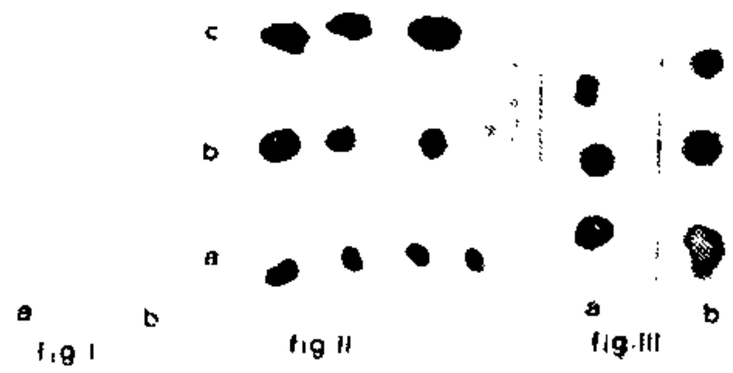

fig I fig II fig III

FIGS. 1–3. Fig. 1. (*a*) Blood spots showing light colour development in 20 minutes of 24 hr old normal insect. (*b*) Blood spots showing light colour development in 20 minutes of 48 hr old normal insect.
Fig. 2. (*a*) Blood spots showing dark colour development in 10 minutes of 24 hr old alkaloid-treated insect. (*b, c*) Blood spots showing progressive darkening of haemolymph in 10 minutes of 48 hr old alkaloid-treated insect. Fig. 3. (*a, b*) Blood spots showing darkening of haemolymph in 10 minutes of 72 hr old alkaloid treated insect.

of 1·0% total leaf alkaloids in chloroform were made on insects and kept for subsequent blood extraction. Control insects received plain solvent applications. The applied volume was kept constant at 1 μl/insect in all the experiments.

15 insects were grouped for collection of blood. The mouth and the anus of each insect were sealed with molten paraffin wax, the antennae were clipped short and the legs severed across the coxa and the insects were placed head down upon a perforated disc inserted about 40 mm below the top of a centrifuge tube, and centrifuged at the rate of 2200 rpm for 5 minutes[9]. The blood was collected through the disc as a clear serum. The blood was collected separately from treated and normal insects 24 hr, 48 hr and 72 hr old. The blood (2 ml) was mixed with 2 ml of Narahashi saline[10] and this mixture was again mixed with an equal volume of 1% solution of W/V of Catechol in Narahashi saline and spotted in spot plates. The spot plates were kept in an incubator set at 62° C and the rate of colour development observed. Control haemolymph from solvent treated insects was also spotted and incubated in the same manner. Haemolymph from the treated insects darkened at a much faster rate than control haemolymph. The treated haemolymph showed progressive darkening (Figs. 2, 3) from 24 hr to 48 hr and then 72 hr age in 10 minutes time. But the normal haemolymph (Fig. 1) developed only light brown colour for all the ages and it took 20 minutes to develop this colour. Haemolymph from treated insects darkened the catechol solution at a much faster rate as compared with the control haemolymph which developed only a light colour. An increased rate of darkening due to treatment indicates an increased level of enzyme activity. Cell lysis or increased numbers of cells in the haemolymph of treated insects may also be the cause of the increased darkening. In this insect, melanization was evident on the wings by 48 hr of treatment. The insect as a whole became dark after treatment as compared with the normal. It is reported that the production of melanin is sometimes regarded as a mechanism for disposing off toxic phenols arising as breakdown products in metabolism[11]. In some cases its distribution seems to be related with the intensity of metabolism in the subjacent tissues, and cuticle is one among them.

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OCCURRENCE OF EURYDENDROID CELLS IN THE CORPUS AND VALVULA CEREBELLI OF *NOTOPTERUS NOTOPTERUS* (HAM.)

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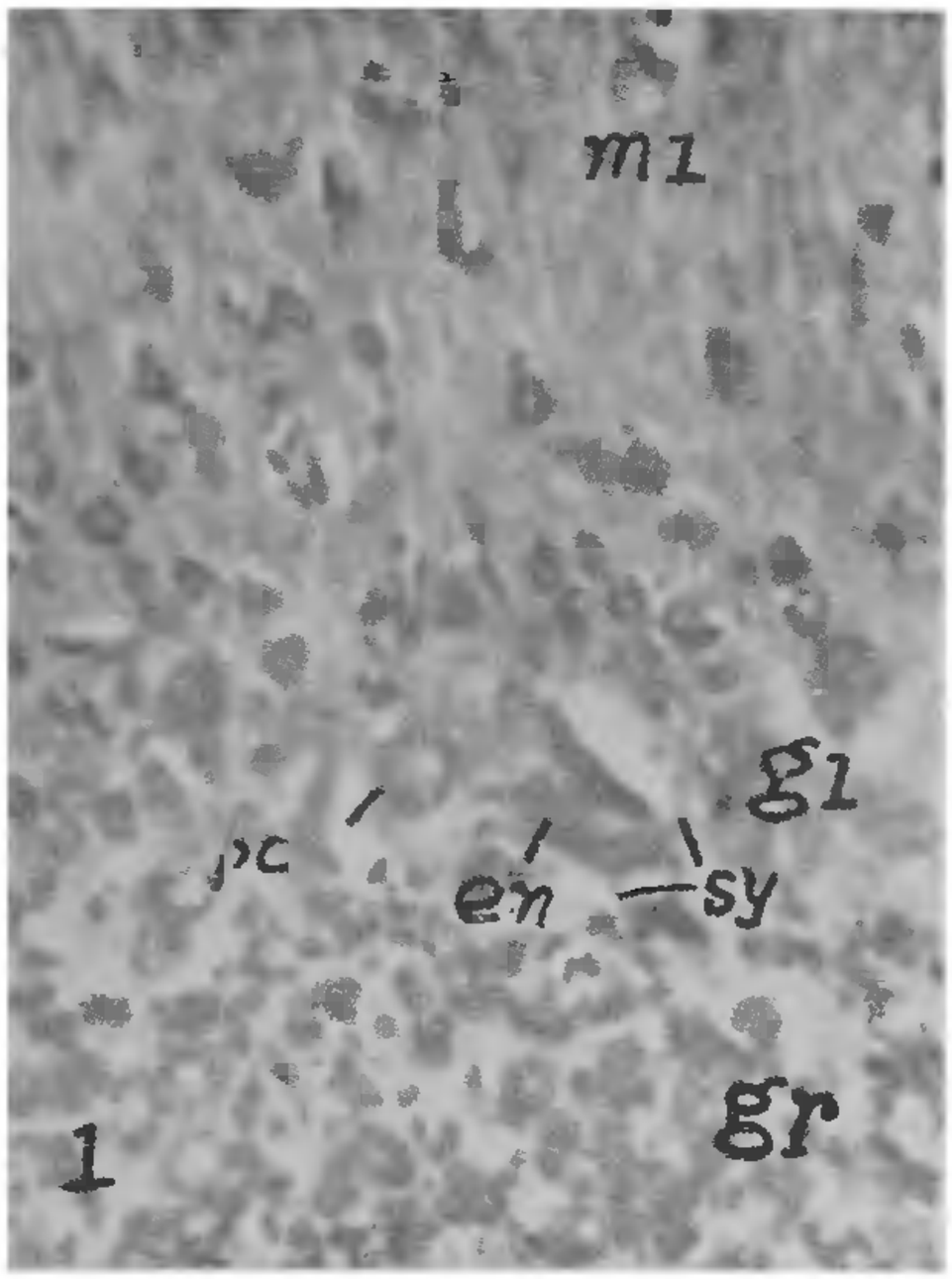
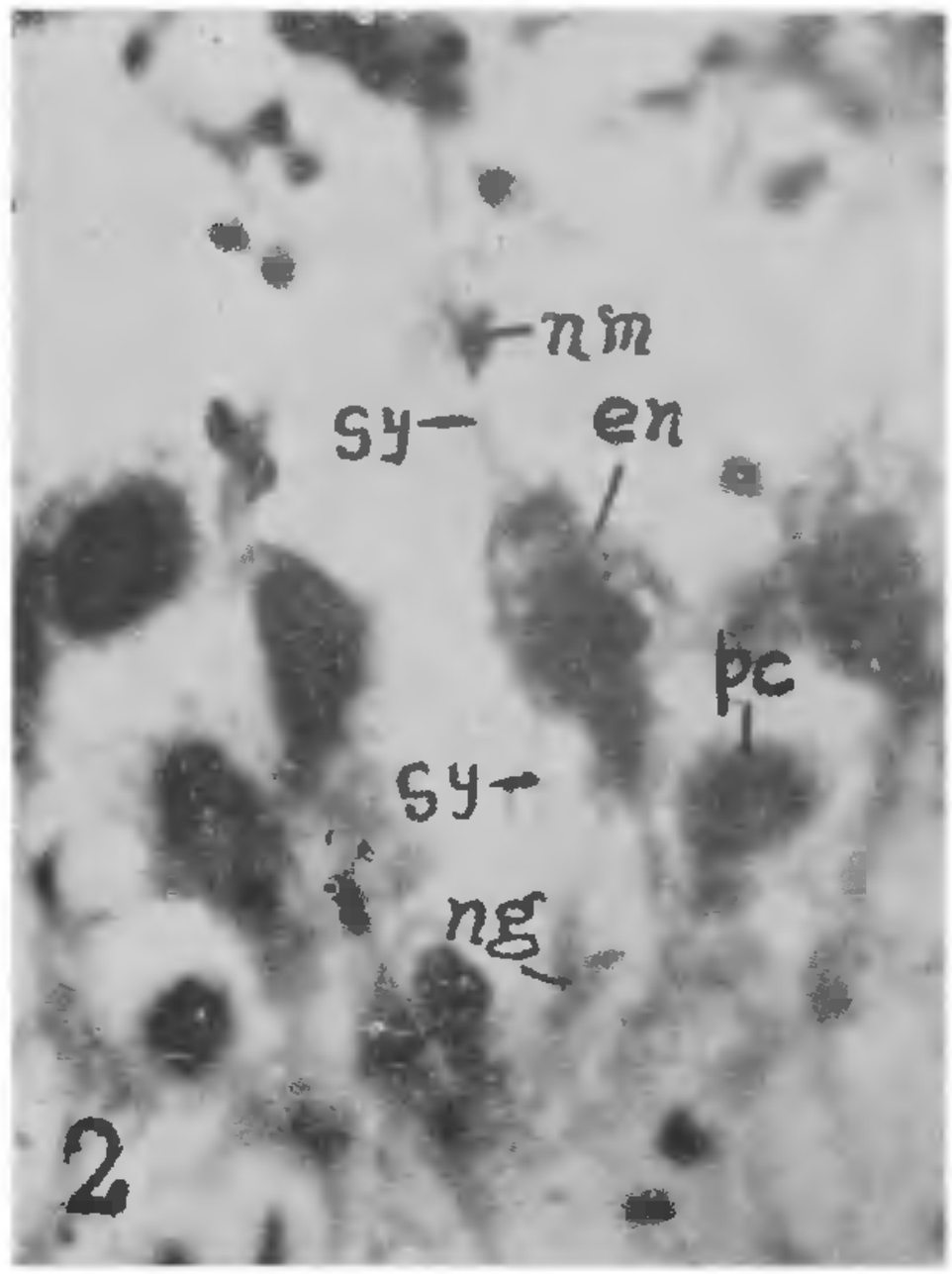
THE corpus and the valvula cerebelli in fishes consist of three layers each *viz.*, the molecular, the Purkinje and the granular. In *Notopterus notopterus*, the Purkinje cell layer contains giant cells besides the





FIGS. 1–2. Fig. 1. Photomicrograph of a part of valvula cerebelli of *Notopterus notopterus* showing the arrangement of neurons × 100. Fig. 2. Same showing synaptic formation in neurons × 1,000. (en = eurydendroid cell, gl = ganglionic layer, gr = granular layer, ml = molecular layer, ng = neuron of the granular layer, nm = neuron of the molecular layer, pc = Purkinje cell, sy = synapse).

Purkinje cells. Hence this layer can be described as ganglionic layer.

The giant cells are scattered irregularly in the vicinity of the Purkinje cells. They are elongated and have large extensions of dendrites which are seen entering the molecular as well as the granular layers where they form the synaptic connections with the dendrites of the neurons of the molecular as well as the granular layers. These giant cells have been named as the eurydendroid cells. On the other hand, the Purkinje cells are smaller in size and much more in number.

Nieuwenhuys[1] and Nieuwenhuys and Nicholson[2] reported that the axons of granular neuros, in the mormyrid metencephalon, after traversing the ganglionic layer form T-shaped junctions in the molecular layer. The present observations indicate that the short dendrites of the granular neurons synapse with the adjacent cells and a few cells bordering the ganglionic layer synapse with the dendrites of the eurydendroid cells.

It is believed that the eurydendroid cells may be acting as powerful transmitters whose dendrites synapse with the neurons of other layers forming intercommunicating system for the transmission of nervous impulses.

January 17, 1981.

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