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### On marine Bryozoa

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had a perfect zygomatic arch, which I had not before seen; but I was suffering too much pain at the time to pay more attention to the subject, observing that most likely the skull belonged to *Manis Dalmanni*, and that it might be distinct from *M. Hodgsoni*, with which I had hitherto united it.

Mr. Swinhoe left his specimens at the British Museum; and I have no doubt that the four from Amoy, which are of different ages, are the skulls of the family of five which he purchased in Amoy in June 1867, described in the 'Proceedings of the Zoological Society' for 1870, p. 650, and that the one from Formosa, which is of a larger size, is the male specimen described in the same place, and that the observation of Mr. Swinhoe, that "the Amoy and Formosan adult skulls both have complete malar arches; but in the skulls of the Amoy young ones these gape apart, the unossified cartilage having been cleaned away," is the true explanation of the absence of the malar, which most probably is present in all the species of the genus.

*On Marine Bryozoa.* By Prof. E. CLAPARÈDE.

In the first Number of vol. xxi. of Siebold und Kolliker's 'Zeitschrift,' Claparède, who, with the exception of Nitzsche, is the only writer who has studied the Bryozoa since the publication of the capital papers of Smitt, gives us most interesting contributions to their history. While on the main points he completely agrees with the views taken by Smitt of the polymorphism of the species, their mode of budding, and general embryonic development, yet in some points not satisfactorily determined by Smitt, such as the relations of the various cells (zoecia) to one another, the nature of Smitt's "mörka kroppar," dark bodies, and "fett kroppar," he has new observations differing somewhat from those of Smitt. The most interesting facts are those concerning a sort of retrograde development, a resorption of the digestive cavity in the older cells, the gradual disappearance of the lophophore, resulting in cells usually considered as dead, but in reality having latent life, and where alone the fatty bodies of Smitt, which play such an important part in the embryology of Bryozoa, are developed. These cells apparently pass through stages identical with those produced by budding at the youngest extremity of the colony, with the difference that in one case the cell is immature, while in the other it is fully developed. The resorption is frequently accompanied by peculiar changes in these cells, and is confined to the older portions of the Bryozoan colony in which the lateral connexion between the cells for exchange of fluids between the cells provided with digestive cavities and those cells containing latent life is very strikingly shown, thus forming a complete circulation between the most distant parts of the colony. He also confirms the nature of the colonial nervous system, first traced by Fritz Müller, and shows its existence among the Chilostomata, where it had only been traced by Smitt before. Claparède closes this interesting paper by giving us the complete development of *Bugula*, with larger, more accurate, and at the same time more

intelligible figures than we have had of the early development of any one species of marine Bryozoa thus far. He has, however, not been able to decide positively the nature of the ova, said in one case to owe their origin to a sexual process, and in the other cases to point to the existence of parthenogenesis among Bryozoa under certain circumstances. Claparede has not confirmed the observations of Schneider on the development of *Membranipora*; but from what Nitzsche has observed of the early stages of *Bugula*, he appears to have seen the same retrograde development in the youngest stages of its larva which Schneider observed in *Cyphonantes* during its development into *Membranipora*.—*Silliman's American Journal*, May 1871.

*On the Order of Development of the Dentition of Sloths (Bradypus).*

By Dr. J. E. GRAY, F.R.S. &c.

The skull of the two-toed Sloth (*Choloepus*) is distinguished from that of the three-toed Sloths (*Bradypus* and *Arctopithecus*) by having the intermaxillary bone moderately developed, forming the front edge to the jaw; whereas in the latter two genera it is rudimentary, free, and very commonly lost in preparing the specimen. But the development of the teeth, which I believe has not hitherto been observed, differs more. In *Choloepus* the front grinders in both jaws are much larger than the others, subtriangular, with bevelled edges, by their rubbing against each other, like the canines of pigs; they are developed at the same time as the other grinders, or, indeed, rather before; for they are of considerable size when the other grinders are small and rudimentary. The front ones of the upper jaw are separated from the others by a considerable space; and the lower one is considerably behind the produced front edge of the lower jaw, and separated from the other grinders by a moderate space. In the three-toed Sloths, on the contrary, the grinders are all regularly placed, the front lower one being transversely compressed and truncated. The front upper grinder is always smaller than the rest, cylindrical, and it is developed much later than the others. There is a specimen in the British Museum of a young skull of *Arctopithecus*, which has all the grinders in the upper and lower jaws well developed, but the upper front grinders are small, rudimentary, cylindrical, conical at the tip; and, on comparing other young skulls, it is evident that these teeth are gradually developed as the animal increases in age, and never attain the same size as the others.

*Note on Asaphus platycephalus.* By J. D. DANA.

The closing remark in my paper on page 368 will have to be cancelled if the species there referred to *Asaphus platycephalus* is identical with the *Asaphus platycephalus* (*A. (Isotelus) gigas*) of Trenton, the latter (as Mr. Billings writes the author) often occurring, in New York, rolled into a ball.—*Silliman's American Journal*, May 1871.