

Tyrol. The migration lasted seventeen days, from morning till night. The grasshoppers came down and ate every thing, grape-vines excepted. The swarms were so thick that the sun could not be seen, and they went farther to the shores of the Mediterranean. But the eggs and the young ones hatched from them were left behind: therefore a process was begun against them. The grasshoppers were condemned and excommunicated by the priest of Kaltern. The judgment was framed as follows:—

"As grasshoppers are obnoxious to the country and to men, be it resolved by the court that the priest shall, by candles burning from the pulpit, condemn them in the name of God, of his Son, and of the Holy Ghost."

A similar process was begun in the year 1516 against caterpillars in Troyes, France.

H. A. HAGEN.

THE LOWER FORMS OF LIFE DREDGED BY THE TALISMAN.¹

ACTINIAS, generally known as sea-anemones, attract attention both by the beauty of their forms and by their bright and varied colors. They are represented in the deepest waters, and some forms gathered on bottoms at from four thousand to five thousand metres possess a color as beautiful as that of the shore species.

Madrepores have a carbonate-of-lime skeleton. They are present sometimes in abundance to a depth of twenty-five hundred metres. Madrepore branchus generally covers large districts, and often the cords of trawls dragging on bottoms inhabited by Lophelia were torn in shreds. Solitary madrepores are very numerous, and especially affect muddy bottoms; and they have beautifully varied forms, some resembling a cup, others a horn, and still others having the form of flowers.

Various forms of alcyonarians, a special group of corals, were found at considerable depths. At the Cape Verde Islands the same species of coral which is found in the Mediterranean, and is of so great

commercial value, was found at a depth of a hundred metres. Between five hundred and six hundred metres there was found an interesting alcyonarian, *Corallioipsis Perieri*, which much resembled Dana's *Corallium secundum* of the Fiji Islands. Isis and Mopseas (see fig. 1), with slender rods formed of a series of calcareous cylinders supporting flower-like polyps with eight bi-pinnated tentacles, were taken at twenty-five hundred metres. Other forms, with gorgons, having a horny axis with metallic reflections like gold, people with their graceful forms the abysses of the ocean.

The sponges form one of the most interesting parts of the Talisman collection. One generally thinks of these as always possessing the characteristics of our commercial sponges. When one sees their wonderful tissues, formed of needles interwoven with glistering white rock-crystal, one is impressed, first with surprise, and then with admiration. Sponges are distributed from the coast to the greatest depths explored (five thousand and five metres). The littoral or shallow-water forms have a horny or calcareous skeleton, while those living at great depths have a skeleton formed of siliceous spicules, sometimes free, sometimes joined into a network. The most remarkable siliceous sponges are *Holtenia*, shaped like a bird's

nest, having at the circumference, or else only at the base, a long *chevelure* of siliceous threads, enabling it to anchor to the bottom; *Euplectella*, having the form of a long trellised horn; and *Hyalonema* and *Chondrochladia* (see fig. 1), which thrust into the mire a strong twisted fringe of long spicules, resembling spun glass. Among the siliceous sponges, in which the spicules form a kind of network, *Aphrocalistes* is most remarkable, a specimen of which is represented in the

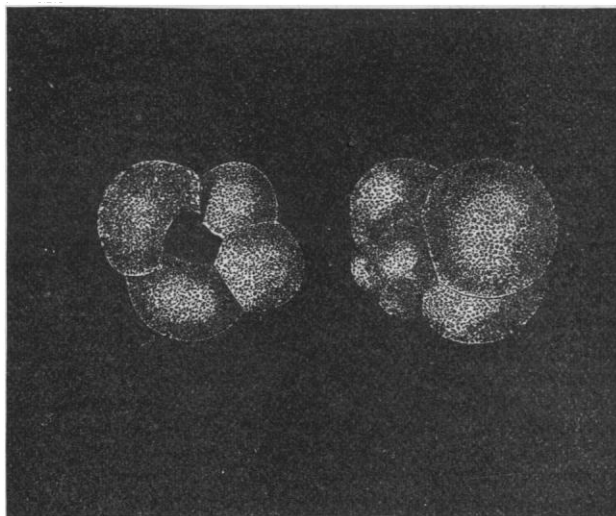


FIG. 2.—GLOBIGERINA AND ORBULINA, MUCH ENLARGED.
(From *Science et nature*.)

plate. In this sponge the needles form hexagonal meshes. Prolongations like glove-fingers, more or less distorted, detach themselves from the central part; and some of them, on coming in contact with solid bodies, or rocks, or corals, attach themselves very closely. The upper portion of the sponge (see fig. 1) is closed by an elegantly formed siliceous basket-work. As the colony increases, several of these trellises are formed.

The last animals to be mentioned, the Protozoa,

¹ Abridged from the French of H. FILHOL in *La Nature*. For previous notices see *Science*, Nos. 62, 68, 71, and 78.

are the most degraded in organization, and inhabit the bottoms of all depths. Foraminifera are so plenty at some points, that Mr. Schlumberger has counted

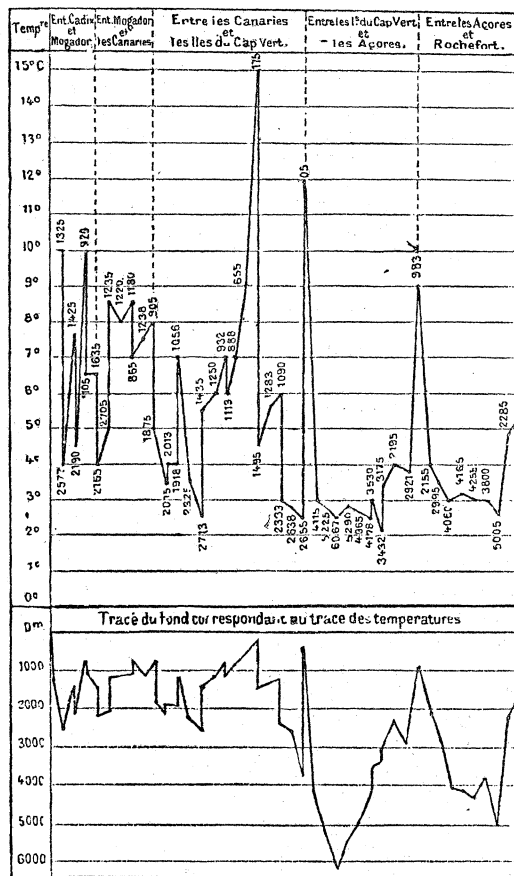


FIG. 3.—THERMOMETRIC CURVES, AND CORRESPONDING DEPTHS OF THE OCEAN-BED.

more than a hundred thousand of them in a cubic centimetre of mire. They live at the bottom of the ocean, and not, as formerly supposed, at the surface; and the accumulations from their tests (see fig. 2)

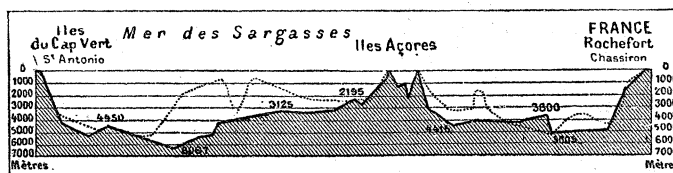


FIG. 4.—PROFILE OF THE OCEAN-BOTTOM TRAVERSED BY THE TALISMAN.

make what is termed the 'Globigerina ooze,' and will form, in the course of time, beds like those of certain geological horizons of the tertiary of Europe.

In 1868, during a cruise of the Porcupine, Mr. Carpenter and Sir Wyville Thomson discovered, among the particles of lime brought up by the dredge, a sort of jelly which made very slow movements. Within it were calcareous corpuscles of peculiar shape, which some naturalists thought to be the products of the protoplasm itself, while others thought it the *débris* of calcareous algae. Huxley called it *Bathypus Haeckeli*. This discovery caused a great sensation; and it was questioned whether this living slime did not at certain periods undergo evolution, and then give rise to new creatures. Wyville Thomson could not find *Bathypus*, and it was discovered that previous observers had been deceived by a chemical reaction. The supposed *Monera* was nothing more than a simple gelatinous precipitate of sulphate of lime, as it forms when concentrated alcohol is turned into sea-water. The mode of preservation of the lime had created *Bathypus*.

Here the general description of the results of the cruise of the *Talisman* is brought to a close. Yet I have thought it would be interesting to show the result of our researches on temperatures at great depths; and I have drawn two curves (fig. 3), the upper showing the thermometric records, the lower the corresponding depths. On examination it will be noticed that they do not always agree. Thus the lowest temperature we found was at 3,432 metres, while it was a little higher at 5,000 and 6,000 metres. From this the importance of deep currents, and the part they play in the distribution of life in the ocean, may be judged.

Another curve (fig. 4), drawn by Mr. Milne-Edwards, shows the profile of the bottom of the sea between the Cape Verde Islands and the Azores, on the one hand, and between these islands and France, on the other. Our relief differs considerably from that indicated on the German charts recently published (see dotted line).

KOREAN CURIOS.

POSSIBLY the most curious things in the possession of the Korean embassy, which recently visited the United States, were two thumb-rings (fig. 1), worn by the Prince Min Yong Ik one at a time, and usually on the thumb of the right hand, apparently rather more as an object to play with than as an ornament.

One of them, supposed by the prince to be jade, was found, on examination, to be serpentine; hardness 4.5, and specific gravity 2.62. It was white in color, with an oily lustre, and had on it a number of small brown stainings resembling an oxidation of iron. In the centre of each spot, apparently forming a nucleus, was a small, dendritic, moss-like marking. This ring measured 84 millimetres across the opening, the width of the opening being 22 millimetres. Its length was 28.5 millimetres. One