

SWORDFISH EXPLOITS.

Several years ago we published an account of a couple of men out in a boat, fishing in the Lower New York Bay, who observed a commotion among a shoal of small fish, and, rowing to the spot, found what they at first supposed, by its single fin above the water, to be a shark. They attacked the monster with a view of capture, and were astonished by the sudden piercing through of their boat bottom by the sword, 4½ feet long, of a large swordfish. They succeeded in noosing his tail, securing and killing the fish, after which he was towed ashore, and subsequently brought up to the city to a restaurant in Park Row, a few doors from the SCIENTIFIC AMERICAN office. The fish weighed 390 pounds and measured 19 feet 8 inches in extreme length. It was certainly one of the finest specimens we ever saw.

The Liverpool Mercury gave a report from Captain Harwood, of the brigantine Fortunate, from Rio Grande, to the effect that the vessel, while at sea, was struck and shaken by a swordfish. After discharging the cargo at Liverpool the hull was examined and the sword of the fish found, broken off even with the outside planking. The fish had driven his sword completely through the four inch planking, leaving eight inches of the blade projecting within the vessel.

The swordfish is allied to the mackerel, which it resembles in form, and is a swift swimmer. The sword is a most formidable blade, consisting of a strong straight bone, sharp and flat, projecting horizontally from the nose, of which it is a prolongation.

The swordfish is found in considerable numbers off the island of Martha's Vineyard, coast of Massachusetts, at this season of the year. Its flesh is considered excellent food by many persons, and the annual catch is quite large. The ordinary length of the body of the fish at full growth is 14 feet, and its sword 6 feet, or 20 feet in all.

Swordfish have been unusually plentiful off this coast this summer. The fishermen hunt them with harpoons, spearing them from the decks of small sail vessels. In July last the fishing smack Mattie and Lena arrived at Stonington, Conn., after a four days' trip about Block Island, with sixteen large swordfish, averaging 300 pounds each, and an exciting story of a struggle for life between Henry Cheesebro, one of the crew, and a wounded and maddened swordfish.

Cheesebro had harpooned a big fish off Montauk Point, and, after waiting the usual length of time, got into a small boat to bring the apparently exhausted fish to the vessel. As soon as Cheesebro approached him and commenced hauling in the line the fish awoke from his torpor and started to battle for his life. He began operations by diving so as to spear Cheesebro's boat on coming to the surface. Missing his aim, the fish dived again for a second attack.

It was now too late for Cheesebro to retreat, and defenseless, in the frail cedar yawl, he awaited the on-

slaught. He was kept in suspense but a moment. When the fish shot out of the water once more, he drove his sword completely through the boat from side to side. The sword entered the boat about three feet from the bow, on the port side, and came out through

stomach of the bee in the form of scales and carried to the mouth with the legs, where a frothy liquor is added to it, causing it to become plastic. In this state it is formed into the cells or comb, in which the bees deposit their honey. The combs are formed in hives built

for that purpose, some of which contain colonies of bees numbering from 10,000 to 40,000. Where the climate is warm most of the year round, each hive will average between 350 and 400 pounds of honey. The greatest honey and wax producing States are New York, California, Ohio, Indiana, Illinois, Wisconsin, Michigan, Kentucky, North Carolina, and Dakota. These States produce about 800,000 pounds of beeswax yearly. About twenty pounds of honey are required to produce one pound of wax. Large quantities of wax are imported to this country in cakes of twenty-five and fifty pounds each from Cuba and Africa. It comes in two colors, light yellow and dark brown.

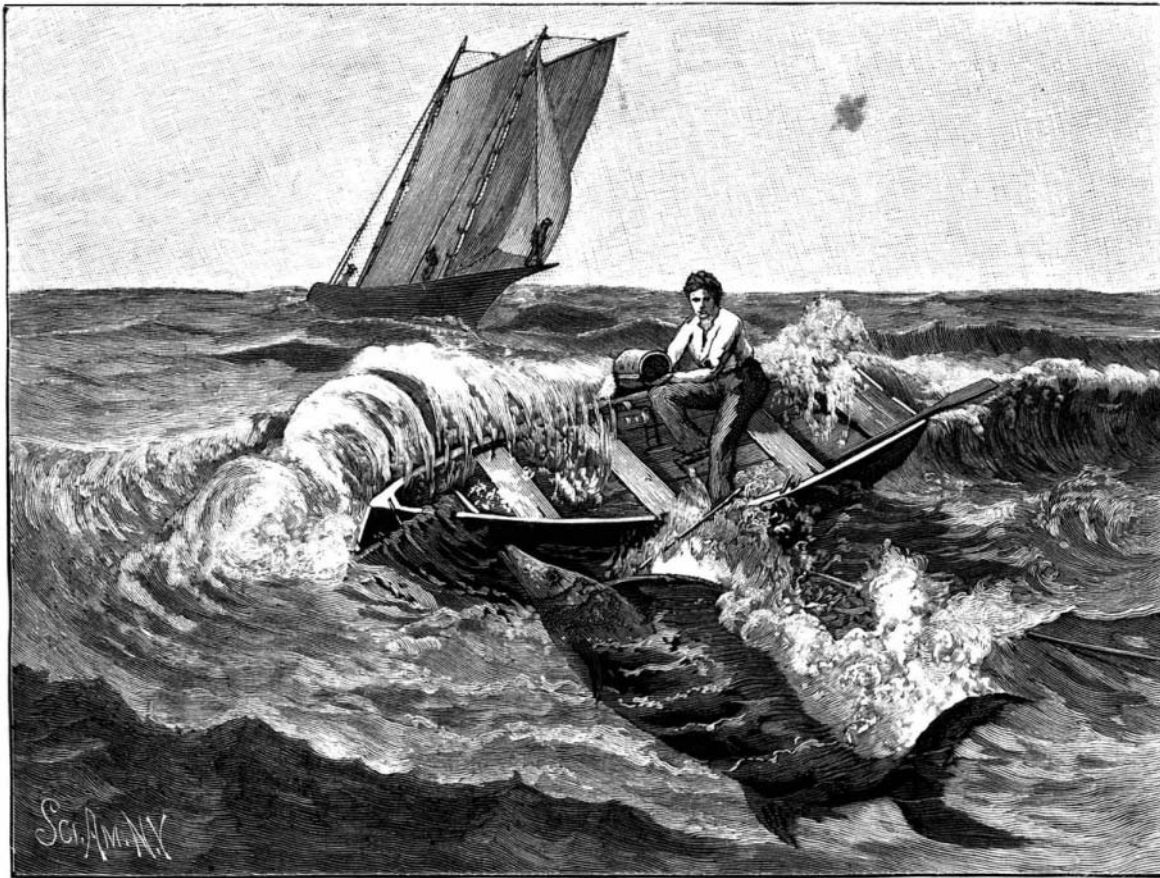
Bees that gather most of their honey from grape and tobacco flowers produce the dark colored wax, which is hard to bleach. That produced from clover, buckwheat, etc., is light colored and bleaches easily. The bleached wax is used mostly by sperm

candle manufacturers, wax flower makers, druggists, and in the manufacture of carbon paper. The large cakes are first broken up into small pieces and put into a large circular tub or vat made of cedar. This tub is about five feet in height and about three feet in diameter. Across the bottom of the tub are two square hollow wooden pipes, one crossing the other at the center, the tops of which are perforated with a number of holes. Placed into the end of one of these pipes is a perpendicular wooden pipe, which is connected at the top to a brass steam pipe.

About 1,500 pounds of the wax is placed in the tub and enough water poured on to it to swim it well. From forty-five to sixty pounds of steam is then turned on, which rushes down to the perforated pipes and is forced up through the holes and distributed through the wax, which, in about three hours, becomes thoroughly melted, the dirt and grit, if any, sinking to the bottom. It is then drawn from the tub and run through a sieve, where it falls down on to a revolving wooden wheel or roller, about 4½ feet in length and 18 inches in diameter. The bottom of this roller rests in a bed of water about 18 inches in depth and about 6 feet in length, the temperature of which is about 70°. As the melted wax leaves the sieve it strikes or falls on the top of the wooden wheel in small pieces or ribbons, sticking fast and becoming instantly chilled.

This roller makes about sixty-four revolutions per minute, the wax dropping off the instant it comes in contact with the water. The material is then taken out of the water bed, by means of wooden forks, and placed in boxes and carried out to the bleaching frames. These frames are made of wood, about 100 feet in length, 14 feet in width, and about 8 inches in depth, and raised 3 feet from the ground. About 1,000 pounds of wax is placed on each frame and left out day and night for the sun to bleach for four weeks. It is sprinkled with water four to five times daily, to keep the hot

summer sun from melting it, as the temperature reaches as high as 120°. Once a day a sixty-four pronged wooden rake is drawn back and forth through the material, which turns it over, allowing the sun to act on every particle. The wax when first taken out to bleach is yellow. After four weeks' exposure in the sun it becomes a creamy white. It is then gathered up and taken back to the tubs and melted over again, going over the same operation and out again to the bleaching frames, to remain out two weeks longer, with the same



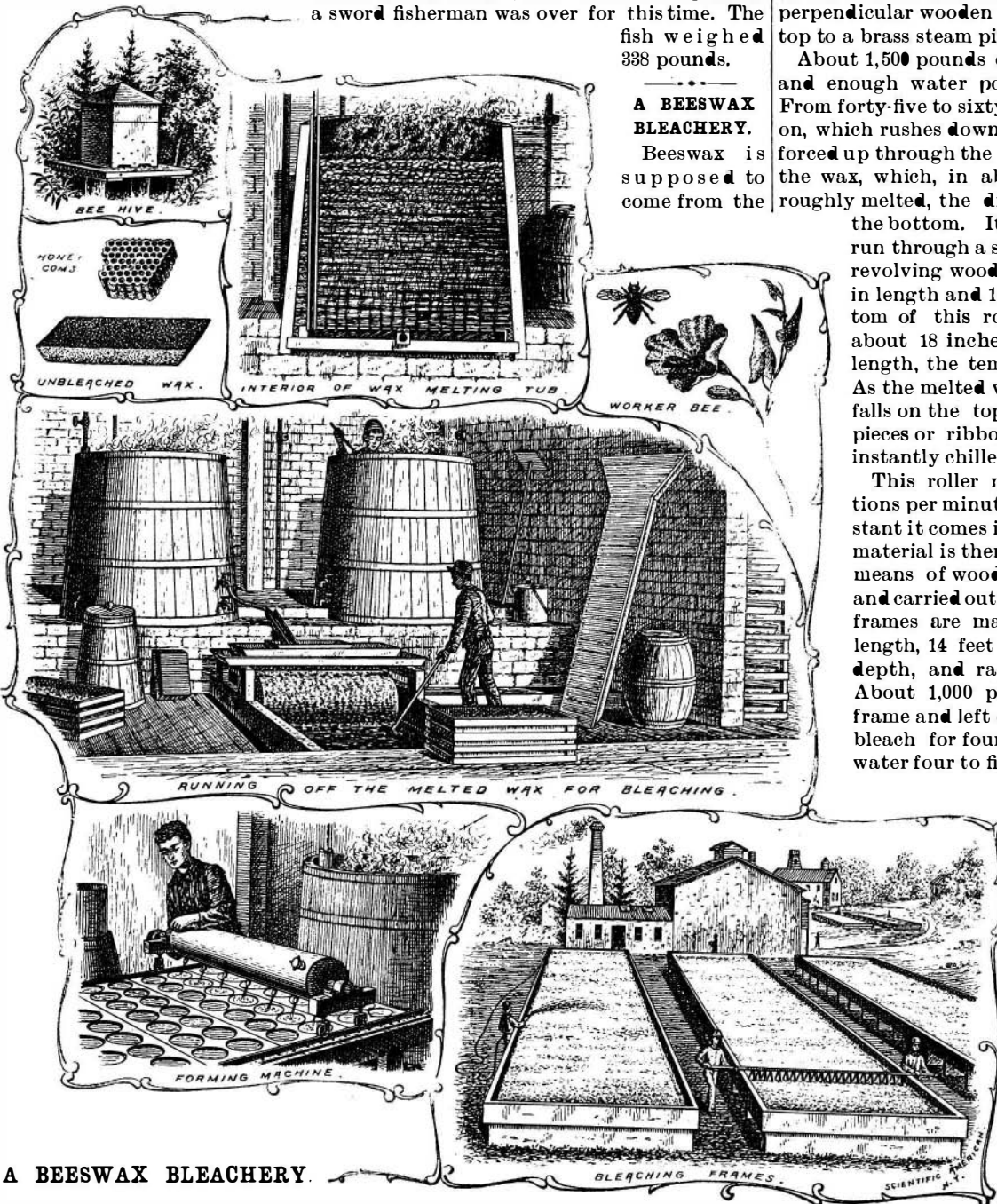
A SWORDFISH PIERCES A BOAT.

the thin plank on the starboard side. Cheesebro had retreated to the stern of the boat in time to avoid the violence of the fierce fish, and thus escaped injury.

His plight was seen from the schooner, and the vessel headed for the scene of the conflict. By constant baling Cheesebro kept his frail and disabled craft afloat until succor arrived. A blow on the head finally killed the fish, and Cheesebro's peril as a sword fisherman was over for this time. The fish weighed 338 pounds.

A BEESWAX BLEACHERY.

Beeswax is supposed to come from the



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