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Hister vetustus, Heer, Verh. Holl. Maatsch. Wet. xvi. 58, t. iii. fig. 18 (1862).

"*H. breviter ovalis*, pronoto lateribus unistriato, elytra quinquestriatis, stria suturali nulla."

Oeningen, Baden (Upper Miocene).

Note.—Histeridæ have been reported from Baltic amber and from the Miocene shales of Florissant, Colorado, but have not been described. The Florissant specimens, collected by Scudder, are in the Museum of Comparative Zoology, Cambridge, Massachusetts. Among the fossils collected by the University of Colorado expeditions I have not as yet observed any Histeridæ; but very few of the Coleoptera have been critically examined.—T. D. A. C.

XVI.—*The Hybrid between the Bream and the Rudd* (*Abramis brama* × *Leuciscus erythrophthalmus*). By C. TATE REGAN, M.A.

[Plates VII. & VIII.]

FOR some time I have been trying to improve the series of British freshwater fishes in the National Collection; several anglers and others have helped forward this project by sending char, pollan, vendace, &c., and I am especially indebted to Major H. Trevelyan, from whom I have received a number of fishes from Lough Erne, including several which I regard as hybrids between the bream and the rudd (*Abramis brama* × *Leuciscus erythrophthalmus*).

Smitt ('Scandinavian Fishes,' p. 782) has noted that the rudd is fond of joining as an interloper in the spawning of other fishes (roach, bleak, and white bream), with the result that hybrids are produced. Little appears to be known about the hybrid between the rudd and the common bream, which is in every respect intermediate between the parent species, as may be seen from the subjoined description.

Abramis brama × *Leuciscus erythrophthalmus*.

Pharyngeal teeth compressed, hooked, entire or more or less crenate, in one or two series, 5—5 to 2.5—5.2*.

* 5—5 in one specimen, 1.5—5.1 in six, 1.5—5.2 in one, 2.5—5.2 in one, of nine examined.

Depth of body $2\frac{1}{4}$ to $2\frac{2}{3}$ in the length, length of head $4\frac{1}{4}$ to $4\frac{3}{4}$. Snout as long as or longer than the diameter of eye, which is $4\frac{1}{4}$ to $5\frac{1}{2}$ in the length of head; interorbital width $2\frac{1}{4}$ to $2\frac{1}{2}$ in the length of head. Mouth oblique; jaws equal anteriorly or the lower the shorter; maxillary extending to below the nostrils, or slightly beyond. Dorsal 11-13, with 8-10 * branched rays; base above the interspace between pelvic and anal fins; free edge straight or concave; longest ray nearly as long as the head. Anal 18-21, with 15 to 18 * branched rays; free edge emarginate. Pectorals as a rule not reaching the pelvics, which do not usually extend to the vent. Caudal forked, the lower lobe the longer. Lateral line decurved, running at about $\frac{1}{3}$ the height of the body in the middle of the length of the fish. 46 to 50 scales in the lateral line, $9\frac{1}{2}$ to $10\frac{1}{2}$ in a transverse series from origin of dorsal fin to lateral line, $3\frac{1}{2}$ to $5\frac{1}{2}$ between lateral line and base of pelvic fin. Sides more or less silvery; back darker; fins dark greyish.

Fourteen specimens in the British Museum measure from 230 to 340 mm. in total length (to the end of the middle rays of the caudal fin). Nine of these have been sent from Lough Erne during the last three years by Major Trevelyan; three from Colebrooke, Upper Lough Erne, were received from Sir Victor Brooke in 1871; one from Thetford was presented by Dr. Günther in 1879; and one is a skin from Yarrell's collection.

According to Major Trevelyan, this hybrid is known to the Lough Erne fishermen by the name of "white roach," in contradistinction to the "red roach" or "rudd." The largest specimen sent by him (330 mm.) weighed 2 pounds, but he has good reason to believe that specimens of $2\frac{1}{2}$ pounds weight have been taken.

The comparative abundance of these fishes in Lough Erne is rather remarkable, and it would be of interest if anything could be ascertained as to their breeding, whether they are fertile together, &c.

Those characters of the parent species and of the hybrid which can be numerically expressed may be presented in tabular form, thus:—

* Of fourteen specimens, twelve have 9 branched rays in the dorsal fin, one has 8, and one 10. Four have 18, seven 17, two 16, and one 15 branched rays in the anal fin.

	Bream.	Hybrid.	Rudd.
Pharyngeal teeth	5-5	5-5 to 2.5-5.2	2.4-5.3 to 3.5-5.3
Branched rays in dorsal fin	(8) 9 (10)	(8) 9 (10)	8-9 (10)
" " anal " 	23-29	15-18	10-12
Scales in the lateral line	49-57	46-50	39-44
" between origin of dorsal fin and lateral line	11-14	9½-10½	7-8
" between lateral line and base of pelvic fin	6-7	3½-5½	3-4
Vertebrae	43-45	42	37-39

Yarrell's skin and the specimens from Colebrooke and Thetford had been determined as *Abramis blicca* (white bream or bream-flat), a species of which the exact distribution in the British Isles is not yet satisfactorily made out, but which does not seem to occur in Ireland. The white bream is in many respects intermediate between the rudd and the bream, but differs from the hybrid above described in the less oblique mouth, larger eye, different pharyngeal dentition (teeth usually 2.5-5.2), different number of fin-rays (dorsal with 8 branched rays, anal with 19 to 24), and higher position of the lateral line (at $\frac{2}{3}$ or more of the height of the body in the middle of the length of the fish). The number of scales in the lateral line (45 to 50) is practically the same, but in a transverse series there are often fewer above and more below the lateral line ($\frac{9-10}{5-6}$ instead of $\frac{9\frac{1}{2}-10\frac{1}{2}}{3\frac{1}{2}-5\frac{1}{2}}$).

The hybrid bream and rudd is also very similar to the hybrid bream-flat and rudd, which differs from it in the same way that the bream-flat does from the bream, *i.e.* in the smaller size (maximum length 250 mm.), the larger scales (40 to 46 in the lateral line, 8 or 9 between origin of dorsal fin and lateral line, 4 or 5 between lateral line and base of pelvic fin), fewer fin-rays (dorsal usually with 8, anal with 12 to 17 branched rays), and more numerous pharyngeal teeth (3.6-5.3 to 2.5-5.2). The mouth is less oblique and extends further back, whilst the lower caudal lobe is scarcely longer than the upper. The silvery body, pale fins, and large eye also appear to be characteristic. This hybrid (*Abramis blicca* $\times$ *Leuciscus erythrophthalmus*) is represented by two specimens in the British Museum (Günth. Cat. Fish. vii. p. 233, 1868), and has been described by a number of continental authors. Fatio's detailed account (Faun. Vert. Suisse, iv. p. 376, 1882) and Smitt's description, accompanied by an excellent figure ('Scandinavian Fishes,' p. 807, fig. 200, 1895), may be specially mentioned.

Although not uncommon on the Continent, this hybrid

does not appear to have been recognized in England. It may perhaps be found in the midland and eastern counties (Trent, Ouse, Cam, &c.), where the bream-flat is known to occur.

It seems scarcely necessary to compare the hybrid bream and rudd with the well-known bream and roach hybrid (*Abramis brama* $\times$ *Leuciscus rutilus*), originally described under the name *Abramis buggenhagii*, which is at once distinguished by the more elongate body and the nearly horizontal or slightly oblique mouth. Thompson's record of *A. buggenhagii* from near Belfast (Nat. Hist. Ireland, iv. p. 137) evidently refers to one of the hybrid bream and rudd described above.

EXPLANATION OF THE PLATES.

PLATE VII.

Abramis brama $\times$ *Leuciscus erythrophthalmus*.

PLATE VIII.

Abramis blicca $\times$ *Leuciscus erythrophthalmus*.

XVII.—*The Collections of William John Burchell, D.C.L., in the Hope Department, Oxford University Museum.*

IV. *On the Lepidoptera Rhopalocera collected by W. J. Burchell in Brazil, 1825–1830.* By J. C. MOULTON, of Magdalen College, Oxford.

[Continued from ser. 8, vol. i. p. 42.]

VI. NYMPHALINÆ.

MR. J. C. MOULTON, of Magdalen College, Oxford, has at my suggestion continued Miss Cora B. Sanders's valuable account of the Brazilian Rhopalocera in the Burchell Collection. In our attempts to solve the numerous difficulties which have arisen I have had abundant evidence of the skill and untiring care which he has devoted to this most important and interesting work.

E. B. POULTON.

THE following paper forms the continuation of the valuable publications by Miss Cora B. Sanders, ending with No. V.

HYBRID BREEM AND RUDD.
Abramis brama x *Leuciscus erythrophthalmus*.

Ann. & Mag. Nat. Hist., S. 8, Vol. II, Pl. VIII.

J. Green, imp.

HYBRID BREAM-FLAT AND RUDD.
Abramis blicca × *Leuciscus erythrophthalmus*.