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Explanation *In Vitro* of Transverse Pieces of Early Rat Embryos.

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The primitive axis of the rat embryo appears during the ninth day after insemination, on the inner concavity of the upper or antimesometrial portion of the blastodermic vesicle. Accordingly its sagittal section is U-shaped. In order to isolate definite portions of the axis, the embryonic end of the cylinder is first cut off from the rest by a transection in the region of the amnion; then the embryo is flattened by means of a slit in each lateral wall of the vesicle so isolated. Transverse cuts may now be made at any level of the axis. In the present series the whole posterior half was isolated as a single explant, the anterior half usually being divided into thirds transversely.

The isolated fragments of the embryonic regions of the rat in stages just previous to and during the formation of the embryonic axis are capable of typical differentiation *in vitro*. The pieces were explanted on coverslip clots of rat plasma and rat embryo or placental extract. The plasma donor was injected with a few cc. of 10% dextrose immediately before the bleeding. The cultures were usually washed or transferred after 48 hours; fixed after 3 or 4 days, photographed *in toto* and later examined in serial sections.

The designated levels of embryos in stage 14 (medullary plate) and stage 15 (head-fold) round up into little vesicular structures, and differentiate characteristic primitive organs. The anteriormost third of the anterior part of the axis always includes part of the yolk-sac which forms its typical epithelium, blood islands and vascular channels. One or two pulsating myocardial masses invariably develop; histologically these may show little differentiation. Mesenchyme frequently is found; less frequently medullary tube. The second third of the anterior axis usually forms yolk-sac, and always pulsating heart-masses. In one case, a medullary tube and entoderm invaginating as though forming foregut were recognized. The third piece, derived from the part of the anterior axis nearest the antimesometrial pole of the capsule, never forms yolk-sac. Medullary tube, mesenchyme, and in one case a heart-mass, are the structures found in such explants.

The posterior half of the embryo yields a complex vesicular mass

composed of yolk-sac, outgrowths of allantoic origin, and much embryonic material. Medullary tubes, occasionally with chorda, somites, dense mesenchyme and differentiating muscle, lateral plate material split to form coelomic cavities, and possibly nephric tubules, are found in such masses.

Evidently at this stage, the levels of the axis are all equally capable of differentiation *in vitro* to form primitive axial structures of characteristic level. Histogenesis of both medullary and muscular elements may proceed quite normally.

A few cases of explants of pieces in the primitive streak stage (stage 13) are available. The anteriormost third of the anterior half may form pulsating heart tissue and yolk-sac epithelium. The entire anterior half may form well-differentiated lobed brain tube, foregut, heart and mesenchyme. Only one explant of the posterior half at this stage was successful; it contained yolk-sac and a necrotic outgrowth probably allantoic in nature. The posterior half of the primitive streak stage appears deficient in potency when compared with the anterior half of the embryo which may develop quite as well as the same material in later stages.

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Toxicity of Sulfanilamide. A Study of the Pathological Lesions in White Mice.*

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Since the introduction of sulfanilamide and related substances as chemotherapeutic agents, there have appeared in the literature several reports on their toxicity for experimental animals. Domagk[1] observed that 0.5 gm. per kilo of 'Prontosil Insoluble,'† given orally was well tolerated by mice and dogs, whereas the cat tolerated only 0.2 gm. per kilo. The urine of dogs which were exposed to varying amounts of 'Prontosil Insoluble' over a period of 14 days showed no red or white blood cells or casts. Similar studies were carried on

* This study was made possible by a grant from the Clinical Research and Teaching Fund, Yale University School of Medicine.

1 Domagk, G., *Deutsche. Med. Wchnschr.*, 1935, **61**, 250.

† Hydrochloride of 4-sulfamido-2,4-diamino azo benzene.