which has hitherto been neglected by almost all observers, but which does not in all cases play the part attributed to it by Semper. Here again, the error arises from his having limited his investigations to the Pulmonata. If he had examined certain Gasteropoda in which the ribbon-shaped tongue is as long as the body, as in the *Pomatiæ*, or even much longer, as in the *Patellæ*, he would soon have been convinced that the posterior papilla, placed quite at the bottom of the abdominal cavity between the folds of the intestine, never comes in contact with the food. This papilla is in fact the producing organ, the matrix of the rows of teeth which form the radula. In proportion as the anterior rows of teeth are worn and thrown off, new ones, destined to replace them, are formed behind.—*Siebold and Kölliker's Zeitschrift*, viii. p. 340–399. Abstract by E. Claparède in *Bibl. Univ. de Genève*, January 1857, p. 79.

Note on the Invertebrate Fauna of the Baltic Sea.

By G. Lindström.

We are accustomed to consider the Baltic as very poor in the lower animals and plants, but this poverty is not so great as has been hitherto supposed. It is certain, however, that most of the species discovered during the last few years belong to the North Sea, and that there is only a very small number belonging to the Baltic itself. But it is precisely the latter, such as *Idothea entomon* and *Pontoporeia affinis*, which possess a peculiar interest from the resemblance which they present to certain arctic forms (*Idothea Sabini* and *Pontoporeia femorata*).

Many species which were hitherto supposed to belong to more northern seas are able to live in the comparatively fresh water of the Baltic, and even the mixture of marine and freshwater forms gives a very peculiar character to the fauna of the rocky pools in the vicinity of Stockholm. Amongst the Invertebrata, the Crustacea furnish the greater part of the marine species which are capable of bearing this half-fresh water without losing their purity of type. There are but few Mollusca in this case, and even amongst the animals of this division there are some which have so modified their original form that they have been taken for species peculiar to the Baltic; as, for instance, *Tellina solidula*.

Not far from Wisby the coast sinks so gently, that at a distance of half a mile from the shore the depth does not exceed 40 fathoms. Close to the shore, where the depth of water is not more than a few feet, the bottom is formed of calcareous pebbles covered with various marine Confervæ, with *Enteromorpha intestinalis*, &c. There, *Gammari*, *Planariæ*, *Limnææ* and *Neritinæ* (*Neritina fluviatilis*) move about. If we advance further into the sea, we find a bank of marly limestone belonging to the formation of Gothland, and covered with *Fucus vesiculosus* and with *Chorda filum*. At a depth of 8–15 fathoms, *Ceramia*, *Polysiphoniæ* and *Furcellariæ* grow. In this zone we find an abundance of *Mytilus edulis*, *Amphitoë*, *Paludinellæ*,

Cardia, and *Limapontiæ*, and also *Gammarus locusta*, which is met with wherever Algæ occur.

Beyond this zone there is a sand covered with a fine clay. In this region few animals are met with, and these are either Mollusca (*Mya*, *Tellina*) or Amphipod Crustacea.

The *Skärgard* of Stockholm possesses a singular fauna. Under the stones which are close to the shore we meet with *Gammari* (*G. locusta*), species of *Jæra*, *Planaria*, and *Naïs*, and with young Acephalous Mollusca belonging to the genera *Cardium* and *Tellina*. At a depth of 2–5 fathoms, *Fucus vesiculosus* grows; upon this vegetate *Elachistæ* and various Confervæ. This region swarms with *Mysis*, *Jæra*, *Gammarus*, *Paludinella*, *Mytilus*, with young *Cardia* and with *Flustræ*; even *Phryganidæ* are found there. From a depth of 5 or 6 fathoms to that of 18 the bottom is clayey and muddy; here and there only *Phyllophoræ* grow, together with *Ceramia* and *Polysiphoniæ* in a stunted condition. The fauna of this zone is richer than would be supposed at the first glance. At a depth of 8 fathoms occurs *Asellus vulgaris*, a freshwater species, in the midst of the *Phyllophoræ*. At a depth of 3–6 fathoms, *Limnæus pereger* (var. *Balticus*) and *Physa fontinalis*! are met with. Near Gothland, Lindström has even found *Limnæi* in the open sea at a depth of 8 and 12 fathoms! How can we explain the existence of air-breathing animals so far from the surface? Do they possess a means of rising and sinking rapidly in the water at pleasure, or must we admit that they only require to renew the air in their pulmonary sac at long intervals? By the side of these *Limnæi* there were living completely marine animals, such as *Nereïdes*, *Polynoës*, a species of *Sipunculus*, *Tellinæ* and *Cardia*. At a depth of 40 fathoms, nothing is found but a *Pontoporeia*, an *Idothea*, and a *Tellina*.

In the open sea a multitude of small animals are found moving about on the surface; these are principally Crustacea, such as *Evadne*, and also larvæ of Gasteropoda (*Tergipes*) and Acephala. A Diatomaceous plant floats in the midst of these little creatures: it is sometimes so incredibly abundant as to produce what is called on the coasts of Gothland, *the flowering of the sea* (*hafvets blomning*). In the middle of summer it propagates with such rapidity, that the fishermen assert that their boats can hardly pass through the dense layer formed by it.

In a narrow *Sund* near Stockholm, called *Gälö-strat*, the soil is covered with *Myriophyllum* and *Potamogeton*. In the water sport *Cyprini* and other freshwater fishes, as well as Entomostraca also belonging to the fresh waters (*Daphnia*, &c.). At the bottom *Paludina impura* is seen creeping, and yet close beside are *Tergipes* and other marine forms.—*Ofversigt af Kongl. vetensk. Akad. Forhandl. Stockholm*, 1855, p. 49; and *Bibliothèque Univ. de Genève*, January 1857, p. 71.

The Blacks of Moreton Bay and the Porpoises. By Mr. Fairholme.

Between the two long islands which form the south part of Moreton Bay, is a passage known as the South Passage, formerly used