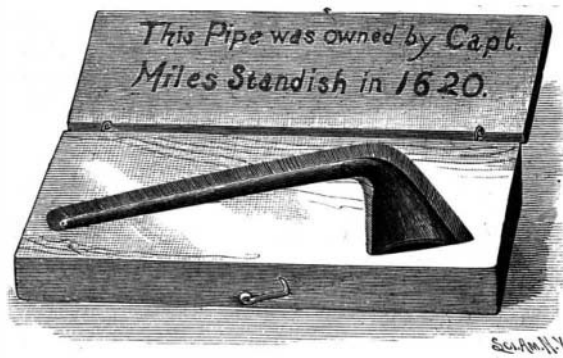


**THE COLUMBIAN EXPOSITION—COLONIAL RELICS.**

There were many curious historical relics in the Government building, but a number of these could not be thoroughly enjoyed without an understanding of the story connected with them. The famous torch of Israel Putnam attracted many visitors. Anything connected with General Putnam, who is one of the most picturesque figures in American history, must always be of interest to Americans. The torch was made of birch bark, rolled into the form of a cylinder, about one and one-half inches in diameter. The story connected with the torch is as follows: In the year



MILES STANDISH'S PIPE.

1739 Putnam removed from Salem to Pomfret, an inland Connecticut town, forty miles east of Hartford. Our hero applied himself to farming in the new country with the same vigor he afterward displayed in his warlike exploits. One night seventy-five sheep and goats were destroyed by wolves, or rather one she wolf, which had infested the vicinity for years. At last this wolf became such an intolerable nuisance that Putnam and five neighbors agreed to pursue the animal until caught. At last they tracked the wolf to her den. The people soon collected with dogs, guns, straw, fire and sulphur, and every attempt was made to force her from the small cave or den. Neither smoking straw nor burning sulphur had any effect on the animal. Mr. Putnam proposed to his negro man to enter, but the negro declined. Angered at this, Putnam stripped off several pieces of birch bark which had become rather dry and rolled them up to form a torch; lighting this, he proceeded through the long and tortuous passages. After groping around for some time he came in sight of the wolf, who growled. The friends of Putnam had fastened a rope to his leg, so that he could be drawn out, if he should be in danger. When the wolf growled they pulled the rope, and he was dragged out with many bruises. He loaded a gun with buckshot and descended again. This time the wolf was shot, and he was pulled out again, to the detriment of his clothes and skin. After being refreshed (history sayeth not how), he descended again, and, perceiving that the wolf was really dead, he kicked the rope, and in a moment Putnam and the wolf appeared, to the exultation of the assembled people. The torch was ever after preserved as a memento of the occasion.

Another curious and historical relic of an earlier date which was also exhibited in the Government building was the pipe of Miles Standish. This pipe is carefully preserved in a wooden case. Miles Standish was born in Lancashire, England, in 1584, and died in Duxbury, Mass., in 1656. He was chosen captain of the Pilgrims, although he was not a member of their church. The temper of Miles Standish was none of the sweetest, but he made himself very useful to the colonists by his courage and determination. As agent for the colony he visited England in 1625, and for the remainder of his life he occupied the position of magistrate. The colonial relics in some of the State buildings were specially interesting and valuable.

**Manganese Steel.**

Manganese steel, containing about 43 per cent of manganese and 1 per cent of carbon. H. M. Howe says that the most important single use for manganese steel is for the pins which hold the links of dredgers of the elevator or bucket type. As they resist the abrasion caused by the sand and grit between them and the links in which they turn, they last from six to eight

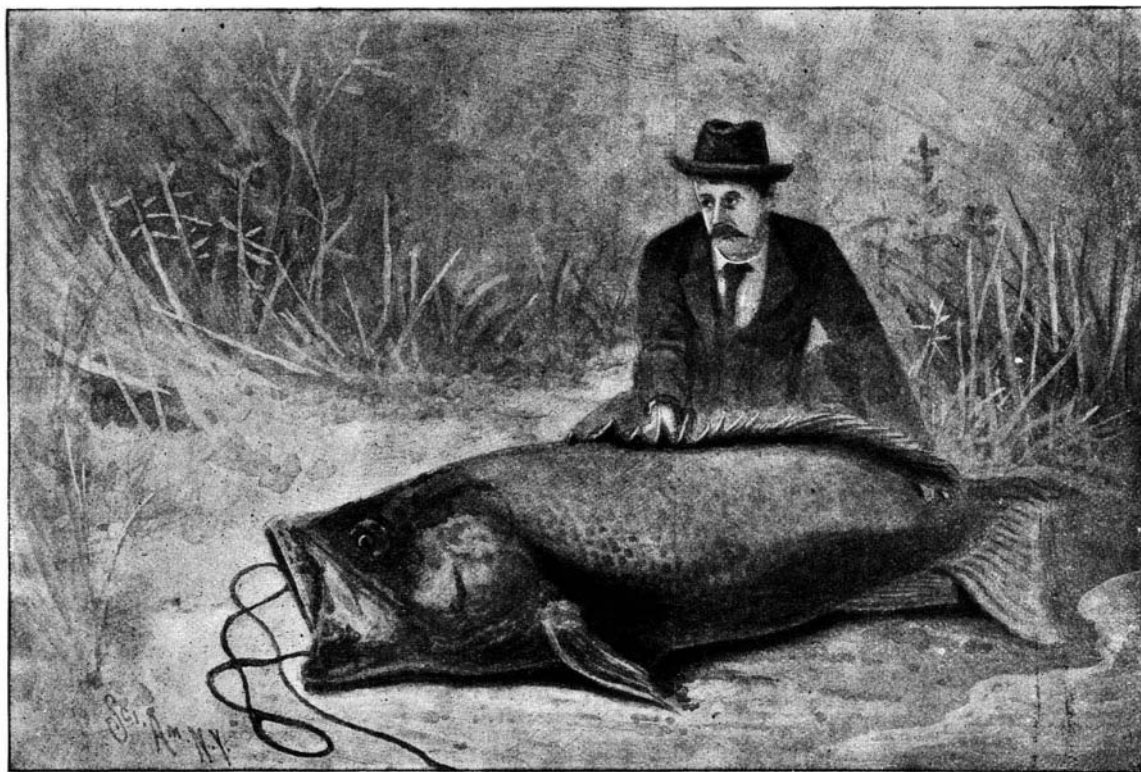
times as long as ordinary carbon steel pins. Manganese steel plowshares wear six or seven times longer than chilled cast iron shares. The side plates of the Blake ore crusher made of hard carbon steel are worn out in two months, whereas when made of manganese steel only one-fourth of an inch was worn away in ten and a half months. In respect to railway wheels, it is believed that chilled cast iron wheels run about one-third the mileage of manganese steel wheels before the first turning; and, again, the average mileage of the latter is 51 per cent greater than that of the composite or steel-tired wheel.

**Drainage of the Valley of Mexico.**

According to the British consul at Mexico, the great work of draining the valley of Mexico, comprising over thirty miles of canal and six miles of tunnel, is within measurable distance of completion. On May 16, 1893, 63.19 per cent in the grand canal had been excavated. When finished this canal will be 29 3/8 miles long. Of the tunnel 70.63 per cent had been completed, and of the remainder 983 lineal yards of heading—perhaps the most troublesome part of the work—had been done. The total cost of the canal and tunnel, from the time when the committee of management took charge of the work in 1886 to last May, has been over \$7,000,000. Though a good deal of money had been expended, mostly in preliminary work and surveying, very little of the canal and tunnel had been constructed, so that the foregoing measurements may be fairly taken to represent the work done for the given amounts. The cost of the work has been heavier than was expected. When the contract for constructing the canal was let to Messrs. Pearson & Son in 1889, the cost was estimated at about \$5,000,000. A sum of \$3,800,000 has been spent, and about \$2,300,000 more will be required to complete it. Owing to the unexpected amount of water met with in working the tunnel, the cost per lineal yard has been much in excess of the contract price. As the water is completely dominated along the whole line of the tunnel, and all the ventilating shafts are finished and equipped, it is probable that the estimate for finishing the work, which is based on the average cost per yard, will be found to be within the mark.

**THE JEW FISH.**

The jewfish abounds on both the coasts of Florida and in tropical seas. The jewfish is frequently found in the deep holes and channels in the salt water inlets. The specimen we illustrate weighed about three hundred and fifty pounds, and was captured near Tampa Bay, Florida, by Mr. H. Bomford. The huge fish after being harpooned twice and wounded in three places on the head with a hatchet, lived two days, and was finally butchered and sold. It required the services of three men to land the fish, and they worked an



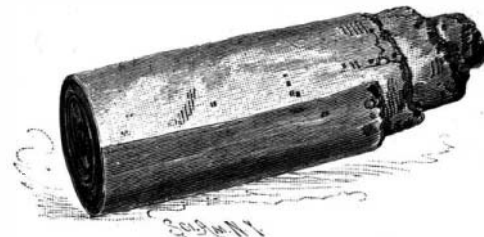
THE JEW FISH.

hour and a half to accomplish it. Specimens of jewfish have been captured which weighed over five hundred pounds. It is said that even the largest jewfishes are good eating, the Cubans considering them a great delicacy. Some of the stories related of the strength of the jewfish are very remarkable, and it is said that boats have been towed out to sea by this fish. The jewfish will often break hooks and lines which are strong enough to capture a good sized shark. Mullet bait is usually used in catching the jewfish. This fish frequently floats on the surface of the water, apparently asleep, and is sometimes shot instead of being

harpooned. The jewfish is probably the largest food fish known.

**Removing Evergreen Trees.**

There are many localities, says the *Country Gentleman*, where a natural growth of evergreen trees in the borders of woods and the margins of swamps affords opportunities for procuring pines and cedars. Rows of suitable size and only a few feet high might be transplanted for an occasional ornament of the home of the farmer, or for shielding the cattle yards in winter. The difficulty is that most farmers are not aware that they can be removed with safety. They have witnessed some attempts, and the result, so far as they have observed, is dead trees. They suppose



PUTNAM'S TORCH.

the work to be exceedingly difficult or expensive. There is no doubt that much needless labor is expended in the unnecessary attempts which have been made, and what has been published on the subject has not greatly helped the matter. An excellent work on forest trees, and one of the best that has been published in the country, gives the following directions for transplanting: "In planting trees that are not small, the roots should be extended on all sides to their full length. Some advise removing large evergreens with a ball of frozen earth around the roots, and the roots are almost uniformly cut short." The writer appears not to have been aware that the length of the roots of nearly all trees is at least as great as their height, and if those which he describes as not small are only 12 feet high, then the roots extending 12 feet on each side "to their full length" would occupy a circle 24 feet in diameter—which would obviously be quite impracticable. We have found the practice of cutting a ball of earth, or rather a flat mass, and conveying it with the tree, even if the roots are cut much shorter than would seem necessary—we have found this practice much the safest and surest in removing trees from their native localities. If the mass of earth is large enough to hold the tree upright when set on the surface of the ground, it is safe to insure the life of the tree. Not one in twenty properly treated in this way ever perishes in removal. These remarks do not apply to nursery trees. The work may be done any time of year.

A single instance will serve to illustrate the matter. Two neighbors, who lived 12 miles from a fine locality of handsome white pines, went to procure a wagon load each for ornamenting their grounds. One of them took up six or eight trees with a good mass of earth on the roots. The other, despising such care, tore out his 50 trees with denuded roots. These all died, the others all lived.

It is not necessary to do the work in winter with "frozen balls." For small trees from 3 or 4 to 7 or 8 feet high, the spade may do all the work with a tough or matted soil.

**Enriching of Skim Milk.**

This invention relates to a preparation of oil ("artificial cream") which may be readily and permanent-

ly incorporated with any liquid, and is intended to be employed chiefly for enriching skim milk, and render it available as cattle food. The preparation is made by simply mechanically emulsifying any suitable oil with a solution of glue or gelatin, and finally diluting with water to any desired consistency. To 1 kilo of oil about 50 grammes of glue may be used. "Artificial cream" keeps well, and may be mixed with any liquid by simply stirring it in. It separates again only very slowly, and, in so doing, rises to the surface exactly like natural cream, and it suffices to stir the liquid to obtain as perfect a mixture as before.—G. Dierking.