PART I

CHAPTER VI

PHOTOGRAPHS AND MICROPHOTOGRAPHS
PART I

Fig. 1
Photograph of Sharks (all immature)

Fig. 2
Photograph of Shark testis in situ.
Sp.3 (immature). Ventro-lateral view:
- Growing rt. testis.
- Lobes of liver.
- Peritoneal fold connecting testes with gut.
- Hind gut.
- Undifferentiated portion of rt. testis.

Fig. 3
Photograph of Shark testes.
Sp.4 (immature). Ventral view:
- Cephalic pole } of growing
- Caudal pole } lt. testis.
- Caudal undifferentiated portion of rt. & lt. testes.
**PART I**

**Fig. 4**

Photograph of Shark testes, Sp.1. (mature). Ventral view:

- Caudal margin of peritoneal fold extending between testes and hind gut.
- Cephalic pole of Lt. testis reflected to rt. surface of the fold.
- Rt. testis.
- Lt. testis.
- Ventral abdominal wall-cut.
- Anus.

**Fig. 5**

Photograph of Shark testes, Sp.2. (mature). Ventral view:

- Caudal margin of peritoneal fold.
- Rt. testis.
- Lt. testis.
- Ventral abdominal wall-cut.

**Fig. 6**

Section of Shark testis, Sp.4. (immature), IH & E x 70

- Developing seminiferous tubule.
- Small round cells in intertubular tissue.
PART I

Fig. 7
Section of undifferentiated portion of Shark testis. Sp. 4. (immature) IH & E x 70
- Developing seminiferous tubule.
- Undifferentiated small round cells.
- Tunica albuginea - wavy.

Fig. 8
Section of Shark testis, Sp. 1. (mature) IH & E x 70
- Tails of spermatozoa.
- Bundles of spermatozoa.
- Prominent trabecular process.
- Resting spermatogonia.

Fig. 9
Section of Shark testis, Sp. 2. (mature) PAS x 100 (coloured)
- Bundles of spermatozoa.
- Interstitial cells in intertubular tissue.
- Resting spermatogonia.
**PART I**

**Fig. 10**

Section of Shark testis, Sp. l. (mature)
IH & E x 280

- Large & small interstitial cells.
- Bundles of spermatozoa.
- Tails of spermatozoa in whorl.
- Sertoli cell.
- Resting spermatogonia.

**Fig. 11**

Section of Shark testis, Sp. l. (mature)
Van Gieson x 400 (coloured)

- Bundles of spermatozoa.
- Interstitial cells.
- Sertoli cells.
- Resting spermatogonia.

**Fig. 12**

Section of Shark testis, Sp. l. (mature)
IH & E x 1000 (oil)

- Interstitial cell.
- Spermatogonia.
- Sertoli cell.
- Spermatozoa in bundle.
PART I

Fig. 13
Section of Shark testis,
Sp. 1. (mature)
Reticulin x 70

Reticulum around blood vessel.
Basement membrane et tunica propria.

Fig. 14
Section of Shark testis,
Sp. 1. (mature)
Heinert x 70

Tunica albuginea - undulating.
Tunica vasculosa - inner zone.

Fig. 15
Photograph of Ophiocephalus punctatus (Lata)
PART I
Fig. 16
Photograph of testes of Ophioccephalus punctatus (Lata) in situ
- Rt. testicular vessels.
- Rt. & Lt. testes.
- Anus.
- Swim bladder.

Fig. 17
Section of Ophioccephalus punctatus (Lata) testis, IH & E x 70
- Intertubular tissue.
- Spermatozoa within vastly dilated cyst-like seminal tubule.
- Broad but short trabecula.

Fig. 18
Section of Ophioccephalus punctatus (Lata) testis, IH & E x 280
- Spermatogonia.
- Spermatozoa.
- Seminiferous tubule.
- Intertubular tissue.
- Sertoli Cell.
PART I

Fig. 19
Section of Ophiocephalus punctatus (Lata) testis
PAS x 400 (coloured)

- Spermatogonia
- Spermatozoa within seminiferous tubule
- Intertubular tissue
- Interstitial cell
- Sertoli cell

Fig. 20
Section of Ophiocephalus punctatus (Lata) testis
Reticulin x 70

- Seminiferous tubule
- Basement membrane et tunica propria
- Reticulum

Fig. 21
Section of Ophiocephalus punctatus (Lata) testis
Weigert x 70

- Reticulum
- Basement membrane et tunica propria
- Seminiferous tubule
- Blood vessel
PART I

Fig. 22

Photograph of the Toad

Fig. 23

Photograph of Toad testes in situ. Ventral view:

- Corpus adiposus.
- Lt. testis.

Fig. 24

Section of Toad testis. 
IH & E x 70

- Spermatozoa in bundles.
- Resting spermatogonia.
- Clusters of aggregated spermatogenic cells.
PART I

Fig. 25
Section of Toad testis, Van Gieson x 100 (coloured)

- Resting (non-dividing) or primary spermatogonia (Witschi, 1956), or Type A spermatogonia (Leblond & Clermont, 1952a, 1952b).
- Secondary spermatogonia (Witschi, 1956) or Type B spermatogonia (Leblond & Clermont, 1952a, 1952b) lying in cluster within a common follicular cyst.

Fig. 26
Section of Toad testis, IH & E x 280

- Secondary spermatogonia in cluster.
- Spermatogonia in bundles.
- Primary spermatogonia.
- Interstitial cells.
- Sertoli cell.

Fig. 27
Section of Toad testis, IH & E x 1000 (oil)

- Spermatogonial cells in a common follicular cyst.
- Spermatogonia in bundles and free.
- Sertoli cell.
PART I

Fig. 28
Section of Toad testis, Reticulin x 70

Reticulum.

Basement membrane et tunica propria.

Intertubular space.

---

Fig. 29
Photograph of the Frog.

---

Fig. 30
Photograph of Frog testes in situ, Ventral view

Lt. kidney.

Lt. testis.
Photograph of Frog testes in situ, Sp.2. (unusual case) Ventral view:

- Rt. testis too small.
- Lt. testis.

Section of Frog testis, IH & E x 70

Spermatozoa aggregated in bunches.

Section of Frog testis, IH & E x 280

- Interstitial cells.
- Sertoli cell.
- Spermatozoa in bunches.
- Resting or primary or non-dividing spermatogonia.
- Secondary spermatogonia in cluster within a common follicular cyst.
PART I

Fig. 37
Section of unusually small Rt. testis in Prog. Sp. 2.
IH & E x 70
Histologically normal and same as the left one in next figure.

Fig. 38
Section of Lt. testis in Prog. Sp. 2. IH & E x 70
Histologically not different from the right one in figure 37.

Fig. 39
Photograph of Turtle testes in situ, Sp. 5. Ventral view:
Lt. testis.
Lt. epididymis.
Rt. testis.
PART I
Fig. 40
Photograph of Turtle testes, Sp. 6. Ventral view:
Lt. testis.
Lt. epididymis.
Lt. vas deferens.
Urinary bladder.

Fig. 41
Photograph of left testis of Turtle, Sp. 1. Ventro-medial view:
Cephalic pole.
Dorsal (mesorchial) border.
Caudal pole.

Fig. 42
Section of Turtle testis, IH & E x 70
Trabecular process.
Spermatogenic cells forming a thick stratified epithelium.
Interstitial cells.
**PART I**

**Fig. 43**

Section of Turtle testis, IH & E x 280

- Spermatozoa radially oriented.
- Spermatids.
- Secondary spermatocytes.
- Primary spermatocytes.
- Spermatogonia.
- Sertoli cell.

**Fig. 44**

Section of Turtle testis, Mallory x 400 (coloured)

- Small interstitial cells.
- Large interstitial cells.
- Spermatogenic cells.
- Blood vessels.
- Basement membrane et tunica propria.
- Sertoli cell.

**Fig. 45**

Section of Turtle testis, Weigert x 70

- Internal elastic membrane.
- External elastic membrane.
- Blood vessel in inner zone of tunica albuginea.
PART I

Fig. 46

Photograph of Lizard testes in situ, Ventro-lateral view:

Lt. testis - a little caudally situated and slightly bigger than the right one.

Fig. 47

Section of Lizard testis, IH & E x 70

Tunica albuginea - undulating.

Spermatogenic cells forming thick stratified epithelium.

Fig. 48

Section of Lizard testis, IH & E x 280

Spermatogenic cells forming thick stratified epithelium.

Interstitial cells in intertubular tissue.

Spermatogonia.
PART I

Fig. 49
Section of Lizard testis, Van Gieson x 400 (coloured)
- Intertubular space
- Interstitial cells
- Sertoli cell
- Spermatogonia

Fig. 50
Section of Lizard testis, Reticulin x 70
- Basement membrane et tunica propria

Fig. 51
Photograph of Pigeon testes in situ. Ventral view
- Lt. testis
- Rt. testis
PART I

Fig. 52
Section of Pigeon testis, IH & E x 70
Transection of seminiferous tubule.
Spermatozoa within longitudinally sectioned tubule.
Spermatogenic cells forming thick stratified epithelium.

Fig. 53
Section of Pigeon testis, Mallory x 100 (coloured)
Lumen of longitudinally sectioned seminiferous tubule.
Spermatozoa.

Fig. 54
Section of Pigeon testis, IH & E x 280
Spermatozoa radially oriented.
Interstitial cells.
Spermatogonium.
**PART I**

**Fig. 55**

Section of Pigeon testis, Weigert x 70

- Elastic fibres.
- Tunica albuginea - undulating.

**Fig. 56**

Photograph of Cock testes in situ. Ventral view:

- Lt. testis.
- Rt. testis.

**Fig. 57**

Photograph of Cock testes in situ. Ventral view:

- Testis
- Kidney - lobulated
- Vas deferens
- Ureter
- Lt. side.
PART I
Fig. 58
Section of Cock testis,
IH & E x 70
- Spermatogenic cells forming thick stratified epithelium.
- Spermatozoa.

Fig. 59
Section of Cock testis,
IH & E x 280
- Spermatogonia.
- Spermatocytes (primary).
- Sertoli cells.
- Spermatids.
- Spermatozoa.

Fig. 60
Section of Cock testis,
IH & E x 1000 (oil)
- Spermatids.
- Spermatocytes.
- Sertoli cell.
- Interstitial cells.
- Spermatogonia.
- Spermatozoa.
PART I

Fig. 61

Section of Cock testis,
Reticulin x 70

Reticulum.
Basement membrane et
tunica propria.

Fig. 62

Section of Cock testis,
Weizert x 70

Tunica albuginea - wavy.
Elastic fibres.

Fig. 63

Photograph of Sparrow testes
in situ. Ventral view.

Lt. testis.
PART I

Fig. 64
Photograph of Sparrow testes in situ, Sp. 6, (unusual case)
Ventral view.

Rt. testis - too small.

Fig. 65
Section of Sparrow testis,
IH & E x 70
Seminiferous tubule - sectioned longitudinally.
Spermatogenic cells forming thick stratified epithelium.
Spermatozoa.
Seminiferous tubule - sectioned transversely.

Fig. 66
Section of Sparrow testis,
IH & E x 230
Spermatozoa.
Spermatogenic cells forming thick stratified epithelium.
Spermatogonium.
Primary spermatocyte.
PART I
Fig. 67

Section of Sparrow testis,
Reticulin x 70

Tunica albuginea - undulating.

Fig. 68

Photograph of Mole testes in situ. Ventral view:

Rt. testis.

Lt. testis.

Fig. 69

Section of Mole testis. TH & E x 70

Tails of spermatozoa forming whorl.

Interstitial cells.

Intertubular space.

Tails of spermatozoa - delicate thread-like.

Tails of spermatozoa forming whorl.
PART I

Fig. 70
Section of Mole testis,
Van Gieson x 400. (coloured)
Spermatogenic cells in mitosis.
Spermatozoa.
Collections of Leydig cells.
Sertoli cell.
Primary spermatocyte.

Fig. 71
Section of Mole testis,
Reticulin x 70
Blood vessel.
Tunica albuginea - undulating.

Fig. 72
Section of Mole testis,
Weigert x 70
Internal elastic membrane of blood vessel.
Interstitial cells in wide intertubular space.
PART I

Fig. 73
Photograph of Guinea pig testes in situ. Ventral view:
- Lt. testicular artery.
- Corpora adiposa.
- Lt. vas deferens.
- Lt. testis.

Fig. 74
Section of Guinea pig testis, IH & E x 70
- Septa between lobules.
- Intertubular space.
- Spermatogonia - at periphery.

Fig. 75
Section of Guinea pig testis, IH & E x 280
- Spermatogonia.
- Spermatocytes (primary).
- Tails of spermatozoa occupying centre of lumen.
- Intertubular space.
PART I

**Fig. 76**
Section of Guinea pig testis, Mallory x 400 (coloured)

- Secondary spermatocyte.
- Sertoli cell.
- Tails of spermatozoa.
- Primary spermatocyte.

**Fig. 77**
Section of Guinea pig testis, Reticulin x 70

- Blood vessel.
- Tunica albuginea - undulating.
- Basement membrane et tunica propria.

**Fig. 78**
Section of Guinea pig testis, Weigert x 70

- Interlobular septa dividing testis into lobules.
- Blood vessel.
**PART I**

**Fig. 79**

Photograph of Albino rat testes in situ. Ventral view:

- Lt. corpus adiposum
- Lt. testis
- Tail of Lt. epididymis

**Fig. 80**

Section of Albino rat testis, IH & E x 70

- Spermatogenic cells forming a thick stratified epithelium
- Blood vessel
- Tails of spermatozoa forming whorl
- A group of interstitial cells

**Fig. 81**

Section of Albino rat testis, IH & E x 70

- Scanty spermatogenic cells and no spermatozoon
- Tails of spermatozoa forming whorl
- Blood vessels
PART I

Fig. 82
Section of Albino rat testis, IH & E x 280
- Spermatids
- Tails of spermatozoa forming whorl
- Interstitial cells
- Primary spermatocyte
- Spermatogonium
- Sertoli cell

Fig. 83
Section of Albino rat testis, IH & E x 400 (coloured)
- Spermatogenic cells in mitosis
- Spermatozoa
- Leydig cells
- Secondary spermatocyte
- Tails of spermatozoa tending to form whorl
- Sertoli cell

Fig. 84
Section of Albino rat testis, Reticulin x 70
- Tunica albuginea - wavy
- Basement membrane et tunica propria - laminated
PART I
Fig. 85
Section of Albino rat testis, Weizert x 70
Blood vessels - internal and external elastic membranes.

Fig. 86
Photograph of Rabbit testes in situ. Ventral view:
Rt. testicular vessels.
Rt. vas deferens.
Tail of Lt. epididymis.
Lt. testis.

Fig. 87
Section of Rabbit testis, IH & E x 70
Trabecular processes forming interlobular septa.
Interlobular space.
PART I

Fig. 88
Section of Rabbit testis,
IH & E x 280
Leydig cells.
Spermatozoa.
Spermatogenic cells forming thick stratified epithelium.
Spermatogonium.

Fig. 89
Section of Rabbit testis,
PAS x 400, (coloured)
Spermatozoa within longitudinally sectioned tubule.
Blood vessel with broken corpuscles within.
Spermatogenic cells in mitosis.
Intertubular tissue containing interstitial cells.

Fig. 90
Section of Rabbit testis,
Reticulin x 70
Tunica albuginea - tense and uniform.
Reticular fibres.
**PART I**

**Fig. 91**

Section of Rabbit testis, Weigert x 70

- Mediastinum testis.
- Interlobular septa.

**Fig. 92**

Section of Pig testis, IH & E x 70

- Spermatozoa - radially oriented.
- Collections of interstitial cells.

**Fig. 93**

Section of Pig testis, IH & E x 280

- Leydig cells.
- Spermatozoa.
- Sertoli cell.
- Spermatogonia.
- Spermatid.
Section of Pig testis, Weigert x 70

- Blood vessel in tunica vasculosa.
- Elastic fibres in tunica albuginea.
- Internal elastic membrane.
- External elastic membrane.

Section of Goat testis, H & E x 70

- Intertubular tissue-separated from tunica propria by lymph space.
- Spermatogenic cells forming thick stratified epithelium.
- Collection of interstitial cells.

Section of Goat testis, H & E x 280

- A group of interstitial cells.
- Sertoli cell.
- Spermatogonia.
- Spermatozoa.
- Spermatid.
- Spermatocytes.
PART I

Fig. 97
Section of Goat testis.
Van Gieson x 400 (coloured)
Secondary spermatocyte.
Spermatogonium.
Spermatozoa.
Spermatid.
Sertoli cell.
Leydig cell.
Primary spermatocyte.

Fig. 98
Section of Goat testis.
Reticulin x 70
Basement membrane et tunica propria.
Reticulum around blood vessel in the intertubular space.
Blood vessel in tunica vasculosa.

Fig. 99
Section of Goat testis.
Weigert x 70
Tunica albuginea - tense and uniform.
Blood vessel in tunica vasculosa - longitudinally sectioned.
Internal elastic membrane.
PART I

Fig. 100
Section of Cat testis, IH & E x 70
- Spermatogenic cells forming a thick stratified epithelium.
- Blood vessel.

Fig. 101
Section of Cat testis, Van Gieson x 100. (coloured)
- Tunica albuginea - tense and uniform.
- Collection of typical Leydig cells.

Fig. 102
Section of Cat testis, Van Gieson x 400. (coloured)
- A group of typical Leydig cells.
- Blood vessel with broken corpuscles within.
- Sertoli cell.
- Spermatocyte.
PART I
Fig. 103
Section of Cat testis,
Reticulin x 70
Reticulum around blood vessel.
Basement membrane et tunica propria.

Fig. 104
Section of Cat testis,
Sp.3. Rt.testis (scrotal),
IH & E x 70
Reveals normal histologic features.
Development of tubules - normal.

Fig. 105
Same Section of Cat testis as in Fig. 104,
IH & E x 280 (coloured)
Spermatozoa.
Sertoli cell.
Spermatogenic cells in mitosis.
Primary spermatocyte.
PART I

Fig. 106
Section of Cat testis,
Sp.3, Lt. testis (retained)
IH & E x 70
Histologic features - not normal; tubules - narrower and contain only a few resting spermatogonia but plenty of Sertoli cells.

Fig. 107
Same Section of Cat testis (retained) as in Fig. 106, IH & E x 280 (coloured)
Collections of Leydig cells.
Spermatagonium.
Sertoli cells - plenty.

Fig. 108
Section of Dog testis,
IH & E x 70
Interlobular trabecula.
Spermatozoa in longitudinally sectioned tubules.
PART I

**Fig. 109**

Section of Dog testis, IH & E x 280

- Thick layer of stratified germinal epithelium.
- Spermatozoa.
- Interstitial cells.

**Fig. 110**

Section of Dog testis, IH & E x 400 (coloured)

- Spermatozoa.
- Typical Leydig cells.
- Collagenic fibres in the trabecular process.
- Interstitial cells with spindle-shaped or fusiform nuclei.

**Fig. 111**

Section of Dog testis, IH & E x 400 (coloured)

- Spermatozoa.
- Collagenic fibres.
- Interstitial cells with spindle-shaped or fusiform nuclei.
- Blood vessels.
PART I

**Fig. 112**
Section of Dog testis,
Weigert x 70

- Blood vessels.
- Elastic fibres in trabecula.
- Basement membrane et tunica propria.

**Fig. 113**
Section of Human testis,
IH x 70

- Interlobular trabecula with longitudinally sectioned blood vessel.

**Fig. 114**
Section of Human testis,
IH & E x 70

- Trabecula.
- Spermatozoa.
- Intertubular tissue.
PART I

**Fig. 115**

Section of Human testis, Van Gieson x 400, (coloured)

- Spermatozoa
- Intertubular tissue
- Spermatogonia
- Sertoli cells
- Spermatocyte (primary)

**Fig. 116**

Section of Human testis, Van Gieson x 400, (coloured)

- Spermatozoa
- Spermatogonia
- Sertoli cells
- Laminated basement membrane et tunica propria
- Fibroblasts
- Leydig cells
- Primary spermatocyte

**Fig. 117**

Section of Human testis, Reticulin x 70

Reticular fibres forming intricate reticulum in intertubular space.
Section of Human testis.

Basement membrane and elastic fibres in tunica albuginea which is tense and uniform in its outer zone.

Blood vessel in tunica vasculosa.

Elastic fibres in tunica albuginea.

Blood vessel in tunica vasculosa.

Fig. 118

Section of Human testis.

Figs. 118

Fig. 119

Section of Human testis.