The Obelisk in Central Park must be Inclosed.

In a paper given in the Transactions of the American Society of Civil Engineers, Prof. Thomas Egleston says: It is expected, now that the obelisk is supposed to have been waterproofed, that the disintegration will cease, but this appears to me to be founded on an altogether mistaken theory, which is, that the cracking is alone due to the expansion of the ice formed in the cracks. The rapid and extreme changes of temperature in this climate in a stone which, from its mass alone, must have but a feeble conducting power, would be sufficient to cause the disintegration already begun, in a stone weakened by exposure to great heat in a dry climate, to continue with comparative rapidity without the intervention of ice, but simply from the continued expansion and contraction going on on its weakened surface. But in a moist climate like our own, where it was subjected to both extremes of heat and cold, it would take place rapidly, as it has done.

As it was a matter of interest to ascertain how far moisture had to do with the cracking under heat, I made the experiment of submitting pieces of granite, which had become quite dry from having been kept housed many years, to as high a heat as could be obtained in the laboratory without melting, and to my surprise found that no spalling or even cracking occurred, although the pieces were subjected to the heat suddenly and for varying periods of time. It is well known that granite in buildings, when subjected to fire, spalls. This is owing to the moisture it contains; to the expansion of gas and liquids contained in microscopic bubbles in the quartz; and to the want of conductivity of the stone itself. Perfectly dry granite does not spall unless exposed very suddenly to a very high temperature. No granite, however, exposed to the weather in this climate is ever dry. Fresh granite contains about one per cent of moisture. That weakened by age, like the surface of all the obelisks, may contain many times that amount, consequently all granites on the outside of structures do spall when exposed to fire. From the fact that the stone of the Central Park obelisk is already weakened and probably full of fissures, which, in this climate, will tend to develop year by year, and from the very fact that the disintegrated stone will absorb more moisture than stone which is fresh, it seems probable that no protection or coating given to the stone will arrest the process of disintegration already commenced in it, if it is left exposed. Even if the surface was entirely waterproofed, the cold of winter and the heat of summer would act below the surface both of the coating and of the stone, causing the coating to break or fissures through it to occur, so as to let in the moisture, and then both causes would operate together as before. But in any case, heat and cold will act altogether independently of moisture, whether the outside be coated or not, and further disintegration must take place under the same circumstances and conditions as that which has already so much weakened the stone. Placing the obelisk in the Central Park, where it is exposed to nearly every agency that could tend to destroy it; allowing the surface of a stone already so much weakened by disintegration to be heated, thus causing further cracks to be made in it; is a greater monument to public indifference and ignorance than the shaft ever was to the dignitary who first erected it or the events chronicled in its hieroglyphics.

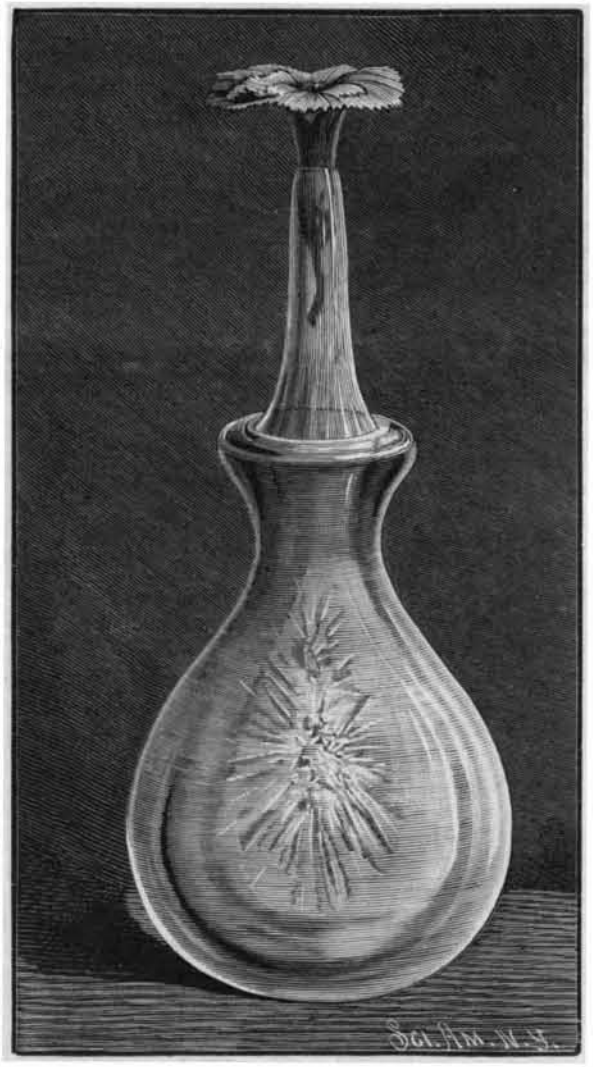
The same dangers, if the reports about it are true, threaten the obelisk on the Thames embankment, although not to the same extent. The climate of England is much less severe than ours, both in winter and in summer. The causes for disintegration, being the same in both cases, will affect the London obelisk less than ours, and there seems to be, so far as any examination of it has been made, no great present danger in leaving it exposed where it is. The obelisk in the Place de la Concorde, in Paris, is reported as cracked all over its surface. Both the European obelisks are therefore in danger of being seriously damaged within the next hundred years. Housing seems to be the only thing left for the obelisk in Central Park.

Fishing with Dynamite.

By special invitation we were permitted to witness a novel experiment one afternoon recently, which was intended to test the efficacy of dynamite bombs in the capture of fish in deep water. The objective point was found to be a hole about twenty-five feet deep in the upper end of the bight, where the fish are known to congregate in large numbers. Arriving at the spot, a cartridge about six inches long, charged with dynamite, to which had been attached a heavy piece of iron in order to make it go to the bottom, was thrown in the water. A suspense of a few seconds ensued, and then a faint report like the discharge of a small pistol was heard, the water became agitated and was raised about two feet, and immediately thereafter, within a radius of about sixty feet, the fish were strewn in all directions. A scene of the wildest excitement followed. Scoop nets were brought into speedy use, and over 1,000 fish of different varieties, from the large gray snapper, over three feet in length, to the small but succulent sailor's choice, were secured.—*Key West Democrat.*

A SINGULAR EFFECT OF THE ACTION OF FROST.

The accompanying illustration represents an ice formation that occurred at a private residence in New York city, in February last. A small vase was left on the bedroom window one night, filled with water, in which was a carnation, and in the morning it was found that the water in freezing had



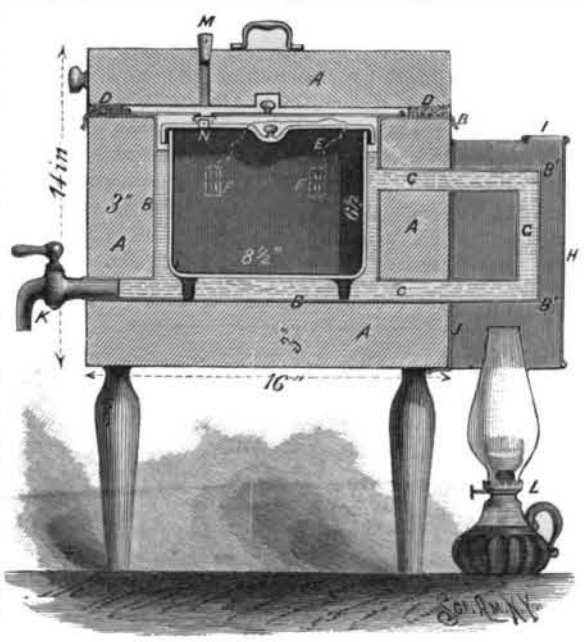
A CURIOUS ICE FORMATION.

raised the flower (which, of course, was wilted by the frost) in a column of ice nearly two inches in height above the mouth of the vase. There was a beautiful crystallization in the center of the vase, but otherwise the ice was clear and solid.

THE ALADDIN COOKER.

BY EDWARD ATKINSON.

The theory of this cooker is to accumulate heat from a common hand lamp inside a pine box, the walls of



A, box made of pine wood, 1½ by 3 inches thick, according to size of cooker; B, lining of tin or tinned copper, fitted with arm, B′, of copper, through which the water, G, circulates and in which it is heated by the lamp, L; the cooking vessel, which may be of metal—preferably of porcelain or of glass. D D, felt lining to cover; E, cord attached to perforated ears or rings, F F; G G G G, water in circulation, heated by lamp, L, to about 200° Fah.; H H, hood of tin around the arm, B′ B′, to concentrate the heat upon it; I, vent to tin hood for draught; J, tin guard to keep heat from wood; K, faucet to draw off water; L, lamp with wick, ½ to 1 inch wide, according to size of cooker; M, orifice for thermometer; N, orifice to cooking vessel, with screw cap, for thermometer; B′ B′, arm, 3 in. by 1 in. deep. Rounded corners desirable inside for convenience in keeping clean. Begin with tepid or cold water if glass vessels are made use of.

which are thick enough to retard radiation, so as to cook such food as may be placed in the cooking chamber or oven, in a thorough manner. All meats, birds, or fish may be thoroughly cooked in their own juices, only a little water being added so as to make a good gravy. Oat meal, corn meal, and farina can be cooked with a suitable quantity of water. Fruit, cheese, and such vegetables as do not require heat above the boiling point, may also be cooked in the apparatus. The juices of meat may be drawn for soup or broth by immersion in cold water in the chamber, before the heat is applied.

If the cooking chamber be 6×4×4½ inches, it will hold about three pounds of meat, which can be well cooked with a half inch wick in about one hour, the water being warm at the beginning. For such a vessel the pine walls need not be over 1½ inches thick.

In a cooking chamber 9×9×10 inches deep, surrounded by a half inch sheet of water in a pine box, of which the walls are 2 inches thick, ducks and grouse have been well cooked in about two hours, mutton in three hours, chickens or small turkeys in about four hours, with a one inch wick, beginning with hot water. A longer time makes meat more tender.

In a cooking chamber 12×12×12 inches, surrounded by a half inch sheet of water, in a box of which the walls are 3 inches thick, 20 to 25 pounds of solid meat can be thoroughly cooked in six to eight hours; a longer time serves for very tough meat. An 18 pound ham or a 20 pound tough old turkey have been made very tender between 10 P. M. and 8 A. M.; 1 inch wick.

In this large cooker the heat of the lamp is more fully saved by the following arrangement: In place of the projecting metallic arm, from which much heat is radiated and lost, the arm connects with a metallic water jacket, surrounding the lamp chimney, which jacket is incased in wood. The same work may be done by jacketing the metal hood, H H, with fossil meal in a wooden case. The meal will protect the wood where it comes near the lamp.

Clear pine appears to be the best non-conductor. Experimenting might be tried with slabs made of wood pulp, which would be less liable to crack or shrink.

The fuel required is about one cent's worth of oil to 20 or 25 pounds of food. This quantity has sufficed for a very old 20 pound turkey, for 22 pounds round of beef, for 20 pounds shoulder of mutton, and for 18 pounds of ham. A very old gander, weighing 12 pounds, was cooked for 15 hours, at a cost of 1½ cents. The meat became so tender that it could not be carved. It was therefore minced.

Several different cooking vessels can be used in the same box. At one time 15 pounds of mutton bouillon, 7 pounds of beef, and 2½ pounds of oat meal with water were cooked a little too much in six and a half hours with one pint of oil.

These are the first crude results. A professed cook may attain much better ones, with greater economy of fuel. The lamp wick should be very carefully trimmed; and in order to avoid smell and smoke from the oil, the flame should not be put up to its full height until a few minutes after it is lighted. The food chamber being practically air tight, there is no loss by evaporation, and no odors of cooking are given off.

The Nation's Health.

The report of Dr. John S. Billings, Surgeon of the United States Army, on the mortality and vital statistics of the United States has been received by the Secretary of the Interior. Dr. Billings divides the country into twenty-one districts, the physical characteristics of which are more or less distinctive. The total population in 1880 was 50,155,783, an increase of 11,597,412 in ten years. Of this increase, 281,219 per annum may be taken as due to immigration, which would make the mean annual increase due to excess of births over deaths, 878,522. The mean annual birth rate for the United States is given at 36 per 1,000. During the census year there was a comparatively low death rate and a high birth rate.

As among the different classes of citizens, the report shows the death rate to have been larger in the colored than in the white population, and among the latter higher in the foreign element than among those of American parentage. The death rate was also greater in cities than in rural districts. The most important causes of disease and death were consumption, pneumonia, diphtheria, typhoid fever, malarial fever, and the various ill-defined forms of attack to which children under one year of age are particularly subject. During 1880, the detachment added to the great army of the dead amounted to 756,893. Of all causes, consumption was the most fatal. Its victims numbered 91,270. By localities, and in proportion to the population, more deaths occurred from consumption at Charleston, S. C.; from pneumonia, at New York; from homicide, at Richmond; and from suicide, at San Francisco.

THE Spanish Government have contracted with Messrs. Yarrow & Co., of Poplar, for the construction of two first-class torpedo boats of the "Falke" type. The speed in fighting trim, carrying 17 tons on board, is guaranteed to be 23 knots, and when running light 25 knots, or about 26¼ and 28½ miles per hour. These are believed to be the highest speeds hitherto contracted for.