

ALCOHOL IN THE SYSTEM.

We find in *Hall's Journal of Health* a vigorous article in reply to an English review which upheld alcohol as a food, etc. The article is long and forcible, but we have space only for the general summing up, as follows:

If alcohol is not a poison, but food; because alcohol gives force, muscular power—then, arsenic is not a poison, but food, because arsenic gives force, muscular power.

As nature has formed no element in its purity, which element in large dilution is necessary to health, we conclude that such element in its purity is not essential to health.

As men have lived in perfect health without alcohol, the use of alcohol cannot add to that health, because a man cannot be better than well.

As we know of no article which contains hydrocarbon largely, which would not destroy life, if used alone, not even sugar; so we may conclude that alcohol, which does contain hydrocarbon largely, will destroy life, if used alone.

If any elementary substance in its purity destroys life, if used alone, it is reasonable to conclude that the only safe method of using any elementary substance is, in using it in the proportion in which nature has combined it with other materials; therefore, that however essential to existence hydrocarbon may be, it is not healthful or safe to use it in its concentrated, artificial combination, but only healthful and safe in deriving our supplies of it, as contained in our natural food. Therefore, we consider it established, that alcohol is not essential to health; that it is not promotive of the health of those who are well; and that in proportion as it is used largely, or alone, in such proportion as it, like all other elementary concentrations, certainly destructive of health and life together.

A BAD CLIMATE FOR NEEDLES.—It appears that now the English have succeeded in mounting Cleopatra's needle they have a new trouble, namely, that of preserving it from red-hot lightning and disintegrating frosts. Iron says: Now that the obelisk is safely and permanently established on its last resting place, there are certain precautions that must be taken to preserve it. The danger from lightning is not small; but a wire brush, such as projects from the head of his Grace of York on Carlton terrace, would detract greatly from the appearance of the monument. A bronze cap on the apex, with a thin ribbon of the same metal carried into the river, would, however, without defacing, effectually protect it from the electric fluid. The danger from the chemical elements in the London atmosphere is more immediate. The surface, even of the Paris obelisk, is reduced to kaolin, and the air of London is likely to act still more powerfully. There are, however, applications that have been proved quite efficient on the walls of the Legislative palace and elsewhere; and they cannot be too soon applied, for it is alleged that the surface of the needle already scales very easily, and that the external condition of the mass is such as to render it very liable to be disintegrated by frost.

BRAIN WORK AND LONGEVITY.—The oldest living chemist is said to be Michel Eugene Chevreul, a Frenchman, born August 31st, 1786, and consequently just entering upon his 93d year. He has been for many years a resident of Paris, where he still continues his studies, in full possession of his senses, the vigor of his mind being wholly unimpaired. The production and use of colors has been a specialty with him, and the durability of the colors in the Gobelin tapestry is said to be due to his discoveries, by which hundreds of persons have been enriched, while he, as usually happens, remains poor. Chevreul serves to corroborate an opinion often expressed—that of all the classes that habitually employ the brain, men of science live the longest.

MODELS FOR RIVER IMPROVEMENT.

According to a description which we read in the *American Manufacturer*, there is a most interesting display of models for the improvement of the Ohio river at the Pittsburg exposition. A wooden flume or canal has been built by the exposition authorities, and supplied with a large stream of water from a steam pump. This canal, intended to represent the Ohio river, is used by the inventors and exhibitors of the working models to demonstrate the method of operating their various designs.

Mr. Brunot exhibits two styles of movable dam, one suitable for the upper lock of a canal, or other location in which there is considerable difference in the level of water above and below the dam, the other for the lower lock of a canal, or for the bed of a stream where there need be no difference in level. Each dam consists of a floating water-tight box or caisson, which is raised to close the dam by its own buoyancy when emptied of water and filled with air, and sunk to open the water way when filled with water. A chamber of masonry or other material underneath the dam receives it when sunk. The only difference between the two dams is in the method of the emptying of water to raise the dam. In the first the water is allowed to escape to the lower level through a valve; in the second, there being no lower level, the water is pumped out.

Lieutenant Mahan exhibits a model of the Chanoine wicket dam. The principle of the Chanoine system is that a number of wooden wickets, four or more feet in width, and as many feet in height as may be necessary, according to the depth of dam, are placed side by side across the channel to be dammed. Each wicket is hinged to a movable cast-iron brace or trestle, which braces are hinged to the foundation at the bottom of the dam. The braces are so adjusted that by tripping them the wickets can be made to lie flat on the bottom of the stream. They can be raised by a hooked rod either from a boat designed for the purpose or from a movable trestle bridge.

Mr. Discher exhibits a movable dam which has some resemblance to an ordinary hinged canal lock gate. The gate, however, is a hollow water-tight box, floating when filled with air, and movable, and rendered stationary when brought into position for closing the dam by being filled with water.

Mr. Parsons, Mr. Wood, Mr. Smith and Mr. Dubois exhibit movable dams which are all somewhat similar in principle. In these the up-stream and down-stream faces of the dams are built of boards or other material, and are hinged together at the top, forming together when raised to close the dam a very flat letter A. The bottom of the up-stream face slides along a foundation prepared to suit, to open the water way, till the A becomes entirely flattened out, and the two faces lie in a horizontal plane at the bottom of the stream. The plans differ in the method of moving the sliding face. Mr. Wood and Mr. Smith use different kinds of mechanical gearing, while Mr. Parsons uses a hydraulic cylinder, and Mr. Dubois utilizes the buoyancy of the two faces of the dams to raise them.

Mr. Thompson's movable dam is a curious device. It consists in a revolving semi-cylinder, whose axis is at right angles to the line of the stream. It revolves in a semi-cylindrical chamber at the bottom of the stream. When the dam is raised the semi-cylinder is revolved till the cylindrical portion rises out of its chamber, thus forming a dam; to lower it, it is revolved till the flat portion is uppermost and on a level with the bottom of the stream.

ST. GOTHARD.—The work of tunneling the St. Gothard railway is being pushed on with considerable rapidity. A telegram from Geneva states that on the Goeschelen side alone 1,000 men are employed inside the tunnel and 400 outside. Three hundred wagon loads of earth are excavated every day, and in the daily blastings 600 pounds of dynamite are used. Equal energy is being shown on the Italian side.

MENTAL LOGARITHMS.

Some years ago, about 1863, Mr. Oliver Byrne, formerly Professor of Mathematics in the College of Civil Engineers at Putney, discovered an entirely new and ingenious method of arithmetical calculation of great practical importance to engineers and others, and which was claimed to enable anyone acquainted with the ordinary rules of common arithmetic to extract the roots of cubics, equations of the fifth degree, and higher equations; to determine angular magnitude and trigonometrical lines, to solve plane triangles without the use of tables, and generally, to deal with almost innumerable problems which had previously been considered to require great mathematical skill, and an intimate acquaintance with the higher branches of the science. But, owing to the discoverer having adopted a peculiar and unfamiliar system of notation in explaining the art, many have regarded the whole subject as unintelligible, if not useless. A complete remedy for this has now been found by Mr. Edward David Hearn, M.A., of Columbia College, New York, whose name is already known to mathematicians as the author of an extension of Horner's method for the synthetic division of algebraic quantities with detached co-efficients, and of an elucidation of Suffield's method of arithmetical synthetic division. Mr. Hearn contributes to the October number of *Scientific Review*, an interesting paper on "Mental Logarithms," in which he demonstrates that all the developments of which Mr. Byrne's art is capable, are not only practicable without departure from the ordinary Arabic notation, with which every schoolboy is familiar, but that the common notation really increases the speed at which the calculations on the new system can be performed.

FALL SHADOWS.—"Gem'len," said Brother Gardner, as he smiled down upon the brethren, "it am needless to remark dat de fall sezun am arrove. De days am gittin' in a hurry, and de nights am puttin' in heaps o' time for the money. Folks who hez been in de habit of exhibitin' themselves on the front doah steps for an hour or two after supper am now to be foun' aroun' de kitchen stove, and ice cream begins to bite de confidin' tongue. De long evenings am sort o' tiresome to de gen'ral run o' men, an' I want to say a word right heah an' now. From an' arter dis date de club library will be open ebery evenin', an' members ar' invited to drop in an' read up on history, science, finance, astronomy, and all de odder consistencies of de age. Dar will be slates an' pencils heah to figger wid; dar will be luxuries heah for writin' letters; dar will be war maps o' New Jersey heah; dar will be glee books, hymn books, an' a good fire, an' de man doan' know nuffin' kin drop in heah an' fine out all about it, an' go home to his fam'y wid a clean conscience an' a marble brow. De ideah am to keep off de streets an' outer de low places, an' at the same time plug de mind wid richness an' wisdom."—*Detroit Free Press*.

SELLING HIS WIFE'S WOODEN LEG.—Mrs. Mary Johnson kept an apple and peanut stand at Washington and Vesey streets for many years, and saved enough money to purchase a home in 119th street, near Fourth avenue. She also saved money enough to buy an artificial leg, having lost one of hers in childhood. In July, while sitting behind her stand, she was sun-struck and taken to the hospital. Her husband then sold the house and furniture, and tried to pawn the wooden leg. Failing to dispose of it in that manner, he sold it for 25 cents. Mrs. Johnson, since her discharge from the hospital, has been unable to purchase another artificial leg. Johnson was arraigned before Justice Smith in the Harlem Police Court, on Thursday, on a charge of abandonment. After having investigated the case the Justice said to him: "This taking sections of your wife and trying to sell them won't do. You'll be pawning the baby next." Johnson was sent to the penitentiary for 12 months.—*New York Sun*.