

a surface of four square inches, and the webs of all the feet together about twelve square inches. As the extremities of the toes have dilated discs for adhesion, showing the creature to be a true tree-frog, it is difficult to imagine that this immense membrane of the toes can be for the purpose of swimming only, and the account of the Chinaman that it flew down from the tree becomes more credible."

The great group of Frogs and Toads, rich as it is in genera and species, and widely as it is diffused over the earth's surface, is one of singular uniformity of structure. The forms most aberrant from our type, the common frog, have now been noticed, except that perhaps the maximum respectively of obesity and slenderness may be referred to. In the former respect the Indian Toad *Glyphoglossus* may serve as an example, and for the latter may be selected *Hylorana jerboa*.

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(To be continued.)

A FOSSIL SIRENIAN FROM THE RED CRAG OF SUFFOLK

AT the opening meeting of the Geological Society, Prof. Flower communicated a description of a fine fragment of a skull of an animal of the order *Sirenia*, which is of great interest as affording the first recorded evidence of the former existence of animals of this remarkable group in Britain. The specimen forms part of the very rich collection of Crag fossils formed by the Rev. H. Canham, of Waldringfield, near Woodbridge. It was found in the so-called "coprolite" or bone-bed at the base of the Red Crag, and presents the usual aspect of the mammalian remains from that bed, being heavily mineralised, of a rich dark brown colour, almost black in some parts, with the surface much worn and polished, and marked here and there with the characteristic round or oval shallow pits, the supposed *Pholas* boring.

The fragment consists of the anterior or facial portion of the cranium which has separated, probably before fossilisation, from the posterior part at the fronto-parietal suture, and in a line descending vertically therefrom. This portion has then been subjected to severe attrition, by which the greater part of the pre-maxillary rostrum, the orbital processes of the maxillaries, and other projecting parts have been removed. In consequence of this, what may be called the external features of the skull, which are especially necessary to determine its closer affinities, are greatly marred, though enough remains of its essential structure to pronounce with confidence as to its general relationship to known forms. Fortunately, the whole of the portion of the maxillæ in which the molar series of teeth are implanted is preserved; and though the teeth have fallen from the alveoli in the front part of the series, and in the posterior part are ground down to mere stumps, so that the form of the crowns cannot be ascertained in any, many important dental characters may still be deduced from the number, form, size and position of the sockets and roots that remain.

As the intensely hard, ivory-like rostra of the ziphioid Cetaceans, the tympanic bones of the Balænidæ, and the teeth of terrestrial mammals almost alone remain in these deposits to attest the former existence of their owners; it is, doubtless, to the extreme massiveness and density of the cranial bones, as characteristic of the order *Sirenia*, that we owe the preservation of so large a portion of the skull under the very unfavourable conditions to which it, in common with the other fossils of the formation, must have been exposed.

After a comparison of the characters of the cranium with those of the several existing and extinct members of the order, Prof. Flower referred it to the genus *Halitherium*, and showed its relationship to *H. Schinzi* of Kaup from

the miocene of the Rhine basin, a formation, it will be remembered, in which several of the animals of the Red Crag bone-bed occur. It is, however, of larger size than that species, the teeth are larger, both absolutely and relatively to the cranium, and certain other differences occur, though the imperfect nature of the materials makes exact comparison of fossils only known from fragments not altogether easy or satisfactory. Believing, however, that it does not belong to either the above-mentioned, or any other of the hitherto described species of *Halitherium*, the specific name of *H. canhami* was proposed. It should be mentioned that there are six teeth in the maxillary or molar series on each side, all present at the same time, the first two with single roots, the third with two roots, and the last three with three roots, precisely resembling in form those of the molar teeth in the existing Manati.

ON THE STICK-FISH (*Osteocella septentrionalis*) AND ON THE HABITS OF SEA-PENS

MR. COOTE M. CHAMBERS has most kindly presented to the British Museum a specimen of the Stick-fish, from English Bay, Burrard's Inlet, British America. The specimen was placed alive, immediately it was caught, into a tin tube, filled with a solution of arsenic and salt.

Mr. Chambers observes that the Stick-fish are only to be found in Burrard's Inlet, English Bay, British Columbia. "It has only one bone in it, and appears to live on suction, and is a great prey to dogfish." Further: "I would mention that in summer only can they be caught. They are found to the least depth of from 30 to 40 fathoms, they move about rapidly in the water, and when brought to the surface, move for a few seconds like a snake, then make a dart as swift as lightning, and disappear."—July 23, 1873.

Unfortunately the specimen did not arrive in a good state for exhibition. The greater part of the animal portion had been washed off, probably by the motion of the solution during the transit; only about a foot of the flesh, which was loose on the axis, and the thick, swollen, naked, club-shaped base without polypes remained; but it was in a sufficiently good state to afford the means of determining its zoological situation and of examining its microscopical and other zoological characters.

Mr. Chambers' specimen is the animal of the axis, or stick, that I described as *Osteocella septentrionalis* (Ann. and Mag. Nat. Hist. 1872, ix. p. 406), and it proves that the axis belongs to a kind of *Pennatula*, or Sea-pen, nearly allied to the long Sea-rushes named *Pavonarius quadrangularis*, found on the West Coast of Scotland, and is evidently the same animal as *Pavonaria blakei*, described by R. E. C. Stearns. The idea of its being a fish, which seems so generally entertained by the people of British Columbia, is clearly a mistake, though one of the observers sent a figure of the Sea-pen, with mouth and eyes like an eel (!), which is copied in NATURE, vol. vi. p. 436.

Osteocella.—The complete polype-mass very closely resembles *Pavonaria quadrangularis*, as figured by Johnston ("British Zoophytes," t. xxxi.), from Prof. Edward Forbes' drawings; but the animal is entirely destitute of calcareous spicules, and the axis is cylindrical, hard, and polished.

Two days after I received this specimen, I received by post Mr. Stearn's description of the Stick-fish (*Pavonaria Blakei*), from the San Francisco *Mining and Scientific Press*, August 9, 1873.

The description of Mr. Stearn, made from a fresh animal, need not be repeated; but as he does not mention the microscopic structure, I sent a fragment of Mr. Chambers' specimen to Mr. Carter to be examined, who kindly writes:—"The fragment arrived safely, although