

## DURABILITY AND DECAY OF PLANK ROADS.

A Plank Road may require a removal, either because it has worn out at top by the travel upon it, or because it has been destroyed at the bottom by rot. But if the road has traveled enough to make it profitable to its builders, it will wear out first, and if so it will have earned sufficiently enough to replace it twice over, as we shall see presently. The liability to decay is therefore a secondary consideration on roads of importance. As to natural decay, no hemlock road has been in use long enough to determine how long the plank can be preserved from rot. Seven years is perhaps a fair average. Different species of hemlock vary greatly, and upland timber is always more durable than from wet and low localities.—The pine roads in Canada generally last about eight years, varying from seven to twelve. The original Toronto road was used chiefly by teams hauling steamboat wood, and at the end of six years began to break through in places, and not being repaired was principally gone at the end of ten years. Having been poorly built, badly drained, not sanded, and no care bestowed upon it, indicates the minimum of durability. Oak plank cross-walks are used in Detroit, the plank being laid flat on those of pine.—It is believed that oak plank, well laid, would last at least twelve to fifteen years. One set of sleepers will outlast two plankings. Several Canada roads have been re-laid upon the old sleepers, thus much lessening the cost of renewal.—*New Yorker*.

**CONTINUOUS RAILROAD IRON.**—Messrs. E. Pratt & Brothers have exhibited in the lower room of the Fair at Washington hall, specimens of the continuous railroad iron manufactured at Mount Savage Iron Company's Works, near Cumberland, Md. The rail does not differ in form essentially from the usual T rail, but is divided into two sections, longitudinally, and a continuous rail is thus obtained by breaking the joints. This, it will be readily perceived, is an important improvement, entirely obviating the liability to give way at the joints which is experienced in the use of other patterns of rail. The Utica and Schenectady Railroad Company, in New York, after thoroughly testing the rail by a twelve month's trial, have contracted for the supply of 1,000 tons of it, the larger portion of which has already been sent forward. With this rail a greater speed may be obtained over the road, with equal safety and less wear and tear to the road and cars, and it will no doubt soon recommend itself to general use.—*Baltimore Sun*.

**ICE AND WATER.**—Water is subject to a remarkable anomaly, which is often brought to our notice at this season. There is a point in its temperature—about 40 degrees in our common thermometer—at which it is most dense or compact, and from which it expands in heating till it becomes steam, and expands in cooling till it becomes ice, which takes place at 32 degrees.

This is a beautiful provision of nature. By being less dense than water, ice floats on the top, and, by forming a hard crust, prevents the mass of less cold liquid beneath from being greatly affected by the intensely cold atmosphere. Thus the lower stratum of water in lakes and rivers continues to maintain a temperature from six to eight degrees above the freezing point; and in this comparatively warm stratum fishes dwell as usual, till the return of spring brings them to the surface, to look out upon a new heaven and a new earth. Running streams resist congelation longer than lakes, and the ocean, in temperate climates, longest of all, partly from its depth, and partly from the quantity of saline matter it contains.

**DISTILLATION OF SEA WATER.**—In June last, three of her Majesty's ships—the *Arrogant*, 46, Captain Fitzroy; the *Plumper*, 11, Commander Nolloth; and the *Reynard*, 11, Commander Cracroft—sailed from Portsmouth, furnished with the Government distilling and cooking galley, constructed by Mr. Grant. By the improvements made since the introduction of the galleys into the naval service, the quantity of fresh water obtained by the distillation of salt water during the period it is required to keep the fires alight in the galley for the purpose of cooking, will, on the average, supply each individual on board the vessels with one gallon of distilled water every day. The latter kind of water continues to be preferred for drinking and culinary purposes to the water usually supplied to ships. It passes immediately from the condenser into the water tanks at the same temperature as the surrounding ocean. In these tanks it becomes perfectly aerated, losing altogether the rapid flavor, common to all distilled water, in the course of a few hours, without the aid of chemical preparation or mechanical arrangement, by the simple fact of the action imparted to the fluid by the motion of the ship when at sea. A series of interesting and important experiments have been made on board the *Illustrious*, 72, by Mr. Crosse, with the view of imparting, at the moment of distillation, the oxygen of which the water is deprived in the process, and giving to it that briskness which is found in spring water. This is effected by passing a proportionate current of electricity through the particles of water by means of an extremely simple and self-acting apparatus. The results of the experiments made have been highly satisfactory. The only point to be determined is, whether any artificial means, either chemical or mechanical, are required for aerating distilled water on board ship, as it is found that such water becomes sufficiently aerated in the course of a few hours by the motion imparted to it by the ship; but if the distilled water be required for immediate use, Mr. Crosse's application produced the object desired most effectually.

It is said that Capt. Ericson is engaged in producing a steam carriage for use upon plank roads, by which immense loads may be transported at a good speed, with small cost. Fifteen years ago, many attempts were made in England to produce a steam carriage suitable to use on common roads, but no experiment resulted profitably. Either the expense of the power or the softness of the roads prevented the practical introduction of the machines, though many successful steam journeys were performed. There seems to be no good reason why steam power cannot be successfully used on our plank roads, and we have no doubt it will soon be.