

The focus of the atypical scale (Fig. 1, F) is situated on the right side of the vertical median line very close to the ctenii (CT) when the scale is observed with its anterior margin facing upwards, unlike in a normal scale where it is situated on the vertical median line slightly below the middle region of the scale. Around this focus, there is a set of complete circuli (C_1), the two together forming an oval area. A few of these circuli have even been found to invade the zone of ctenii below. Adjacent to this oval-shaped area and at its left upper corner, an incomplete set of circuli (C_2) is present, enclosing a blank space. A blank space of this type is characteristic of the regenerated scales of this species. The incomplete circuli which pass around the oval-shaped area are followed by other circuli towards the margin of the scale in a concentric manner. The radii originating from the focus bend (BR) at about the level of the incomplete circuli, thereafter taking a straight course to the margin of the scale.

The unusual structure of the scale could be explained as follows: After a period of initial growth represented by the ovalshaped area, scale growth seems to have been arrested temporarily since the focus is situated on one side of the scale. Resumption of further growth appears to be indicated by the formation of the few incomplete circuli after which the addition of circuli followed the normal pattern.

Accordingly, the course of the radii has also been changed. The presence of a blank space within the incomplete set of circuli which is typical of a regenerated scale also supports the view that growth was resumed after a lapse.

A case of an atypical scale with two foci both in the middle zone of the scale was described in *Sciaena coitor* (= *Johnius coitor*) by Mookherjee (1948). The present observations differ from the above report in that (i) there is a single focus located on one side of the scale very close to the ctenii, (ii) the radii are bent instead of being straight and (iii) a blank space typical of a regenerated scale is present.

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LITERATURE CITED

MOOKHERJEE, S. 1948. An atypical scale of *Sciaena coitor* (Hamilton). *Nature*, **161**: 64-65.

AN INSTANCE OF UNUSUAL STRUCTURE OF A SCALE OF THE SCIAENID FISH, *JOHNIOPS OSSEUS* (DAY, 1876).—During the course of observations on the growth checks in the scales of the sciaenid fish, *Johnieops osseus* (Day), one ctenoid scale which markedly differed in structure from all the other scales was encountered in a female specimen, 160 mm in length. The scale was taken from the seventh row below the lateral line in the middle region of the body. Examination of scales of several other specimens in the size range 100 to 200 mm did not show any such deviation in their structure from the normal pattern. Therefore, a detailed description of the atypical scale is given below.

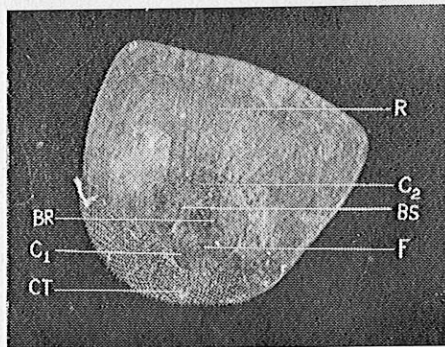


Fig. 1. An atypical scale (X12.5) of the sciaenid fish, *Johnieops osseus*.

BR: Bent portion of radius; BS: Blank space; C_1 : Complete circuli; C_2 : Incomplete circuli; CT: Ctenii; F: Focus; R: Radius.