterated tin.

DO WE NEED STIMULANTS?

ALL physical analogies speak against it. We are frugivorous by nature, partly carnivorous by habit, but certainly not graminivorous; and of all animals, only a few graminivorous ones have a *natural* craving for the mildest of all peptic stimulants. Deer, wild goats, and a few of the larger ruminants pay an occasional visit to the next salt-lick. With this exception, the instinct of all mammals in a state of nature revolts against the mere taste of our popular tipples and spices. Monkeys, lemurs, and the frugivorous plantigrades loathe the odor of fermented fruits. Tobacco fields need no fence; and only the rage of hunger will induce carnivorous beasts to touch salted or peppered meats. Strong spirits and opium are shunned as deadly poisons even by reptiles and the lowest insects. Sustained only by the tonic of the *vis vite*, animals endure the rigor of an Arctic winter, and perform their physical functions with an energy far surpassing the exertions of the most active man.

That mental vigor is compatible with a non-stimulating diet, is proved by the teetotalism of many ancient philosophers, and such modern brain-workers as Peter Baile, Grimm, Laplace, Combe, Franklin, and Shelley. But can abstainers combine mental activity with physical exertion, and especially with the monotonous, long-continued drudgery of the laboring classes? In other words, will total abstinence do for the people at large? Is the prosperity of a nation, or even of a community, consistent with a *bona fide* observance of the Maine law? We may doubt if absolute naturalism à la Dio Lewis was not something phenomenal even in the century of Cincinnati; nor have theologians yet decided the point whether the "sweet wine" of the old Hebrews was *must* or a sort of *Bordeaux sec*. The Pythagoreans of Magna Græcia relaxed their principles before they became a national party. Still, history furnishes one excellent test case in point: the western Saracens abstained not only from wine, but from all fermented and distilled drinks whatsoever; were as innocent of coffee as of tea and tobacco; knew opium only as a soporific medicine, and were inclined to abstemiousness in the use of animal food. Yet six millions of

these truest sons of temperance held their own for seven centuries against great odds of heavy-armed Giaours, excelled all Christendom in astronomy, medicine, agriculture, chemistry and linguistics, as well as in the abstract sciences, and could boast of a whole galaxy of philosophers and inspired poets.—*International Review*.

ANCIENT HISTORY OF THE BEAN.

THIS innocent vegetable, which with us certainly awakens no lugubrious thoughts, was formerly consecrated to the dead. It was offered in sacrifices to the infernal gods, and its mysterious virtues evoked by night, spirits and shadows. The Flamen of Jupiter could not eat it, and he was forbidden to touch a bean, or even to pronounce its name; for the fatal plant contains a little black spot, which is no other than a noxious character—a type of death.

Pythagoras and his followers carefully avoided this dismal food, in the fear of submitting a father, sister, or beloved wife to the danger of a cruel mastication; for who knew where wandering souls might rest during the course of their numerous transmigrations.

Grave writers say the cause of this abstinence is, that beans are difficult of digestion; that they stupefy those who make use of them as food; and that hens who eat them cease to lay eggs. What more shall we say? Hippocrates, wise as he certainly was, had some of these strange fears, and he trembled for his patients when beans were in blossom.

In spite of such ridiculous prejudices, this plant had numerous and enlightened defenders. When green, it was served on tables renowned for delicacies; and, when fully ripe, it frequently replaced both wheat and other corn. One of the festivals of Appollo—the *Pyanepsia*—owed its origin and pomp to the bean. This vegetable then obtained pre-eminence over all that were boiled in the saucepan, and offered to the God of Day and the Fine Arts. Is it possible to imagine a more brilliant rehabilitation?

If we are to believe Isidorus, this plant was the first culinary vegetable of which man made use; he was, therefore, bound to preserve a grateful remembrance of it.

King David did not deem it unworthy of him, and the prophet Ezekiel was commanded to mix it with the different grains of which he made his bread.

We possess few certain indications proving the different culinary combinations to which beans gave rise among the ancients. All we know is, that they ate them boiled, or raw.

Two kinds especially attracted the attention of true connoisseurs of that class of *gourmets* elect, whose palate is ever testing, and whose sure taste detects and appreciates shades, of almost imperceptible tenuity—first, the bean of Egypt, recommended for its rich, nutritious, and wholesome pulp; this bean was also cultivated in Syria and Cilicia: and secondly, the Greek bean, which passed at Rome for a most delicious dish. Certain gastronomists, however, preferred another vegetable of which we are going to speak.

Ever since the Middle Ages the bean has played a very important part in the famous "Twelfth-night cake," almost all over Europe. The ephemeral royalty it bestowed was often sung by the poets, and consecrated in chronicles. Thomas Randolph informs us that Lady Fleming was queen of the bean in 1563. Some days after, the Duke of Guise was assassinated by Poltrot. History has its puerilities as well as its great tragedies.

The Spaniards had also their Twelfth-night cake. When John, Duke of Braganza, had obtained the crown of Portugal (1640), Philip IV. of Spain informed Count Olivares of the event, and added, as if it were a consolation for the loss of a kingdom, that this new sovereign was nothing more than a "king of the bean." Philip was mistaken.

In England the cake was often full of raisins, among which were one bean and one pea.

"Cut the cake," says Melibœus to Nisa; "who hath the beane shal be kinge; and where the peaze is, shal be queene."

"At the present day the bean is one of the vegetables most cultivated in Egypt and Italy. At Naples, as in Egypt, they are eaten raw when young, and the large ones cooked and grilled in the oven. They are publicly sold already cooked."—*Soyer*.

—The founding of the first State Board of Health in the United States, that of Massachusetts, resulted from the efforts of a lady.

ANATOMY, PHYSIOLOGY AND HYGIENE.

BY THE EDITOR.

PHYSIOLOGY OF THE MUSCLES.

THE sole property of a muscular fiber is contractility. Muscular fibers are said to possess a natural irritability by means of which they respond to proper kinds of stimulation by contracting. The ordinary and most natural stimulus to muscular contraction is nerve force. Through the connection of the nerves with the muscles, nerve force generated in the living batteries of the system—the nerve cells of the brain and spinal cord—is communicated to the muscle fibers, which are by this means made to contract. Muscular fibers may also be made to contract by the stimulus of electricity, which in many respects very closely resembles the nerve force. Mechanical and chemical irritation, such as striking, tearing, or pinching the muscle, or applying an acid or some other irritant, has a similar effect.

HOW A MUSCLE CONTRACTS.—The contraction of a muscle, though very simple, is still interesting. If the arm be clasped with the hand, and the fore-arm be then bent, the hand being closed and a considerable degree of force exerted, as in lifting a heavy weight, it will be observed that the arm becomes larger, seeming to swell out beneath the grasp. If a single muscular fiber were under examination beneath a good microscope, as a live fiber just taken from a frog or a turtle, we might cause it to contract by a very feeble current of electricity; and should we do so, we should notice essentially the same thing; we should find that the fiber would become thicker, but at the same time it would become shorter. As already explained, a muscle is made up of a large number of fibers; and its contraction as a whole is due to the contraction of each one of the minute fibers which compose it. As each one of these thickens and shortens in the process, the whole muscle thickens and shortens. There is no increase in size in the muscle, but simply a change of form. This is the simple manner in which all motion is produced.

MECHANICAL ACTION OF MUSCLES.—As elsewhere remarked, the muscles use the bones as levers in executing their various

movements. Not only the lever but also the pulley, another mechanical power, is illustrated in the action of the muscles. It will be both interesting and profitable to notice some of these exhibitions of vital mechanics.

A lever consists essentially of a rigid bar of some sort, a point of rest for the bar,



Fig. 44.

which may be at one end or at any point between the ends, called the *fulcrum*, the *power*, which is applied to some part of the lever away from the fulcrum, and the *weight*, the object to be lifted. There are described three kinds of levers, which are illustrated in Figs. 44, 45, 46. In the first kind, it will be noticed that the weight is upon one side of the rest, or fulcrum, and the power on the other side. In the second kind of lever, shown in Fig. 45, the weight is between the power and the fulcrum. In both instances there is a gain of power, because the force is applied at the long arm of the lever. In the third class, Fig. 46, the power is between the weight and the fulcrum. Now the power is applied at a disadvantage, as the weight is at



Fig. 45.

the long arm of the lever. However, there is compensation; for what is lost in power is gained in speed or motion.

Now, regarding the muscles as the power, the bones as the levers, the work to be done, that is, the objects to be lifted, carried, pushed, or otherwise moved by the muscles, as the weight, let us see how these different forms of levers are illustrated in the human body.

The first kind of lever is rarely illustrated in the body. It is found, however, as in the action of the muscles of the back of the neck

upon the head. The top of the spinal column is the fulcrum, the head itself the lever, the muscles of the neck the power, and the front part of the head the weight to be lifted.



Fig. 46.

Illustrations of the other two kinds of levers are very abundant. In the foot, employed in the ordinary act of walking, we have a good illustration of a lever of the second class. When the body is supported on tiptoe, the foot is the lever, the earth the fulcrum, the body the weight, and the muscles of the calf the power. See Fig. 47.

Fig. 48 illustrates by the arm a lever of the third class. Here the fore-arm is the lever, the elbow is the fulcrum, the muscles of the fore-arm the power, and the dumb-bell lifted in the hand the weight. The power, being applied between the fulcrum and the weights, lifts the ball at a disadvantage, as it evidently requires more strength to hold the ball in position as shown in the figure than it would to lift it straight up with the arm by the side.



Fig. 47. In the above cut the foot, c, represents a lever. With the fulcrum at F, the weight of the body lifted through the bones of the leg, joining the foot at W, and the power applied at P, the heel, through the contraction of the muscles of the calf, a.

It is not a mistake of nature that the muscles and bones of the arm are so arranged that the power is applied at a mechanical disadvantage, since what is lost in lifting power is gained in rapidity and extent of motion. By means of this arrangement the dexterity of the hands is very greatly increased, and they are far better fitted for the great variety of rapid movements which they are required to execute than they could otherwise be.

The pulley principle is beautifully and perfectly illustrated in one of the muscles of the eye, as before mentioned, and also in a

muscle of the neck called the *di-gastric*, from the fact that it has two bellies, or fleshy portions. As will be seen in the cut (Fig. 49), the middle and tendonous portion of the muscle is held by a loop through which it plays, the loop constituting a real pulley. Marvel-



Fig. 48. The arm, representing a lever of the third class.

ous indeed are the works of the Creator, and "fearfully and wonderfully made" is his creature, man.

USES OF MUSCLES.—Incidentally the muscles add symmetry to the body. They fill up the hollows, and cover up the rough excrescences of the bones, and in numerous ways add to the beauty and roundness of the form. But the really important function of the muscles is to produce motion. In this work the muscles are



Fig. 49.

constantly engaged. Whether we sleep or wake, still the delicate muscular fibers of the body are employed in unceasing activity, performing their part in the various vital processes necessary to life. Locomotion, manual motion, and vocalization or speaking, are among the most important voluntary movements produced by muscular action; while respiration, digestion, and the circulation of the blood, are equally or even more important processes, largely dependent upon both voluntary and involuntary muscular action.

It may be well for us to devote a brief space to the consideration of how these several processes are performed.

LOCOMOTION.—The act of walking, or progression from one point to another by means of muscular action, has been much studied by physiologists in both man and lower animals. Perhaps the simplest explanation of the act of walking would be that it is a continuous falling forward, the body being constantly saved from actually falling to the ground by the alternate placing forward of the feet to recover the equilibrium.

MANUAL MOTION.—The great diversity of the movements of the hand admit of no general description. When we consider the large number of muscles which must be made to co-operate harmoniously in the production of a single movement of the hand, we are led to marvel at the wonderful degree of delicacy of touch and motion that is possible to a hand carefully trained to fine work. Jewelers, watch-makers, microscopists, and engravers, exhibit this nicety of control of the muscles of the arm and hand in a remarkable degree. The difference between a trained and an untrained hand is readily seen in comparing the manual motions of a skilled artisan with those of a backwoodsman, whose finest tool has been an ax or possibly a chisel.

FATIGUE.—Muscular action occasions muscular wear and waste. The most delicate contraction of the smallest muscle is accompanied by a definite amount of destruction of tissue. The greater the amount or intensity of muscular effort, the greater the amount of waste. Only a certain degree of destruction of tissue by action is possible. After the muscular tissues have wasted to a certain degree, they refuse to respond to the demands of the nerves. A violent effort of the will may secure a slight additional amount of work, but even the most powerful exercise of will cannot excite to action a muscular system which has been exhausted by prolonged activity. The sense of weariness, inability or incapacity for action, which follows violent or prolonged exertion, is called fatigue. Its cause we have already seen. The sense of fatigue is a demand of nature for rest, for time to repair the wasted tissues, an admonition that the system must have rest. This provision nature has wisely made to oblige us to stop the vital machinery before it has

become so much damaged that repairs cannot be made. This admonition comes with such force that it cannot be resisted for any length of time. Unfortunately for the race, however, ingenious man has discovered that there are agents which will quiet or smother this warning voice, thus allowing the individual to go on destroying his tissues beyond the point of safety at which nature admonishes him to stop. Alcohol and tobacco are among the most active and frequently used of these substances, and tea and coffee belong in the same category. Very strangely, too, these agents are employed and recommended for the very purpose which renders them dangerous, and that too by men of learning and intelligence on most subjects, but who fail to see the folly of their action in this particular case. Alcohol, tobacco, tea, coffee, opium, hashish, and other narcotics and stimulants, will make a man feel well, and think he is not tired when he is exhausted; but they will not give him additional strength. By deceiving him they will enable him to get a little more work out of his muscles, to waste them a little more, but they do not supply him any force to use in the extra labor. A tired man is no more saved from the effects of overlabor, except in his feelings, by a glass of grog, a pipe or a chew of tobacco, or a cigar, or a cup of tea or coffee, than a patient is saved from the results of the surgeon's knife by being made insensible by an anesthetic.

MUSCULAR ELECTRICITY.—Experiments upon both human beings and animals have clearly demonstrated that the human body is a real electrical battery, generating appreciable quantities of electricity by every vital act. Every muscular contraction generates a current of electricity the exact quantity and quality of which can be determined by the proper instruments. There is no special electrical apparatus in the human body, as in certain fishes and other curious animals which produce this subtle agent in prodigious quantities, but the whole body develops it. Every breath we draw, every heart-beat, every wink of the eye, even every thought, generates the same element that darts destruction from the thunder cloud, and flashes intelligence around the world. This inter-

esting fact has an important bearing on the question which has occupied so many scientific minds, viz., the nature of vital force. The appearance would seem to be that the same force which in the living tissues is manifested as vitality, when the tissues are worn out and broken down appears as electricity or some other commonly known form of force.

MUSCULAR SENSE.—The muscles possess in but very slight degree, if at all, the general sensibility which belongs to most other tissues. They have little sensibility to pain. They may be pierced, cut, or even torn, without giving much pain. A peculiar pain is produced by cramp, or spasmodic contraction of a muscle. There is good evidence, however, that the muscles are compensated for the want of general sensibility by the possession of a sense peculiar to themselves, known as *the sense of weight, or the muscular sense*. It is by means of this sense that we appreciate resistance or judge of the weight of various bodies.

RIGOR MORTIS.—The peculiar rigidity which comes on soon after death in man and animals is supposed to be due to coagulation of the muscular fiber. It is the beginning of decomposition, and indicates the death of the muscular fibers. It is observed that in persons who die suddenly in a state of comparative health, as from accident, rigor mortis does not appear for some hours after death, and then remains for some time. In persons who die from long-continued or wasting disease, the opposite in both particulars is true.

TAKE CARE OF YOUR HEALTH.

ONE of the most foolish things that men and women can do is to kill themselves, or to exhaust their energies and wreck their health. No one is benefited by such imprudence; nor does any one ordinarily thank them for their pains. What you *are* is more important to ordinary minds than what you have *done*. You may have performed immense labors, but if you are sickly, and sour, and dyspeptic, and querulous, people will forget your services, and be attracted by the superior personality of others who may have accomplished far less than yourself.

But imprudent and exhausting endeavors do not promise the best results even in the accomplishment of needed labors. The man or woman who labors moderately and judiciously, does more in a year and more in a lifetime than the person who rushes on with unreasoning haste, and, without the rest and recreation which his physical nature demands, does two weeks' work in one, and is sick a fortnight to pay for it; or accomplishes two years' work in one, and is then permanently disabled and becomes a useless burden on the industry of others.

Take care of yourself. If you do not take care of yourself, no one will take care of you. No wife or husband or child will thank you for killing yourself for them. No employer will bear your aches and pains, or pay your doctor's bills, or support you in the sickness which you have brought on yourself by overwork for his benefit. You are to remember that the body is the temple of the Holy Ghost, and that you are not your own, but are bought with a price. You have no more right to abuse your body and overtax your energies than you have to whip and abuse an overworked and borrowed horse; and yet there are persons who will work themselves twice as long as they would think it right to work a dumb beast, and will urge their jaded energies to utter exhaustion and paralysis, and after all will accomplish less than they would had they labored carefully, and preserved clearness of mind, vigor of body, and fitness for careful and successful endeavor.

Work is Heaven's ordinance, but they who work without food, or intermission, or rest, violate the divine arrangement, and doom themselves to unknown and incalculable evils. The very persons who have profited by their unwise exertions will call them fools for their pains, and they will be obliged reluctantly to admit the appropriateness of the designation. On the other hand, those who are careful of health and strength, who provide things needful for the body, and who treat themselves as well as sensible men would treat a horse or an ox, will find in the end that they can do *more* work and *better* work than by the opposite plan; and that they will be prized and loved and honored not only for what they have *done*, but for what they *are*; for their vigor-

ous manhood and womanhood, their healthful personality, which images forth the likeness of Him who hath made them.—*The Christian*.

PUNISHMENT FOR DRUNKENNESS.

THE *Boston Journal* describes a step in the right direction. When drunkenness comes to be regarded as a crime or a misdemeanor, there is some hope for the success of prohibitory laws. It is to be hoped that "gutter drunkards" will not receive exclusive attention. The law should be applied with equal vigor to fashionable drunkards as well as to those of a lower class. But why should Boston lawyers charge only \$1 for being drunk while there is a law on their statute books imposing a fine of \$2.50 for smoking?

"The new law relative to the punishment for drunkenness, enacted by the last Legislature, went into effect Saturday. It provides that the punishment for a first offense shall be one dollar without costs. If the fine is not paid, the convicted person may be committed to the jail or house of correction (in the city of Boston, to the house of industry) or to the workhouse, if any in the town or city where the offense was committed, if such workhouse has a criminal department, until payment is made, provided that the person so committed shall not be imprisoned more than ten days. When a person convicted of the offense of drunkenness is proved to have been convicted of like offense twice before within the next preceding twelve months, a fine not exceeding \$10, or imprisonment in any place now provided by law for common drunkards, for a term not exceeding one year, is provided as a punishment. Complaints made under the act need not contain any allegation of previous convictions in order to make the offender liable to the punishment.

"In addition to its punitive features, the law contains provisions for the release of prisoners convicted of drunkenness when it shall appear that they have reformed. Such release is to be on the ticket-of-leave plan, any offense committed before the expiration of the term of sentence making the offender liable to re-imprisonment for a term equal to the unexpired portion of the term for which he was originally sentenced, the period during which he was at liberty not being counted as a portion of his time."

LET IN THE AIR.

LET in the air, to whose fairy-like wing
Treasures of health and of happiness cling.
Let in the air, whose life-giving breath
Will chase from your chamber the odors of death.

Let in the air where the sleepers are bound
In unnatural spells by the vapors around.
Let in the air, for its presence will shake
Each poisonous gas, and the sleepers awake.

Let in the air to the church and the hall,
Lest the words of the teachers unheeded may fall.
Let in the air, whose pure fiat forbids
The closing unseemly of somnolent lids.

Let in the air, with the welcome of glee,
Through palace and cot both unfettered and free.
Let in the air where for pleasure you roam;
But far above all in your "House and your Home."
—Mrs. J. M. O'CALLAGHAN in *House and Home*.

TEA TWO HUNDRED YEARS AGO.

AN English writer in 1686 thus eulogizes the Chinese herb:—

"THE QUALITIES AND OPERATIONS OF THE
HERB CALLED TEA, OR CHEE.

"It has, according to the description (being translated out of the Chinâ language), these following virtues:—

"1. It purifyes the Bloud, that which is grosse and heavy.

"2. It vanquiseth heavy Dreames.

"3. It easeth the brain of heavy Damps.

"4. Easeth and cureth giddinesse and Paines in the Heade.

"5. Prevents the Dropsie.

"6. Drieth moist humours in the Heade.

"7. Consumes Rawnesse.

"8. Opens Obstructions.

"9. Cleares the Sight.

"10. Cleanseth and Purifieth Adust (*sic*) humours and a hot liver.

"11. Purifieth defects of the bladder and kidneys.

"12. Vanquiseth superfluous sleep.

"13. Drives away Dissines, makes one nimble and valient.

"14. Encourages the heart and drives away feare.

"15. Drives away all paines of the Collick which proceed from wind.

"16. Strengthens the inward parts and prevents consumptions.

"17. Strengthens the memory.

"18. Sharpens the will and quickens the Understanding.

"19. Purgeth safely the gaul.

"20. Strengthens the vse of due benevolence."

The above reminds one very strongly of the recommendations of the virtues of patent medicines with which the newspapers abound. In the one case, as in the other, the truth is as nearly as possible the very opposite of what is claimed. There is at least room for the suspicion that the Chinese had an eye to business in recommending so highly one of their staple productions.

Water.—Of all inorganic substances, acting in their own proper nature, and without assistance and combination, water is the most wonderful. If we think of it as the source of all the changefulness and beauty which we have seen in clouds—then, as the instrument by which the earth we have contemplated was modeled into symmetry, and its crags chiseled into grace;—then, as in the form of snow it robes the mountains it has made with that transcendent light which we could not have conceived if we had not seen;—then, as it exists in the foam of a torrent, in the iris which spans it, in the morning mist which rises from it, in the deep, crystalline pools with its hanging shore, in the broad lake and glancing river;—finally, in that which is to all human minds the best emblem of unwearied, unconquerable power, the wild, various, fantastic, tameless unity of the sea—what shall we compare to this mighty, this universal element for glory and beauty? or how shall we follow its eternal changefulness of feeling? It is like trying to paint a soul.
—*Ruskin*.

Glucose.—This is a remarkable production. It is described in a recent French paper as follows: "Glucose.—A product with which wine is manufactured without grapes, cider without apples, and confectionery without sugar."

—The Scotch people attribute their ability, honesty and perseverance to oatmeal porridge, and their faults and failings to barley beer.

Chinese Prohibition of Opium Smoking.—

The opium habit has at last reached such a climax in China that the government has found it necessary to take the matter in hand and prohibit the practice of the vice under severe penalty. According to the *London and China Telegraph*, "it is reported that a rising has taken place on the southern confines of Shantung, about 600 li from Chinkiang, owing to the authorities insisting on the destruction of the poppy plants. A body of cavalry was sent down the river from Chinkiang on the night of the 29th of March, with instructions to proceed as quickly as possible to the seat of the disturbance." And the same paper for June 1 gives among the Shanghai news the following: "The principal governor, Tan, seems determined to continue his fight against opium smoking. He is the man who ruled Soochow-foo before he was promoted to his present office. He has issued proclamations, shut up opium dens, punished offenders, in short, done all that he could to put a stop to the vice. He has recently ordered a census to be taken for the purpose of finding out the name, residence, and employment of every opium smoker in the city. He has ordered the smokers to break off the habit, and gives them three months in which to do so. If at the end of that time they are still offending, they shall be punished."

Cobbett on the Excellent Effects of Sobriety.—

Since my turnips were sown I have written a great part of a grammar, and have sent twenty *Registers* to England, besides writing letters, amounting to a reasonable volume, in bulk, or an average of nine pages of common print a day, Sundays included. Besides this, I have been twelve days from home on business, and about five on visits. . . . Yet I have not written a hundred pages by candle-light. But then I have always been up with the cocks and hens, and I have drunk nothing but milk and water. It is said that "wine inspires wit," and that "in wine there is truth." These sayings are the apologies of drinkers. Everything that produces intoxication, though but the slightest degree, is injurious to the mind—whether to the body or not is a matter of far less consequence. My letter on the paper money,

which seems to do much of that sort of reasoning which is the most difficult of execution, and consisting of thirty-two full pages of print, I wrote in one day, and that the 11th of July, the hottest day in the year. But I never could have done this if I had been guzzling wine, or grog, or beer, or cider, all the day—surely this is proof of the excellent effects of sobriety. It is not drunkenness that I cry out against—that is beastly and beneath notice. It is *drinking*; for a man may be a great drinker and yet no drunkard.—"*A Year's Residence in the United States*," by William Cobbett, 1818.

A Fable.—There is an ancient fable which tells us that while Noah was planting the vineyard the Devil approached him and inquired what he was doing. "Planting a vineyard," replied Noah. "Hum!" grunted Satan, "what's the use of a vineyard?" To which Noah gave answer, "Its fruit is sweet, and wine gladdens the taste." Whereupon Satan, seeing here a good chance for speculation, proposed that they work it on shares, which was agreed upon, and immediately the Devil brought a lamb, a lion, a hog, and a monkey, and mingled their blood with the soil. Therefore, if a man eats only of the fruit of the vineyard he is as innocent as a lamb; if he drinks wine he imagines himself a lion and falls into mischief; if he drinks habitually he becomes as selfish and unmannerly as a hog; if he gets drunk he jabbars and jumps about, and is silly and nasty like a monkey.

A Policeman's Testimony for Temperance.

—A number of young men were one day sitting round the fire in a waiting-room at the Normanton station of the Midland Railway, talking about total abstinence societies. Just then a policeman came in with a prisoner in handcuffs. He listened to the young men's conversation, but did not give any opinion. There was also in the room Mr. McDonald, a minister of the gospel, who, hearing what the young men were saying, stepped up to the policeman and said: "Pray, sir, what have you got to say about temperance?" The policeman replied: "Why, all I've got to say is that I never took a teetotaler to York Castle [prison] in my life, nor to Wakefield House of Correction, either."

LITERARY MISCELLANY.

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NEW YEAR'S EVE.

RING out, wild bells, to the wild sky,
The flying cloud, the frosty light;
The year is dying in the night;
Ring out, wild bells, and let him die.

Ring out the old, ring in the new;
Ring, happy bells, across the snow;
The year is going, let him go;
Ring out the false, ring in the true.

Ring out the grief that saps the mind,
For those that here we see no more;
Ring out the feud of rich and poor,
Ring in redress to all mankind.

Ring out a slowly dying cause,
And ancient forms of party strife;
Ring in the nobler modes of life,
With sweeter manners, purer laws.

Ring out false pride in place and blood,
The civic slander and the spite;
Ring in the love of truth and right,
Ring in the common love of good.

Ring out old shapes of foul disease,
Ring out the narrowing lust of gold;
Ring out the thousand wars of old,
Ring in the thousand years of peace.

Ring in the valiant man and free,
The larger heart, the kindlier hand;
Ring out the darkness of the land,
Ring in the Christ that is to be.

—*Alfred Tennyson.*

MR. STEPHENS' PERICARDIUM.

"Now I am going to tell you just what my husband said to me this morning, doctor, word for word," said the invalid, Mrs. Stephens, lying back on the sofa pillow, the very picture of misery. The family physician, who was called on an average to the Stephens mansion three hundred and sixty times a year, drew a chair close to the couch and waited quietly for his patient to open her book of complaints.

"Last night, you see, doctor, I had an ill turn, and he wanted to come for you; but when I got so he dared to leave me, he concluded then we'd better let you sleep."

"Much obliged to him," said the doctor, with sarcastic emphasis on the personal pronoun. "Last night was the first undisturbed night's rest I have enjoyed for a week."

Mrs Stephens continued,—

"This spell is the same as I had the last time you were sent for, doctor"—

"A slight nervous attack," broke in the physician, "nothing more."

"Well, it don't make any difference what you call it, it was mighty hard to bear; but let me tell you what my husband said first, doctor, before we go into symptoms. When he was going down to breakfast, he says to me, 'Kate what shall I send you up?'"

"Says I, 'I don't want anything in the world but a good strong cup of tea. Tell Bridget to send it up in the little teapot.' I saw, doctor, that he did not move after I said this, so I turned and looked at him, and such a picture of rage and disgust I never saw in my life. Finally, says he, 'Tea! tea! tea! it's nothing but tea from morning till night, Kate, and you are the color of a Chinaman now. Why don't you order a good piece of beefsteak, and a slice of brown bread and a cup of chocolate? That would be a sensible breakfast.'

"'But, John,' says I, 'you forget that I am sick and have no appetite.' I was all ready to cry, but I was determined that he should n't have the satisfaction of seeing the tears fall.

"'Forget,' says he, 'forget! I wish to Heaven I could forget; it's nothing but grunt and groan from one year's end to the other. I have lost all patience with you,' says he. 'When we lived in a part of a house, and you did your own house-work, we were as well and happy as anybody, and no man ever had a pleasanter little home than John Stephens; but what have I now to leave or come back to?' And this, doctor, is what he ended up with:—

"'Kate,' says he, 'you are nothing more nor

less than a drunkard, and in the sight of God more culpable than most of the men who stagger through the streets, because the majority of those poor devils have some sort of excuse for their conduct; and you have n't the slightest. You have a luxurious home, a husband doing his level best to make you happy—everything under the light of the sun to please you, and yet you will persist in swilling tea.' Yes, doctor, swilling was the word he used—boo! hoo! hoo! O dear me! to think that I should ever have lived to hear such dreadful language out of my own husband's mouth; and then he says, 'and making me as miserable a wretch as walks the earth.'

"Pretty plain talk," interrupted the doctor with a shrug of his broad shoulders.

"Oh, yes," sobbed the victim, "and so awfully coarse and unkind. If I had a spell and died before his very face, I do n't believe he would have cared the snap of his finger. I tell you, Dr. Ellis, there is such a thing as a man's getting hardened."

"Evidently," replied the physician, with a laconism absolutely painful.

"But my husband has nothing in the world to trouble him but just my poor health; and I am sure I can't help that."

This remark was more in answer to her companion's tone and manner than to the one single word that had escaped his lips, and this the doctor felt.

"Anybody would think by the way he goes on," continued the irate woman, "that I enjoyed myself with spasms and cramps and fainting fits. Anybody would think it was a pleasure to me to feel, every time I see a funeral procession, as if the hearse was going to stop at our door next. Oh, yes, such a life is very enviable; very, indeed."

Dr. Ellis took no notice of these last words; the man's eyes grew luminous, and his whole face declared that he considered himself master of the situation; and if Mrs. Stephens had not been so entirely taken up with her own ailments, mental and physical, that honest countenance would have betrayed him.

"You say," he began, settling himself in the large easy chair, and assuming a strictly professional air, "that your husband has nothing to trouble him but your health; how do you know that, Mrs. Stephens?"

"How? Why, how do you know anything? By the evidence of my senses. Don't I know that John Stephens has a splendid business that looks after itself, a magnificent income, and money enough to live on the bare interest, as well as a family need to live, if he never entered his office again while he drew breath?"

"But money is n't everything, Mrs. Stephens," proceeded the physician, with a calmness that was almost Mephistophelian. "How about health, madam?"

"Health!" repeated the lady, with a smile she intended to be sarcastic to the last degree. "Health! Dr. Ellis! Why, there is not a healthier or sounder man than my husband in the United States. He eats more at one meal than I do in three months."

"There is nothing the matter with your husband's stomach, Mrs. Stephens." Dr. Ellis shaded his face with his hand and waited further developments. Mrs. Stephens mistook this attempt at forced concealment for emotion, and immediately assumed a sitting posture, brushed her eyes, and looked piercingly into her companion's face.

"Why do you accent the word 'stomach' so strongly, Dr. Ellis?" she inquired in an anxious tone. Mrs. Stephens was forgetting herself, and this the doctor hailed as an excellent omen.

"Only that I might make you understand that a man's digestion could be the most unexceptionable, and yet he be far from sound in other directions."

"Then you mean to tell me that my husband is sick."

"I do."

"Perhaps you will go still further and say dangerously."

"If you desire it."

"Oh, Dr. Ellis, how cold and unfeeling you are! I should think you ought to know by this time," and just here Mrs. Stephens broke down entirely and sobbed as if her heart would break.

"Ought to know what, Mrs. Stephens?" inquired the doctor with uncalled-for deliberation.

"You ought to know—to know—that my—my husband's health and life are of a good deal more consequence to me than my own."

"Ah, indeed," interrupted the physician,

with an elevation of the bushy eyebrows immensely suggestive of a contrary opinion, as well as several very excellent reasons for said opinion.

"Dr. Ellis, will you be kind enough to tell me what's the matter with my husband?"

Mrs. Stephens was now on her feet—tears all wiped away, eyes flashing with resentful spirit, and only the little quiver of her lip to show how deep a wound the kind heart in her bosom had sustained. There she stood, reproachful, determined, womanly.

"Mrs. Stephens," said he, "you have no cause to be alarmed. If I can only get your co-operation in this business, I feel certain I shall be able to make a well man of your husband in a few months at the longest; but as true as I sit here before you, I cannot do this alone."

"Why have I not been informed of this before?" broke in Mrs. Stephens imperiously.

"Who was there to inform you, madam? Your husband does not know his condition, and I should really like to be told when you have been sufficiently calm to hear all that was necessary for you to know."

"But, Dr. Ellis, I should think you ought to understand that my own health and comfort are nothing, compared to my husband's."

Mrs. Stephens was weeping again. "There is no sacrifice that I would not make for him."

"Curious creatures!" muttered the doctor; "delightful bundles of contradiction. How the mischief should I know, Mrs. Stephens, how much you care for your husband? I am sure you have spent the last hour complaining about him. Is that the way women generally testify their regard for their husbands?"

"Oh, don't, Dr. Ellis, please don't," pleaded the terrified woman. "I will never complain again—never—if you will only let me know what I can do for him. Do you know, doctor, I had begun to think lately that something must be amiss with him, he was growing so irritable. Poor dear, how wicked and thoughtless I have been."

"This, then, is the trouble. I shall take it for granted, madam, that you know something about physiology, and can follow me without difficulty?"

"O—yes, for mercy sake, go on."

"Very well; I find that the pericardium—"

"The pericardium!" repeated Mrs. Stephens.

"You know what that is I suppose?"

Evidently Mrs. Stephens' anatomical knowledge was limited. She shook her head in despair. "Something about the heart, is it not?" she asked at last.

"Yes, the pericardium is the membranous sac that holds the heart. Well, sometimes the sac—it is no matter about particulars, Mrs. Stephens," and Dr. Ellis suddenly came to a stand-still.

"It is enough, though, for me to say that we are both possibly anxious that his heart should remain where it belongs. Mr. Stephens must be amused. He wants the lecture, the social circle, entertaining books—a happy home—music. You play and sing, do you not, Mrs. Stephens?"

"Oh, yes—I used to," and Mrs. Stephens' tones were so pitiful now that big Dr. Ellis really and truly was obliged to wipe both his eyes and his nose. Before he was aware, the lachrymal duct had gotten the upper hand.

"Well, try it again; get a teacher and go to practicing."

"But how am I going to manage my spasms?" sobbed the lady.

"Well, perhaps, between us both,—you using your will power, and thinking of your husband, and going out with him, and taking care of him, and I doing my way—we may be able to subdue them; but you must remember this, madam—do not let Mr. Stephens have the faintest suspicion that you think anything is the matter with him; and above all, do not treat him like an invalid. Just amuse him, and all that, you know, just as you used to do when you were first married."

Another series of sobs from Mrs. Stephens.

The doctor arose to go. His patient had entirely forgotten that he had left no prescription.

"About tea, doctor?" she asked, as he prepared to leave. "Do you think it very hurtful?"

"As an occasional tonic, I have no objection to tea; but as a daily beverage, madam, it is an invention of the devil. Good morning."

John Stephens sought his home that evening with a heavy heart. His wife he believed

was a confirmed invalid, or hypochondriac—it mattered little which; one was as bad as the other. His remonstrances were of no avail, he was doubtful even whether his wife loved him. He opened the door softly with his latch-key. This had become habitual; seldom did the gentleman show himself to his beloved wife until after the dining-bell had summoned the family to the dining room.

A strain of music met and transfixed him on the very threshold. Abt's beautiful song was being rendered, and his wife was the musician. He was just in time to hear:—

"The eyes that cannot weep
Are the saddest eyes of all."

For full a year that charming voice had been as silent as the grave.

"Company, perhaps," he muttered. Curiosity overcame him. He opened the parlor door and peeped in. There was Mrs. John Stephens, becomingly attired, all alone, as enthusiastic over the fine rendition of a piece of music as he had ever seen her.

"What does this mean, Kate?" he asked with outstretched arms.

"That I have given up tea and am going to try hard to be well. I guess my voice will all come back, John."

"I guess so," he replied, folding her tight to his heart.

Three months after this, the cure was so radical that Dr. Ellis made a clean breast of the whole thing; and there is no word or set of words that can provoke so hearty a laugh in the happy home of the Stephenses as this physiologically scientific one—*Pericardium*.

HOUSEHOLD TRAINING.

REV. WASHINGTON GLADDEN considers the neglect of practical household duties as one of the worst features of modern life in this country. He says: "It is not in the wealthier families only that girls are growing up unpracticed in household work; indeed, I think that more attention is paid to the industrial training of girls in the wealthier families than in the families of mechanics and of people in moderate circumstances, where the mothers are compelled to work hard all the while."

"The habits of indolence and of helplessness formed are not the greatest evils resulting from this bad practice; the selfishness that it

fosters is the worst thing about it. How devoid of conscience, how lacking in all true sense of tenderness, or even of justice, a girl must be who will thus consent to devote all her time out of school to pleasuring, while her mother is bearing all the heavy burdens of the household!

"And the foolish way in which mothers themselves sometimes talk about this, even in the presence of their children, is mischievous in the extreme. 'Oh, Hattie is so absorbed with her books, or her crayons, or her embroidery, that she takes no interest in household matters, and I do not like to call upon her.' As if the daughter belonged to a superior order of beings and must not soil her hands or ruffle her temper with necessary housework! The mother is the drudge; the daughter is the fine lady for whom she toils. No mother who suffers such a state of things as this can preserve the respect of her daughter; and the respect of her daughter no mother can afford to lose."—*Sel.*

THE CURE FOR GOSSIP.

WHAT is the cure for gossip? Simply culture. There is a great deal of gossip that has no malignity in it. Good-natured people talk about their neighbors because, and only because they have nothing else to talk about. As we write, there comes to us the picture of a family of young ladies. We have seen them at home; we have met them in galleries of art; we have caught glimpses of them going from a bookstore or library with a fresh volume in their hands. When we meet them, they are full of what they have seen and read. They are brimming with questions. One topic of conversation is dropped only to give place to another in which they are interested. We have left them, after a delightful hour, stimulated and refreshed; and during the whole hour not a neighbor's garment was soiled by so much as a touch. They had something to talk about. They knew something, and wanted to know more. They could listen as well as they could talk. To speak freely of a neighbor's doings and belongings would have seemed an impertinence to them, and, of course, an impropriety. They had no temptation to gossip, because the doings of their neighbors

formed a subject very much less interesting than those which grew out of their knowledge and their culture.

And this tells the whole story. The confirmed gossip is always either malicious or ignorant. The one variety needs a change of heart, and the other a change of pasture. Gossip is always a personal confession either of malice or imbecility, and the young should not only shun it, but by the most thorough culture relieve themselves from all temptation to indulge in it. It is low, frivolous, and too often a dirty business. There are country neighborhoods in which it rages like a pest. Churches are split in pieces by it. Neighbors are made enemies by it for life. In many persons it degenerates into a chronic disease, which is practically incurable. Let the young cure it, while they may.—*Holland.*

USELESS STUDIES.

A YOUNG lady of our acquaintance, who is pursuing a selected course of study in one of the collegiate institutions of the city, was examining the printed curriculum with reference to deciding what study she should take up the next term. While consulting about the matter, she read over a list of text-books on science, language, literature and mathematics, when suddenly she exclaimed: "I'll tell you what I would like to study—I would like to study medicine. I don't mean that I want to be a physician and practice, but only to know what to do at home if anybody is sick or anything happens. I am sure that it would be more useful to me than"—and she turned to the prescribed course of study—"than spherical trigonometry and navigation. What is the use of my studying navigation? But we can't run for the doctor every time any body sneezes or coughs, and I would like to know what to do for any one who is a little sick."

Here is a matter concerning which young women need some simple but careful instruction. But who gives them any? As daughters in the family, they can repeat the dates of the Grecian and Roman wars, work out an intricate problem in algebra, and give the technical names of all the bones in the body; but if the baby brother left in their charge

burns his hand or is seized with croup, how many of them know the best thing to do while waiting for the doctor? And when, as wives and mothers, the duties of life increase, how many of them have any practical knowledge which will help them to meet calmly and intelligently the every-day experience of accidents and illness which are inevitable in every family?—*Harper's Bazar.*

BOYS AND THE BOTTLE.

NOTHING from the pen of Dickens or Thackeray goes nearer to the fount of tears than many a scene in child-life which is occurring every day. Not long ago I came upon a staggering father who was being led home by his own little boy. When the helpless sot reeled over and was likely to fall, the lad dextrously steadied him up again, as if he had acquired the knack of it from a long experience. The expression of shame and grief on the poor child's face haunted me for hours. I shuddered to think that the accursed appetite might descend as an hereditary bane, and be reproduced in that child in future years. One of the most hopeless cases of drunkenness I ever knew was the case of a church member whose father and grandfather were confirmed toppers. That the lust for strong drink is hereditary has been often proved; but what father has a right to bequeath such a legacy of damnation to his offspring?

A few days ago an interesting lad called at my door with a request from his mother for me to visit her. "What is the matter, my lad?" His countenance clouded over as he said tearfully, "It's about papa." The old, old story! I knew it too well. "Papa" had broken loose again, and the seven evil spirits which had been cast out had come back again, and the last state of the man became worse than before. Such visits are among the saddest which a pastor can be called to make; to me after my long observation of the clutch which drink fastens on its victims, they are the most desperate.

The following story shows the force of example and of habit:—

"I was lying on the sofa sleeping off my previous night's debauch. I was aroused by hearing something fall heavily on the floor. I

opened my eyes and saw my little boy of six years old tumbling on the carpet. His older brother said to him, 'Now get up and fall again. That's the way papa does; let's play we are drunk!' I watched the child as he personated my beastly movements in a way that would have done credit to an actor. I arose and left the house, groaning in agony and remorse. I walked off miles into the country, thinking over my abominable sin and the example I was setting before my children. I solemnly resolved that, with God's help, I would quit my cups, and I did. No lecture I ever heard from Mr. Gough moved my soul like the spectacle of my own sweet boys 'playing drunk, as papa does.' I never pass a day without thanking my God for giving me a praying wife, and bestowing grace sufficient to conquer my detestable sin of the bottle. Madam! if you have a son, keep him, if you can, from ever touching a glass of wine."

The narrator of the above touching story may never see it in these columns; but if he does, I know he will pardon its publication. It may be a timely warning to more than one father who is by no means a toper, and yet is putting a wine-glass right before his own children. It is the ready excuse of many a lad for taking a glass of champagne: "We always have it at home." The decanter at home kindles the appetite which soon seeks the drinking-saloon. The thoughtless or reckless parent gives the fatal push which sends the boy to destruction.

Long labor in the temperance reform has convinced me that the most effectual place to promote it is at home. There is the spot to enact a "prohibitory law." Let it be written upon the walls of every house.

Wherever there is a boy, there should never be a bottle.—Plattsburg (N. Y.) Sentinel.

Don't be Afraid to Work.—Remember, my son, you have to work. Whether you handle pick or pen, a wheelbarrow or a set of books, dig ditches or edit a paper, ring an auction bell, or write funny things, you must work. If you will look around you, you will see that the men who are most able to live the rest of their days without work are the men who have worked the hardest. Don't be afraid of killing yourself with over-

work. It is beyond your power to do that. Men cannot work so hard as that on the sunny side of thirty. They die sometimes, but it's because they quit work at 6 p. m. and don't get home till 2 a. m. It's the interval that kills, my son. The work gives you an appetite for your meals, it lends solidity to your slumber, it gives you a perfect and grateful appreciation of a holiday.—*Exchange.*

A Word to Grumblers.—Do n't be a grumbler. Some people contrive to get hold of the prickly side of everything, to run against all the sharp corners and disagreeable things. Half the strength spent in growling would often set things right. You may as well make up your mind, to begin with, that no one ever found the world quite as he would like it; but you are to take your part of the trouble, and bear it bravely. You will be sure to have burdens laid upon you that belong to other people, unless you are a shirk yourself; but don't grumble. If the work needs doing, and you can do it, never mind about the other one who ought to have done it and didn't. These workers who fill up the gaps, and smooth away the rough spots, and finish up the jobs that others leave undone—they are the true peacemakers, and worth a regiment of grumblers.—*Sel.*

Purity of Character.—Over the outer coat of the plum and apricot there glows a bloom more beautiful than the fruit itself,—a soft, delicate powder that overspreads its rich colors. Now, if you strike your hand over that, it is at once gone, it is gone forever,—it only appears once. The flower that hangs in the morning empearled with dew—arrayed with jewels—if once shaken, so that the beads roll off, you may sprinkle water over it as you please, yet it can never be made again what it was when the dew fell gently on it from heaven. On a frosty morning you may see the panes of glass covered with landscapes, mountains, lakes and trees blended into a fantastic picture. Now lay your hand upon the glass, and by the scratch of a finger, or by the warmth of the palm, all the delicate tracery will be obliterated.

So there is in youth a beauty and purity of character which, when once touched and de-

filed, can never be restored,—a fringe more delicate than frost-work, which, when torn and broken, will never be repaired. A young lad or girl leaves the parental home with the blessing of a mother's tears still wet upon the cheek, but if earthly purity of character be once lost, it is a loss that can never be regained. Such is the consequence of crime. Its effect cannot but be in some way felt, though by God's mercy it may be forgiven.—*Sel.*

Bearing Each Others Burdens.—Life teems with unnecessary pain. For every living soul there is work to do, effort to make, sorrow to alleviate. No day in the short time allotted to us here should pass without some attempt, however feeble, to lessen the load of suffering pressing so unequally on the lives of those around us. All can do a little, and if each soul that has suffered would take a share in removing or lessening the burden of another, life would be other than it is. An old writer beautifully says: "All can give a smile. How few value a smile as they should; yet who does not know the brightness which some faces bring whenever they appear! The smile of kindly recognition, the acknowledgment of existing suffering, the free masonry of endurance,—all are conveyed by a glance, and none can tell how often the effort to be cheerful has helped a weaker sufferer to endure.—*Social Notes.*

The Danger of Aimlessness.—A great deal of time is wasted by young people who have no particular aim in life. Aimlessness and lack of motive are the chief obstacles to the best and most profitable use of time. With a goal to attain, an end to accomplish, and force of character sufficient to hold the mind steadfastly to its purpose, the sands of time are easily transmuted into golden rain. Life is made worth the living. Most men of rank have easily learned the lesson of utilizing the minutes. Elihu Burrit, "the learned blacksmith," found time during his work at the forge to master several languages, and surprised cultured Europe by addressing its learned body in Sanskrit. Hugh Miller studied out the secrets of the Old Red Sandstone in the capacity of a day laborer. While his fel-

low-workmen idled during their mornings, he was actively at work finding out the *why* of the specimens and fossils his hammer disclosed. Lord Chesterfield relates of one of his friends, that he wrote a book of abstruse character during the intervals of waiting for his wife to appear at breakfast. Why not follow such examples as these?—*Sel.*

Reputation.—A man's reputation, like his coat, may be soiled, without touching the man himself, since the reputation is not the character any more than the sleeve is the arm it envelops. The character can only be soiled by what the man himself does, while the reputation may have mud thrown upon it by any wretch unmanly enough to want to injure the standing of another, and ignorant enough to suppose that he can touch the man's character. We are to see that our motives are pure, our principles honorable and holy, and our outward life governed by them, and then go about our duty calmly, confident that in the end they who unjustly seek to injure us will do us no harm. The stain will in the end fasten itself only on the author of the calumny.—*The Contributor.*

Division of Hours and Minutes.—Why is one hour divided into sixty minutes, and each minute again into sixty seconds? This question is often asked by intelligent children; and the answer is this: we have sixty divisions on the dials of our clocks and watches, because the old Greek astronomer, Hipparchus, who lived in the second century before Christ, accepted the Babylonian system of reckoning time, that system being sexagesimal. The Babylonians were acquainted with the decimal system; but for common or practical purposes, they counted by *sosi* and *sari*; the *sochos*, representing sixty; and the *saros*, sixty times sixty, is thirty six hundred. From Hipparchus, that mode of reckoning found its way into the works of Ptolemy, about 150 A. D., and hence was carried down the stream of science and civilization, and found its way to the dial-plates of our clocks and watches.

ALWAYS take some one for a pattern who is better than yourself that you may thereby become better than you now are.

POPULAR SCIENCE.

A Solar Engine.—A Frenchman is running an engine by means of a concave mirror twelve feet in diameter, which concentrates the sun's rays so as to produce a pressure of one hundred and fifty pounds in an hour in the boiler.

—In Mexico and South America, fire-flies are very common, which shine with so strong a phosphoric light that a person may read by the light of three of them. The largest specimens have a luminous patch under the belly, and one on each side of the head. Another species has the light under its wings. When the fly is dead, the light continues, and may be transplanted.—*Man.*

—For cheaply gilding bronzes, gas-fittings, etc., the following mixture has been commended: $2\frac{1}{2}$ lbs. of cyanide of potassium, 5 oz. of carbonate of potash, 2 oz. of cyanate of potash, all dissolved in five pints of water, containing in solution $\frac{1}{4}$ oz. of chloride of gold. The mixture must be used at boiling heat, and after it has been applied the gilt surface must be varnished over.—*Jour. of Chem.*

Marking Tools.—Much trouble can often be saved by marking tools with their owners' names, which can be easily and inexpensively done in the following manner: Coat over the tools with a thin layer of wax or hard tallow, by first warming the steel, and rubbing on the wax until it flows, and let it cool. When hard, mark the name through the wax with a graver, or any sharp-pointed instrument, and apply nitric acid. After a few moments wash off the acid, and wipe it with a soft rag, when the letter will be etched into the steel.—*Sel.*

A New Stereoscope.—M. Toyama describes a simple way of seeing stereoscopic pictures without the use of lenses, and without any straining of the eyes. The two pictures are to be mounted with an interval between them of about an inch and a half. Then by means of a partition between the pictures and the eye, as on the ordinary skeleton stereoscope, the two parts are so separated that the right eye shall see only the right picture, and the left eye the left picture. When this is done, the two pictures will combine just as easily as with an ordinary stereoscope.—*Sel.*

War Balloons.—The French government is having constructed forty balloons to be used in various sections of their standing army in experiments for the purpose of determining their utility in warfare.

Another Geologic Theory in Danger.—It has been supposed by geologists that the gigantic vegetable growths of what is known as the "carboniferous era" were due to the great amount of carbonic acid in the air; but experiments made in France during the last four years show that the best crops, in other words, the most vigorous vegetable growths, have been produced in those years in which there was the least carbonic acid in the air.

Curious Clocks.—In the latter part of the eighteenth century Droz invented a clock which excelled almost all others in ingenuity. Upon it sat a negro, a shepherd, and a dog. When the clock struck, the negro played six tunes on his flute, and the dog approached and caressed him. This the inventor exhibited to the king of Spain, who was greatly pleased with it. "The gentleness of my dog," said Droz, "is his least merit. If your majesty touch one of the apples which you see in the shepherd's basket, you will admire the animal's fidelity." The king took an apple, and the dog flew at his hand, barking so loudly that the king's dog, which was in the same room, barked also. The largest clock ever known is that in the cathedral at Strasburg. It is 100 feet long, 30 feet wide, and 15 feet deep, and has been in use for 300 years.

Infection from Mosquitoes.—The discovery that mosquitoes carry filaria in their probosces, and infect the human subject with that much dreaded worm parasite, has attracted considerable attention among the English microscopists. The matter has been brought before the Quekett Microscopical Club, by Dr. Cobbold, the president, who is one of the highest authorities on this subject. Particulars of various cases were given in which it was proved that those suffering from filaria had received the contagion from mosquitoes, and mosquito themselves infected with filaria were shown.

Filaria are very minute worm-like parasites, which, on entering the human body, breed until they increase to countless numbers. By recent advices we learn they have the power of entering and leaving the blood at pleasure; they usually invade the circulation about seven o'clock in the evening, and increase until about midnight, after which time they retire to other parts of the system.—*Science.*

GOOD HEALTH.

BATTLE CREEK, MICH., JANUARY, 1881.

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

TERMS, \$1.00 A YEAR.

OUR SIXTEENTH VOLUME.

WITH this number this journal begins its sixteenth annual volume; upon which it enters with a greatly increased subscription list, and, we trust, more numerous friends than ever before. The mission of GOOD HEALTH as an unpartisan instructor of the people on all subjects pertaining to practical and domestic hygiene, has been so long recognized as to give to it a permanent position in journalism which is not exactly filled by any other publication.

During the eight years which we have been connected with the journal, we have labored arduously for its advancement, though much of the time under great embarrassment on account of the urgent press of numerous other duties. We have endeavored, however, to keep pace with every advancement in the direction of sanitary and hygienic reform, and have earnestly sought to make the journal the exponent of all that has been fresh, reliable, and practical, in the line of hygienic facts and literature. We have endeavored to avoid the ultraisms of those who have allowed their enthusiasm for one or two principles to eclipse entirely other principles equally basic, and so have failed to meet with that measure of success in their honest, though mistaken, efforts which they have so earnestly and industriously sought. To this fact we attribute the present standing of this journal as the most widely circulated of all the health monthlies.

During the year 1881 we shall be able to devote more attention to the journal than heretofore, and hope to make it more eminently practical than ever before. Each number will contain an article on the home

management of some common malady which we trust will not be found the least useful feature of the journal.

With hearty thanks for past patronage and support, and a hope for the continuance of the same, we wish all our subscribers a Happy New Year.

CHRONIC NASAL CATARRH.

AT the request of several subscribers we present the following article on this subject from the "Home Hand-Book":—

SYMPTOMS: *Similar to those of coryza, but less acute; discharge from the nose, either through the nostrils or throat; formation of greenish scales in the nose; mucous membrane swollen, often obstructing breathing; in some cases, diminished secretion, constituting "dry catarrh;" often offensive breath.*

Chronic catarrh of the nose is so common a disease in most parts of the world that it scarcely needs description; at any rate, the above symptoms are sufficient to identify the disease.

CAUSES.—Among the most important may be mentioned "taking cold," a common coryza becoming chronic catarrh, from neglect of treatment or by being frequently repeated; errors in diet, especially the use of fats and sugar in excess, and an inactive state of the liver, in part due to their effect upon digestion. An inactive state of the liver is nearly always present in chronic nasal catarrh, which is indicated not only by general symptoms, but by the fact that the discharge from the nose, and especially the crusts which are formed, contain quite a large amount of the peculiar poison which is excreted by the liver, known as *cholesterine*.

Nasal catarrh may continue for many years without greatly impairing the general health,

but not infrequently patients subject to it suffer with evidences of a general decline which are properly traced to the long-continued drain upon the system resulting from this disease. The local effects of the disease are at first slight, but after it has continued some time often become much more serious. The mucous membrane which was at first only swollen and congested, becomes ulcerated. In some cases the ulceration even extends to the bones of the nasal cavity. In these cases the discharge is exceedingly foul-smelling in character, and is often more or less bloody. We have known cases in which the whole interior of the nasal cavity seemed to be in a state bordering on putrescence. Not infrequently the disease of the bony tissues extends so far as to destroy the septum between the nose and the mouth.

Still more serious results arise from the extension of the disease to contiguous organs. The disease not infrequently extends upward into the frontal sinus, a cavity in the skull just above and between the eye-brows. In these cases there is persistent dull aching in this part of the head. Sometimes it extends to the cavity known as the antrum of Highmore, and produces dull, aching pain in this part. Frequently the catarrhal disease extends into the Eustachian canals, which communicate with the ears, and by extending upward reaches the ear-drum or tympanum, which thus becomes the seat of chronic catarrh, one of the most common of all causes of deafness. When the disease extends downward from the nasal cavity, the patient suffers with chronic sore throat, or pharyngitis. As the disease progresses in a downward direction, catarrh of the larynx, or laryngitis, and finally bronchial catarrh, or bronchitis, and in some cases even consumption, are produced. We have met with many cases of consumption in which the history of the case clearly showed that it began with catarrh of the nasal cavity.

TREATMENT.—Notwithstanding the trivial importance usually attached to this disease, we believe it to be one of much greater gravity than might be supposed from the immediate results. Many people suffer from the disease for years, failing to give the matter sufficient attention to secure recovery. When

of very long standing, the disease is somewhat obstinate to cure, and yet we have been able to demonstrate many times in the course of our experience that it is really curable. The measures to be employed are chiefly the following:—

Careful regulation of the diet, all articles of food being avoided which have a tendency to diminish the activity of the liver. As in nearly all cases of catarrh there is chronic torpidity of the liver, it is important that the patient should carefully follow all the directions given for the treatment of that disease with reference to diet as well as other particulars. Butter, sugar, fats, condiments, excess of animal food, and excess of food of any kind, should be particularly avoided. The patient should drink freely of pure water, and live in the open air and sunshine as much as possible, taking an abundance of out-of-door exercise every day.

Especial attention should be given to the clothing, which should be carefully adapted to changes in the weather from day to day. The body should always be clothed warmly. Care should be taken to prevent exposure to drafts or any other means which will produce liability to cold. Baths should be employed for the purpose of exciting activity of the skin. Packs, vapor baths, Turkish baths, wet-sheet rubs, and in fact almost every form of general bath may be employed for this purpose. The application of fomentations over the liver and alternate hot and cold applications to the spine are indicated in connection with general treatment.

These measures are essential when a radical cure is expected, and the employment of local measures alone will accomplish very little unless the predisposing causes of the affection are removed by general treatment. Much good can be accomplished, however, by the use of local measures, among the most useful of which may be mentioned the following:—

The employment of saline solutions in the form of the nasal douche or in some other way. A solution which answers as well as any for this purpose consists of a teaspoonful of salt to a pint of soft water. This solution, as well as others which are employed for the same purpose, may be applied to the affected

membrane in any one of three different ways: By injecting it into the nasal cavity through the nostrils by means of the syphon syringe; by washing out the nasal cavity in a similar manner, only injecting the fluid into the back part of the cavity and allowing it to pass out through the nostrils. These methods of treatment have been already fully described elsewhere. The solution may also be applied to the mucous membrane by snuffing it up into the cavity. A little of the solution is taken up in the hollow of the hand, which is placed to the nostrils, and by forced inhalations a portion can be drawn up in contact with the affected parts.

When there is an offensive odor to the breath, arising from the decomposition of catarrhal discharges in the nose or from injury to the bones, a little carbolic acid in the proportion of 20 to 30 drops to a pint of water may be added with advantage. In very bad cases in which there is a large amount of secretion which hardens, forming large scabs in various parts of the nasal cavity, it is often necessary to employ, at least at the beginning of treatment, by means of the post-nasal douche, a large amount of an alkaline solution, the object of which is to dissolve or wash away the hardened secretion. It is generally necessary to use from one to three gallons of the alkaline solution, according to the severity of the case. Ordinary soda or saleratus, in the proportion of a teaspoonful to a quart of water, answers as well for this purpose as anything which can be employed. After the nasal cavity has been thoroughly treated with alkaline washes by means of the syphon syringe, application should be made of a small quantity of fluid, from half a pint to a pint, containing salt and carbolic acid, or a very small proportion of sulphate of zinc. The proportion of the latter should be about five grains to the pint. Chlorine water, a dram to a pint, permanganate of potash in the proportion of ten grains to a pint of soft water, and other mild disinfectant lotions, may also be employed with benefit. When the catarrh has begun to invade the throat, the inhalation of hot steam by means of the steam inhaler will do much to check the progress of the disease.

The extension of the disease to the ear and other parts must of course be treated as may be demanded by the particular case in hand. In some cases no method of treatment seems to work successfully, and the patient apparently derives no benefit from anything except change of climate; but we have never yet met with a case so bad that it could not be benefited by a strict compliance with the rules laid down and a thorough employment of the measures mentioned.

THE ERA OF PADS.

The *Pharmacist* thus pithily exposes the folly of the modern mania for medical pads:

"We refer not to the foot-pads, who are indeed plentiful enough, but to those little specimens of medical upholstery now hawked about for almost every ill that flesh is heir to. Medical philosophers who were wont to hold up the temporary success of the Perkins' tractors as an example of a superstition once prevalent among the people, and to congratulate themselves on the intellectual superiority of the age, stand in amazement as spectators of a repetition of the folly of faith. Already we have "liver pads," "lung pads," "kidney pads," "headache pads," and of course will soon have "heart pads," "stomach pads," "womb pads," "worm pads," etc. Ere long we may expect enterprising firms to advertise as complete a line of pads as they now do of elixirs or sugar-coated pills. The padites or paddies appear to believe that remedies permeate the body, as do bullets, in a direct line, regardless of teguments, tissues, or circulating fluids."

The *American Miller* says that as doctors do not always take their own medicines, so millers do not always eat their own flour, and tells of a Minneapolis miller who makes for the market a "gilt edge" flour, but sends out into the country a few miles to a little custom mill for flour for the use of his own family. It appears from this that some millers are well enough aware of the fact that the superfine stuff they sell is wholly unfit to constitute "the staff of life."

WHEAT-MEAL BREAD.

THIS was the title of a useful paper recently read by Miss Yates, a member of the "Ladies' Sanitary Association," before the "Bread-Reform League," an English association the object of which is to secure a reform in the matter of bread-stuffs. The author of the paper called attention to the fact that wheat-bread, when containing all the nutritive elements of the grain, is a most perfect food, capable of sustaining life an unlimited length of time, while fine-flour bread alone would not support life. She clearly showed that "nature had given to mankind in the grain of wheat all that was necessary for his sustenance, but in making white bread we threw away forty per cent of the nourishment. Whole-meal bread was not only more nourishing, but also more digestible, for the bran contained a substance which turned some of the starch in the flour into sugar, which was then easily assimilated. Having warned her audience against ever using chemical baking-powders for culinary purposes, she said the reason there were so many rickety children and bad teeth was because there was not a sufficiency of bone-forming material in white bread. The races of people who lived on whole-meal bread and vegetables were not only much stronger, but had much better teeth than those who lived wholly on white bread, and who suffered the punishment which inevitably followed on a disregard of nature's laws. It was perfectly possible for a child to eat what would satisfy his hunger, and yet die of starvation. If they fed him on corn-flour, which was only a little starch, made up with water, he would gradually die of starvation, unless it were mixed with milk, when, of course, the effect would be different. The whiter the bread the more starch it contained, and therefore the less nourishment; in fact, the whiteness of the flour might be considered an outward sign of the starvation within. (Cheers.) White bread was good as a change or as a luxury, but if they lived on it, they must necessarily take a large quantity of milk, eggs, or meat. Although she did not wish to oppose the consumption of meat, as a matter of fact a shilling's worth

of wheat-meal bread would give them three times more flesh-forming material, seventy times more heat-producing material, and three times more bone-forming material, than a shilling's worth of beef-steak. How important that must be to those who had little to earn and many to keep! (Cheers.) A writer of the present day had truly said, 'If bread had always been white it never would have been called a "staff," but a broken stick.'

ON WOMAN'S DRESS.

[THE following summary of sensible thoughts about dress is from the pen of F. P. Cobbe, in the *Contemporary Review*.—Ed.]

The subject of dress plays so important a part in the health of women that it requires thoughtful attention. A little girl in a London Sunday-school being asked by a visitor why God made the flowers of the field, replied (not unconscious of the gorgeous paper poppy in her own bonnet), "Please, ma'am, I suppose for patterns for artificial flowers." One might anticipate some answer scarcely less wide of the mark than of this sophisticated little damsel were the question to be put to not a few grown women, "Why do you wear clothes?" Their most natural response would obviously be, "To be in fashion." When we have visibly wandered a long way from the path of reason, the best thing we can do is to look back to the starting-point and find out, if possible, where we have diverged. In the matter of raiment, that starting-point is not hard to find,—indeed, to mark it is only to state a series of truisms.

Human clothing has three *raison d'être*, which, in order of precedence, are these:—

- I.—HEALTH.
- II.—DECENCY.
- III.—BEAUTY.

HEALTH demands—

1. Maintenance of proper temperature of the body by exclusion of excessive heat and cold.
2. Protection from injury by rain, snow, dust, dirt, stones to the feet, insects, etc.
3. Preservation of liberty of action to all

the organs of the body, and freedom from pressure.

DECENCY demands—

4. Concealment of some portions of the human frame.

5. Distinction between the habiliments of men and women, sufficient to avert mistake.

6. Fitness to age and character of the wearer.

7. Concealment, when possible, of any disgusting personal defect.

BEAUTY demands—

8. Truthfulness. The dress must be genuine throughout, without any false pads, false hair, or false anything.

9. Graceful forms and drapery.

10. Harmonious colors.

11. Such moderate consistency with prevailing modes of dress as shall produce the impression of sociability and suavity, and avoid that of self-assertion.

12. Individuality. Dress suiting the wearer, as it were an outer body belonging to the same soul.

Be it noted that the fulfillment of this highest condition of tasteful dress necessarily limits the number of costumes which each person should wear on similar occasions. No one body can be adorned in several *equally suitable* suits of clothes, any more than one soul could be fittingly housed in twenty different bodies.

FEBRIFUGUM MAGNUM.

A FEBRIFUGE is a remedy for diminishing fever. John Hancock, D. D., an eminent English divine, wrote and published a work in the year 1722, entitled, "Febrifugum Magnum, or Common Water the Best Cure for Fevers," in which he argues that the use of water as a drink is the "*great febrifuge*," adducing a number of cases in which the efficacy of the remedy had been demonstrated, among others the following, which is quoted by an English contemporary, the *House and Home*:—

"I had a Daughter fell ill, we thought it would be the Measles, I would have taken her under my Management. But a certain Person in my Family, that had a particular

Interest in me, would not be persuaded to it. We sent therefore for an Antient Experienc'd Apothecary, who in those common Cases must needs know what was commonly given by the best Doctors, with many of whom he was well acquainted, and had been long and often employ'd by them. He gave her several Things; what, I do not remember, and came often to her. She continued very ill for some Time after he came to her. One Night she was so very ill that my Wife would not trust her with any Body, but sat up herself, with some Body to assist her. About three a Clock in the Morning, my Wife came to my Bed-side, and awaked me, and told me I must get up, my Daughter would be dead; I made what haste I could to her, I found her much worse than my wife was aware of, and by the best Judgment I could make, she could not live in that Condition three Hours. We concluded to send for the Apothecary, but the Time being unseasonable to send for an old Man out of his Bed; and I believing, if we did send for him, he would give her nothing but what was of the same Nature with what he had given her before without Success, and besides we being afraid she might be dead before he could come to her; I persuaded my Wife to leave her to me, and to submit to God's Providence, whatever might happen, and to go to Bed.

"I found she was struggling for Life, and looking on her Breast I found the Measles were gone in, and were nothing but livid Spots, then I concluded her gone and past Recovery. I fetch'd up a Pint of cold Water, and a small Wine-glass, I gave her a small Glass of the Water, not daring to give her a large Draught, not knowing what might happen upon it. At the distance of some Minutes, a second, and after some Time, a third, and a while after, a fourth; I looked on her Breast before I gave her the fourth Glass, and found the Measles were come out again, and looked very red, and rose as high as ever the Measles do. Before the Water, she breathed with great Difficulty, and perfectly struggled to get Breath, and was in a terrible dry Heat, and a kind of Agony. But before I had given her all the Water, she breathed with great Ease and Freedom; and soon after the fourth Glass of Water,

she fell into a quiet easy Sleep, slept four Hours or thereabout, waked pretty well, and never was in any danger after, but was well in a little Time. By all which I conclude, that if I had given her cold Water in the beginning of the Fever, she would never have been in any Danger; And that the same plain Remedy might save some when they are in *Extremis* in common Fevers without Eruptions, and do more to set the stagnating Blood a-float, and produce what is generally wanted in that Case, a kindly gentle Sweat, than the best Cordials that are commonly given; for in Fevers with Eruptions, the kindly coming out of them makes the Sweat needless."

Temperance and Long Life.—An English member of parliament, in a temperance speech a short time ago, called attention to the calculation by Dr. Richardson, one of the highest scientific authorities on this question, showing that the vitality of the English people is diminished one-third by the use of intoxicating liquors. This, as the gentleman clearly shows, will "account for the premature death of 200,000 persons annually. Such a state of things must be a great disadvantage to our trade and commerce in our competition with the world; for a sober population would beat a drunken population both in the quantity and quality of industry. From what he had seen in America, he had come to the conclusion that the workmen over there were of much more sober habits than their English brethren, and from this he deduced that the latter were at a disadvantage in their trade competition. In America a visitor might go into almost any hotel and find, say, 300 people at dinner, of whom no more than three or four would be taking anything stronger than water. As one who was connected with concerns employing more than 40,000 men, he could say that more than one-half of the trouble between the masters and men arose from drinking. He was glad to see from the returns of excise and custom duties that the consumption of intoxicating drinks was falling off, more particularly in Ireland,—a country in whose prosperity he had always taken a great

interest. Only make Ireland a sober country, and there would be little difficulty in governing that country. Life assurance statistics furnished some evidence on the question, and taking the figures of the last fifteen years of the assurance office to which he belonged, the mortality among water-drinkers, estimated at 2,002, was only 1,437, but among the moderate drinkers, the people who never went to excess, it was identical with the official calculation, 3,450. He had never met a doctor or a director of an assurance office who could give any explanation of such a difference other than that of total abstinence. Coal-mine explosions were terrible, and horrified the public mind. During the last fifty years 3,000 persons had been killed in this way, but for each one who had thus died no fewer than 200 had killed themselves by drink. Under such circumstances he was glad to notice that abstinence from alcohol was spreading among the clergy. Six years ago only 700 Church of England clergymen out of 22,000 were total abstainers, but now 7,000 of them were supporters of the movement."

A New Parasite in Beef.—A French savant at a late meeting of the French Academy of Sciences announces "the discovery of a new parasite in beef, which is of a cylindrical shape, is conical at either extremity, and contains a granular mass. The discoverer thought that it was the embryo of an hitherto unknown variety of tape-worm, but Meguin, in a communication to the Biological Society, claims that there are no grounds for this view, and that the parasite is not unknown to science, being identical with the parasites found by Miescher in the muscles of the horse. Whichever observer is correct, it seems that the parasite is common enough, for they seemed to find no difficulty in finding specimens in nearly every butcher's shop."

Lead Poisoning.—The *Paris Medical* states that a physician, having some sixty cases of lead colic, made an investigation, and found that it was due to the use of bread which had been baked over a fire made from wood from demolished buildings which were covered with white lead.

Ode to Chloral.—*Punch* has a pithy way of "taking off" popular follies, and thus poetizes on chloral:—

"CHLORAL! spawn of depths abysmal,
Spring of restlessness and raving,
Fancies sick and visions dismal—
Source of still insatiate craving.
When that once-blest light auroral
Breaks thy feverish spell, O Chloral.

"Comes Reaction's Nemesis,
And the soul in Tophet sinking.
Wooes again thy fatal kiss—
Wooes, and ends in endless drinking,
Till to the unplumbed abysm
Sink thy victims, Chloralism!"

The Doctor in the Kitchen.—Dr. Ernest Hart, F. R. C. S., and an eminent English sanitarian, last fall delivered a lecture on the above subject in which he maintained that if people would pay more attention to their diet and the observance of sanitary and hygienic rules respecting cleanliness, clothing, ventilation, etc., death would only occur from old age. He contended that the work done by the doctor might be prevented by the right kind of work done in the kitchen. He spoke very strongly against the use of tea and coffee, which, with white bread and butter, constitute the breakfast of thousands of persons in England. He recommended, very highly, the restricted use of meat and a larger use of grains.

Filth Origin of Diphtheria.—A physician writing to the *Boston Journal of Chemistry*, calls attention to a case which came under his observation which seems to indicate that diphtheria may originate from unsanitary conditions as well as from contagion. He was called to visit a family of Hollanders whom he found suffering with a malignant form of diphtheria. The doctor further states the case as follows:—

"One child died soon after I saw it, and others were ill with it. The room was full of a terrible odor from the fauces. Two of the children died, the others recovered; some of them were paralyzed, and one little girl was blind for several weeks. Investigation revealed no knowledge of the disease having been there previously. It was in midwinter, and the weather had been and was at this time very cold, although there had been times

of moderate weather and thawing. The family lived at the foot of a hill, and used water from a ditch which ran by the house. When we examined the cellar we found that a large quantity of potatoes had been stored there to keep for the spring market. The cellar had not been made secure against cold, and a large part of the potatoes had been frozen. The warm weather had extracted the frost, and they had for some time been a rotten mass. I could come to no other conclusion than that they must have been the original source of the poison."

A Liver Pad Dissected.—An exchange gives the following post-mortem of a liver pad, one of the most ingenious humbugs of modern times:—

"The pad is made of drilling, and filled so as to be about one half to three-fourths of an inch in thickness. The contents are: Ground flaxseed and ground fenugreek seed, fifty per cent; pitch, resin of galbanum or olibanum, and resin of sandarac, forty-five per cent. The remainder is probably composed of aromatics. The fenugreek gives the peculiar odor, though this is changed to a limited extent by the resins and aromatics. Wonderful invention!"

Biliousness.—J. M. Fothergill says in the *Practitioner* that although biliousness can be temporarily relieved by a dose of calomel, black draught, and a Seidlitz powder, "it would be far better in the permanent interests of the patient, to regulate the dietary, cutting down the albuminoids (meat), and substituting a dietary of fruit and farinaceous food (fruits and grains), for the meat, too frequently stated to be the only food the patient can take. By such means the work of the liver will be greatly economized."

—We are pleased to note that the *International Sunday-School Teacher* suggests that teachers do what they can to prevent boys and young men from contracting the habit of tobacco-using. This is beginning in the right place. It would be a good plan to circulate a children's anti-tobacco pledge. A few years ago a friend of ours made an effort in this direction, and in a short time succeeded in obtaining several hundred names.

LITERARY NOTICES.

GOOD COMPANY well sustains its reputation as being one of the best literary monthlies published. It employs some of the best talent in the country, and its articles are all original. Published at Springfield, Mass., \$3.00 per annum.

THE MILLSTONE. Indianapolis, Indiana.

This paper, published in the interests of milling, contains much valuable information upon that subject as well as upon other topics of practical scientific interest. It is an illustrated journal, and is readable for all classes of persons as well as for those for whom it is especially adapted.

WHAT'S THE MATTER? Authors' Publishing Co.: N. Y.

This is an excellent little work which, in answer to the query of its title, gives us some very plain truths regarding the health of American women, in a very apt and pleasing manner. We recommend its perusal to every girl and woman in the land. It is one of the "Satchel Series," and can be obtained of the publishers for 20 cts.

THE NORTH AMERICAN REVIEW for January contains a very interesting and readable list of articles, among which may be mentioned, "Controlling Forces in American Politics," by Senator Edmunds; "Atheism in Colleges," by President Bascom; "Popular Art-Education," by Prof. Weir, and an illustrated article upon "The Ruins of Central America." D. Appleton, & Co., New York.

BRAINARD'S MUSICAL WORLD for December comes to our table filled as usual with choice new music and interesting reading matter. This journal is just the thing for the home circle during the long winter evenings, when the family can gather around the piano or organ and with music and good cheer defy the storms that rage without and make home a place of enjoyment and delight. S. Brainard's Sons, Cleveland, Ohio.

VICK'S FLORAL GUIDE.—We have just received from the publisher, Mr. James Vick, Rochester, N. Y., a copy of this work, which is one of the finest of the kind we have ever seen. The frontispiece is a handsome colored plate, besides which, the work contains a portrait of the publisher and several hundred illustrations of plants and bulbs. All persons who are interested in the cultivation of flowers will find this an excellent encyclopedia upon that subject. Price 10 cents.

THE NEW CYCLOPEDIA OF DOMESTIC ECONOMY. Henry Bill Publishing Co.: Norwich, Conn.

The book before us is a work of over six hundred pages, containing five thousand recipes pertaining to the care and management of household matters, and illustrated with over two hundred engravings. The subjects treated and the recipes given cover such a varied and extensive range, that every one will find something of interest and value, although from a hygienic standpoint we cannot recommend them all for practical use.

ALCOHOL AND HYGIENE. New York. The National Temperance Society and Publication House.

This new book, by Miss Julia Coleman, is an elementary lesson book for schools. It is a work of 231 pages, carefully written and well adapted to its purpose. Miss Coleman has had an extensive experience in the temperance work and thoroughly appreciates the needs in this department of reform. We believe great good would result if the book could be universally adopted into the curriculum of the schools of our land.

IS CONSUMPTION CONTAGIOUS? AND CAN IT BE TRANSMITTED BY MEANS OF FOOD? By H. C. Clapp, M. D. Boston: Otis Clapp & Co.

The author says in his preface, "Consumption is such a fearfully common and fatal disease all over the world that few questions can be more practical than those on our title-page, which involve very important methods of its propagation. To be sure, our knowledge is not sufficiently accurate to enable us to give just now, with mathematical exactness a positive answer to these questions, but it is very doubtful if any thoughtful person can read through these seven chapters without being persuaded that there is something in it, and that to a certain extent at least, and under certain conditions, consumption is contagious."

THE WESTERN FARMER OF AMERICA. By Augustus Mongredien, author of "Free Trade and English Commerce." Cassell, Pether, Galpin, & Co.: New York.

This is a little pamphlet inscribed to the farmers of America, showing from the census of 1870 that over twelve million of the population of the United States are engaged in various kinds of occupations, nearly six million of whom are engaged in the cultivation of the soil. It is a carefully written argument in behalf of free trade. The discussion is based upon the following inquiries:—

1. How much is actually taken yearly out of the pockets of the American farmers by compelling them to buy dear and sell cheap?
2. What becomes of the money?
3. How the waste can be avoided.

Publishers' Page.

GOOD HEALTH is the cheapest health monthly published. It furnishes each year 384 pp. of excellent reading matter, equal to nearly 1300 pp. ordinary book size. No other health journal at the same price furnishes more than one-half this amount of matter.

This number of GOOD HEALTH is sent to quite a large number of persons whose subscriptions expired with the December number. Our friends will please recollect that our plan is strictly "pay in advance," although we are always happy to accommodate those in limited circumstances if they will take the trouble to write us stating their circumstances and when they will be able to pay. We hope our friends will be prompt about renewing, so that they may not miss any numbers. We have been at considerable expense in preparation for this volume of the journal, and can assure our patrons that it will be by far the best of any volume yet published. In the course of the year, several hundred engraved illustrations will appear in connection with practical articles on various topics pertaining to health.

Our permanent subscription list is growing at the present time more rapidly than ever before. Mr. Geo. King, who has just returned from his canvassing field in the northern part of this State, reports one hundred subscribers obtained in a short time. L. T. Nicola & Co., of Des Moines, Iowa, State agents for the Home Hand-Book, have within the last few weeks sent us several hundred subscribers. Dr. G. S. Honeywell is also actively engaged in the work of obtaining subscribers, and has, in the last year, obtained more subscribers to the journal than any other man. The Doctor seems to be in his element as a health missionary. There is ample room for one hundred more such workers in the hygienic field.

We again call the attention of agents and subscribers to the inducements offered in the advertising pages. Subscribers, particularly, should notice our clubbing list.

AGENTS' OUTFITS, consisting of a book of guarantee cards, sample numbers, and report blanks, sent by mail, post-paid, for 25 cts. We have several hundred outfits all ready to forward by return mail, and will be pleased to have the opportunity to send them out at once.

Many old subscribers are availing themselves of our offer to send a copy of GOOD HEALTH free for 1881 to every purchaser of a copy of the Hand-Book, a work of 1500 pages, 500 cuts, and 22 colored plates. Price, muslin bound, embossed in gold and jet, \$8.25. Leather bound, \$7.25.

This number should have been issued nearly two weeks earlier, but has been unavoidably delayed by a great press of work at the printing office and the illness of one of the persons employed on the journal. We hope to be able to issue each number hereafter promptly by the 20th of each month.

The "Temperance and Gospel Songs" is having a very large sale. It is everywhere pronounced the most excellent temperance song book ever published. Price 30 cts., \$25 a hundred.

We have just received two copies of "Diphtheria" from the office of the Pacific Press, which publishing house has issued an edition of this work. This is the only popular monograph on the subject, and is having a very large sale. Every family ought to have a copy.

Agents for the Home Hand-Book will be glad to know that their orders, which have been long waiting, can soon be filled. The few remaining pages are going through the press as rapidly as two presses running night and day can print them. The work will in every respect exceed the representations in the prospectus book.

CHRISTMAS AT THE SANITARIUM.

THE Christmas time, so universally fraught with "good-will," was celebrated at the Sanitarium in a most enjoyable and profitable manner. The evening after Christmas a happy crowd of patients, helpers, and friends of the institution, filled the spacious parlors to their utmost capacity. At one end of the large parlor was placed a large evergreen tree whose burdened branches bore a profusion of fruit. A choir of trained voices, under the leadership of Prof. C. W. Stone, were on hand to furnish music at the proper intervals. After prayer and a few short speeches interspersed with music, the tree was disburdened of its fruit. Chief among the items of the "harvest" were numerous little envelopes suggestive that Santa Claus had sent a missive of good-wishes to each; upon closer inspection, however, their mission was explained by the inscription borne upon the back of each, "Christmas Donation to the Sick Poor," from the friends of the poor and needy who remembered that at the Sanitarium the Saviour's declaration, "The poor always ye have with you," never lacks a fulfillment.

The proceeds of the donation amounted to nearly \$400. One of the most liberal donations was a \$50 draft from Capt. N. P. Hubbard, well known to hundreds of the readers of GOOD HEALTH as an old friend and patron of the institution. The donors to the poor were all invited to dine at the Sanitarium the day following, and were greatly interested in the afternoon by a Christmas address by Eld. Matteson, a missionary to Norway now in this country on a visit. After the address, the audience were much delighted for more than an hour by the singing of a colored vocalist, a member of a jubilee band which happened to be in the city.