Neural Induction by Plant Tissues in the Ectoderm of the Gastrula of *Triton taeniatus*

To investigate the problem concerning the inductive action of plant tissues in the ectoderm of the gastrula, plant tissues rich in nuclear and plasmatic content were used, such as meristem, cambium, ovaries and anthers. Fragments of these tissue, living or dead, were implanted into the blastocœle of an early gastrula of *Triton*.

Four series of experiments were carried out. In the first series, fragments of oat root meristem were inserted either in the fresh condition or after subjection to short boiling in water. Thickenings were formed in the ectoderm at the points in contact with the implant. In the second series, pieces of growing points of potato shoots were used, fresh or boiled. A greater proliferation of the ectodermal cells in the region of contact took place. In the third series, fresh cambium of the birch tree was grated and introduced immediately into the blastocœle of a growing gastrula. Clear instances of inductions of neural plate were obtained, the superficial and deep layers showing a definite differential effect. As might be expected, the cambial layer was the most effective. The reason for this may be that the more tender membranes of the cambium are more easily destroyed by grating. The fourth series forms the control, and shows that the cell membrane is an insurmountable obstacle for inducing substances. Plant subjects such as anthers or whole stamens were implanted with unimpaired cell membranes. In these cases no induction was obtained.

Our results contradict those of Holtfreter's work on plant material (1934, p. 348)[1], but they suggest an explanation of the negative results of his experiments. Holtfreter used plant objects containing much nutritive material (pieces of banana, dough of wheat flour, potato starch).

The unity of plant and animal tissues thus shown may find corroboration in the biochemical field. Butenandt and Jacobi (1933)[2] extracted folliculin from palm seeds. This folliculin was identical with the folliculin $C_{18}H_{22}O_2$. Skarżynski (1933)[3] obtained a hydrate of follicular hormone from flowers, whereas up to that time this substance had only been obtained from the urine of pregnant women and from the placenta.

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[1] Holtfreter, J., *Archiv f. Entwicklungsmech.*, **132**, 225 and 302 1934).
[2] Butenandt, H., and Jacobi, H., *Z. physiol. Chem.*, **218**, 104 (1933).
[3] Skarżynski, B., NATURE, **131**, 766 (1933).

Neural Induction by Fragments of Dead Tissues and Organs of Amphibia and Mammalia in the Ectoderm of the Anuran Gastrula

IN the springs of 1934 and 1935, experiments were made on the influence of pieces of dead tissue (killed by means of desiccation, boiling and treatment with alcohol) on the ectoderm of the gastrula of Anura, and tests were carried out in which parts of organs of tadpoles and adult Mammalia were implanted into the blastocœle cavity of the gastrula.

Embryos of *Bufo viridis* proved to be the best test material, but eggs of *Rana esculenta* were also used. All tests gave positive results. Pieces of the upper lip of the blastopore were desiccated at 60°, others were boiled in water. Some were fixed in 95 per cent alcohol, and later resoftened.

Fragments of muscle, brain and liver were the most effective of all the organs of anuran tadpoles. Fragments of mammalian organs, especially of liver and of kidneys, showed the highest inductive capacity. Our results confirm the work of Holtfreter (1934)[1], who has shown that mammalian tissues are the most effective in inducing axial organs, and add weight to the view that neural induction is chemical in nature.

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[1] Holtfreter, J., *Archiv Entwicklungsmech.*, **132**, 225 and 302 (1934).

Distribution of the Biting-louse

THE biting-louse, *Heterodoxus longitarsus* (Piaget), is primarily a parasite of certain didelphian mammals (Macropodidæ), but it has been found also upon non-didelphian hosts. It has been recorded from domestic dogs, a jackal, a coyote, *Oncifelis salinarum*, and a man; also from the passerine bird *Corone australis*. We have examined the original specimens of most of these records and, in addition, have a number of new records from the dog.

This straggling is of interest from two points of view. First, the parasite has become established upon one of these non-didelphian hosts, the domestic dog, and is even the usual dog louse in some localities. Secondly, on this host it appears to have a geographical and local distribution. Of the conditions necessary for the establishment of a louse species on a host other than its 'phylogenetic' host nothing is known; but with the apparent opportunities for transference it is amazing that it has not occurred more often. The earliest date recorded for the occurrence of the parasite on a non-didelphian host is 1902, in Africa.

On examining the locality records, there seems to be a definite geographical distribution such that it occurs only in temperate and tropical areas, roughly confined between lat. 40° N. and lat. 40° S. Thus, we are informed that the parasite is not known from the U.S.S.R., or from Canada; and it does not appear to occur in Europe. The information, from the literature in our records, indicates that within the two parallels of latitude the distribution is localized.

We are indebted to a great number of workers for our data. Accounts of the distribution and of the diagnostic anatomy of the parasite are in preparation.

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"The Handbook of British Birds"

As many ornithologists are already aware, a new edition of "A Practical Handbook of British Birds" has been for some time in preparation. We should be very grateful to any of your readers who would now send us notes of any omissions or errors in the original work, and of any *unpublished* observations