*Valvata* is common in fresh waters throughout Britain ; the gill when the animal is expanded is protruded beyond the mantle- chamber. The *Paludinidæ* are common in the northern hemisphere. *Paludina* and *Bithynia* are both British genera. In *Paludina* the whorls of the spiral are very prominent ; the genus is viviparous. *Bithynia* is smaller and the shell smoother.

*Neritina* has a very small spire, the terminal portion of the shell containing nearly the whole animal.

For the morphology and classification of snails, see Mollusca, vol. xvi. p. 648 *sq.* A history of the British forms is given in Gwyn Jeffreys’s *British Conchology,* 1862, and by Forbes and Hanley in *British Mollusca.* For specie-graphical details, see Woodward’s *Manual of the Mollusca,* 1875, and Bronn’s *Thierreich* (Weichthiere). For *Fasciola hepatica,* see Thomas, *Quart. Journ. Mie. Sci.,* 1882.

SNAKE-BIRD, to use the name commonly given to it by the English in North America, because of its “long slender head and neck,” which, its body being submerged as it swims, “ appear like a snake rising erect out of the water” (Bartram’s MS., quoted by Ord in Wilson’s *Am. Ornithology,* ix. p. 81), the “ Darter ” of many authors, and the *Plotus anhinga@@*1 of ornithology, is the type of a small but very well-marked Family of Birds, *Plotidæ,* belonging to the group *Steganopodes* (the *Dysporomorpæ* of Prof. Huxley), and consisting of but a single genus and three or four species. They bear a general resemblance both outwardly and in habits to Cormorants (see vol. vi. p. 407), but are much more slender in form and have both neck and tail much elongated. The bill also, instead of being tipped with a maxillary hook, has its edges beset with serratures directed backwards, and is sharply pointed,—in this respect, as well as in the attenuated neck, likening the Snake-birds to the Herons (see vol. xi. p. 760); but the latter do not generally transfix their prey as do the former.

The male of the American species, which ranges from Illinois to the south of Brazil, is in full breeding-plumage a very beautiful bird, with crimson irides, the bare skin round the eyes apple-green

and that of the chin orange, the head, neck, and most part of the body clothed in black glossed with green ; but down each side of the neck runs a row of long hair-like white feathers, tinged with pale lilac. The much elongated scapulars and the small upper wing-coverts bear each a median white mark, which on the former is a stripe pointed at either end, and on the latter a broad ovate patch.@@2 The larger wing-coverts are dull white, but the quill- feathers of the wings and tail are black, the last broadly tipped with brownish-red, passing into greyish-white, and forming a con­spicuous band when the tail is spread in form of a fan, as it often

is under water.@@3 The hen differs much in appearance from the cock, having the head, neck, and breast of a more or less deep buff, bounded beneath by a narrow chestnut band ; but otherwise her plumage is like that of her mate, only not so bright in colour. The habits of this species have been repeatedly described by American writers, and those of its congeners, to be immediately mentioned, seem to be essentially the same. The Snake-bird frequents the larger rivers or back-waters connected with them, where it may be seen resting motionless on some neighbouring tree, generally choos­ing a dead branch, or on a “snag” projecting from the bottom, whence it plunges beneath the surface, in pursuit of its fishy prey, to emerge, in the manner before related, showing little more than its slender head and neck. Its speed and skill under water are almost beyond exaggeration, and it exhibits these qualities even in captivity, taking—apparently without effort—fish after fish that may be introduced into its tank, however rapidly they may swim and twist, and only returning to its perch when its voracious appe­tite is for the moment appeased or its supply of food temporarily exhausted. Then, after adjusting its plumage with a few rapid passes of its bill, and often expanding its wings, as though, Cor­morant-fashion, to dry them, it abandons itself to the pleasurable and passive process of digestion, reawaking to activity at the call of hunger. Yet at liberty it will indulge in long flights, and those of the male at the breeding-season are ostentatiously performed in the presence of his mate, around whom he plays in irregular zigzag courses. The nest is variously placed, but almost always in trees or bushes overhanging the water’s edge, and is a large structure of sticks, roots, and moss, in which are laid four eggs with the white chalky shell that is so characteristic of most Steganopodous birds. Not unfrequently several or even many nests are built close together, and the locality that suits the Snake- bird suits also many of the Herons, so that these, its distant rela­tives, are often also its near neighbours.@@4 The African Snake-bird, *P. congensis* (or *levaillanti* of some authors), inhabits the greater part of that continent from Natal northwards ; but, though met with on the White Nile, it is not known to have occurred in Egypt, a fact the more remarkable seeing that Canon Tristram found it breeding in considerable numbers on the Lake of Antioch, to which it is a summer visitor, and it can hardly reach its home without passing over the intervening country. The male bird is easily dis­tinguishable from the American species by its rufous coronal patch, its buff throat and its chestnut greater wing-coverts. A third species, *P. melanogaster,* ranges from Madagascar to India, Ceylon, Borneo, Java, and China. This so closely resembles the last-men­tioned that the differences between them cannot be briefly expressed. The Australian region also has its Snake-bird, which is by some regarded as forming a fourth species, *P. novæ-hollandiæ* ; but others unite it to that last-mentioned, which is perhaps somewhat variable, and it would seem (*P. Z. S.,* 1877, p. 349) that examples from New Guinea differ somewhat from those inhabiting Australia itself.

The anatomy of the genus *Plοtus* has been dealt with more fully than that of most forms. Beside the excellent description of the American bird’s alimentary canal fur­nished to Audubon by Macgillivray, other important points in its structure have been well set forth by Garrod and Forbes in the Zoological *Proceedings* (1876, pp. 335- 345, pls. xxvi.-xxviii. ; 1878, pp. 679-681; and 1882, pp. 208-212), showing among other things that there is an appreciable anatomical difference between the species of the New World and of the Old ; while the osteology of *P. melanogaster* has been admirably described and illus­trated by Prof. Milne-Edwards in M. Grandidier’s great *Oiseaux de Madagascar* (pp. 691-695, pls. 284, 285). In all the species the neck affords a feature which seems to be unique. The first seven of the cervical vertebræ form a continuous curve with its concavity forward, but the eighth articulates with the seventh nearly at a right angle, and, when the bird is at rest, lies horizontally. The ninth is directed downwards almost as abruptly, and those which succeed present a gentle forward convexity. The muscles moving this curious framework are as curiously specialized, and the result of the whole piece of mechanism is to enable the bird to spear with facility its fishy prey. (a. n.)

@@@1 “ Anhinga,” according to Marcgrave, who first described this bird (*Hist. Rer. Nat. Brasiliæ,* p. 218), was the name it bore among the natives.

@@@2These feathers are very characteristic of each species of the genus, and in India, says Jerdon, are among the Khasias a badge of royalty.

@@@3 This peculiarity, first pointed out to the writer by Mr. Bartlett, who observed it in birds in the Zoological Society’s possession, doubt­less suggested the name of “ Water-Turkey ’’ by which in some places *Plotus anhinga* is said to be known.

@@@4 The curious but apparently well-attested fact of the occurrence in England, near Poole, in June 1851, of a male bird of this species (*Zoologist,* pp. 3601∙, 3654) has been overlooked by several writers who profess to mention all cases of a similar character.