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On the skull of the leopard (*Leopardus pardus*)

Dr. J.E. Gray F.R.S.

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perhaps the two forms may be included under the latter name in Europe. In one the mouth is deeply trilobed, and the animal is usually green with chlorophyl-globules. In the other the mouth is crenulate, usually with six shallow crenulations, and the animal is devoid of chlorophyl. The former is usually the smaller, and may be distinguished by the name of *D. lobostoma*; the latter may be named *D. crenulata*.

In an old brick-pond, on the grounds of Swarthmore College, Delaware County, among *Diffugia pyriformis*, *D. spiralis*, *D. corona*, *D. acuminata*, and others not yet determined, there occurs an abundance of a large species, apparently undescribed. It is sometimes the fourth of a line in length, and is compressed pyriform; but is quite variable in its relation of length to breadth and in the shape of the fundus of the shell. This is often trilobate; but, from the non-production of one or more or all the lobes, differs in appearance in different individuals. The animal is filled with chlorophyl-grains, from which it might be named *D. entochloris*.

Another large *Diffugia*, allied to *D. lageniformis*, is not unfrequent about Philadelphia. The shell is beautifully vase-like in shape; it has an oval or subspherical body, with a constricted neck and a recurved lip to the mouth; the body of the shell opposite the mouth is acute and often acuminate. The animal contains no chlorophyl. One shell measured $\frac{1}{8}$ of a line long by $\frac{1}{8}$ of a line broad; another measured $\frac{1}{4}$ of a line long by $\frac{1}{7}$ of a line broad. The species may be named *D. amphora*.

A *Diffugian*, found in a spring on Darby Creek, is interesting from its transparency, which allows the structure of the animal to be seen in all its details. The investment is membranous and apparently structureless; the soft granular contents occupy about one half of the investment, and are connected with this by long threads; the pseudopods are protruded in finger-like processes. The form of the animal is compressed ovoid, with the narrow pole truncate and forming the transversely oval mouth. It is probably the species *Diffugia ligata*, described by Mr. Tatem, of England. Its length is about $\frac{1}{33}$ of a line. The character of the investment is so different from that of ordinary *Diffugians* that the species may be regarded as pertaining to another genus, for which the name of *Catharia* would be appropriate.—*Proc. Acad. Sci. Philad.* 1874, p. 77.

On the Skull of the Leopard (Leopardus pardus).

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

The skulls of the leopard in the British Museum, from different localities, vary very much in size, and I think will probably, if they are carefully studied, prove to belong to more than one species when specimens, obtained from well-ascertained localities, are accompanied by the skins of the animals from which they are obtained.

The skulls received from Southern Africa are much the largest. The specimens from Continental India are of intermediate size; and a series of skulls which were formerly contained in M. Lidth de

Jeude's Museum in Holland, and therefore probably from the Dutch colonial possessions, are all of a much smaller size, not half the size of those from South Africa (see figure of *Felis pardus sumatranus*, Blainv. Ostéogr. *Felis*, t. viii.), which seems to represent a small specimen of this latter variety. Blainville represents a smaller skull, still under the name of *Felis pardus barbarus*, from Barbary, North Africa (t. viii.).

The leopards have a narrow opening at the back of the palate, and a tooth-like prominence on the front edge. This character seems common to all the leopards, but is more marked in some than in others.

They seem to vary in the width of the opening to the posterior nostrils. In some it is very narrow, and in others broader; this is, perhaps, a sexual character.

The puma, the skull of which very much resembles that of the leopards, differs from the leopard in having the front edge of the hinder opening of the nostrils simply rounded.

On the Ethology of Sacculina carcini. By M. A. GIARD.

Cancer mænas, like all those animals which are very common and capable of suiting themselves to very varied conditions of existence, is subject to the attacks of a multitude of parasites and commensals belonging to the most various groups of the animal kingdom. Among these parasites one of the most interesting is unquestionably *Sacculina carcini*, the curious metamorphoses of which we have recently studied.

The *Sacculina* is very common at many points of the coasts of Brittany; it becomes rare on the shores of the Boulonnais and of Flanders, from Cape Gris-Nez to Dunkirk. On the other hand, it is excessively abundant at Ostend, where it was long ago noticed by M. P. van Beneden, and where I have myself found it by hundreds this summer.

As the *Sacculina* inevitably causes the sterility of the crab which bears it, at first mechanically and afterwards histologically, *Cancer mænas*, notwithstanding its prodigious fecundity, would soon become rare upon the shores on which an equally fertile parasite swarms, if many causes did not cooperate to limit the excessive multiplication of this curious Rhizocephalon.

At Ostend we often find under the tails of crabs which bear *Sacculinae* small tufts of Bryozoa and strings of young mussels, which appear to hamper considerably the development of the parasite under consideration. At Wimereux, where the edible mussel is also very common, the same fact is frequently observed; but as the mussel can rupture its byssus and quit its place at pleasure, when it finds itself inconveniently confined, it does not constitute a great danger for its neighbour the *Sacculina*.

This, however, is not the case with *Molgula socialis*, the active larvæ of which often take up their abode under the tail of *C. mænas* when this is raised by the *Sacculina*. These Ascidia, as they are developed, gradually compress the body of the *Sacculina* and finally cause it to perish, after hindering its multiplication for some time.