

SOME PACIFIC CEPHALOPODS.
BY PROF. C. F. HOLDER, PASADENA, CAL.

The deep channel of Santa Catalina, off the island of that name, is in the mythology of local fishermen the home of a school of gigantic fish which occasionally are seen disporting at the surface. These huge forms have not as yet been observed by scientific men, but that squids of large size abound, squids twelve or more feet in length, is well known. This was first made public by the presence of a school in the deep fjord-like harbor of Santa Catalina. There were but fifteen or twenty, but they came rushing into the quiet bay followed by a large school of jewfish, the latter weighing from one hundred and fifty to three hundred and fifty pounds. The squids soon ran into shallow water, where the Portuguese fishermen surrounded them with a seine. The squids ranged from ten to fifteen feet in length, and the entire catch, it was estimated, weighed eight or ten thousand pounds.

As they came in in the net they presented an extraordinary spectacle, spouting water and ink from their funnels, their broad bodies flushing and paling, changing color like chameleons, while the sucker-armed tentacles darted this way and that like so many fingers. The eyes were very large, jet black and staring. The amount of ink that can be thrown out by these animals was well illustrated here, as the water was blackened for yards about.

The writer recently observed the in-shore rush of a school of squids on the southeast coast of the island mentioned. The animals weighed about thirty pounds each and were five or six feet in length. A school had undoubtedly been charged by some predaceous fishes, and in their efforts to escape they had been driven upon the rocks and so injured, either by contact or the attack of the fishes, that they were nearly all destroyed. The great bodies were strewn over the bottom for over one hundred square feet. But one squid was perfect, showing the two long tentacles and the eight short ones complete.

A dissection of the animal developed many of its interesting, indeed remarkable features. The so-called pen was nearly two feet in length in some instances, a beautiful object, an almost exact imitation of a pen. The ink bag was next examined, the delicate sac holding one or two tablespoonfuls of thick black ink, once the sepia of commerce. This remarkable pigment is the chief protection of the squid. When closely followed, the animal, by muscular effort, forces the ink into the siphon from which, mixed with the water, it is ejected, distributing itself in a cloud that easily confuses the follower and under cover of which the squid escapes. The force with which this ink can be ejected from the siphon can be judged from the fact that upon one occasion the writer's boatman when leaning over the water was struck full in the face at a distance of three feet by the stream. In experimenting with the octopus, it was found that when seized it immediately ejected its ink, but did not continue it when held. When thrown over it swam rapidly to the bottom, ejecting a stream of ink that formed a black spiral train like the smoke behind a mimic train of cars.

In the large squids which ran ashore an interesting feature was the fact that their food was found to be sea weed, small pieces of fulva ground up, nipped off by the beak. The latter was as large as that of a parrot, a remarkable organ, in color and shape calling to mind the beak of a parrot, though in the squid the lower bill projects above the upper.

In swimming the squids move tail first, impelled by the stream of water they force from their siphon. In this manner many dash into schools of fish with the velocity of light, the long arms seizing a fish, which is soon drawn against the parrot-like beak and the vertebra severed. The common squid of Santa Catalina is, so far as known, an algae eater. The octopus found here has a radial spread of fourteen feet and is a powerful creature, requiring the full strength of a strong man to dislodge.

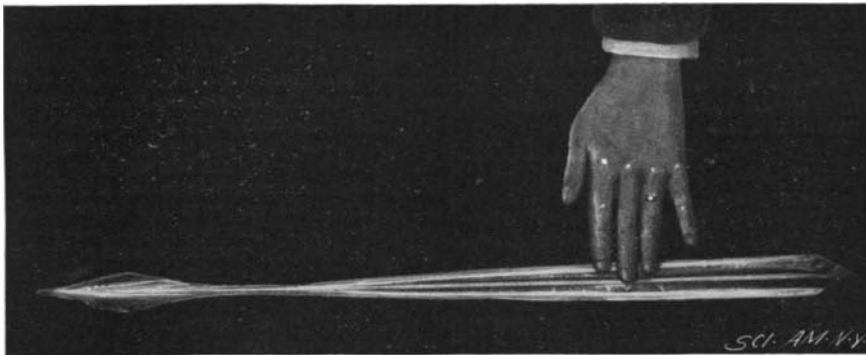
One of the most interesting of the squids found at the island is the Cranchia. In specimens observed by the writer the body was large in proportion to the head, being four inches in length and three in diameter, and covered with minute tubercles or projections.

The head was very small, and the tentacles short. It is rarely seen and must, being a slow swimmer, fall a victim to the predatory fishes which abound in these waters. Cranchia is a most interesting form on account of its phosphorescence, gleams of light playing over its body at night, making it one of the most interesting of the light-givers of the sea.

Patent Protection in Our New Colonies.

The following is published for the information and guidance of all concerned:

In territory subject to military government by the military forces of the United States, owners of patents, including design patents, which have been issued or which may hereafter be issued, and owners of trade marks, prints, and labels, duly registered in the United



PEN OF SQUID NEARLY TWO FEET LONG.

States Patent Office under the laws of the United States relating to the grant of patents and to the registration of trade marks, prints, and labels, shall receive the protection accorded them in the United States under said laws; and an infringement of the rights secured by lawful issue of a patent or by registration of a trade mark, print, or label, shall subject the person or party guilty of such infringement to the liabilities created and imposed by the laws of the United States relating to said matters:

Provided, That a duly certified copy of the patent or of the certificate of registration of the trade mark, print, or label, shall be filed in the office of the Governor-General of the island wherein such protection is desired; and,

Provided further, That the rights of property in patents and trade marks secured in the islands of Cuba, Porto Rico, the Philippines, and other ceded territory, to persons under the Spanish laws, shall be



TYPE OF SQUID TAKEN IN THE PACIFIC.

respected in said territory, the same as if such laws were in full force and effect. G. D. MEIKLEJOHN,

Acting Secretary of War.
War Department, Washington, April 11, 1899.

THE extremely great tenacity of life possessed by micro-organisms is demonstrated by the following experiments of the French savant M. Miquel:

He took from a public park a sample of earth, dried it for two days at a temperature of 30° C. and powdered it. The earth thus obtained he filled into sterilized glass vessels, which were sealed and kept in a place not reached by the light. The freshly dug out soil contained 6,500,000 bacteria per gramme which were reduced to 3,900,000 by the pulverizing and drying. After sixteen years the glass tubes were opened and there were still found to be 3,580,000 micro-organisms

in a gramme of earth. Inoculated on a porpoise, they produced after two days the characteristic symptoms of tetanus attending wounds.—Technische Notizen.

Struggles of a Book Against Taxation.

In June, 1833, the late Charles Knight began the publication of the Penny Cyclopaedia in numbers and monthly parts. At the time it was issued there was nothing of the kind in the English language, and the value and importance of the book was very great, and we must regard Charles Knight as the father of modern cheap literature, on account of this and other business ventures. The attitude of the British government at that time toward literature certainly did not tend to the multiplication of works. The Cyclopaedia was begun in 1833 and was completed in 1846, and the result to the originator was a loss of \$150,000, and this loss was practically caused by the excessive taxation of the British government, and the story of its publication is interesting now, as showing how printed matter was discriminated against in those days. The quantity of paper required to produce a single copy, which contained 15,764 pages, was two reams, which weighed 35 pounds. At the time of its commencement an excise duty of 6 cents per pound was collected on all paper. Of the entire edition, 20,000 reams paid this duty, which amounted to about \$42,000, and the remaining 30,000 reams paid a reduced duty of 3 cents per pound, which amounted to \$32,000, so that the total duty was not far from \$75,000. In addition, a duty was charged on the mill-boards employed in binding the volumes and on the wrappers for the monthly parts, so that with interest and various losses caused by stocks on hand at the time the paper duty was reduced, the total amount of duty paid on the work was between \$150,000 and \$160,000, and the loss to the publisher was just about the same amount.

The Building Edition for April.

The SCIENTIFIC AMERICAN Building Edition for April is filled with interesting matter. A model cottage at Homewood, Long Island, is selected for the colored cover. The other illustrations show houses in various parts of the country and are fine examples of what architects are doing to-day for suburban residences. The "Castle of Vincigliata," near Florence, is illustrated and described. This castle has been most carefully restored to its pristine state and is one of the most remarkable fortresses of the feudal lord in existence. There are also several pages of most interesting reading matter.

The Current Supplement.

The current SUPPLEMENT, No. 1216, contains very important articles, notably "Acoma and the Enchanted Mesa," a most interesting article by Mr. G. Wharton James, illustrated by original photographs. "Trade Suggestions from United States Consuls" are twelve in number. The "Index to Consular Reports," a new feature, is also in evidence. "The Samoan Islands" are very much in the public eye at the present time, and the article on the subject is illustrated by eight engravings. "Porto Rico, the Land and the People," by Dr. William Hayes Ward, is also a most interesting and timely article. "Arithmetic Among the Ancient Egyptians," "Liquid Fuel," and "The Logical Arrangement of the Motive Power of Battleships," by Engineer-in-Chief George W. Melville, U. S. N., are important articles on the various subjects. The usual

notes and selected formulæ are also given.

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