Horizon X/b
Older group
Early somites present

Stage 13 Turning of the Embryo

8 1/2 Days, 8–12 Somites

This is a relatively short period. The copulation age of these specimens still varies considerably. It extends from 8 days 1 hour to 9 days.

The rotation of the embryo results in a marked change of the external shape (Fig. 94). The highly lordotic curvature of the trunk turns into a strong dorsal, kyphotic bend. A primary lordotic curvature also exists in human embryos, but the kyphotic change is less conspicuous and does not involve a rotation. It is appropriate, therefore, to consider this period in the mouse development separately.

The *turning*: at 8 somites, the beginning of rotation can be seen in cross sections. It is first confined to the head and tail folds. The mid-trunk region remains initially in its original position, being apparently firmly attached to the yolk sac. In Fig. 95, the torsion of the posterior end with its primitive streak with respect to the mid-trunk region is apparent. Viewed from the cranial toward the caudal end, the rotation proceeds clockwise along the body axis.

Figs. 85–93: 8 somites, 8 days 21 h

FIG. 85. Reconstruction of embryo, 8 days 21 h, 8 somites.
Level of cross sections Figs. 88–92 is indicated.
KT 985

FIG. 86. Ovary with 2 corpora lutea of the same pregnancy.
Cl = corpus luteum.
KT 985. 16:1

FIG. 87. Cellular detail: 130:1

FIG. 88. Anlage of the forebrain.
Arrow indicates sulcus opticus. 180:1

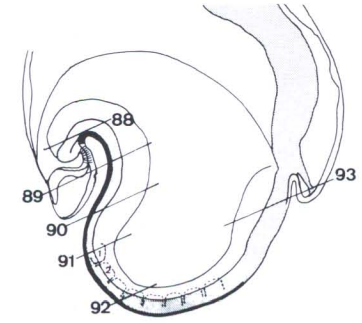
FIG. 89. Anlage of the heart.
End = endocardiac vesicle, *Tr* = aortic sac, *Th* = plate of the thyreoidea. 130:1

FIG. 90. Foregut pocket (*V*).
S.v. = sinus venosus (paired), *O* = otic plate (posterior margin). 130:1

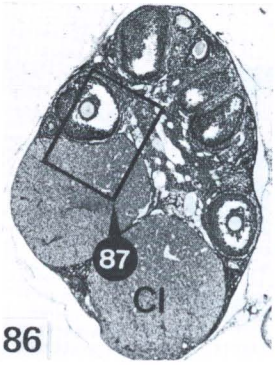
FIG. 91. Section through 1st somite (*So 1*).
V.v. = Vitelline vein. 130:1

FIG. 92. Section through 4th somite (*So 4*).
Ao = aorta dorsalis, *Pt* = peritoneal funnel. 270:1

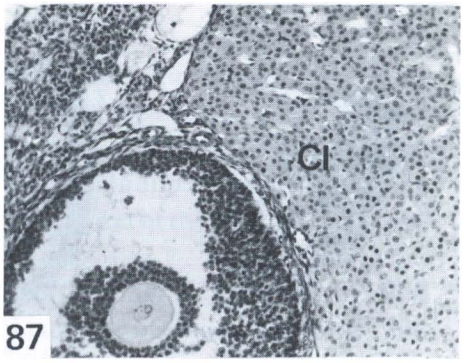
FIG. 93. Section through primitive streak (*P*).
H = hind gut, *Au* = umbilical artery. 270:1



85 8 Somites



86



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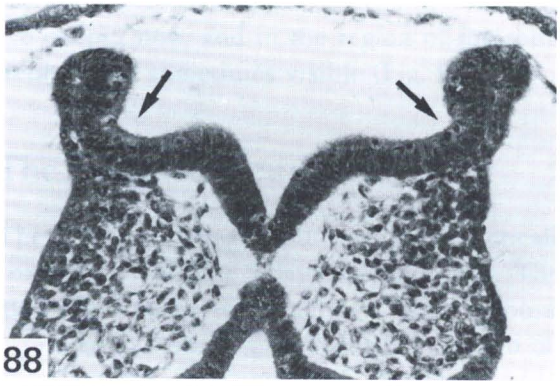

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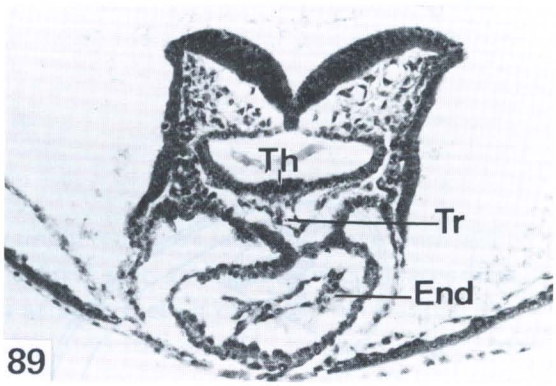

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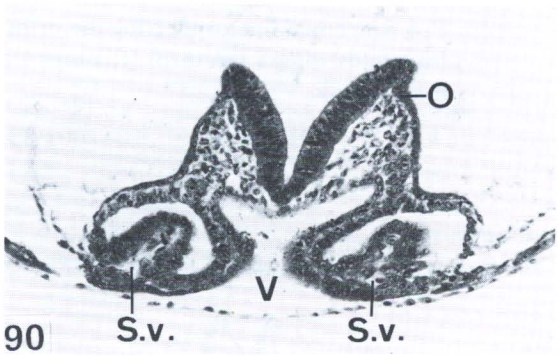

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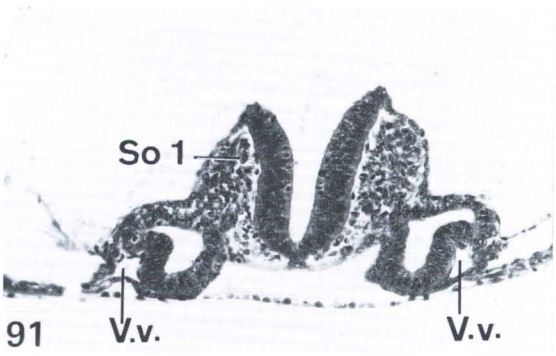

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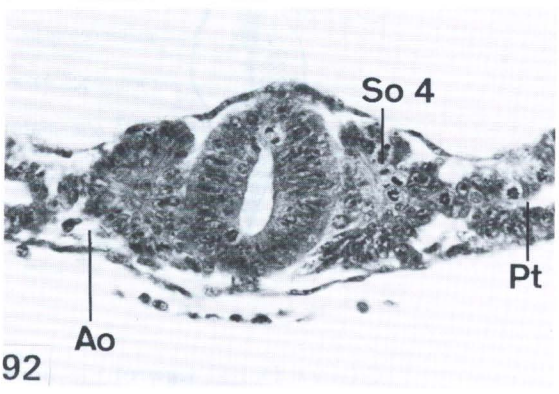

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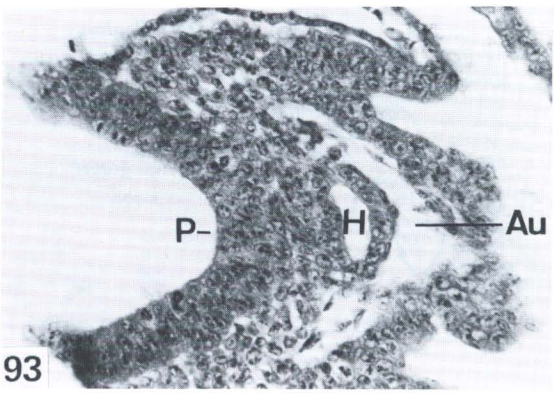

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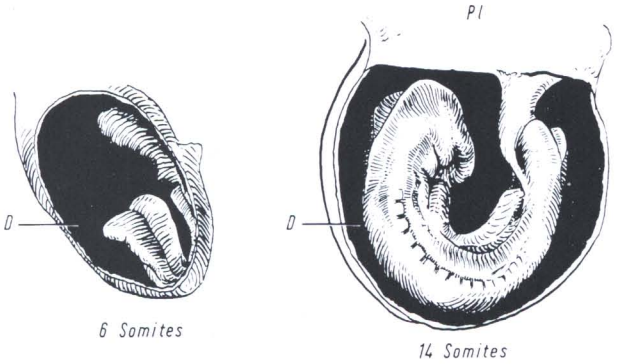

FIG. 94. Turning of the embryo.
Drawing before (*left*) and after (*right*) rotation. Amnion is not shown. *D* = yolk sac (cut), *Pl* = placenta.

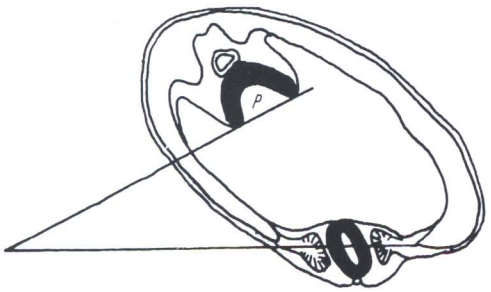

FIG. 95. Beginning rotation, 8 somites.
P = tangential line connecting the primitive folds, shows the turning compared to the trunk.

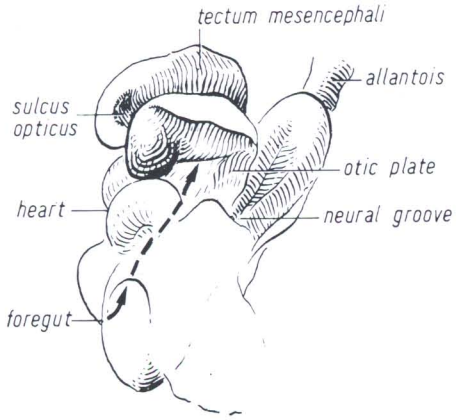

FIG. 96. Folding of the brain bulges.
Oblique view.
Arrow indicates localization of the foregut.
KT 1002, 9 somites, 8 days 10 h

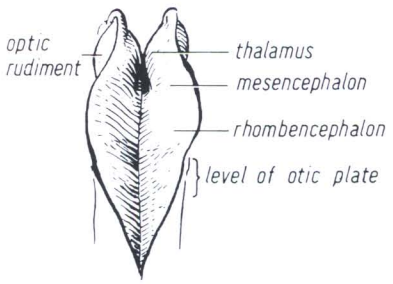

FIG. 97. Dorsal view of the brain folds.
They have approached each other closer in the forebrain than in the hindbrain.
KT 1002, 9 somites

Organogenesis

Compared to the preceding period, no radical changes occur during this stage. The previously described organ rudiments may easily be recognized, and are represented in a series of cross sections of an embryo of 8 somites (Figs. 85–93). The optic evagination is deeper now and the otic plate more distinct (Fig. 96). The thyroid rudiment [144] is clearly delimited (Fig. 89). In sagittal sections, it appears as an indentation of the foregut wall above the heart rudiment (Fig. 85).

At the end of this period, the second branchial pouch is forming. At 8 somites the first pouch is considerably enlarged, so that the entoderm contacts the overlying ectoderm. The section in Fig. 89 is immediately anterior to the contact area. The fore- and hindgut pockets are deeper now, and in the region of the somite stalks, the peritoneal funnels of the pronephros are sometimes visible (Fig. 92).

The Corpus Luteum

The structure of the corpus luteum is practically unaltered; there is little change, even when compared with the 5-day-stage (Fig. 36). The central scar and hemorrhagic traces have almost disappeared. Sometimes, a zone of loosely arranged cells is observed in this area. The histologic picture of the corpus luteum and of the interstitial gland is still unchanged.

Material	Age	Embryos
KT 639	8 days 1 h	6 with 5–9 somites (mentioned previously)
KT 1001–03	8 days 10 h	2 with 7 somites
		2 with 8 somites
		1 with 9 somites
		2 resorptions
KT 985–87	8 days 21 h	7 with 8–16 somites