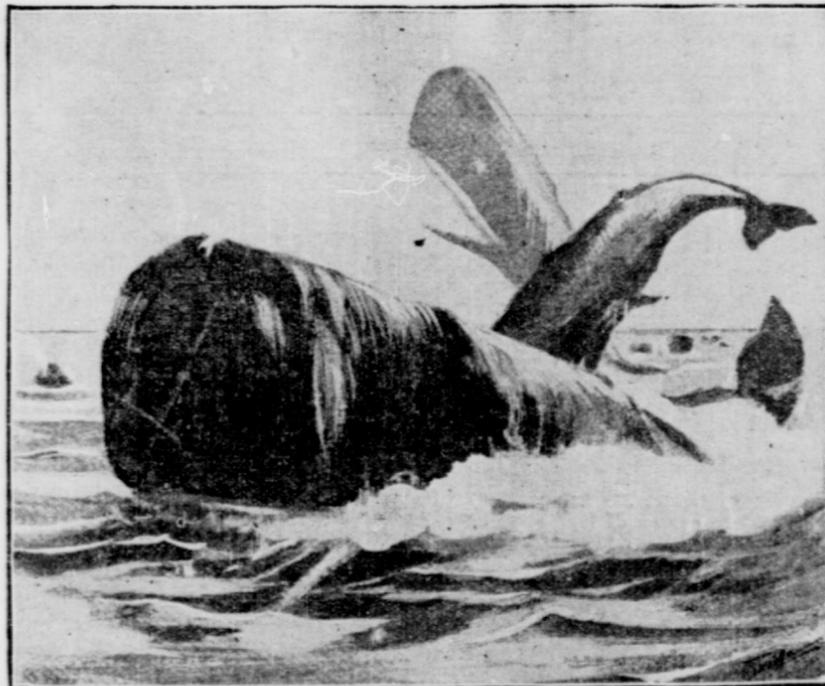


SPERM WHALE ATTACKING ITS PURSUERS.

To grip with the lower jaw, the sperm whale must turn on its back like a shark.  
(Reproduced from "The Strand" by courtesy of the publishers.)



SPERM WHALES SPORTING ON THE SURFACE.

They collect in groups, which the whalers call "pods."  
(Reproduced from "The Strand" by courtesy of the publishers.)

WHALES AND WHALEBONE BECOMING SCARCE.

Steamships Have Driven the Great Cetaceans from the Ocean—Characteristics of This Mammal of the Sea.

As the locomotive drove the buffalo from the prairie, so the steamship is driving the whale from the ocean. Its extinction, whalers say, seems certain in the near future. Ten of the twenty ships which returned to New-Bedford some days ago reported "clean holds." There was a time when a New-Bedford whaler was sure to bring back a cargo of oil or bone worth anywhere from \$20,000 to \$65,000. In the last century the price of whalebone has risen from \$125 to \$15,000 a ton. So rare is whalebone, according to men of the trade, that at the present time four tons represent the world's supply.

For ages the whale exulted over his enemies. Only the orca, or "killer whale," was able to penetrate his thick walls of blubber, and even the orca perished beneath a single blow of his ponderous flukes. Barnacles fastened themselves upon his back, but they stuck so persistently that he became accustomed to their unwelcome companionship. Now and then he felt a pain in his entrails after devouring an extra ton of cuttlefish, and he became strangely weak, and hated to leave the surface of the water, and lay floating in the sun until the sun grew black and the waves became still. But he never knew how he died. He never returned to the great blue hunting grounds to learn that his body had been washed ashore, and that two-legged creatures had torn him open and found a chunk of ambergris where those cuttlefish had hurt him so.

Ever since the faraway times when the air was filled with huge flying creatures with bat-like wings and long jaws, the whale grew to ever larger proportions. He was wont to escape the fangs of the flying reptiles by diving beneath the waves, and he fled from the monstrous armed things of the deep by paddling into shallow bays. As other animals grew smaller and less fierce, he found himself growing bigger, until at last he boasted that he excelled all those antediluvian monsters except the terrible dinosaur.

Then there appeared upon the surface of the sea a new form of life. At first he thought it one of his own kin. It had a huge body, like himself, and it moved at about the same rate of speed. Like himself, it seemed to exult in time of storm, for it leaped up and down, as if in a frolic with the waves. It seemed to be a motherly sort of beast, for on its back it carried its young, with bodies shaped like its own, but far smaller. Occasionally its calves would leave their mother and move about by themselves. Whenever the mother neared land her offspring always left her and swam for the shore by means of long rows of fins.

Yet there were characteristics about this strange brute which made the whale believe at times it was some other order of creation. It had great white fins, which it spread out above its back, as if to catch the wind; and it did not dive, except at times when it sank and simply lay on the bottom. Worst of all, it had a kind of crab that swarmed over it and appeared to live inside its body. Sometimes only one crab would be visible, and then, again, a multitude of these parasites would pour out of a hole in its back.

Soon the whale found that this mysterious creature with the big white fins was its enemy. As soon as he appeared near, the parasites rushed toward him on the backs of the calves. And when they came near one crab would hurl a spine into his side, which stung like the sword of the swordfish. Only it went deeper and had a long tentacle fastened to it which was fathoms long, and which he could not shake off, no matter how deep he dived or how furiously he beat his flukes. And when he gasped for breath, after a half hour at the bottom of the sea, and came plunging to the surface again, there was that same infernal litter swimming around him, with the crabs ready to plunge more spines into his

entrails or puff something into his heart, which burst it in one great cataclysm of pain.

After the monster with the great white fins there came another breed of beast, which at first sight again deluded him into believing it was akin to him. It had fewer flapping fins on its back, and, like himself, blew great clouds of steam, and it churned the sea with flippers, which moved round and round, or with flukes, which churned up the sea behind. But this new creature proved only a still more terrible foe than its predecessor. It moved almost as rapidly as the pterodactyl, and its breath was black and filthy. On its back were the same nimble parasites who killed his comrades, cut them to bits and left their mutilated carcasses for the carrion loving birds and fish to feed upon. He sought the ice fields of the north, yet this monster pursued him. He tried to hide in the deepest ocean, but his lungs drove him back to the air and to his fate.

Thus have the whalers in sailing vessels and the whalers in steamships pursued him until a ton of his whalebone is worth \$15,000 to-day, and will soon be impossible to get even at that fancy price. The threatened extinction of the whale should awaken a certain sympathy in man, for the reason that whales and men have a certain kinship. Both belong to the same sub-order of vertebrates, the mammals, bringing forth their young alive, nursing them at their breasts, and feeling for them a parental devo-

tion long after they are weaned and able to shift for themselves. In domestic life whales, like men in their savage state, fight for their mates. Though timid ordinarily, the whale, when jealous or at bay, becomes the most terrible of foes. At other times he is a sociable animal, travelling in companies, and frequenting the same sheltered breeding places year after year.

When a dead whale lies stretched out on a beach its exterior seems to lack a single characteristic betokening its relationship to land animals. No matter to which of the two great orders of whales it belongs, its huge, round body seems fashioned as if originally planned for the sea. It has all the appearance of a monstrous fish. If it is one of the whalebone species, its cavernous mouth will be found equipped with a huge sieve with which it can scoop up a school of fish, and then strain out its food by merely closing its jaws. Hundreds of strips of a substance too elastic for bone, too stiff for cartilage, hang down from the rim of the upper jaw and interlock so tightly that they can cut off the escape of the smallest squid. In the mouth of a sixty foot Greenland whale as many as three hundred and fifty "whale-bones," as these strips are erroneously called, have been taken from each side of the upper jaw, the longest measuring twelve feet. All of them weighed about half a ton. Despite their size, they cause the whale no inconvenience, for all bend backward and shut up fanwise when the jaws close.

Should the beast belong to the order of cacha-

lot, or sperm, whales, its mouth would be found furnished with teeth instead of a sieve. The fangs are planted along the rim of the lower jaw, with only pockets in the upper one containing rudimentary teeth at their bottom. With his lower jaw hanging down at an oblique angle, the sperm whale is wont to swim along the bottom of the ocean, letting all manner of living things float into its gullet. Occasionally the huge arm of an octopus coils about the jaw, and the two monsters grapple in a life and death conflict at the ocean's bottom. In "The Cruise of the Cachalot" Frank T. Bullen tells of such a battle which had begun in the depths of the sea and which ended on its surface. He saw the writhing arms of the octopus as one by one the gigantic jaw bit them off, the sweeping flukes of the whale as they thrashed the sea into a lather, and the great bulk of the octopus's head as it finally sank to the bottom.

In the head of the sperm whale there is a sort of cistern containing the spermaceti that is used in many delicate toilet articles. When first taken from the whale it is limpid, like water, but on exposure to the air it assumes the consistency of wax. The blubber of the sperm whale contains a finer grade of oil than that of the whalebone species and furnishes the sperm oil of commerce.

In both the sperm and the whalebone whale and the other varieties allied to them there are many more characteristics which would seem to prove a marine origin. Although a whale's body sometimes measures seventy feet, its eye is no bigger than that of an ox. Hidden away between the corners of the mouth and the flippers, the eyes can look backward better than forward. The great head, which in some species constitutes one-third of the body, cuts off almost all vision forward, so that an enemy may approach most safely from in front. The ear is so small that its tiny orifice behind the eye hardly admits one's little finger. Its nerve has shrunk and been absorbed. The whale is also destitute of the sense of smell, for its nose has been converted into the blowhole through which it expels when on the surface the air from its huge lungs. When submerged the blowhole is closed by a valve, which at certain depths is subjected to a pressure fourteen times greater than that of a locomotive's boiler when the steam gauge registers 100 pounds.

In brains man and whale are enormously dissimilar. The brain of Cuvier, said to be the "heaviest headed sane man of history," weighed a little over four pounds, or about one-fortieth of his entire weight. In a whale weighing 154 tons the brain weighs only five pounds, or one sixty-thousandth of its weight. Although a whale has two thousand times as much body as man, it has proportionately one fifteen-hundredth part of a man's brains. The whale is also mentally inferior to the elephant, which has an eight pound brain for a four ton body.

Further study of the whale's anatomy, however, discovers links which bind him to his cousin mammals of the land. His lungs are as perfectly developed as those of a hog. His flippers are only forelegs which have become fin-like through ages of adaptation to a marine life. When the bones are analyzed they show the five digits of the hand of man. There are also vestiges of hind legs buried in the body, into which they have shrunk through ages of disuse. The great flukes are merely developments of the tail of a land animal which has been broadened and made more powerful and ponderous from beating the water continually.

Antiquarians say that the fossils of prehistoric whales are far smaller than the skeletons of the whales of to-day, and that they have increased in size since antediluvian days. Nevertheless, no one has yet been able to explain why the whales forsook land for water, or how they have grown to their present enormous proportions.



SPERM WHALE BULLS IN A FIGHT.

Each combatant seeks to grip the lower jaw of his foe.  
(Reproduced from "The Strand" by courtesy of the publishers.)

BOOKBINDING

Plain and Artistic, in all Varieties of Leather.

HENRY BLACKWELL,

UNIVERSITY PLACE AND 10TH ST., NEW YORK