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The existence of an attracting stimulus in the development of the central nervous system.

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Studies on the spinal cord of amphibian embryos have demonstrated the remarkable regenerative powers of the central nervous system in these forms. The cord may be completely severed in frog embryos and tadpoles up to the time of metamorphosis and will restore anatomical and physiological continuity in a high percentage of cases. In the earlier stages, the removal of a segment of the cord one or two myotomes in length is followed by complete reëstablishment of anatomical continuity in most cases. Where restoration of anatomical continuity fails for various reasons, the regenerated or developing nerve fibers have grown toward the opposite cut end of the cord, sometimes by unusually tortuous routes.

A series of experiments on young embryos in which a segment of the spinal cord was removed, rotated on its long axis and reimplanted, gives further indication of the existence of an attracting stimulus as a factor in reëstablishing the continuity of the cord.

These experiments indicate that it is possible to obtain reestablishment of anatomical continuity between a portion of the cord in its normal position and a segment which has been rotated on its long axis through various arcs up to complete inversion (180° rotation). The restoration of physiological continuity has not been conclusively demonstrated, though there is now much evidence that it has occurred. Better healing is obtained when the segment is rotated up to 90° than when it is rotated more. When rotated 90°, there is a tendency for the regenerated tissue closing the cord wound to rotate through the quarter turn of a spiral to link up the like fiber tracts. This same tendency is present in rotations of from 90° to 135°, but is not so clearly demonstrable. The rotation of the regenerated area of the cord is caused by the spiral course taken by the developing nerve fibers.

These experiments demonstrate the existence of a definite stimulus attracting developing nerve fibers within the spinal cord.

The explanatory theories of Cajal, Kappers and his students and Child seem inadequate. It is hoped that further work on this problem, now under way, will give a decisive answer to this question.

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Methods of estimating the activity and intelligence of normal and thyroidectomized sheep.

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The attempt has been made to devise methods for investigating the activity and learning capacity of sheep following the extirpation of the thyroid glands. Their intelligence was tested by their ability to learn a simple labyrinth and the twin of each pair making the better record was thyroidectomized by Dr. Simpson. Later, when the operated lambs showed clearly the stigmata of cretinism the pairs were again tested in order, if possible, to demonstrate any influence of hypothyroidism on the intelligence of the operated lamb when compared with its normal twin. A labyrinth with a single cul de sac has been constructed in which, by a system of gates, the position of the cul de sac can be reversed. This arrangement makes possible the presentation of a number of problems so that the tests on a pair of lambs can be continued as long as may be necessary to determine the effect of the extirpation of the thyroid glands on the ability of the operated lamb to profit by experience.

The effect of thyroidectomy on the activity of the lambs was also sought for by comparison of each cretin lamb with its normal twin. It was found practicable to measure the activity of the sheep by attaching a pedometer to the fore leg and calibrating the instrument to measure the number of steps which the animal takes instead of the distance it covers. The pedometer is sufficiently delicate as an indicator of the animal's spontaneous ac-