

and third joints short, the second the longest; fourth rather stout, and as long as second and third united; fifth and sixth slender, and about the length of fourth; seventh very short; eighth convex on outer margin, straight on inner, with a few short hairs scattered along both margins. A *single* claw at the extremity, which, when pressed against the limb, reaches to junction of seventh joint. Foot-jaws long and slender, projecting considerably beyond end of rostrum. Anterior portion of thorax attenuated, and advanced to nearly on a line with the tip of rostrum, where it slightly bulges, and gives origin to foot-jaws; immediately behind which is seated the oculiferous tubercle, which is long and narrow. Abdomen long, rounded at apex, slightly tapering to base. At the origin of each leg on the dorsal aspect is a large wart-like protuberance.

One female of this species was taken near the Dogger Bank, in 25–30 fathoms, on an oozy bottom.

Nymphon brevirostre, n. sp., Hodge.

Rostrum short and stout; foot-jaws thick, divergent; second joint or hand nearly as long as first; palpi five-jointed, brush-like; first and second joints long and nearly of the same length, each of which is equal to the three terminal, the last being the shortest. Thorax robust. Abdomen stout and conical. Oculiferous tubercle midway between first pair of legs. Legs stout, sparingly furnished with stout spine-like hairs; first and third joints short; second slender at origin, but swelling upwards; fourth and fifth each as long as the three first; sixth much longer, slender; seventh short; eighth long, slightly bent, and furnished along its inner margin with a few short spines, and terminating in one moderately large claw and two small ones.

One female of this species was taken near the Dogger Bank, under the same circumstances as the foregoing.—*Trans. Tynes. Nat. Field Club*, 1863, p. 281.

On the Change in Form of the Teeth of the Susu (Platanista).

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

The front of the beak, in the younger specimens, is dilated and oblong, but it gradually becomes as compressed as the rest of the beak; and in the older specimens the end of the beak is turned up.

The teeth in the front half of the younger specimens are very long, slender, subcylindrical, slightly arched, and more or less flattened on the front and hinder side by the friction of the teeth of the other jaw, which alternate and fit between them when the jaws are closed. The hinder teeth of the animal at this age are short and cylindrical, with a conical end; the hindmost ones are very short, scarcely raised above the gums.

As the animal increases in age, the bases of the teeth increase in longitudinal diameter, and the apices become worn off, until they be-

come the short, compressed, conical teeth figured by Sir Everard Home in the 'Philosophical Transactions' for 1818-1820, where they have a compressed, more or less hollow base; but in the more aged animal the bases of the teeth are solid, squarish, very rugose, or divided into short tubercles or broader lobes.

In the Museum of the College of Surgeons there is the skull of a young specimen, and another of an animal rather older than the one above described; and in the British Museum there is one rather older, showing the gradual change in the form of the teeth, and intermediate between the younger state and the jaws figured by Sir E. Home, which are also to be seen in the College of Surgeons' Museum. In the British Museum there is the skull of an aged individual, in which the teeth have solid rugose and lobed bases, as above described.

The change in form is so great that I was inclined at one time to consider the skull of the young animal as forming a genus distinct from *Platanista*, which is always characterized as having compressed teeth; and any one comparing the teeth of the old and young animals, without the intermediate gradations, might, at first sight, easily come to the conclusion that they could scarcely pass from one form to the other, as the long cylindrical front teeth of the young animal are converted, in the older one, into short, conical, compressed ones, by the wearing away of the tops and the alteration of the form of the base.

The sutures of the skull of this animal seem to be soon knit, for they are well closed in the skulls of the young animals.

Aquatic Hymenoptera.

At a recent meeting of the Linnæan Society, Mr. J. Lubbock read a paper on two aquatic Hymenoptera, one of which uses its wings in swimming. Till now, the author stated, no aquatic Hymenoptera or Orthoptera had been discovered, though the former group alone has been estimated as comprising some 50,000 species, 3500 of which live in Great Britain. In a basin of pond-water, on an early day in August last, he had been astonished to see one of these Hymenoptera (*Polynema natans*) quite at ease in the watery element, and actually swimming by means of its wings. At first he could hardly believe his eyes; but having found several specimens, and shown them to some friends, the fact was undoubted. The same phenomenon, moreover, was again observed, within a week, by Mr. Duchess, of Stepney. Another of the aquatic Hymenoptera, now first described under the name of *Walkeria aquatica*, was found in the same pond; but this, unlike the former, which swam by means of its wings, held its wings motionless when under water, and used its legs only; and though these were neither flattened nor provided with any well-developed fringe of setæ, they seemed very well to serve this purpose; indeed the motion of this species was more rapid than that of the former. Both species are fond of creeping along the sides of the vessel in which they are kept, or on the leaves and stems of aquatic plants; but they frequently quit their support, and swim boldly out

into the open water. In these insects respiration appears to take place in the usual way, through spiracles. A common house-fly, placed under water, ceased to move in half an hour, while the specimens now referred to lived under water for several hours without suffering any apparent inconvenience, and one was observed to be quite lively after having been so placed at least twelve hours, which, it was stated from further observation, is probably about the limit of their endurance. Drawings of the two insects accompanied the paper, which also contained an account of their organization.

On the Appearances of Cotton-fibre during Solution and Disintegration. By CHARLES O'NEILL, F.C.S.

These experiments referred to the application of Schweizer's solvent. Two strengths were used: the weaker contained oxide of copper equal to 4.3 grains metal per 1000, and 47 grs. dry ammonia; the stronger contained 15.4 grs. metal and 77 grs. dry ammonia per 1000. The latter is about the most concentrated solution which can be made. Referring to the researches of Payen, Frémy, Peligot, Schlossberger, and others who have employed this solvent, the author said the only experimenter who seemed to have worked in the same direction with himself, and that apparently only to a small extent, was Dr. Cramer, whose paper he had only been able to see in a translation appended as a note to a memoir of M. Payen in 'Comptes Rendus,' vol. xlviii. p. 319.

Mr. O'Neill considers that cotton exhibits, under the action of this solvent (1) an external membrane distinct from the true cell-wall or cellulose matter; (2) spiral vessels situated either in or outside the external membrane; (3) the true cell-wall or cellulose; and (4) an inner medullary matter. The external membrane is insoluble in the solvent, and may be obtained in short hollow cylinders by first acting upon the cotton with the dilute solvent so as to gradually remove the cellulose, and then dissolving all soluble matters by the strong solvent. If the strong solution is first applied, the extraordinary dilatation of the cellulose bursts the external membrane, and reduces it to such a state of tenuity that it is invisible. This membrane is very elastic, appears to be quite impermeable to the solvent, and, when free from fissures, protects the enclosed matter from its action. It is not seen in cotton which has been submitted to the action of bleaching agents, being either chemically altered or, what is most probable, entirely removed.

The spiral vessels are unmistakeably apparent, running round the fibre in more or less close spirals, sometimes single, sometimes double and parallel, and at other times double and in opposite directions, or again seemingly wound close and tight round the cylinder. They are well seen in the spherical swellings or beads, but are prominent at the points of strangulation of long ovals formed when the ends of the fibres are held tightly. They collect in a close mass, forming a ligature, and are frequently ruptured, the ends projecting from the side of the fibre.



Gray, John Edward. 1863. "On the change in form of the teeth of the Susu (Platanista)." *The Annals and magazine of natural history; zoology, botany, and geology* 11, 464-466.

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