

Stage 4 Advanced Segmentation

3 Days

On the third day, the eggs are in the uterus [17]. After 71 hours, one was found in the pars intramuralis tubae (KT 786). The eggs were composed of 16–25 cells after 69–71 hours.

The *blastomeres* are not quite equal in size. The cytoplasm is coarsely granulated, with spherical or rod-like eosinophilic inclusions. The nucleoli are extraordinarily large and may be one-third of the nuclear diameter. Out of 15 nuclei of specimen KT 934:

- 10 showed a single big nucleolus,
- 3 showed two nucleoli of unequal size,
- 2 showed several small nucleoli.

The trophoblast cannot yet be distinguished with certainty from the embryoblast. The segmentation cavity forms very rapidly (78 hours), and makes it possible to distinguish the embryoblast from the trophoblast. The 25-celled egg lacks a distinct cavity, but the 35-celled egg (78 hours) has a large eccentrically placed lumen.

The *diameter* of the morulae has apparently not changed. After fixation in Bouin's solution or Carnoy's solution (which is suitable for a PAS-reaction), it was 62–70 microns. The *zona pellucida* stains intensively red with the PAS reaction.

Polocytes are sometimes still distinct. Their nuclei are pycnotic and slightly larger than the nucleolus of a blastomere. The cytoplasm is PAS-negative.

The *distances* between the eggs have increased, and the eggs are irregularly spaced.

The *corpora lutea* are more intensively vascularized than in the previous stage.

Material	Age	Morulae
KT 786	71 h	18-celled, in pars intramuralis tubae
KT 777	69 h	22-celled, 5 of which are in mitosis, in uterus
KT 934	69 h	1 showing 16 cells, with distinct polocyte 1 showing 18 cells 1 showing 20 cells, 2 of which are in mitosis 1 showing 25 cells, 7 of which are in mitosis
KT 989/90	78 h	2 morulae with 33 and 34 cells, in uterus 1 blastocyst, 37 cells
KT 991/92	78 h	1 morula, 31 cells 4 blastocysts: 35, 36, 42, and 43 cells

Figs. 18–22: Cleavage, 69 h

FIG. 18. Low magnification. Uterine horn, cross sectioned. Bouin, H.-E. KT 934. 54:1

FIG. 19. Detail of Fig. 18, with 16-celled morula. Drawing (*right*) shows location of eggs (*arrow*). 360:1

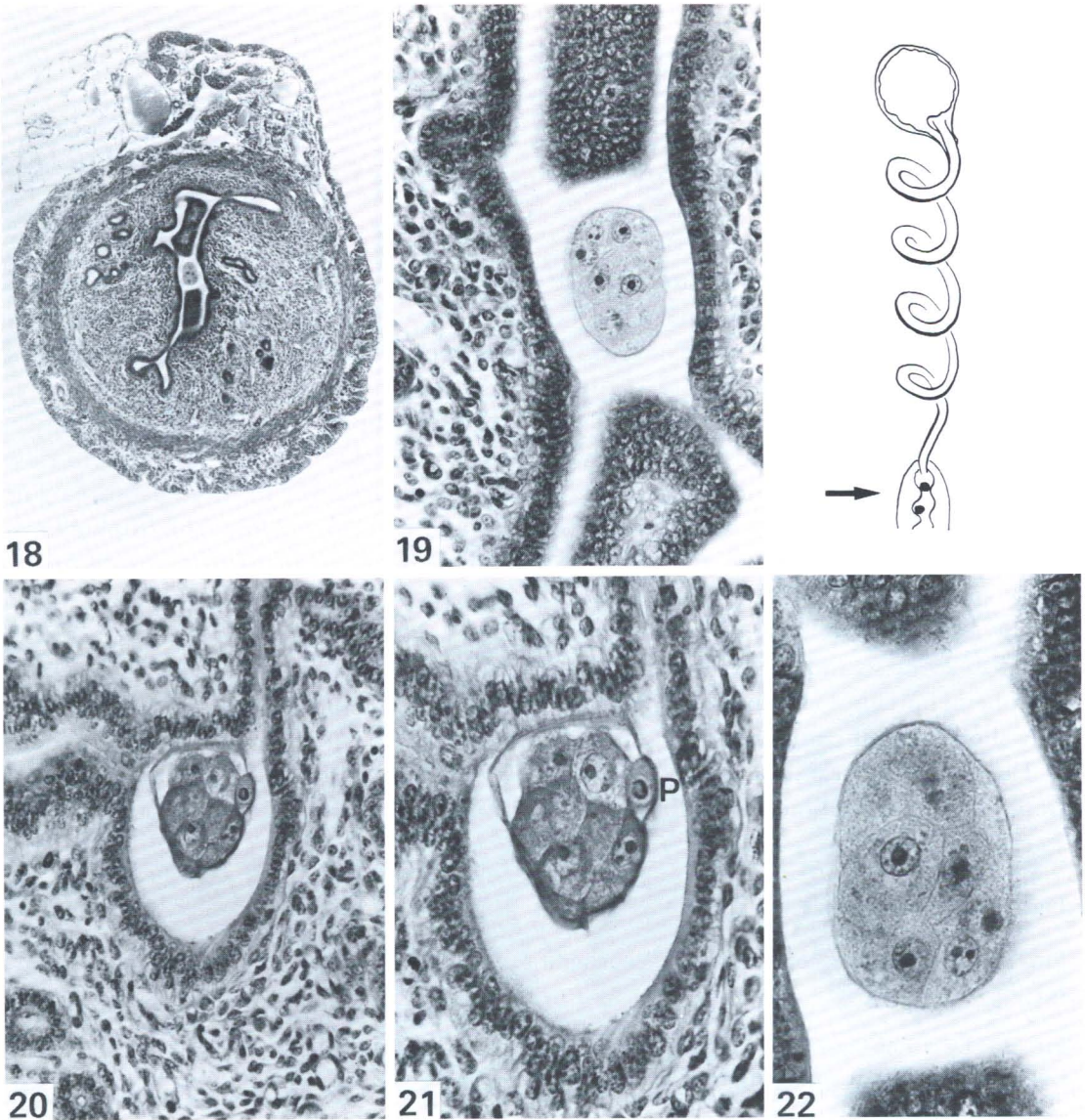


FIG. 20. Morula of 21 cells, Carnoy, PAS.

Distinct zona pellucida, partly separated from blastomeres because of shrinkage. Beginning formation of a crypt in uterine lumen. No deciduous reaction yet.

KT 934. 360:1

FIG. 21. Morula of 21 cells.

Polar body, *P*, with pycnotic nucleus (not to be confused with a nucleolus).

KT 934a. 560:1

FIG. 22. Morula of 16 cells. Bouin, H-E.

Nuclei containing one big or two small nucleoli. Zona pellucida very thin (fixation effect).

KT 934. 720:1