

Scientific Museum.

Scientific Memoranda.

WATER AND DEW.—The transformations of water are truly wonderful. A solid body falls from the sky in the shape of a hailstone, which, while it is held for examination in the hand, changes into a transparent fluid, and then again changes into a vapor, and vanishes in the air. If the weather is cold, it soon disappears and gently falls in liquid drops of dew, and, instead of a hailstone, they appear as soft and beautiful pearls.

WATER AND LIME.—Place some water under a bell glass, with thrice its weight of lime, it will gradually disappear, and instead of three parts of lime we have four, and yet the earth appears dry. Of a plaster of Paris statue, weighing five pounds, one pound of it is solidified water.

WATER IN THE HUMAN BODY.—A man weighing 140 pounds, if squeezed under a hydraulic press, 105 pounds of water would run out of him, and only 35 pounds of solid dry matter would remain. A beef-steak pressed between blotting paper, under a press gives out four-fifths of its weight in water. Water, therefore is the first necessary of life, and this accounts for the healthiness of those districts where good water is supplied to the inhabitants.

The water of the ocean absorbs two per cent. of air.

Fallacies of the Faculty.

An esteemed neighbor, who for eighteen years has been subject to frequent and severe attacks of rheumatism, some of which have laid him up for two months at a time, desires, through our columns, to pay a tribute of justice to the benefits received by him from the Chrono-Thermal treatment of Dr. Turner, of New York. The recent attacks have uniformly been broken up in three or four days, while the last one was conquered in twenty-four hours. Not a drop of blood was taken, either by lancet or leech; consequently the vigor of the system was rapidly restored.—[Prov. (R. I.) Jour.]

[The above paragraph brought to our recollection the work of Dr. Turner, of this city, which has been in our possession for some time. It is an American edition of Dr. Dickson's work, edited by Dr. Turner, and is a masterly work. It explains the principles of the Chrono-Thermal System of Medicine, with the "Fallacies of the Faculty," in a series of Lectures by Dr. S. Dickson, of London.]

We would like, were it possible, to present the leading views of this work, but we have not room for that; we can only recommend the work, stating, briefly, that Dr. Dickson's conclusions in relation to health and disease, are, 1st. "The phenomena of perfect health consist in a regular series of alternate motions, each embracing a special period of time. 2nd. Disease, under all its modifications, is, in the first place, an exaggeration of the amount of the same motions, and, being alternative with comparative health, strictly resolves into fever," &c.

The remedies for the treatment of disease are termed "Chrono-Thermal;" it rejects the leech, the lance, and cupping, and abominates blood-letting—and so do we.

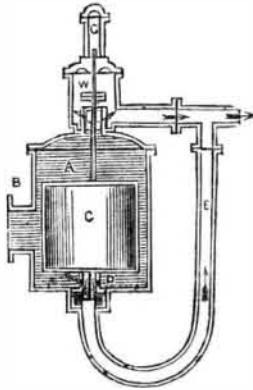
The work is now in its thirteenth edition, and this speaks well for it.

The Preserving Influence of Chloroform.

M. Augendu, Assayer in the mint at Constantinople, has written a letter to the Academy of Sciences (Paris) pointing out a new property of chloroform. He states that if a piece of beef be placed in a vial, with a few drops of chloroform, it remains perfectly sweet and untainted. A 1-200th part of chloroform is sufficient to preserve animal substances for an indefinite length of time. He has also succeeded in preserving vegetables by the same means, for a long time. His opinion about its action is, that it is purely physical—the chloroform acts upon the fibres, contracts them, expels the juices, and prevents putrefaction. The most powerful antiseptics which we have,

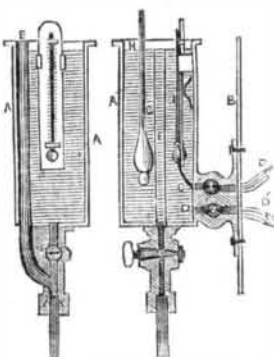
such as the chlorides of sodium, zinc, mercury, and the chloride of formyle, are all chlorine compounds, and they act on organized substances without yielding up any of their constituent principles to these substances.

Hydrostatics.
(Continued from page 112.)
FIG. 13.



Some time ago we noticed an invention of Mr. Sewall, Engineer, U. S. N., whose pamphlet we have now before us, describing his Salinometer. In the Franklin Journal for last July, a very excellent description of the uses of the Marine Salinometer is given, with engravings of Mather's and Sewall's instruments, which accompany this. The Marine Salinometer is an instrument for testing the density of the salt water in the boiler. It is well known that sea water contains 1-33rd of its own weight of salt, and as the steam raised from it in the boiler leaves the water more dense, it would soon become so strong as to form into crystals, and become almost solid, or form in scales on the boiler. This actually happened to the first steamboat that went from Glasgow to London; the deposit became quite thick, and the boiler had to be emptied entirely. But this would not do now-a-days. To prevent crystallization, the brine is blown out by an aperture and pipe, at the bottom of the boiler, (at regular intervals,) or otherwise a brine pump is used for that purpose. It is here where the Salinometer shows its advantages. It is a waste of heat to run off unsaturated brine, and the instrument is to tell when it has reached the proper point of saturation, so that the boiler shall be blown out then—not before nor after. Figure 13 is what is called "Mather's Salinometer and Blow-off."

FIG. 14.



It consists of a separate vessel, A, bolted on and opening into the boiler at B, below the water level, enclosing a hollow brass float, B, having a centre vertical spindle; upon this spindle, above and below the float, are two pistons sliding in cylinders, D D, connecting with the blow-off pipe, E E, and so fixed that when, by the increasing density of the water, the float rises, they reveal openings in the sides of the cylinders through which the water may escape. The pistons being of equal diameter, there is no tendency to open or close them. Means of adjustment are provided, in the upper part of the spindle, which, continuing all through the piston, rises high enough to be seen in a close glass tube, G, surmounting the chest, and thereby serves as an index to show the action of the instruments.

Fig. 14 is the invention of Mr. W. Sewall, Jr., and is the subject of a patent. It employs a hydrometer like the instrument represented in figs. 11 and 12, last number of the Scientific American. It consists of a cylindrical brass chamber, A, permanently attached in a vertical position, having on its side near the bottom two cocks, 1, 2, with pipes, C D, leading into the boiler, the one directly over the

furnace crown, the other near the bottom of one of the "legs." Either may be used as desired, but the former (C) is that generally employed. An outline pipe leads from the bottom of the chamber, furnished with cock F, below which enters another pipe E, whose mouth or upper end is about half an inch below the top of the chamber; this forms an overflow. A Fahrenheit thermometer, I, attached securely to the inner side of the chamber, and a hydrometer, G, graduated for saline solutions containing from 1.33 to 12.33, (the latter being the point of saturation,) sliding freely in a guide, H, for steadiness, complete the apparatus.

When in use, the cock, C, to the boiler is always partly open, while the overflow E, carries off the water as rapidly as it enters; but when it is desired to test the density, this cock is shut until the water has cooled to 200° Fahr., when the hydrometer is read off and the current re-established, thus preventing saline deposits in the pipes. This instrument has been thoroughly tried at sea, and has, we believe given full satisfaction.

One way which had been commonly practiced, before Salinometers were made so as to be attached to the boiler, was to draw the brine from the lower cock at stated intervals, into a tin tube, like that in the last number, and test it by a common hydrometer. This is a correct but more troublesome plan—a tube full of water from the sea and one from the boiler could easily, by the old plan, be tested at the same time.

Fire-Proof Ropes.

Prof. Johnson, of St. Louis, has discovered a method, it is said, by which ropes can be rendered entirely indestructible by fire. The process is stated to be very simple, and so cheap that the commonest fabric can be prepared with it, and its use be made universal. Wood for the lining of safes, prepared by this process, possesses a perfect resistance to a fire capable of melting the cast iron and burning out the wrought metal enclosing it.

[The above we have seen in a number of exchanges. We would state that Mr. Johnson, when in this city a few months ago, on his way to Europe, was seized suddenly with disease and died. The patent was secured to his widow after his death.]

New Water-proof Discovery.

A Mr. Martin, of Cokermouth, England, has discovered one of the most wonderful processes for rendering all kinds of fabrics water-proof. He has patterns of every fabric, from the finest open lace to the coarsest fustian of the mechanic; each appear to be as if cut from the web; not the slightest difference is observable betwixt those that had undergone his process of water-proofing and those that had not; even the most delicate silks are not in the least altered, either in color, feel, or smell, except they are perfectly impervious to moisture, the water rolling over them as from the duck's back or the cabbage leaf.

The most extraordinary as well as the most valuable characteristic of the discovery is, that though cloth of any description, after having been water-proofed by Mr. Martin's process, will resist boiling water, which makes not, in fact, the slightest impression upon it, it is not in the slightest degree less impervious to vapor—the steam, and even the breath, passing as freely through it as before it was submitted to the water-proofing process.

A Tall One.

The Boston Traveller of Saturday notices the arrival from St. John of a young man seven feet four and a half inches high, fifty-six inches circumference round the breast, and weighing 256 pounds. He is a Scotchman, aged nineteen, but for some time past a resident of Nova Scotia.

A Powerful Voice.

An English paper in 1824, describing the effects of Catalini's voice at a musical festival says:—"Such was the torrent of sound she emitted at one moment, that the glass globules pendent from the central chandelier were powerfully agitated and struck against each other."

LITERARY NOTICES.

HARPER'S NEW MONTHLY MAGAZINE.—We should have noticed before the receipt of the December number of this justly popular work. It contains a sterling variety of the best literature of the day, both foreign and home, besides a synopsis of the current events of the month. This latter feature alone, is most valuable, and enhances the merits of the magazine vastly, in the estimation of all who take an interest in the collections of the most prominent events occurring throughout the world. Like all the publications of this celebrated house, the mechanical execution of the work is unexceptionable. Price per number (145 pages) 25 cents.

THE AMERICAN PHRENOLOGICAL JOURNAL appears, for January, in an improved form, printed upon fine white colored paper. We have scarcely ever seen a more beautiful specimen of the printing art. This number contains a finely executed engraving of Collin's Steamship Atlantic, accompanied by an interesting paper upon Steam Navigation, by R. Macfarlane, Esq., of the Scientific American. We take this occasion to state, that, in this department, our highly gifted associate has furnished much valuable information to the world. His recently published "History of Propellers and Steam Navigation," has been highly complimented by the press, and justly so, as we regard it. The Journal, for this year, must more than excel any other volume ever issued. Terms \$1. Fowlers & Wells.

"The Manhattaner in New Orleans, or Phases of Crescent City Life, by A. Oakley Hall." J. S. Redfield, publisher, Clinton Hall, N. Y. This work presents, in a very attractive manner, a faithful daguerre-type of New Orleans, in all its characteristics, and will be found a most interesting book.

Friend Morgan, of the Palmetto State Banner, has our thanks for his courtesy. We shall not forget it. By the way, the Banner is one of our most interesting southern exchanges, and we wish it a long life of profit to its publisher.

What has become of our old friend, the Savannah Republican? We miss you much from our exchange list; have we forfeited your good will?

NOW READY.—BROTHER JONATHAN PICTORIAL DOUBLE SHEET, FOR THE CHRISTMAS HOLIDAYS, AND NEW YEAR, 1851.—It is known every where that this magnificent paper is the wonder of the world, as regards its immense size, splendid large Engravings, and astonishing cheapness. The beauty of this year's JONATHAN must astonish everybody! as the Engravings are larger and richer than ever. Indeed, it would be impossible to over-rate the splendor of this magnificent Christmas sheet.

The spirited picture of "The Country Girl in New York," is a master-piece of American Fine Arts, and occupies a double page of this mammoth sheet.

Another fine large picture is a group of spirited portraits at President Taylor's Death Bed, being the distinguished relatives and friends of the dying President.

Another gem is the "Dream of Love and Pleasure," a large picture occupying the first page, and pronounced the most beautiful and spirited original design ever made in America.

We have not room to enumerate a tithe of the beautiful engravings, popular reading, fun, frolic, anecdote, and Christmas repartee, which go to make up this stupendous sheet. Of one thing we are certain—it is by far the best and handsomest pictorial paper ever issued in America, or any where else.

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The Publishers of the SCIENTIFIC AMERICAN respectfully give notice that the SIXTH VOLUME of this valuable journal, commenced on the 21st of September last. The character of the SCIENTIFIC AMERICAN is too well known throughout the country to require a detailed account of the various subjects discussed through its columns.

It enjoys a more extensive and influential circulation than any other journal of its class in America.

It is published weekly, as heretofore, in *Quarterly Form*, on fine paper, affording, at the end of the year, an *ILLUSTRATED ENCYCLOPEDIA*, of over FOUR HUNDRED PAGES, with an Index, and from FIVE to SIX HUNDRED ORIGINAL ENGRAVINGS, described by letters of reference; besides a vast amount of practical information concerning the progress of SCIENTIFIC and MECHANICAL IMPROVEMENTS, CHEMISTRY, CIVIL ENGINEERING, MANUFACTURING in its various branches, ARCHITECTURE, MASONRY, BOTANY,—in short, it embraces the entire range of the Arts and Sciences.

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Any person sending us three subscribers will be entitled to a copy of the "History of Propellers and Steam Navigation," re-published in book form—having first appeared in a series of articles published in the fifth Volume of the Scientific American. It is one of the most complete works upon the subject ever issued, and contains about ninety engravings—price 75 cents.