

water through the branchial chamber cannot be very vigorous, and consequently in that portion of the chamber that is most distant from the direct current, the circulation will be very inactive. In the central portion of the chamber the branchiæ, instead of consisting of cylindrical rods, are developed into thin foliaceous plates of considerable dimensions, through the tenuity of the structure of which the blood is brought over a large surface into contact with the aerating medium within the chamber. The circulatory channels seen within the plates demonstrate the organs to be of a complex structure, and capable of performing a function of a less simple kind—namely, of extracting the oxygen from water that has been stored for a long period where it has not been affected by the atmosphere.

I am aware that this is mere speculative reasoning from the appearance and condition of the organs, and that we must know more about the habits and mode of existence of the animal before we can determine with certainty what separate duties or functions these two varieties of branchial organs effect.

That neither of them can be the depauperised form of the other I feel assured, inasmuch as the variation in the several parts of the animal exhibits no depreciation of structure.

The various organs may be abnormal in form, but they are evidently well adapted for their purpose; the mandibles are strong, and the synnhipod, which is required for sweeping food within reach of the incisive margin of the mandible, is a very powerful and efficient appendage. The stomach is a large and capacious organ, complicated in its structure, and adapted for the comminution of substances into a form that adapts them for assimilation.

The points of interest which this Crustacean possesses have induced me to give a detailed description of the several parts of its structure. Although the animal is not new, it has never been fully described; and the only figures, so far as I am aware, are a small one in Desmarest's *Consid. des Crustacés*, another in Leach's *Miscellany*, and in Cuvier's *Atlas to the Règne Animale*.

The animal is interesting, and not only supplies a link connecting the Macrurous with the Anomurous Crustacea, but also shows that the trichobranchiate structure is intimately associated with the phyllobranchiate form, that the one is only a modification of the other in adaptation to varied conditions.

Family CALLIANASSIDÆ.

The several genera of this family are conveniently determined by the gradually increasing size of the somites of the pleon, together with the great breadth of the foliaceous plates of the rhipidura, and by the asymmetrical character of the first pair of pereopoda, which generally have a tendency for the right to be larger, deeper, and less perfectly