This specimen was obtained recently by Mr. Morton from one of the fish-stalls. Its capture in Tasmanian waters is of great interest. No doubt, like the Schnapper, it is a straggler, otherwise it would be captured more frequently on our trumpeter fishing grounds.

Labrichthys Mortonii, n.s.

D. $\frac{9}{11}$; A. $\frac{3}{10}$; L. lat. 23.

Head contained $3\frac{2}{3}$ times in total length. A posterior canine tooth; cheek with four rows of minute scales; præoperculum entire. The caudal fin is slightly forked. The muciferous channels of the scales of lateral line are bi- and tri-furcate anterior to peduncle; where the lateral line suddenly descends below posterior of soft dorsal these tubes are all disposed on the upper side and become simply furcate. Color yellowish purple with longitudinal streaks of lighter yellow between each row of scales below lateral line. Dorsal, anal, ventral, and pectoral fins of a lighter shade; the two former fins have the membrane interspaces marbled with yellow spots; there is a longitudinal streak of lighter purple along the base. Extremities of caudal fin of a brighter yellow. *There is a distinct black blotch on the body at root of the last two soft rays of dorsal.*

Total length, 9 inches; length of head, $2\frac{1}{2}$ inches; greatest depth, $2\frac{1}{4}$ inches.

Mouth of Derwent: Found occasionally at a depth of 40 to 50 fathoms.

THE RIVER DERWENT: NOTE UPON THE FLOOD OF 23RD SEPTEMBER, 1884.

By A. Mault.

[*Read October* 13, 1884.]

It may be useful to put upon record a few observations upon the late flood in the River Derwent.

I should premise that during the past two years I have had occasion, in connexion with the survey of the Derwent Valley Railway, to take various measurements across the river at several places above New Norfolk; and at these places I have noted the volume of water, and the rate of flow at different seasons. From these observations I inferred that the average flow of water in the Derwent would be equal to that of a river 360 feet wide and 4 feet deep running at the rate of two miles an hour, giving a daily quantity of $13\frac{1}{2}$ million cubic yards, or $10\frac{1}{3}$ million tons of water. The

average fall of the river along so much of its course as I am acquainted with above tidal influence is rather more than 4 feet to the mile, representing 2,000 horse-power to the mile, much of which could be made available or transformed into electric dynamic force.

Again, as far as can be judged from the Government charts, the area of the basin drained by the Derwent above New Norfolk is about 3,200 square miles, or a little more than two million acres. If it be assumed that there is a mean yearly rainfall of 36 inches over this area, of which one-half is taken up by evaporation and plant nourishment, and the other half drained off by the river, the river at New Norfolk would have to carry off a mean daily quantity of $13\frac{1}{4}$ million cubic yards, or $10\frac{1}{4}$ million tons of water—a quantity about equal to that of the foregoing calculation of what is actually carried off.

Residents in the valley above New Norfolk say that the flood of the 23rd of last month was higher than any seen since the great flood of 1863. Below New Norfolk the water is said to have risen higher about four years ago, when perhaps the flood coincided with exceptionally high tides in the river. But both above and below the town mentioned the flood of 1863 was much higher. At Valleyfield they say that it was about 4 feet higher than that of last month, at Mr. Inge's about 3 feet, and at the mouth of the Plenty River about $2\frac{1}{2}$ feet.

I did not see the river when the flood was at its highest on the 23rd September; but on the 24th, when I examined it, the water had gone down several feet, still the marks of its greatest height were easily to be seen. At the mouth of the Dry Creek rivulet this greatest height was about $17\frac{1}{2}$ feet above the mean level of my former observations, and at the mouth of the Plenty River nearly 20 feet. This variation is to be accounted for by the difference in the conformation of the river at these two points as regards direction, inclination, and obstructions. I had not the opportunity of observing the flood higher up the river.

Although possessed of the sectional area of the flood-water and many other elements necessary for calculating the quantity of it that was passing, it is quite impossible to make anything but a mere approximation as to this quantity. There are so many eddies and swirls, so much still water, so much back-draft and under-draft, that only a guess can be made as to the mean hydraulic depth and the rate of the real downward current of water. If a calculation be permissible in such circumstances I should say that at the height of the flood on the 23rd September about nine million tons of water were passing every hour, about 21 times the mean hourly flow of 430,000 tons.