

8719 P

**Developmental Mechanics of the Central Nervous System in
Triturus torosus.**

J. FRANK DANIEL.

From the Department of Zoology, University of California, Berkeley.

By the use of a Rotary Disc¹ the development of the central nervous system may be followed step by step in its natural surroundings within the jelly layers of the egg.

The surface material from which the central nervous system forms occupies a position in the young gastrula well above the blastopore and between it and the animal pole, and at this stage appears to be much like the remaining surface material that gives rise to the epidermis.

As the roof of the digestive tract (the organizing center of Spemann) infolds and moves up into contact with the surface material, the latter is induced to form the medullary plate.

By proper illumination the movement of the organizing center of Spemann, like a curtain within the egg, may be observed as it comes up under the prospective medullary material, and the procedure of shaping out the plate may be followed in some detail.

The first change in the material is its thinning out as the median longitudinal groove about the middle of the plate and just above the chorda; later this groove reaches the infundibular recess anteriorly and the blastopore posteriorly. Next a double row of pigment appears on left and right sides, outlining the lateral boundaries of the medullary plate. Neural folds appear between these double bands of pigment and extend gradually backward and forward. Anteriorly left and right folds approach the midline, where they remain separated for some time.

The relation of the organizing center to the surface material often differs considerably on left and right sides. Contact earlier on one side may result in a well-formed neural fold on that side before pigment bands appear on the other side, and a delay of 8 to 10 hours in the completion of the forward part of the plate has been observed to accompany marked cervical flexure.

¹ Daniel, J. F., and Burch, A. B., *Univ. Calif. Publ. Zool.*, 1933, **39**, 201.