Stage 5 Blastocyst

4 Days

Horizon III
Free blastocyst

After 100 hours, almost all blastocysts have arrived in the uterus. The only exception was specimen KT 969, where the right oviduct contained 4 probably decaying blastocysts. None had reached the right horn of the uterus. The other uterine horn had 3 normal blastocysts, and the adjoining tube was empty.

The eggs are distinctly spaced along the entire uterus, apparently free within the lumen, sometimes in a crypt. In most cases, the wall of the blastocyst was probably already in close contact with the uterine epithelium, and is secondarily separated by fixation shrinkage (Fig. 29). The *blastocyst* is clearly separated into embryoblast and trophoblast. The trophoblastic cells are flattened, and form a single-layered epithelium. They are said to absorb amino acids, perhaps influenced by hormones [19].

The embryoblastic cells are cuboidal and clustered at the embryonic pole. The nuclei of both trophoblast and embryoblast usually contain an elongated nucleolus [10] with a peripheral border of chromatin; sometimes, additional nucleoli are visible. Each cell invariably shows several chromocenters.

The total number of cell varies. Specimen KT 970/72 consisted of 27 embryonic and 98 trophoblastic cells. In addition, there is an indistinct polocyte adhered to the trophoblast.

Figs. 23–29: Blastocyst, 101 h

FIG. 23. Ovary with 3 corpora lutea, low magnification. PAS.
KT 967. 40:1

FIG. 24. Detail of Fig. 23.
Corpus luteum with enlarged blood vessels. 115:1

FIG. 25. Uterine horn, longitudinal section. Blastocyst (*arrow*) antimesometrial.
M = mesometerial region of uterus with enlarged blood vessels, PAS.
KT 967. 40:1

FIG. 26. Blastocyst and vicinity, H.-E. *C* = compact layer of endometrium beneath epithelium. Transverse ridges of the epithelium cause a wavy appearance of the surface.
KT 970. 135:1

FIG. 27. Blastocyst of Fig. 26, enlarged.
Em = embryoblast with mitosis. 720:1

FIG. 28. Blastocyst and vicinity, PAS. A crypt has formed.
KT 967. 135:1

FIG. 29. Detail of next section (Fig. 28).
Fine glycogen granules in trophoblast, *T*, and the adjoining epithelium, *U*. In between, a free space, evidently formed artifically by shrinkage (the blastocyst must originally have occupied the whole crypt). 560:1

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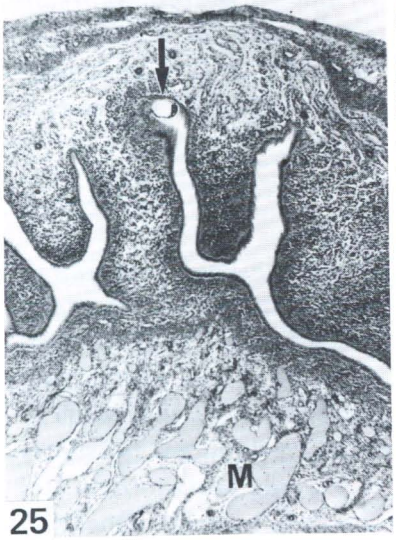

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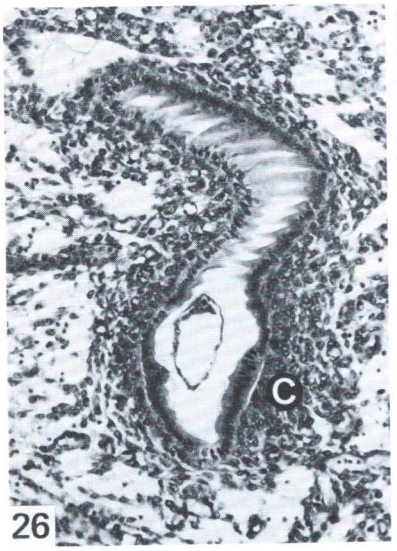

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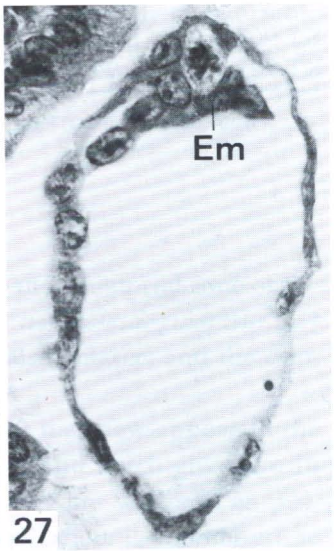

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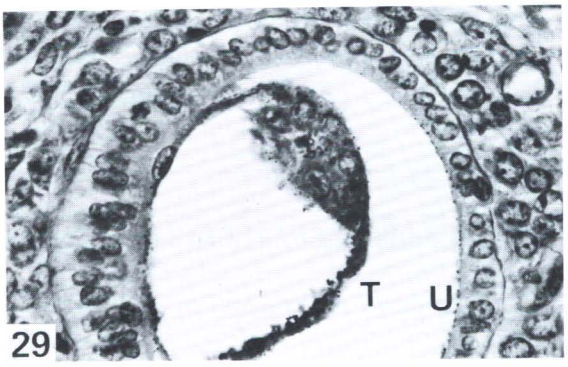

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The *zona pellucida* has completely disappeared. The *overall diameter* varies considerably because of deformation, shrinkage and other reasons [13]. For instance, after Carnoy's solution, 2 blastocysts measured 70 × 100 microns, a third 75 × 80 microns. The PAS-reaction shows intense red granules within the trophoblastic cells after the zona pellucida disappears (Fig. 29). Some embryoblastic cells bordering the segmentation cavity may contain similar granules, perhaps they represent the first entodermal cells.

Corpora lutea contain radially arranged strands of large clear cells, distinctly different from the smaller interstitial and follicle cells (Figs. 23–24). Blood vessels are abundant and sometimes dilated. Within the interstitium, some small clusters of PAS-positive cells with fine red granules may be observed (Fig. 37). They should not be confused with the intensely red debris of degenerating oocytes.

Material	Age	Blastocysts
KT 964	99 h	2 blastocysts in uterus, without zona pellucida
KT 969/70	101 h	3 blastocysts in left uterine horn
		4 blastocysts in right oviduct
KT 967/68	101 h	4 blastocysts in uterus
KT 923	94 h	None visible, one empty zona pellucida