

urinary canal he considers as a long convoluted tube, which opens on the calcified projection or phymacerite.

Professor Huxley says in his work on the Crayfish¹ that—"The existence of guanin in the green gland rests on the authority of Will and Gorup-Besaniz,² who say that in this organ and in the organ of Bojanus of the fresh-water mussel, they found 'a substance the reactions of which with the greatest probability indicate guanin,' but that they had been unable to obtain sufficient material to give decisive results."

In a memoir read before the Royal Society, Dr. A. B. Griffiths gave an account of his chemical researches on the green glands of *Astacus fluviatilis*, in which he states that it is a true urinary organ, and that its secretion contains uric acid and very small traces of the base of guanin.³

More recently Herr Rawitz has given an account of his researches on the green gland of the Crayfish⁴ (*Astacus fluviatilis*). After giving an account of the researches of Leydig, Wassiliew, Grobben, and others, he describes the gland, which, like Huxley, he compares in shape to the fruit of the mallow, as consisting of three different substances, green, white, and yellowish-brown. The green structure appears to be the outer shell or skin, within which the two others are enclosed. It consists of homogeneous cells, with a delicate contour, containing a well-defined nucleus, and a few clear green pigment granules which have a tendency to collect and escape at one pole. The white substance is characterised by the absence of all pigment and by the shining appearance of the epithelium. The yellowish-brown substance owes its colour, not as Grobben says, to a disposition of irregular bodies of a yellowish-brown colour in the protoplasm, but to the presence of more or less intensely straw-coloured nuclei.

The products of secretion found in the white portion are round dull globules with a sharp contour line and of a transparent homogeneous appearance.

From a study of the general structure Herr Rawitz has arrived at the conclusion that the green gland consists not of a single much-coiled tube, but of two which unite just before the entrance to the sac; of these the longer tube forms the green and the mass of the white substance, while the second forms the yellowish-brown substance and a small portion of the white. There is never any direct communication between the green and the yellowish-brown substances. As to function, the author thinks that as yet, in the absence of a more complete physiological investigation, it is premature to conclude that the antennal gland of the Crayfish possesses the functions of a kidney.

On the outer side of this joint in *Palinurus* an involuted fold exists in the hard wall so as to form a fulcrum on which a process of the second joint rotates. Generally there

¹ P. 353.

² *Gelehrte Anzeigen d. k. Bayerischen Akademie*, No. 233, 1848.

³ *Proc. Roy. Soc.*, pl. xxxviii. p. 187, 1886.

⁴ *Archiv f. mikrosk. Anat.*, Bd. xxix. p. 471, Taf. xxviii., xxix., 1887.