

## Stage 26 Long Whiskers

18 Days, 19.5–22.5 mm

### External Features

The whiskers, visible at 17 days as short filaments (Fig. 255), are now definitely longer. The skin is thickened and markedly wrinkled. The eyes are barely visible through the closed eyelids.

*Length.* Because of different degrees of curvature, the length varies from 18 to 23 mm.

### Circulatory System

The final prenatal configuration of the circulation system was established at 16–17 days.

### Intestinal Tract

In the *oral cavity*, the rate of development of the first molars is remarkable. The stellate reticulum is enlarged and the outer enamel organ epithelium is in close contact with numerous capillaries. The ameloblastic layer, composed of tall cylindrical cells, has the form of the future crown. In Fig. 270, the enamel organ is separated from the surrounding loose connective tissue by artificial shrinkage. The second molar is about 2 days later in development than the first.

### Derivatives of the Intestinal Tract

In the *thyroid* the number of colloid-filled follicles has increased considerably. Between the numerous lobuli, there is loose connective tissue containing many blood vessels. The secretory activity seems to be intensive.

Both *parathyroids* may be recognized as rather compact, spherical cell clusters, closely adhered to the thyroid. They are situated on each side somewhat below the middle of the lobes. Many blood vessels have grown between the parenchymal cords.

The *pancreatic islands* are now well differentiated.

The *thymus* has enlarged further (Fig. 275). There is no clear boundary between the medulla and cortex. In the medulla, extensive aggregations of large clear reticulum cells are visible. There are numerous blood vessels.

### Respiratory System

The structure of the *lungs* has changed completely: one could speak of an "alveolar explosion." There is a sudden development of large alveolar ducts and of sac-like primitive alveoli lined by cuboidal epithelium. The resulting loose structure of the lung tissue is visible with low magnification.

The *larynx* and *trachea* have completed their prenatal differentiation.

## Abdominal Viscera

There have been no marked changes in the abdominal viscera since the preceding stage. The *spleen* has elongated, is rich in cells, and exhibits signs of intensive blood formation.

There is still active hemopoiesis in the *liver*.

In the *stomach*, the subdivision into glandular and nonglandular part is clearly visible. In the *gut*, the characteristic relief of the lining has developed.

## Urogenital Tract

The *kidneys* are about the same as in the preceding age group.

The *glands* of the male genital excretory ducts are now very conspicuous, and the *seminal vesicles* (Fig. 275) contain distinct lumina. The lumen of the bulbo-urethral gland (Cowper's gland) is just forming and it opens into the urethra together with the recessus bulbosus.

The *prostate gland* is appearing as short, solid cords of epithelial cells budding from the pars prostatica urethrae.

The tunica albuginea of the *testis* has increased in thickness. The seminiferous tubules are still solid and are connected with the canalicular system of the rete testis (Fig. 276). The gonocytes have stopped dividing [118]. Between the tubuli contorti, there are numerous interstitial cells.

*Ovaries* (Figs. 278 and 279). The ovaries are closely attached to the lower poles of the kidneys. The bursa ovarica almost completely surrounds the ovary. In the mesosalpinx, many mesonephric tubules can be recognized. Some oocytes are being encircled by flat epithelial cells, which form the *primary follicles*.

## Central Nervous System

The rudiment of the *pineal gland* has been transformed into a stalked, glandular organ.

Within the *hypophysis*, the original lumen of Rathke's pouch is narrowed (Fig. 271). The adeno-hypophysis assumes the appearance of a typical endocrine gland.

In the *brain*, the olfactory lobe is well developed.

In the *eye*, the iris and corpus ciliare are well formed (Fig. 272).

## Skeletal System

*Skull*. The bilaterally situated ossification centers of the supraoccipitale have fused (compare Figs. 281 and 266).

*Vertebral column*. The vertebral bodies C<sub>2</sub>-C<sub>5</sub> still lack ossification centers.

*Extremities*. Ossification of the extremities is proceeding rapidly (Fig. 280).

*Adipose tissue* is abundant in the subcutaneous tissue of the neck. It probably is a source of energy for the postnatal period, and has been called "multilocular adipose tissue" (MAT, Fig. 275).

Material	Age	
KT 656-57	17 days 21 h	5 fetuses, 18.5-20.5 mm
KT 1010-11	17 days 23 h	6 fetuses, 18.0-20.0 mm
KT 1023-28	17 days 23 h	6 fetuses, 19.0-21.0- mm
KT 1041-42	18 days 4 h	6 fetuses, 23 mm

FIG. 267. Fetus of 17 days 23 h, 22.2 mm. Formalin fixation.  
KT 1027

FIG. 268. Same fetus viewed from the right. 3:1

FIG. 269. Alizarin-cleared preparation, 17 days 23 h.  
For explanation, see Fig. 280.  
KT 1011. 3.5:1

FIG. 270. Cross section through head, level of eyes, 17 days 23 h.  
*CN* = cavum nasi, *DN* = ductus naso-pharyngeus (compare Figs. 252 and 225), *Olf* = lobus olfactorius, *Sp* = stellate reticulum (molar). 23:1

FIG. 271. Hypophysis, sagittal section, 18 days 4 h.  
*N* = neurohypophysis (posterior lobe), *P* = pars intermedia, *Ad* = adenohipophysis (anterior lobe), *T* = pars tuberalis.  
KT 1041/3. 130:1

FIG. 272. Enlarged view of eye in Fig. 270.  
*Cc* = corpus ciliare, *I* = iris, *Ln* = suture of eyelids. 60:1

FIG. 273. Sagittal section through 5th thoracic vertebra, 18 days 4 h.  
*Cs* = notochordal sheath, *P* = periosteal bone, ventral part.  
KT 1041/3. 105:1

FIG. 274. Sagittal section through axis, 17 days 23 h.  
*A* = arcus anterior atlantis, *D* = dura mater cerebri (above clivus), *De* = ossification center in basis of dens, *C<sub>3</sub>* = body of 3rd cervical vertebra.  
KT 1010. 55:1

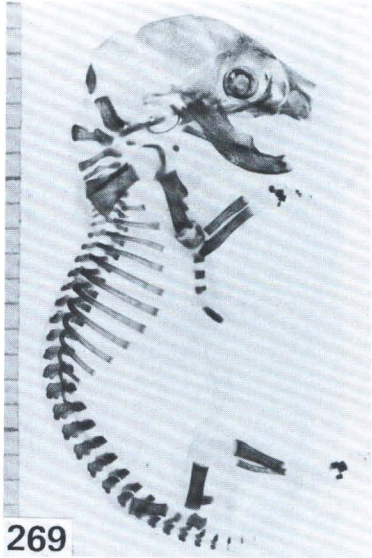




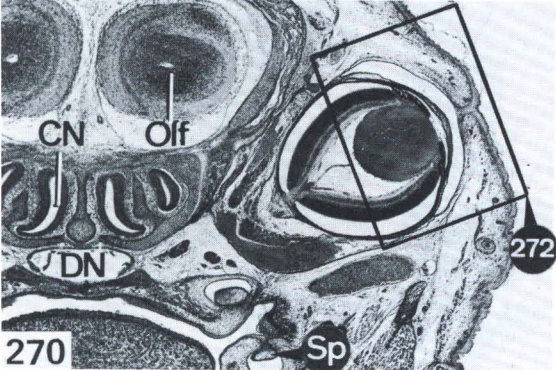
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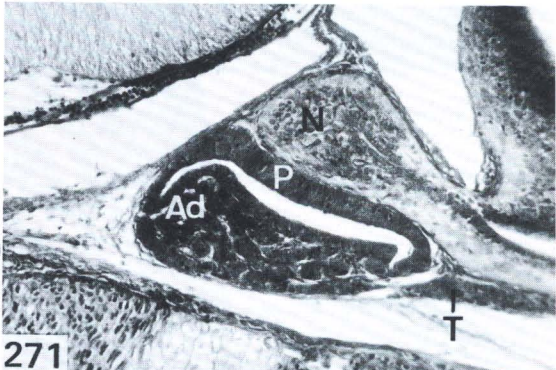
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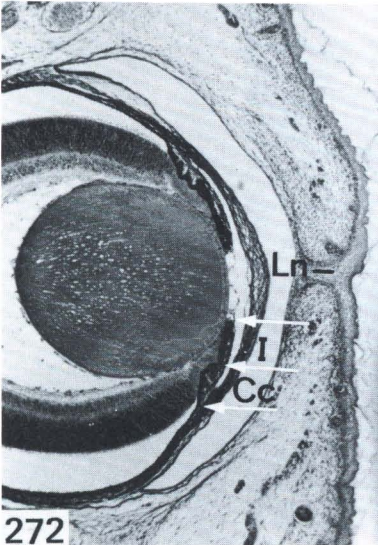
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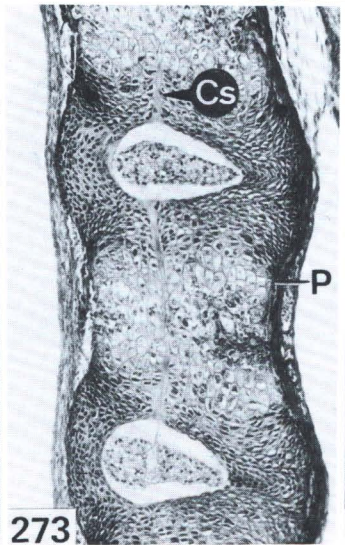
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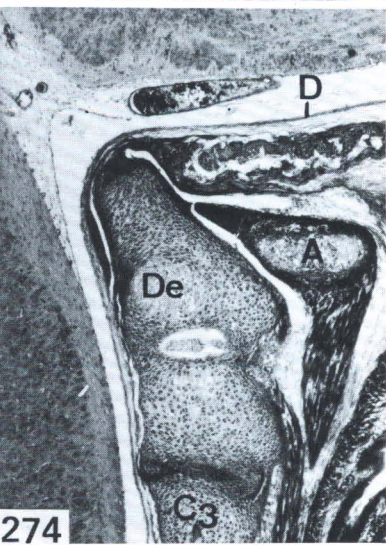
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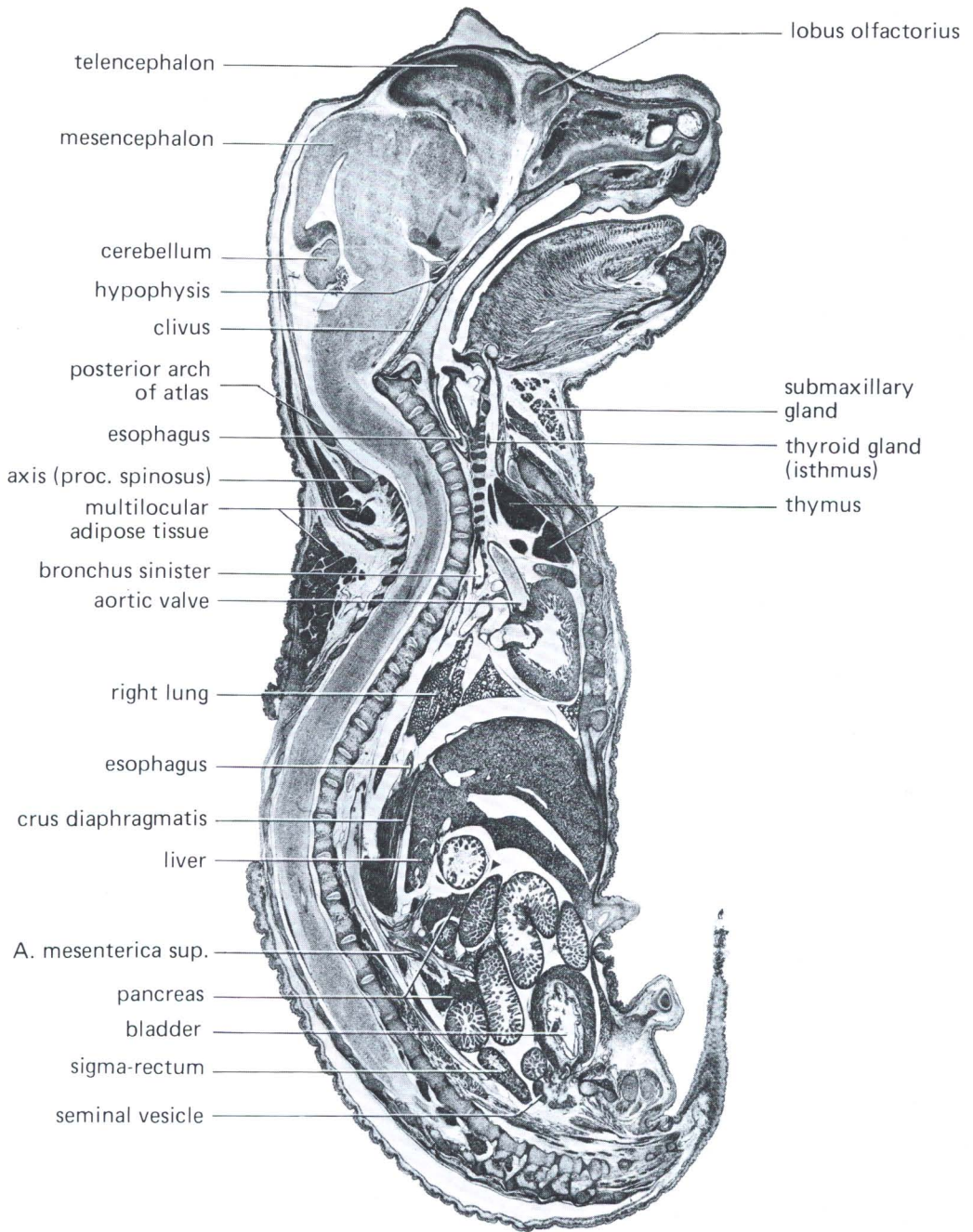
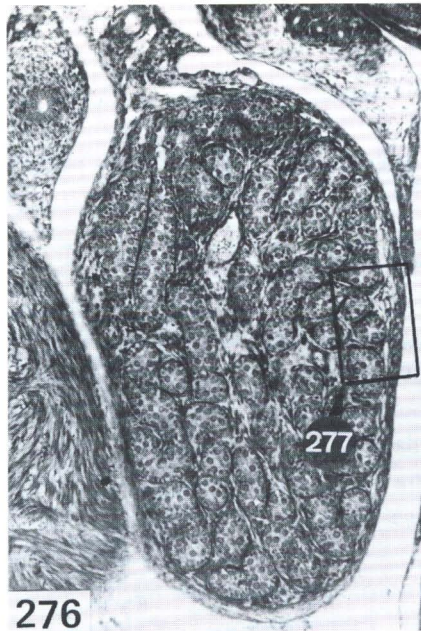
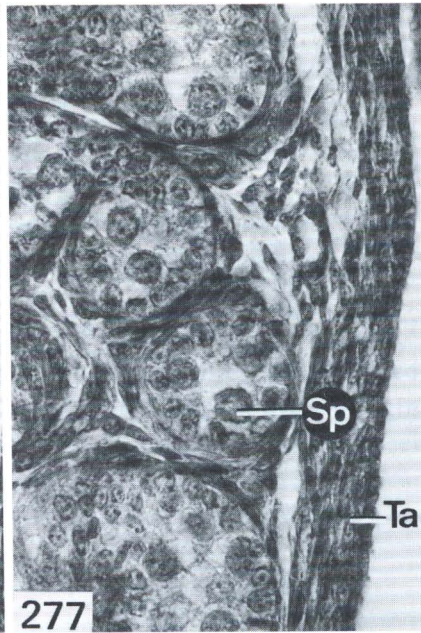


FIG. 275. Sagittal section, male fetus, 18 days 4 h,  
23 mm.  
KT 1041



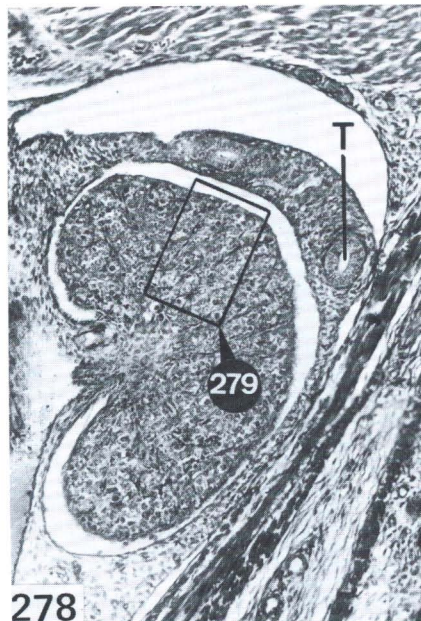
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FIG. 276. Sagittal section through testis, 17 days 23 h.  
KT 1010. 105:1



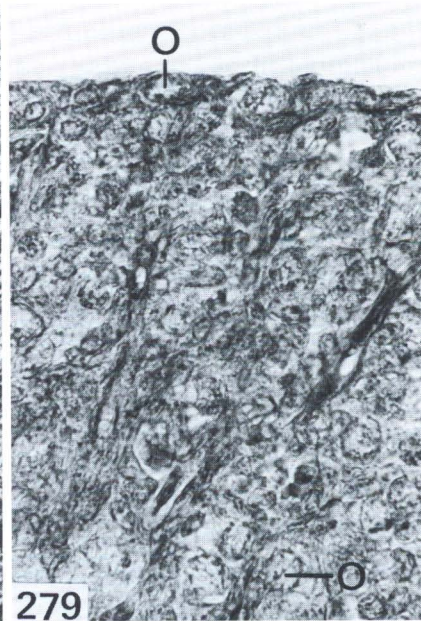
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FIG. 277. High power view of testis Fig. 276.  
*Sp* = spermatogonium, *Ta* = tunica albuginea. 550:1



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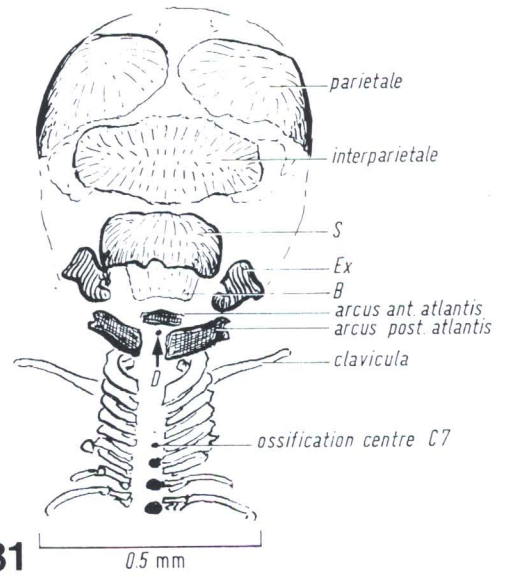
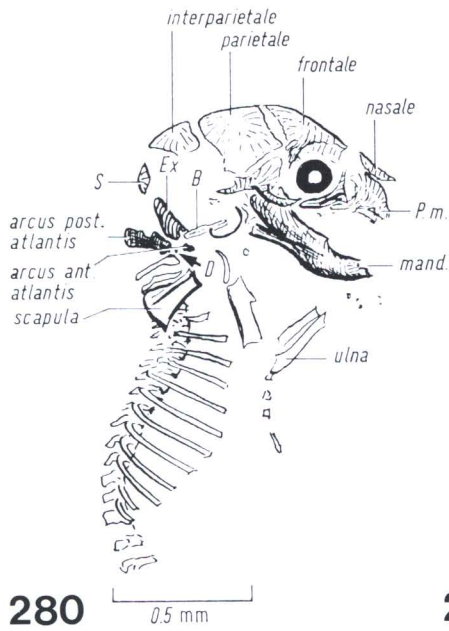
FIG. 278. Ovary, frontal section, 17 days 23 h.  
*T* = oviduct.  
KT 1010/30. 105:1



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FIG. 279. High power view of ovary Fig. 278.  
*O* = oocytes. 550:1





FIGS. 280–281. Alizarin-cleared preparations, 18 days, 22 m. Anterior part of the body in lateral (Fig. 280) and dorsal view (Fig. 281).  
*B* = basioccipitale, *Ex* = exoccipitale, *S* = supraoccipitale, *D* (arrow) = ossification center in basis of dens, *P.m.* = premaxilla.  
 KT 1011

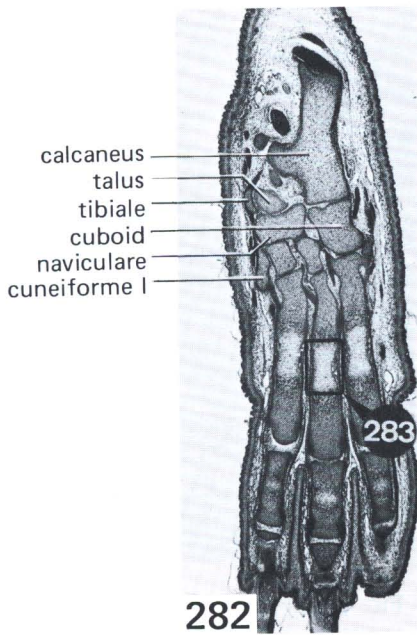


FIG. 282. Horizontal section through hind-foot plate, 17 days 23 h.  
 KT 1026. 22:1

FIG. 283. Enlarged view of metatarsale 3 (Fig. 282).  
 270:1