

WHY THE OCEAN IS SALT.

Theory Advanced That Salinity is Due to Volcanic Ejections.

The water contains about 3 1/2 per cent of sodium chloride and other salts. The evaporation of all the oceans would leave a mass of salt sufficient to cover the entire globe to the depth of 200 feet and equal to the bulk, above sea level, of North and South America, or one-fourth that of the whole earth.

The theory that this enormous quantity of salt has been dissolved from continental rocks and carried down to the sea by streams is not tenable, because the salts found in solution in river water contain 80 per cent of carbonate of lime and only 7 per cent of chlorides, while common salt, or sodium chloride, constitutes 80 per cent of the salts of sea water. Moreover, the evaporation of inland seas which has taken place in central Asia has left saline deposits very different in composition from the salts of the ocean.

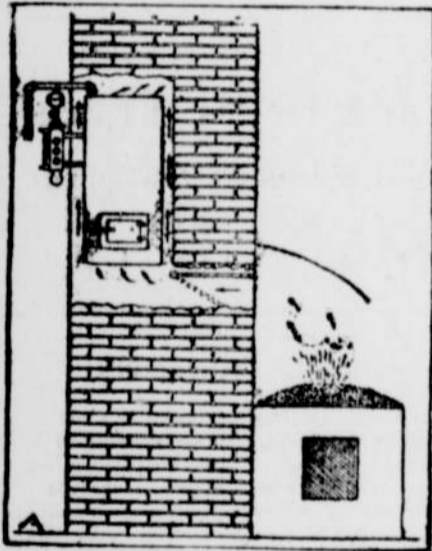
It appears, therefore, that salinity must be regarded as an original property of the ocean. Suess has advanced the theory that the salts now found in the sea have been ejected by volcanoes in early stages of the earth's formation. Even now every eruption increases the quantity of water vapor, carbonic acid and compounds of chlorine and sulphur in the atmosphere, and these substances ultimately find their way to the ocean. After every eruption of Vesuvius the crater is covered with a gleaming white layer of common salt, and the volcanoes of South America eject enormous quantities of hydrochloric acid, estimated at thirty tons daily for the volcano of Purace, in Colombia.

This volcanic activity, now restricted to a few points of the earth's surface, must have been general in remote ages, before life appeared on the globe. The gases confined within the thin solid crust burst their bounds and found their way to the surface, bringing with them the millions of tons of chlorides which we find today in the oceans. Yet the transfer of these millions of tons is a relatively insignificant change, for on a terrestrial globe of a diameter equal to the average height of man (sixty-six and one-half inches) one-sixteenth inch would represent the greatest depth of the ocean, and the waters of the ocean contain only 3 1/2 per cent of solids.—Cosmos.

WASTE HEAT UTILIZED.

Simple Method of Generating Steam by Means of Forge Fire.

In large forge works boilers are located over the furnaces, and the waste heat passing through the flues generates steam to drive the steam hammers. A correspondent of the American Blacksmith has made use of this idea to utilize the waste heat from his forge. An 18 by 26 inch tubular boiler was hung in the brickwork so that there could not be much loss of heat and located just back of the



UTILIZING HEAT FROM FORGE.

forge chimney. The heat from the forge fire passes up through the fire box of the boiler, through the flues and around the outside of the boiler. The heat then enters the chimney at the top of the boiler.

The gauge cocks and the glass water gauge are on the back side of the boiler housing, in easy reach of the blacksmith from a platform a little below the bottom of the boiler. A swing damper, located as shown, controls the heat from the forge fire. This damper can be dropped down when the boiler is not in use, thus sending the heat up the flue of the chimney. The damper is made of thick sheet iron riveted to a piece of half inch round iron bent to form a lever for a weight to slide upon so the damper can be held in any position wanted. A great deal of heat can be saved and used to generate steam for heating the shop.

Healthfulness of Smoke.

Smoke is a blessing to the world and a boon to health, according to a statement by W. F. Rond, coal magnate, in reply to an address by B. R. Fritchard, secretary of the Chicago board of health, declaring it a nuisance.

"This talk about smoke being a curse is all nonsense," Mr. Rond declares. "The Creator who made coal knew that there would be smoke and knew that smoke would be a good thing for the world."

"Take the coal operator, who is at all times breathing not only smoke, but coal dust in addition. His lungs are black with both, and yet he is one of the healthiest men in the world. In all my experience among coal operators I know of only one who died of tuberculosis."

"The carbon in the smoke is a boon to health. As the smoke ascends the carbon contained in it kills germs of every kind of disease and purifies the air."

MAINTAINING STONE ROADS.

Protective Value of Wood Meal Mixed With Oil and Tar.

One who is interested in road building and thinks he knows how to maintain a macadamized road in a thoroughly effective and cheap way says: "If my observations are correct the destruction of a road starts in the following manner: Small stones or pebbles are loosened by the wheels of vehicles and scattered over the road, leaving little holes therein. Now, as long as the wheels had iron tires these little stones were ground or crushed by those wheels, and the holes in the road were filled again with their dust, the rains playing perhaps a good part in packing and filling the material."

"With the soft wheeled automobile all this changed for the worse. The rapid revolution of the broad wheels and the suction caused by them and by the low bodies of the machines loosen the little stones more easily and quickly, and as there are hardly any iron wheels left to grind and crush the loose pebbles the small holes soon become plentiful, and before long they grow into large ones and ruts."

"To sprinkle the roads with liquids is quite ineffective to prevent spilling. It must be something that has a body that will bind the particles of the road, fill all holes and protect the surface. It must be solid enough to be strewn on the road. There are probably many ways of producing such a road protector, and many ingredients might be used for it, but one of the best, I think, would be wood meal—that is, ground sawdust, ground hay or straw, ground cornstalks or any such article which is cheap and plentiful and which can easily be ground to meal and which will float and not clog up the sewers if used in the city. This meal should be soaked in or mixed with oil or with a mixture of oil and tar or any other suitable binder, so that it will not only protect and keep intact the roads, but also lay the dust. If used on asphalt it would give a good footing for horses, which is sorely needed."

NEW TYPE OF ROAD.

Combination of Brick and Concrete With Sand to Distribute Pressure.

With contract work about to begin on millions of dollars' worth of new roads in New York state there is naturally much curiosity as to whether or not any new ideas in construction will be tried. The state engineer's recent report indicates that the ordinary macadam does not last well under the impact and friction of automobile traffic, which is rapidly increasing, and reads well suited for the demands of a decade ago fail to give satisfaction proportionate with their cost under modern conditions.

It is improbable that the ideal form of construction has been discovered, although the building methods are very numerous. A Brooklyn inventor claims to have embodied scientific ideas in a form of road for which he has been granted patents and for which he makes strong claims. It has a surface of paving brick block joined with cement and supported by large blocks of concrete. Through each block run several vertical holes, and in these, according to the inventor, lies the virtue of the idea. The holes are filled with sharp sand, and between the brick surface and the supporting blocks is placed an inch layer of sand. This road, it is held, cannot be broken down. The sand distributes pressure upon the surface against the sides of the holes instead of vertically. Drawing moisture from the ground, it will present a springy, elastic base, for which a life of many years is anticipated. The new road has many other advantages—in theory, at least. It is probable that an offer will be made to give an actual illustration of its value to those interested in the construction of new state highways.

AUTOMOBILE ROAD TEST.

Norristown, Pa., to Find Out How Motor Cars Affect Highways.

In resenting the imputation that automobiles are more harmful to improved highways than horse drawn vehicles Assemblyman Rex of Norristown, Pa., at the annual convention of supervisors the other day suggested that a practical test be made to demonstrate the relative wear and tear of both classes of vehicles on public roads.

He offered to contribute to the construction of such a road, which will be composed of two parallel highways exactly alike. Over one of these roads horse drawn vehicles are to pass and over the other the automobiles.

Lesson in Good Roads.

The state engineer of New York in a recent report says that in 1907 New York built 311 miles of good roads and in 1908 820 miles. The taxpayers have authorized the expenditure of \$50,000,000 for roads, and the legislature has added \$11,000,000. It is stated that the contention for good roads had to be waged for years to get the work started. The farmers were the strongest in opposition. New Jersey and Massachusetts took up the work before New York, but now the Empire State is getting in line. By the time the \$61,000,000 shall have been spent the three states, which all join at points, will have a great system of roads. One may leave Philadelphia and reach Boston on highways smooth and solid. A good automobile may easily beat the trains on this trip, and surely the pleasure is much greater.

Highway Seven Hundred Miles Long.

A highway stretching in a direct line of 700 miles from Atlanta to Washington is now the subject of promotion on the part of the Good Roads club of Georgia.

Presbyterian Church

Services will be held at the Presbyterian Church, the first, second and third Sundays of each month at 11 a. m. and 8 p. m. Sunday School and Christian Endeavor at their usual hours. All are welcome. CEO. ROACH, pastor.

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NOTICE FOR PUBLICATION

Department of the Interior, U. S. Land Office at Roseburg, Oregon, June 23, 1909.

Notice is hereby given that Ellen W. Gouly, whose postoffice address is Bandon, Oregon, did, on the 28th day of January, 1909, file in this office Sworn Statement and Application, No. 02738, to purchase the a 1-2 of ne 1-4, section 18, township 29 south, range 11 west, Willamette Meridian, and the timber thereon, under the provisions of the act of June 3, 1878, and act amendatory, known as the "Timber and Stone Law," at such value as might be fixed by appraisal, and that, pursuant to such application, the land and timber thereon have been appraised, \$200 00; the timber estimated 230,000 board feet at \$0.50 per M, and the land nothing; that said applicant will offer final proof in support of her application and sworn statement on the 7th day of September, 1909, before G. T. Treadgold, U. S. Commissioner, at Bandon, Oregon.

Any person is at liberty to protest this purchase before entry, or initiate a contest at any time before patent issues, by filing a corroborated affidavit in this office, alleging facts which would defeat the entry.

BENJAMIN L. EDDY,

Register.

First publication July 8-10

NOTICE FOR PUBLICATION

Department of the Interior, U. S. Land Office at Roseburg, Ore, June 4, 1909.

Notice is hereby given that Kenneth P. Hemple, of Bandon, Oregon, who, on May 14, 1906, made Homestead Entry, No. 14066, S. R. 03984, for se 1-4 of sw 1-4, sec 30, e 1-2 of nw 1-4, sw 1-4 of ne 1-4, section 31, township 29 south, range 14 west, Willamette Meridian, has filed notice of intention to make final commutation proof, to establish claim to the land above described, before G. T. Treadgold, U. S. Commissioner, at Bandon, Oregon, on the 21st day of July, 1909.

Claimant names as witnesses: John Luke of Bandon, Oregon; John Stillwell of " " " " Robert P. Hunt of " " " " George Cox of " " " "

BENJAMIN L. EDDY,

Register.

22-6

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