its eyes and brain, etc., never formed out of old tissue, but always from new tissues.

In one case two heads formed on opposite sides of a short cross-piece that had been cut from the middle of the body. The head, therefore, had the normal orientation of the piece, while the other, turned in the opposite direction, had its orientation exactly reversed.

Regeneration and Grafting in Cordylophora. G. LEFEVRE. (Presented by E. A. Andrews.)

THE stems of Cordylophora, when cut in pieces, exhibit the heteromorphic formation of hydranths, as has already been observed in this hydroid.

The cœnosarc regenerates the new hydranth at the cut end by a distinct process of budding, growing out beyond the old perisarc into a knob-like projection which acquires the rudiments of tentacles in from 36 to 48 hours. This is not merely a direct transformation of the tissues of the stem into the body portion of the hydranth unaccompanied by growth, as has been described for other Tubularian hydroids, but the process is in truth a regeneration or new formation.

A piece of stem invariably regenerates a new hydranth at each end, even when lying on the bottom of a dish. Usually a foot is formed when a stem is brought in contact with a solid object, but in several cases it was found that a hydranth arose at the end which was firmly attached to the dish, the hypostome acting as the organ of attachment. This inverted hydranth did not attain to complete development, but it was a distinct hydranth provided with several short tentacles.

Only negative results were obtained from isolated tentacles, as no regeneration took place, the tentacle soon contracting into a rounded mass and dying.

Grafting may be successfully performed on the stems of Cordylophora. When freshly cut pieces are brought into contact, end to end, a firm, complete, permanent union takes place. Ectoderm unites with ectoderm, endoderm with endoderm. There is no polar differentiation in regard to the ability of the stems to fuse with each other, and in the experiments which were made, series of fused pieces were obtained representing all the possible combinations of the two poles. The united stems did not eventually break apart, but remained intact until they finally died *in toto* after several days. At the point of union between two pieces a lateral branch was given off in many cases, each portion apparently contributing equally to the branch.

A Recent Variety of the Flatfish, and its Bearing upon the Question of Discontinuous Variation. H. C. BUMPUS.

IT was shown that within the past five or six years the lower side of the flatfishes (*Pleuronectes Americanus*) from Woods Holl, Narragansett Bay and Long Island Sound has, with great frequency, become deeply pigmented over more or less definite tracts.

The abrupt appearance of a large number of individuals, varying in a definite direction, bears directly upon many current speculations of organic evolution. It was claimed that the variation being so widespread must have been the result of some environmental stimulus upon the germ, since the arrangement of the color precludes the possibility of its being the result of the direct action of light, and there is evidence to prove that the appearance of 'piebald' specimens was not due to the invasion of piebald fish from other localities.

It was also claimed that the process of natural selection could not have been materially instrumental, since the presence of the piebald specimens was first indicated by a large number of young fish, and because the time has been too brief for nat-