

## Scientific Museum.

### The Drying up of the Sea.

There is an interesting discussion in progress, in the National Intelligencer, respecting the progress of the coral formations—reducing the waters of the sea to solid land. W. D. Porter introduced the discussion, and he has been replied to by H. R. Schetterly, our correspondent. Mr. Porter maintains that the ocean has diminished in liquids, by the amount of the solids formed by the zoophytes and shell fish, and that the shores and lines of coasts have changed their form in consequence of the subsidence of water caused by this diminution. The zoophytes surround the world in a belt, extending 39 degrees from the equator each way. They are constantly forming solids from the liquid ocean. They have already formed sixteen millions of square miles. And liquids when reduced to solids, generally occupy less space. Mr. Porter says:—

Where rolled many millions of waves, now stand many millions of miles of firm rocks, their bases fast to old ocean's sand, their tops peering above old ocean's blue waves.

Mr. Schetterly in reply maintains, that though there is a subsidence of waters, it must be from other causes—the actual quantity of water on the globe has not diminished. He thinks a diminution of the sea, would diminish the amount raised by evaporation, and falling in rain, and would be destructive to vegetable life. This sort of reasoning is not satisfactory against a matter of fact. Should great changes take place on the face of the world, Providence has resources to make one thing balance another. And agencies of which we now have no idea, might come in to do the work of sprinkling the earth, after the sub-marine land-makers had exhausted a considerable portion of the sea. It is evident that the world is yet to subsist a population vastly greater, than it now does; and that God is making room for them. And we read that in the new earth which is to exist after the dissolution and re-construction of this—*"There was no more sea."*

And there may, for ought we know, be a gradual diminution of the sea, to make way for the vast population which is to fill the world in the millennial state. At least we need not shrink from allowing the actual progress of things towards such a result, to have its weight on our minds, for fear that God cannot spare the wasted waters, or cannot preserve the life and health of the world without them. The earth before the flood appears to have been watered in a different way from what it now is. And it very much limits the resources of Him who made the world, and who set to work the zoophytes making its solid land more ample, to assume that he has no other means of watering the solid earth, than to devoting to it so large a proportion of the earth's surface, as is now covered by the sea.—[Puritan Recorder.]

[We understand by our worthy cotemporary, that it believes in Mr. Porter's theory and draws from the Bible an argument for the necessity, or rather probability of its correctness, against Mr. Schetterly, that although the waters of the sea and evaporation were diminished, Providence has other resources to make one thing balance another. It throws out the hint that the increase of the earth may be for the vast population of the millennium, but surely Providence which can make a new way of supplying the earth with moisture, could also find a way to sustain the vast population of the earth with the present extent of dry land. The earth was watered before the flood just as it now is, by evaporation and condensation. Before man was created, it is said there was no rain but mist, and from this we would infer against Biblical critics that after man was placed in the Garden before the flood, there came rain,—“show-ers that ushered in the spring and cheered the thirsty ground.” The Books of Moses are profound philosophical works, not false philosophy, and in no case do we find them contradicting sound science. The hypotheses of Mr. Porter, we believe, is founded on ver y

slender data. The seas have no less waters to-day than they had four thousand years ago; they are a constant quantity. It is true that some reefs and islands have coral foundations but if the dry land has made encroachments on the sea in some places, the sea has made encroachments on the dry land in others. Where the cities of the Plain stood, there is now the deep Dead Sea; the waves roll over the walls of ancient Tyre. Where Port Royal stood, the shark sports, and where the quay of Lisbon once lifted up its solid walls, alas they now are fifty fathoms deep below. The sea has been making, year after year, great encroachments on the coast of Norfolk, in England, and where once the large and fine island of Norland stood in the German Ocean, there are only three small islets. In one tempestuous night, the sea buried the most of it beneath its waves.

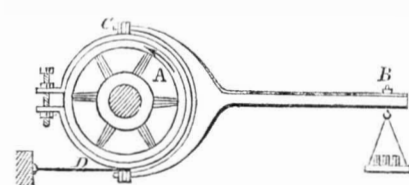
We could cite various other instances of the sea's incroachment: England was once united to France, and so was Scotland to Ireland—the evidences of this appear to be beyond cavil. There is one expression in the extract quoted which we cannot pass over, “liquids when reduced to solids generally occupy less space.” This is not the case with water, and zoophytes cannot raise a foot of coralline rock without taking the material from the sea to build it. They do not make their formations out of nothing, therefore the waters of the sea cannot be growing less, unless the corals have discovered a way to change the very nature of the water itself, convert it from water into their lime formations—a thing impossible. The coral formations increase very slowly. In some of the gaps in the Australian reefs scarcely a perceptible difference has been discovered in their elevation, for fifty years. If there are elevations taking place in one part of the earth, science teaches us that there must be depressions in some other. By the common laws of the Universe, no portions of any kind of matter are growing less—such as the drying up of the sea—by any organic or inorganic action. The sea will never dry up until “the elements shall melt with fervent heat,” and when there shall be no more sea, there will not be the same kind of inhabitants on the earth, for our bodies are composed of about 81 parts of water.

### Hydraulics.

[Continued from page 360.]

MEASURING THE POWER OF WHEELS.—The force applied to propel a wheel is as the quantity of water and the perpendicular height of the fall. Although this force is easily calculated by multiplying the velocity into the weight, yet this will not give the power of a water wheel, for of two wheels driven by the same quantity of water and the same fall, one may perform 20 per cent. more labor. This is owing to the superior construction of the one over the other. The way to test the laboring force of wheels is by a dynamometer such as M. Morin's Friction Brake, two kinds of which are here presented.

FIG. 61.



A is a sheave pulley on the wheel shaft; B is a lever secured to it by straps, C D, all tightened by screws. The brake is fastened to some permanent part of the frame or building at D. The weight of the lever and scale must be known. The weights are put into the scales so as to pull it down and slacken the fastening at D, and the wheel is set in motion so as to balance its effective power by the weights, at the end of the lever. If the pulley is 3 feet in diameter and the lever 5 feet long from A to the point B, and if the weight of the lever is 30 lbs. and 75 lbs. on the scale and the wheel making 50 revolutions per minute, the power is  $50 \times (75 + 25) \times 5 \times 3 \times 3.1415 = 33,000$ . In 1836 a work was published in Paris denominated *Experiences sur les Roues Hydrauliques a aubes planes et sur les Roues Hydrauliques a augets*, and from

this work our readers will get the equations relating to the force and measure of power. We refer to such works because works on hydraulics are very voluminous.

FIG. 62.

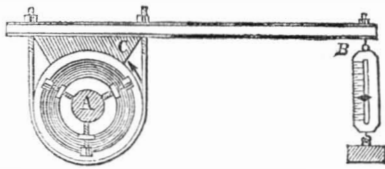


Fig. 62 is another modification of a friction brake. A is a sheave pulley fastened to the wheel shaft by tightening screws and correctly set to run concentrically. A metal strap is fitted round the pulley passing through the lever, B. These screws can tighten the strap as may be desired; C is a metal box (some have used wood) acting opposite to the strap. On the end of the lever is a balance spring firmly secured to some fixed object like the lever, the preceding figure. This brake can be applied to either horizontal or vertical shafts. In the Franklin Journal of 1842 some very interesting information will be obtained from the experiments of Elwood Morris, on testing the power of water wheels.

We shall publish the mode of estimating the power applied to various wheels, next week, after which we will conclude those series of articles, by one or two papers on the philosophy of the Re-action Water Wheel, moving in the same direction as the water that impels it.

### Extraordinary Petrification and other Curiosities.

The steamer St. Ange, Captain Labarge, says the St. Louis Intelligencer, arrived here yesterday from the Yellow Stone, after a voyage of fifty-two days. Capt. L. informs us that for ten years past he has in every successive annual trip observed a remarkable-looking solitary cedar tree standing upon a bleak and elevated point, about fifty miles below the mouth of the Yellow Stone. While coming down, this last trip, he saw that his old acquaintance had fallen to the earth. Curiosity led him to the spot, which was about half a mile from the river, and perhaps 700 feet above its level, when he found, to his surprise, that the tree was in the most perfect state of petrification. Judging from the shortness of the interval since he had seen it standing, it must have been in that condition while standing erect as it had grown. The trunk was about thirty-six inches in diameter. A fragment of it is now lying upon our table, and is decidedly the most perfect specimen of ligneous petrification we have ever seen.

Dr. Evens, U. S. Geologist, who came as a passenger on the St. Ange, found near the same spot, the shoulder-blade of a mastodon, measuring nearly  $3\frac{1}{2}$  feet across—also some enormous foot bones of the same animal. Fossil shells, the head of a snake, and other curiosities, were found by Dr. E. in the same locality.

Among the notabilities of the trip was the catching of a beautiful specimen of the Linnet—a bird very rarely seen—by some of the boat hands. Its plumage is beautiful, and the melody of its song is most charming.

Mr. Berthold, who also came on the boat, brought with him the stuffed skin of one of the mammoth mountain sheep of the Yellow Stone region. It stands about as large as an ordinary milch cow, and is indeed a remarkable curiosity.

Captain Labarge brought down some beautiful specimens of the rocks found on Cannon Ball river, whose name is derived from them. They are perfectly spherical, and, without a very close inspection, would pass for real cannon balls anywhere. They are of sizes ranging from that of a common toy marble to the bulk of a half-bushel measure. They are seen in measureless abundance, projecting from the face of the steep banks between which the river runs.

They cultivate the blackberry, in the neighborhood of Boston. An old pasture is broken up, the sprouts are planted in rows in October, and kept clear of weeds, and otherwise treated

like raspberries. The Agriculturist says that the fruit thus produced is of a size and flavor which surprises those who are only acquainted with the wild blackberry. Our readers may not all be aware that the American species has a more agreeable flavor than the European. There are also different varieties of the American fruit even in its wild state, from which a selection might be made.

A self-sealing envelope for the ballot-box has been invented at Boston. The Secretary of the Commonwealth of Massachusetts contracted for the immediate manufacture of 1,200,000 self-sealing envelopes, at a cost to the State of \$18,000. These envelopes are to be used by the voters of Massachusetts, in carrying into effect the Secret Ballot Law, passed by the last Legislature.

### LITERARY NOTICES.

ADDRESS ON CHURCH MUSIC, BY LOWELL MASON.—The name and fame of Lowell Mason, as a teacher of Sacred Music for more than 40 years, imparts to this address more than ordinary interest, not because he has been a teacher, but such a teacher. On tendering his resignation as conductor of music in the Central Church, Boston, he was presented with an elegant and costly silver vase, by the past and present members of his choir. On that occasion he delivered the Address, which is now published by Mason & Law, of this city, and it contains many most interesting statements to those who take an interest in our Church Music.

THE SCALPEL—A journal of Health, adapted to popular and professional reading, etc.: edited by Edward H. Dixon, M. D., New York. This able quarterly, for August, has splendid contents. The articles upon Cholera, Typhus, Ship, or Jail Fever, the elementary substances of our body, etc., are very able and instructive. This number is embellished with a likeness of Dr. Carnochan of superior artistic excellence. The Editor's "Soda Water Department" is always peculiarly well seasoned, and possesses some of the finest scintillations of sarcasm to be met with. Everybody should read "The Scalpel." \$1 per annum; 25 cents per number.

ICONOGRAPHIC ENCYCLOPEDIA.—Part 22 of this useful and beautiful work is now issued and ready for sale by its enterprising publisher, Mr. Rudolph Garigue, No. 2 Barclay street, this city: it contains 20 plates, some of which contain more than 20 clear and distinct figures and groups of Egyptian, Grecian, and Roman statuary. The letter press pages comprise pages 425 to 500, and treat of Mammalia. In three months more this splendid work will be completed.

DICTIONARY OF MECHANICS AND ENGINE WORK.—No. 36 of this able work, published by D. Appleton & Co., contains articles on the Transit Instrument, Turbine, Turn-table, Twisting iron, Warning and Ventilation. The article on the Turbine treats exclusively of Fournayron's, and some other French wheels. It is not satisfactory, inasmuch as the turbine in its improved form, is exclusively of American origin, and not a word is said about this; the information about the turbine, however, is valuable.

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