same family as the spiked dog-fish, but grows to a much larger size, specimens 15 feet long being frequently met

with. The two dorsal fins are small and destitute of spines. The teeth (fig. 11) in the upper jaw are small, narrow, conical in shape ; those of the lower flat, arranged in several series, one on the top of the other, so that only the uppermost forms the sharp dental edge of the jaw. The points of

these lower teeth are so much turned aside that the inner margin only enters the dental edge.

The Green­land shark is an inhabitant of the Arctic regions, some­times straying to the lati­tudes of Great Britain and of Cape Cod in

the western Atlantic; it is one of the greatest enemies of the whale, which is often found with large pieces bitten out of the tail·by this shark. Its voracity is so great that, as Scoresby tells us, it is absolutely fearless in the presence of man whilst engaged in feeding on the carcase of a whale, and that it will allow itself to be stabbed with a lance or knife without being driven away.

The Spinous Shark *(Echinorhinus spinosus)* is readily re­cognized by the short bulky form of its body, its short tail, and the large round bony tubercles which are scattered all over its body, each of which is raised in the middle into a pointed conical spine. More frequent in the Mediterranean, it has been found also not very rarely on the English coasts and near the Cape of Good Hope. It is always living on the ground, and probably descends to some depth. It does not seem to exceed a length of 10 feet.

*Bathybial Sharks.—*Sharks do not appear to have yet reached the greatest depths of the ocean ; and so far as we know at present we have to fix the limit of their vertical distribution at 500 fathoms. Those which we find to have reached or to pass the 100 fathoms line belong to generic types which, if they include littoral species, are ground- sharks,—as we generally find the bottom-feeders of our littoral fauna much more strongly represented in the deep sea than the surface swimmers. All belong to two families only, the *Scylliidæ* and *Spinacidae,* the littoral members of which live for the greater part habitually on the bottom and probably frequently reach to the 100 fathoms line. Distinctly bathybial species are two small dog-fishes,— *Spinax granulatus* from 120 fathoms, and *Scyllium canescens* from 400 fathoms, both on the south-west coast of South America ; also *Centroscyllium granulatum* from 245 fathoms in the Antarctic Ocean, whose congener from the coast of Greenland probably descends to a similar depth. The sharks which reach the greatest depth recorded hitherto belong to the genus *Centrophorus,* of which some ten species are known, all from deep water in the North Atlantic, Mediterranean, the Molucca and Japanese seas. The Japanese species were discovered by

the naturalists of the “Challenger” on the Hyalonema ground off Inosima in 345 fathoms. Dr E. P. Wright found *C. coelolepis* at a still greater depth on the coast of Portugal. The fishermen of Sétubal fish for these sharks in 400 or 500 fathoms, with a line of some 600 fathoms in length. “ The sharks caught were from 3 to 4 feet long, and when they were hauled into the boat fell down into it like so many dead pigs” ; in fact, on being rapidly withdrawn from the great pressure under which they lived they were killed, like other deep-sea fishes under similar circumstances. It is noteworthy that the organiz­ation of none of these deep-sea sharks has undergone such a modification as would lead us to infer that they are inhabitants of great depths.

One of the most interesting types of the divi­sion of sharks is the small family of *Notidanidæ,* which is external­ly distinguished by the presence of a single dorsal fin only, without spine and oppo­site to the anal, and by having six or seven wide branchial open­ings. They repre­sent an ancient type, the presence of which in Ju­rassic formations is shown by teeth extremely similar to those of the living species. Their skeleton is notochordal. Only four species are known, of which one *(Notidanus griseus)* has now and then strayed north­wards to the

English coast. A member of this family has been re­cently discovered in Japan, and is so scarce that only two specimens are known—one in the museum at Cam­bridge, U.S., and the other in the British Museum. It was named by its first describer, S. Garman, *Chlamy- doselachus anguineus* (fig. 1G). It resembles somewhat in shape a conger, and differs from the *Notidani* proper by its elongate body, wide lateral and terminal mouth, extremely wide gill-openings, and peculiarly formed teeth. The teeth are similar in both jaws, each composed of three slender curved cusps separated by a pair of rudi­mentary points, and with a broad base directed back­wards. These teeth resemble some fossils of the Middle Devonian, described as *Cladodus,* and North-American