obtained living several times, and dead frequently. Acephala are rather rare and small, but Bryozoa are abundant. Articulates (Crustacea and Annelids) are well represented. But the great richness of this region lies in the Radiata. Of Echinoderms, the most common is a *Cidaris* (nov. sp.), besides which there are several new species of Echinidæ and very interesting Asteridæ and Ophiuridæ. Holothuriæ are rather rare, except a new *Psolus*. Of corals, I have eighteen new species, belonging principally to the families of Turbinolidæ and Oculinidæ; the Eupsammidæ are also represented by two or three species, the Fungidæ (a true *Fungia*) and the Milleporidæ by one each. The Madreporidæ and Astræidæ are entirely absent. There are also two or three species of *Antipathes*, eight or nine of Gorgonidæ, several of Actinidæ (some of them very abundant), Hydroid polyps, sponges, and Foraminifera. As a general rule, everything is of small size. There are no seaweeds. Some animal remains are found whose presence is accidental, such as sharks' teeth, bills of Cephalopods, shells of Pteropods, &c., which have evidently come from near the surface, and also a considerable number of bones of the manatee, most frequently pieces of ribs; for the occurrence of the latter I am not able to account, as the manatee does not inhabit the open sea, and there are no currents to bring the floating carcasses from its usual haunts in the shallow bays.

From the third region the dredge brought up fewer though no less interesting specimens, the chief of which is a new Crinoid belonging to the genus *Bourgueticrinus* of D'Orbigny; it may even be the species named by him *B. Hotessieri*, which occurs fossil in a recent formation in Guadeloupe, but of which only small pieces of the stem are known. I obtained half a dozen specimens between 230 and 300 fathoms, unfortunately more or less injured by the dredge.

The deepest cast made was in 517 fathoms; it gave a very handsome *Mopsea*, a crab, an Ophiurian, and some annelids.

The difference of the deep-sea faunæ of the opposite coasts of Cuba and Florida is very marked, although the distance is so small; of all the corals, for instance, described by me from the coast of Cuba, only two or three, and those in fragments, were found off the Florida reef.

The descriptions of the new species, with plates, are in preparation, and will be published, by the kindness of Prof. Agassiz, in the next number of the illustrated Catalogue of the Museum of Comparative Zoology of Cambridge.

I am glad, also, to be able to say that Prof. Peirce, Superintendent of the Coast Survey, has directed me to continue these researches during the coming winter.—*Silliman's American Journal*, Nov. 1868.

Zoological Results of Dredgings in the Bay of Biscay.

By P. Fischer.

The shore of south-western France inclines in a gentle slope towards the west, and forms a vast submarine terrace, bounded by deeps of more than 200 fathoms. The edge of this terrace, which is

very distant from the coast opposite Noirmoutier (between 7° and 8° W. long.), approaches it about the opening of the basin of Arcachon (between 5° and 4° W. long.), and presents itself at a short distance from St. Jean de Luz and Spain. The depth of the terrace at its middle part is from 45 to 60 fathoms, and from 90 to 100 fathoms near its western limit.

I have received a great number of specimens from dredgings and soundings performed on different parts of the terrace; all of them were taken several leagues out to sea (the maximum 36 leagues), and at depths of 40 to 80 fathoms, under the directions of MM. de Folin, A. Lafont, and some captains of ships. Thanks to these supplies, I have been able to determine the species of animals which live at these depths at considerable distances from the coast.

The Mollusca form the majority, and most of them had never been indicated as French, such as *Necæra costellata*, Desh.; *Psammobia costulata*, Turt.; *Lepton nitidum*, Jeffr.; *Leda tenuis*, Phil.; *Arca pectunculoides*, Scacchi; *Lima subauriculata*, Mont.; *Scissurella crispata*, Flem.; *Cyclostrema nitens*, Phil.; *Rissoa soluta*, Forbes; *Eulima bilineata*, Alder; *Mangelia borealis*, Lovén; *Mangelia elegans*, Scacchi, &c.

It was impossible, in fact, to obtain these species along our coasts; in England and Norway they are dredged at a small distance from the shore, and at great depths. The existence of the submarine terrace compels us to seek several leagues out to sea for the deep-sea fauna; hence the apparent poverty of the French coasts.

English authors have remarked that a certain number of quaternary mollusca, or inhabitants of great depths in the Mediterranean, are only met with again in the British seas, without presenting intermediate stations; from this they have concluded that, immediately before the present epoch, and at the close of the tertiary period, the Mediterranean communicated with the ocean by means of an arm traversing Aquitaine and Languedoc. This hypothesis, which is not supported by any geological fact, seeing that the numerous tertiary lacustrine deposits of these countries have never been covered by the sea since their first emergence, is still further invalidated by the result of the dredgings of the littoral terrace, which clearly proves the continuity of *habitat* of the species formerly regarded as localized at such distant points.

Besides Mollusca, the deposits of the terrace contain the *débris* of Echinoderms, such as tests of *Echinocyamus*, spines of *Echinus*, *Spatangus*, and *Amphidetus*, and numerous ossicles of Starfish.

The Bryozoa, with the exception of branches of *Salicornaria*, are adherent to shells; but they live at less depths than 50 fathoms. I have recognized the following species:—*Hippothoa borealis*, D'Orb.; *Hippothoa divaricata*, Lamour.; *Tubulipora serpens*, Linn.; and several species of *Lepralia*, *Cellepora*, and *Discoporella*.

The Foraminifera are rather rare; there are:—*Miliolina bicornis*, Walk.; *Rotalia Beccarii*, Linn.; *Truncatulina lobatula*, Turt.; *Planorbulina vulgaris*, D'Orb., &c.

Lastly, I may cite some tubes of Annelida of the genera *Ditrupa* and *Serpula*.

One of the most curious zoological facts connected with the submarine terrace is the presence of an immense bank of living *Aviculæ* (*Avicula tarentina*, Lamk.), situated 4 leagues out to sea from the opening of the basin of Arcachon, at depths of 40 to 50 fathoms. This bank is prolonged to the south opposite to the light of Mimizan (Landes) and northwards opposite Hourtins (Gironde). Its length is estimated at 25 leagues, and its width at 1 league; it is not perfectly continuous, but is interrupted here and there. The fishermen of Rochelle, whom I have interrogated upon this subject, assert that it is met with again above the mouth of the Gironde, and that it may be traced towards the north-west as far as the rock of Rochebonne across the isle of Ré.

Many fishes approach the bank of *Aviculæ*; the fishermen, therefore, throw in their nets as near to it as possible; but it frequently happens that they lose them or are obliged to draw them in loaded with *Aviculæ*.

The formation of analogous banks is common among the byssiferous Mollusca (*Mytilus*, *Meleagrina*, *Dreissena*); the great strength of the byssus of the *Aviculæ* explains the great cohesion and the extent of their colonies.—*Comptes Rendus*, November 16, 1868, pp. 1004–1006.

Notice of a new and diminutive species of Fossil Horse (Equus parvulus), *from the Tertiary of Nebraska.* By Prof. O. C. Marsh, of Yale College.

In a small collection of fossil vertebrate remains, obtained by the writer during the past summer in the Tertiary deposits of Nebraska, there are several specimens of no little interest, as they indicate a new species of fossil horse, very much smaller than any hitherto known. These remains were collected at Antelope station on the Union Pacific Railroad, about 450 miles west of Omaha, where a few weeks before, during the excavation of a well, they had been thrown out from a depth of sixty-eight feet. This locality has since attained considerable notoriety from the fact that the remains then found were pronounced to be human by those who first examined them, and various accounts of the discovery have been published in the newspapers. This, in fact, induced the writer, when in the vicinity, to examine the locality and its fossils, an account of which he has already given elsewhere *.

The equine remains now to be noticed consist mainly of bones of the limbs; and among them is a hoof-phalanx, a coronary or second phalanx, parts of the first phalanx and metacarpals, as well as some of the smaller carpal and tarsal bones, and fragments apparently from other parts of the skeleton. All are in an excellent state of preservation, and part of them are so characteristic that they clearly indicate the near affinities of the animal to which they belonged.

The ungual or hoof-phalanx differs in form from that of the recent horse only in being somewhat more depressed, and in having

* National Academy of Sciences, Northampton Meeting, Aug. 1868.