anastomosing fibrous processes, which become attached to the adjacent wall of the body, or of the enteron, to form the larval musculature. The others remain as parenchyma cells.

Fission and Regeneration in Cerebratulus. C. B. WILSON.

FOR three years, while investigating the embryology of *Cerebratulus lacteus*, Verrill, very few perfect specimens were found at the close of the breeding season, while there were many with regenerating papillæ. Last summer a perfect male and female were secured and kept for ten weeks. The genital products were discharged simultaneously three different times at intervals of several days. Then both worms dismembered the posterior half of their bodies without provocation.

The anterior fragments at once regenerated, growing in three weeks' time papillæ measuring 50 mm. in the female and 38 mm. in the male. The posterior fragments lived ten days and died without any signs of regeneration. But others have been kept alive several weeks under less favorable conditions and have yielded perfectly healthy sexual products. We are led to conclude, therefore, that *Cerebratulus* often dismembers voluntarily at the close of the breeding season, but, while the anterior fragments regularly regenerate, the posterior ones seldom if ever do so. Careful anatomical examination shows that actual fission is accomplished chiefly by means of the transverse muscles of the body-walls. There are no indications of the rows of nuclei found by Blenham in *Carinella*.

Sections of papillæ show that in regeneration the longitudinal muscles contain numerous transverse fibers; in the early stages the two kinds are about equal.

The large lateral nerve cords are regenerated from ectoderm cells. Two parallel longitudinal invaginations appear on the ventral surface of the papilla. The ectoderm between them contains no gland cells: a shallow longitudinal groove soon separates this ectoderm into halves. In the center of each half nerve fibers are formed from modified ectoderm cells.

They then migrate to their normal position, while both groove and invaginations quickly disappear and the ectoderm becomes filled with gland cells.

The Female Genital Tract in Melophagus. H. S. PRATT.

MELOPHAGUS OVINUS, a dipterous insect, is peculiar because of the unusual length of its uterine life, the young animal being born as a fully grown larva. This long uterine life has been the cause of a profound modification of the entire genital tract. The uterus is unusually large; two pairs of glands pour a milk-like food into the uterus which feeds the growing larva; the proximal portions of the oviducts are fused and function as a permanent receptaculum seminis; the ovary possesses a very thick peritoneal covering composed of branched muscle and connective-tissue fibres which forms a sac and encloses the two ovarioles; these are composed each of two follicles and a germarium, no terminal thread being present, and are attached by the germarium to the inner distal surface of the peritoneal sac, their lower ends hanging free within the sac. There are thus in the two ovaries at any one time eight follicles, each containing a developing ovum. A single egg is produced every two to four weeks; it passes into the uterus, being fertilized on the way, and there remains two to four weeks until the young animal is born, an old larva. The two ovaries, and within each ovary the two ovarioles, alternate in furnishing the next egg.

Intracellular Differentiations in Gland Cells of Phascolosoma Gouldii. MARGARET LEWIS NICKERSON.

IN the epidermis of this Gephyrean are