DESCRIPTION OF A SECOND GANOID FISH FROM THE LOWER MESOZOIC SANDSTONES NEAR TINDER-BOX BAY.

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On the 19th August, 1889, we had the pleasure of bringing under the notice of the members of this Society a new Ganoid Fish, from the Knocklofty sandstones, and named *Acrolepis Hamiltoni*, in honour of our worthy President, Sir Robert Hamilton. We have now the honour of giving a full description of a second species of the same genus recently discovered in a sandstone formation near Tinder-Box Bay, deemed to be nearly of the same geological horizon as the sandstones of Knocklofty.

Acrolepis Tasmanicus. *n. sp. Johnston and Morton.*

Body compressed, elongate, elliptical; length from snout to end of caudal fin, nearly 6 inches; length of head, 14 lines; length of body, $4\frac{1}{2}$ inches; snout projecting beyond lower jaw; greatest depth, 14 lines; least depth at peduncle, 5 lines. Dorsal fin somewhat falcate, composed of 48 to 50 slender rays (6 to a line) each one of which branches into two or three sub-divisions near extremities, and each one or two rays crossed distantly and in a curved manner by fine oblique ridges; base, $8\frac{3}{4}$ lines long, occupying a position nearer the tail than the snout, anterior end being 37 lines distant from snout, and the posterior end $45\frac{3}{4}$ lines; greatest length of dorsal (2nd, 3rd and 4th longest) same as base, $8\frac{3}{4}$ lines; the longer anterior rays curve over the anterior ones, which abruptly diminish in size, the posterior margin being thus irregularly vertical. Anal fin about the same size and composed of nearly the same number of rays as the dorsal fin, but its position is nearer the tail, the anterior portion commencing about 40 lines from the snout, and the posterior terminating about $48\frac{3}{4}$ lines distant. Ventral fin composed of about 18 fine rays, central, and well in advance of anal fin. Pectoral, imperfect, somewhat elongate, and consisting of numerous fine rays, which become subdivided towards extremities as in the dorsal fin. Rays of sub-caudal fin numerous, fine; fin elongate, nearly equal in length to the slightly elevated caudal extremity,* and forming with it a

* Length of caudal lobe (upper), 19 lines; length of sub-caudal fin, 14 lines; distance between extreme tips of caudal furcation, $15\frac{1}{2}$ lines.

bifurcation which is almost as symmetrical as the true homocercal forms; the rays on the lower margin of the true tail lobe form a narrow inconspicuous fringe. All the rays of caudal extremity are extremely fine, about 21 in the space of 12 lines, those of the sub-caudal fin are crossed repeatedly with curved, raised lines, composed of short, oblique ridges as in dorsal fin.

There are about 64 rows of small rhomboid scales or plates longitudinally arranged in an inclined and slightly curved dorso-ventral series. The transverse series varies considerably in number and depth; there being about 18 in oblique transverse series near peduncle, and about 35 near the shoulder; the scales are greatest in depth towards the lateral line, diminishing greatly as they approach dorsal and ventral margins; the base of each scale runs parallel nearly with others of the longitudinal series, and in a general view seem to divide the surface into fine parallel rows, which cut the more or less curved oblique transverse series into an oblique rhomboid pattern.

Each scale or plate is ornamented on the upper surface with the peculiar furcated raised linear ridges of the genus *Acrolepis*; these forked ridges seem to radiate from a point at the lower posterior angle and fork once or twice, upward and forward, in the direction of the anterior upper angle. This furcation reminds one of the forking neuration on the lobes of many species of ferns, and is very remarkable. Fortunately a portion of the fossil shows the under surface, and each scale of these series is characterised by a small tooth-like projection in the centre of each upper margin, with a corresponding raised socket on lower surface half the depth of scale, into which the tooth of each scale respectively of the lower series scale fits closely. Both socket and tooth have an angle corresponding to the direction of the transverse serial lines; the ornamentation of the scales forming the lateral line differs from all the others, as the fine furcate lines radiate more nearly from the centre of posterior margin, half of which curve upwards, and the other half downwards. As a rule the linear ridges are fewer in number relative to size of scale in the lateral line series.

This fine specimen was obtained from the Lower Mesozoic Sandstones near Tinder-Box Bay.* A group probably belonging nearly to the same geological horizon as the Knocklofty sandstones, Hobart, from which was obtained the

* In p. 149, "Johnston's Geology of Tasmania," these sandstones are described as "a series of reddish or yellow micaceous sandstones, sometimes of great thickness, often occur overlying the uppermost beds of the Upper Palæozoic Mudstones as at Tinder-Box Bay, Huon-road, and Waterworks Valley, near Hobart, with indistinct plant impression and silicified trunks of conifer. These sandstones apparently lie conformably and without stratigraphic break upon the uppermost beds of the Upper Marine series (Up. Pal.). Their position is assigned provisionally at the base of the Mesozoic rocks of Tasmania."—*(Johnston.)*

remains of *Acrolepis Hamiltoni*, recently described by us in the Proc. of the Royal Soc. of Tas. (1889). The species here described is much better preserved, and though closely allied to the former it is very distinct. The chief differences are the greater prolongation of the sub-caudal fin, giving greater symmetry to the caudal fork; the greater number of scales or plates in the lateral and transverse series; and also the relatively greater development of the vertical fins.

The ornamentation of the scales or plates, although of the same character, also appear to be much finer. The position and relative dimensions of fins also differ to some extent.

Good photographs have been taken of the two sections disclosed by the splitting of the rock in which the specimen was imbedded.

Along with these are given magnified views of the under and upper surface of the scales or plates, and also an enlarged view of the dorsal fin, showing the subdivided extremities of rays. The fine series of fulcral scales can be discerned forming a serration along the anterior margin of dorsal fin. There is a probability of a larger number of these interesting fish remains being obtained when operations in certain quarries are again carried out.