On the Myology of Seals

Part II

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Arctocephalus

Hindlimb

Anterior Femoral Region

1. Vastus Externus
2. Cruræus

{ No Vastus Internus.
No Subcruræus. }

My Was not ready for first Book.

Arctocephalus.

The Vastus Externus.

is a rectangular muscle lying to the outer side of the rectus femoris, & partially overlapping the crureus.

Origin — It arises
1. From the front surface of the femur below the great trochanter;
2. From the front of the neck of the same;
3. From the capsule of the hip joint;
4. & from the external border of the shaft almost reaching the external condyle.

Insertion — It is inserted into the outer upper half of the patella, and blends with the rectus femoris.

Arctocephalus

The Crureus.

Origin arises
from the front surface of the femur with the exception of the surface occupied by the vastus externus, &

Insertion is inserted
1. into the capsule of the knee joint;
2. & into the upper edge of the patella.

Gluteal Region

1. Gemellus Superior
2. Gemellus Inferior
3 Quadratus Femoris

Arctocephalus

The Glutellus Superior

is a small triangular muscle, & arises

Origin

1. from the dorsal border of the ischial bar in front of the tendon of the obturator internus;
2. from the capsule of the hip joint.

The Gemellus Inferior

is a little larger than the latter. It arises

Origin

1. from the dorsal surface of the ischial bar, posterior to the tendon of the obturator internus, &
2. slightly from the inner surface of it.

The fibres of these two muscles unite over the tendon of the obturator internus, midway between the insertion into the femur & the dorsal border of the ischium.

Insertion

They are inserted with the obturator internus, into the upper half of the posterior border of the great trochanter.

Auctocephalus

The Quadratus Femoris

is also triangular, &

Origin arises

from the dorsal or outer half of the ischial bar, posterior to the gemellus inferior & anterior to the origin of the semimembranosus.

It passes forwards, outwards & downwards, &

Insertion is inserted

by a tendon into the lower half of the posterior border of the great trochanter.

Arctocephalus

The Anterior or Tibio-Fibular Region

1. Tibialis Anticus
2. Extensor Longus Digitorum
3. Extensor Proprius Hallucis

Arctocephalus

The Tibialis Anticus

Origin Arises

1. From the outer surface of the tibia in its anterior four fifths;
2. & from the head of it.

Near the annular ligament it forms a tendon, which passes beneath it ventral to the extensor proprius hallucis & crosses the tarsus. The tendon expands &

Insertion is inserted

into the proximal outer surface of the first metatarsal on its ventral side

Auctocephalus

The Extensor Longus Digitorum

is a long, narrow muscle & arises

Origin

1 from the external condyle of the femur, by a small fasciculus posterior to the insertion of the gluteus maximus, which passes backwards over the capsule of the knee joint;

2. & gains fibres from it;

3. from the outer sides of the head of the tibia & fibula adjoining the fixed tibio-fibular articulation;

4. also from the part corresponding to the articulation;

5 & from the anterior half of the outer border of the fibula, by a fine but strong aponeurosis, ventral to & touching the tendon of origin of the peroneus brevis from the same border.

Anterior to the malleolus it is a strong tendon, which passes beneath the annular ligament, traverses the shallow groove on the outer surface of the fibula, & the groove on the astragalus, lies on the outer surface of the tarsus between the cuboid & cuneiform bones, over the bases of the third & fourth metatarsals it expands

Arctocephalus

& divides into four slips.

The first or ventral

runs along the dorsal side of the second metatarsal;

the second

along the middle of the third;

the third

along the ventral side of the fourth.

the fourth.

crosses the outer surface of the middle of the fourth metatarsal & runs down the ventral side of the fifth metatarsal. At the metatarso-phalangeal articulation the tendons begin gradually to widen, over the distal ends of the proximal phalanges they completely cover their outer surfaces, after passing over the joints, & sharing in the formation of the posterior ligaments.

Insertion Are inserted

1. into the proximal ends of the second phalanges of the second, third, fourth, & fifth digits.
2. from their attachments fine aponeurotic sheets are prolonged onwards & end innoticeably over the phalanges.

Arctocephalus.

The Extensor Proprius Hallucis.

is almost as large as the tibialis anticus.

Origin It arises

1. from the anterior two thirds of the ventral surface of the fibula;
2. from the anterior half of the dorsal border of the tibia;
3. from a small triangular surface of the tibia posterior to its head, & between the short outer border, & the dorsal border;
4. from the fusion of the tibio-fibular articulation beneath the origin of the extensor longus digitorum;
5. from the interosseous membrane.

It courses backwards between the tibialis anticus on its ventral side, & the extensor longus digitorum on its dorsal; beneath the annular ligament it forms a tendon, which passes over the tibio-fibular joint & the tarsus & runs along the dorsal side of the first meta-tarsal.

Insertion It is inserted

after the expansion of its tendon, into the proximal end of the outer surface of the first phalanx of the hallux.

Sectacephalus.

The Fibular Region

1. Peroneus Longus.
2. Peroneus Brevis.
3. Peroneus Tertius.

Sectocephalus.

The Peroneus Longus.

is situated on the outer side of the leg, &

Origin arises

1. From the external condyle of the femur, out of the same tendon giving origin to the popliteus & plantaris muscles; &
2. From the tibia & fibula at the tibio-fibular fusion.

It courses backwards between the extensor communis digitorum, & the peroneus tertius & brevis: anterior to the external or dorsal malleolus it turns outwards over the inner border of the fibula & gains the dorsal surface; enters the outer groove of this surface, runs over the tendons of the peroneus brevis & tertius & traverses the inner groove on the dorsal surface of the os calcis, turns down into the groove of the cuboid bone, descends obliquely forwards over the cuneiform bones & the proximal extremities of the metatarsals.

Insertion It is inserted

into the dorsal proximal extremity of the first metatarsal bone.

Arctocephalus.

The Peroneus Tertius

Lies on the peroneus brevis.

Origin & Arises

1. From the head of the fibula below the soleus;
2. & from the anterior quarter of the dorsal surface of the fibula;

It is adherent to the peroneus brevis, passes backwards in the inner groove on the dorsal surface of the fibula upon the tendon of the brevis, then it enters the outer groove of the os calcis which is on the outer surface, & proceeds backwards upon the dorsal side of the fifth metatarsal bone to be

Insertion inserted

into the proximal dorsal extremity of the first phalanx of the fifth digit, expending before reaching it.

Arctocephalus.

The Peroneus Brevis

Origin — is beneath the tertius & arises

1. from the dorsum of the head of the fibula below the peroneus longus;
2. from the whole extent of its outer border;
3. & from the posterior three fourths of its dorsal surface.

Insertion — It has the same course as the tertius, & is inserted into the dorsal proximal surface of the fifth metatarsal bone; but before gaining the bone it broadens considerably.

Arctocephalus

The Posterior Tibio-Fibular Region

Superficial Layer.

1. Gastrocnemius.
2. Solus.
3. Plantaris.

Arctocephalus

The Gastrocnemius.

Origin

is a single headed muscle & arises

1. from the inner surface of the internal condyle below the fossa for the internal lateral ligament;
2. from the internal lateral ligament;
3. from the internal border of the tibia in its upper third;
4. & from the capsule of the knee joint.

It crosses the leg from the dorsal or outer to the ventral or inner side, one inch from the os calcis it forms a tendon,

Insertion

which widens & is inserted into the os calcis & the outer side of the groove for the plantaris tendon.

Arctocephalus

The Soleus.

is a flattened elongated muscle, lying on the peroneus brevis & tertius. Near the head of the fibula it is a fine sheet, at the middle triangular, the apex being the origin, the base the free edge; over the posterior fifth it is a fleshy bundle.

Origin It arises

1. From the dorsal surface of the head of the fibula, by a thin tendon;
2. From the fibula length of the inner border of the shaft, by a fine string aponeurosis;
3. By muscular fibres from the inner surface of its posterior fifth ventral to this short border & dorsal to the interosseous membrane. The fibres pass backwards &

Insertion Are inserted

into the proximal surface of the tuberosity of the os calcis outside or beneath the gastrocnemius attachment, extending further back on the dorsal side of the bone. At the lower or posterior of the fibula the inner surface is tendinous.

Arctocephalus

The Plantaris

Origin

is one third the size of the Gastrocnemius It arises

1. in common with the popliteus from the external border of the femur to the front of the tendon from the external condyle

It courses backwards, lying upon the soleus, partially covering the gastrocnemius, it is situated on the outer or dorsal side of the leg. Near the ankle it forms a round tendon, which occupies the groove on the os calcis to the inner or ventral side of the gastrocnemius. One inch posterior to the distal end of the os calcis it widens & divides into an anterior & posterior slip. The anterior forms part of the plantar fascia. The posterior divides into four slips which are the superficial perforated tendons for the second third & fourth digits.

They are again explained with the description of the plantar surface of the foot.

Arteriosphalus

The Posterior Tibio-Fibular Region

The Deep Layer

1. Popliteus
2. Flexor Longus Hallucis
3. Flexor Longus Digitorum
4. Tibialis Posticus.

Arctocephalus.

The Popliteus.

is larger than in the other seals.

Origin. It arises
1. from the external surface of the external condyle by a round tendon, which forms part of the capsule of the knee joint;
2. & from the same origin as the plantaris from the femur

The latter origin at once becomes muscular & covers the round tendon. The two heads blend over the back surface of the knee joint, cross between the outer condyle of the femur & the head of the fibula

Insertion. It is inserted
1. into the anterior two thirds of the inner surface of the tibia dorsal to the internal lateral ligament & ventral to the popliteal line. The internal lateral ligament only extends backwards to the middle of the shaft.

Arctocephalus

The Flexor Longus Hallucis

Origin Arises

1. from the inner surface of the head of the fibula;
2. from the inner surface of the anterior fourth of the shaft;
3. & by an aponeurosis which gradually passes from the dorsal border to the short inner one, from the posterior two thirds of the tibial shaft.

Near the ankle it is a tendon, which runs beneath the annular ligament in the groove on the inner surface of the posterior extremity of the tibia, dorsal to the tibial groove, & at the posterior border of the os calcis blends with the flexor Longus digitorum.

The insertion comes after the origin of the flexor longus digitorum.

Sciurocephalus

The Flexor Longus Digitorum

Origin arises

1. from the posterior two thirds of the lateral border of the fibula;
2. from almost the same extent of the dorsal border of the tibia;
3. from the inner surface of the shaft of the tibia between the inner & the dorsal borders to one inch from the ankle;
4. from the posterior two thirds of the interosseous membrane.

The muscle ends in a strong tendon, which traverses the groove of the astragalus joining the tendon of the flexor longus hallucis.

Arctocephalus

Insertion of the combined flexor tendons.

Out of the union of the flexor longus digitorum & the flexor longus hallucis a rectangular tendon is produced, which divides at the base of the second metatarsal bone into two broad tendons

{ 1. The inner or ventral portion
{ 2. The outer or dorsal portion.

1. The inner or ventral portion also

divides into two forming the
a. Flexor Longus Hallucis
b. & the first or inner flexor longus digitorum tendons: The ventral or flexor longus hallucis slip runs backwards to the terminal phalanx of the hallux, & after expanding

Insertion of F. L. Hallucis is inserted
1 Chiefly into its proximal plantar surface;
2 & into the whole of the plantar surface of this phalanx by the prolongation of the tendon of insertion over the surface of the terminal bone.

Arctocephalus.

b. The First or inner flexor longus digitorum tendon quits off from the division of the inner portion is described with the following.

2. The Outer or dorsal portion.

breaks into three slips, that for the fifth coming off higher than the other two.

The four long flexor tendons thus formed go backwards along the plantar side of the second, third, fourth & fifth digits to the distal phalanges: opposite the base of the first phalanges they pass through the aponeurotic tunnels in the Short flexors & become anterior to them.

Insertion of Longus digitorum } They are inserted into the phalanges as the tendon of the flexor longus hallucis.

Arctocephalus

The Tibialis Posticus.

is the same size as the flexor longus hallucis.

Origin It arises

1. from the anterior fourth of the ventral border of the fibula;
2. from the head of it on the inner surface;
3. from the inner surface of the tibio fibular fusion;
4. from the anterior three fourths of the inner surface of the tibia dorsal to the oblique line;
5. & from the anterior fourth of the interosseous membrane.

About one inch from the ankle it forms a tendon, which goes beneath the annular ligament in the groove near the ventral border of the tibia. After traversing it the tendon expands &

Insertion is inserted into the anterior half of the 2^{nd} Cuneiform bone.

On nearing its insertion it gives off a tendinous slip (Slip 1), which crosses the surface of this bone & joins the plantar fascia.

It also sends a strong slip over the inner or ventral half of

of the bone which runs along the ventral or inner plantar side of the first metatarsal, opposite the middle of the shaft. This slip divides into two ($\ddot{\text{II}}$ + $\dddot{\text{III}}$)

($\ddot{\text{II}}$) The outer or dorsal slip is prolonged to the distal plantar surface of the first phalanx of the hallux.

($\dddot{\text{III}}$) The inner or ventral is inserted into the distal plantar inner or ventral side of the first metatarsal

($\dot{\text{IV}}$) Another slip crosses the dorsum of the peroneal bone & runs along the dorsal or outer surface of the first metatarsal on its inner or ventral side & is inserted into the distal dorsal, inner or ventral side of the first metatarsal.

Arctocephalus

Pes

Outer or Dorsal Aspect.

1 Extensor Brevis Digitorum.

Tractophalus

The Extensor Brevis Digitorum.

is in two parts.

The First, outer or dorsal Part.

has two heads of origin

The larger head arises

Origin
1. from the outer, or dorsal Surface of the os calcis;
2. & from the dorsal or outer Surface of the Cuboid.

The smaller head

Origin arises

from the same bones last to the ventral or inner Side of the large head.

These heads unite &

Insertion are inserted

(not found yet)

The Second Part

Origin Arises

1 from the adjacent Sides of the os calcis & astragalus;
2 & from the Cuboid

Insertion & is inserted

(not found yet)

Arctocephalus

Pes

Inner or Plantar Surface

1. Lumbricals.
2. Abductor Minimi Digiti.
3. Flexor Brevis Minimi Digiti.
4. Interossei
   - a. Superficial
   - b. Deep.

Auctocephalus

Lumbrical Muscles

The first

Lies between the long flexor tendons for the first & second digits.

Origin — It arises
1 from the adjacent sides of these tendons;
& forms a small tendinous slip

Insertion — which is inserted
into the distal, outer or dorsal side of the first metatarsal.

The second

Origin — Arises
from the surface & inner or ventral side of the long flexor tendon of the third digit, &

Insertion — is inserted
by muscular fibres, into the tunnel in the superficial flexor tendon formed out of the plantaris muscle

Arctocephalus

The third

Origin Arises
from the surface of the deep
tendon of the fourth digit,

Insertion & ends upon it near the distal
end of the fourth metatarsal
bone like the last.

The fourth.

Origin Arises
from the outer or dorsal side
of the deep tendon for the fourth
digit, passes beneath the deep
tendon for the fifth digit, &

Insertion is inserted
by a small tendon into the
ventral or inner side of the
distal end of the fifth
metatarsal.

Arctocephalus

The fifth

comes from the tendon of a different muscle. The superficial tendon for the fifth digit from the plantaris gives origin upon its surface to a lumbrical muscle, which ends on the same tendon lower down.

General From the description of these slender fusiform muscular slips it is seen that there are five; four are from the combined tendons of the flexor longus digitorum & the flexor longus hallucis; & one from the plantaris tendon.

Arctocephalus

The Abductor Minimi Digiti

has two bellies.

The first belly.

Origin Arises
from the dorsal half of the plantar surface of the os calcis by muscular fibres, & extends longitudinally from the insertion of the gastrocnemius to the posterior border of this bone.

The second belly.

Origin Arises
as a fleshy bundle from the base of the fifth metatarsal bone.

Insertion Insertion of the first belly.

It forms a flat tendon which is inserted into the base of the fifth metatarsal beneath the second belly.

Pretracephalus

Insertion of the second bulla.

Insertion

It goes to the dorsal distal end of the fifth metatarsal, & is inserted into the outer or dorsal side of the flexor tendon minimi digiti

Arctocephalus

The Flexor Brevis Minimi Digiti

is a small double headed muscle.

Origin arises

1. From the os calcis to the outer side of the origin of the abductor minimi digiti by a slender elongated tendinous slip, which is closely united with the abductor minimi digiti;
2. over the cuboid bone it is joined by the second, condinous head from the fascia completing the tunnel for the peroneus longus tendon. This head is a small round tendon at right angles to the plantar surface.

The muscle lies along the outer or ventral edge of the abductor minimi digiti, &

Insertion is inserted into the distal, dorsal or outer side of the first metatarsal to the outer or dorsal side of the abductor muscle.

Arctocephalus

The Interossei

form two layers
{1. the superficial
{2. & the deep

1. The Superficial Interossei

Origin arise
1. from the plantar surfaces of the proximal ends of the second, third, & fourth meta-tarsal bones;
2. & from the sheath of the peroneus longus by a tendinous sheet, which is in the form of half a circle.—
Along the posterior border of this tendon muscular fibres spring & take the form of a horse-shoe, the two legs forming the two superficial muscles.

The dorsal prong of the Shoe

Insertion is inserted
1 into the distal ventral or inner side of the fifth meta-tarsal;
2 & into the capsule of the joint.

Arctocephalus

The ventral prong or muscle -

Insertion into the dorsal or outer distal end of the first metatarsal.

Arctocephalus

The Deep Interossei

There are nine deep interossei.

The first

Origin — arises
from the outer or dorsal plantar
surface of the first metatarsal

Insertion — & is inserted
into the distal outer or dorsal
side of the same.

The second

Origin — arises
from the posterior two thirds
of the ventral or inner palmar
surface of the second metatarsal

Insertion — & is inserted
1 into the ventral or inner side
of the proximal inner or ventral
side of its first phalanx;
2 & into the ligament of the
joint.

Arctocephalus

The Third

Origin Arises
from the whole length of the
dorsal or outer side of the
second metatarsal &
Insertion is inserted
on the same side of the first
phalanx.

The Fourth & Fifth

Origin arise
from the dorsal or outer &
the ventral or inner sides
of the third metatarsal &
Insertion are inserted
into the outer & inner sides
of the first phalanx of the
same digit.

The sixth & Seventh

are like the fourth & fifth.

Metacarpus

Origin **The Eighth.**

Arises
from the ventral or inner
side of the fifth metatarsal
Insertion & is inserted
like the others.

The Ninth.

Origin Arises
from the anterior third
of the ventral or inner side
of the plantar surface of
the second metatarsal bone.
It crosses to the first digit
Insertion & is inserted
into the first phalanx
on its dorsal & outer proximal
side.

Plantar Fascia

=: See end of book :=

Arctocephalus

Finis

Phoca Vitulina

Continued from other book.

Hindlimb

Phoca Vitulina
Phoca Hispida
Phoca Barbata
Macrorhinus Leoninus

Fibular Region

1. Peroneus Longus See other book
2. Peroneus Brevis next page
3. Peroneus Tertius - See other book

Phoca Vitulina

The Peroneus Brevis

is the largest of this group,

Origin It arises

1 from the outer surface of the head of the fibula;

2. from the outer surface behind the outer border in the anterior half of shaft;

3 from the outer surface of this bone posterior to the termination of this border to the external malleolar ridge.

Near the malleolus it forms a strong tendon, which goes with the peroneus tertius but to its upper side through the annular ligament, in this order enters the inferior groove of the os calcis

Insertion It is inserted

1 into the dorsal surface of the distal end of the fifth metatarsal.

Similar in Phoca Hispidus & Phoca Leucopus =

In Macrobinus Leonnius

it is similar

Phoca Vitulina

Phoca Hispida
Phoca Deuchars
Macrorhinus Leoninus

The Posterior Tibio-Fibular Region

Superficial Layer

1. Gastrocnemius
2. Plantaris

Soleus wanting

Phoca Vitulina

The Gastrocnemius

is a two headed muscle, the inner one is more than double the size of the outer head.

The inner head

Origin arises

1. from the back of the femur above the internal condyle, reaching up the shaft to the junction of the internal border with the supra condyloid ridge;
2. from the internal surface of the same condyle above the fossa for the internal lateral ligament;
3. from the internal lateral ligament extending to the junction of the upper third with the lower two thirds of the tibia;
4. from the upper third of the outer border of the shaft before the lateral ligament;
5. from the capsular ligament of the knee joint.

3 Phoca Vitulina

The Outer head.

Origin Arises
1. from the outer surface of the external condyle in common with the plantaris muscle;
2. Slightly from the outer half of the surface of the femur above the same condyle;
3 & by a few fibres from the back ~~of the~~ head of the fibula.

The two heads unite opposite the junction of the middle two thirds with the lower or posterior third of the tibia, & form a tendon which widens near the os calcis

Insertion & is inserted into the anterior of the tuberosity of the os calcis.

Similar in <u>Phoca Hispida</u> & <u>Phoca Dunchars</u>.

In Macrorhinus Leoninus.

The Inner Head.

Origin arises

as in Phoca Vitulina but covers more of the back of the femur, from the front surface of the internal condyle up to the patellar facet of the femur.

The Outer Head.

does not arise from the femur but from the anterior of the head of the fibula.

The fibres of the inner head join those of the outer at the anterior third of the tibia, & form a strong tendon which is inserted

Insertion as in Phoca Vitulina.

Phoca Vitulina.

The Plantaris.

Lies below the gastrocnemius.

Origin It arises as already mentioned from the femur with the outer head of the gastrocnemius, it descends along the ventral side of the flexor longus hallucis, at the lower third of the leg it crosses to the dorsal side of the above muscle, below the plantar surface between the gastrocnemius & the flexor longus hallucis below the backward prolongation of the tendons of the gracilis, Semi-membranosus, & semitendinosus which form the plantar fascia. Beneath this it widens & is moored to the dorsal side of the large combined tendons of the flexor longus hallucis & the flexor longus digitorum. Before reaching this tendon the accessorius is inserted into its dorsal side. It sends one slip behind its union with the combined tendons to the distal end of the inner surface of the first metatarsal bone.

Similar in Phoca Hispida,
& Phoca Dauchaus.

In Macrorhinus Leoninus

Origin It arises alone

1. From the same part of the femur as the outer head of the gastrocnemius & the plantaris in Phoca Vitulina

It blends with the insertion of the ~~Gastrocnemius~~ to its outer side at the origin. As the os calcis it enters the pes as in Phoca Vitulina, & joins the dorsal side of the conjoined plantar tendon of the flexor longus digitorum & the flexor longus hallucis.

In Phoca Vitulina
Phoca Hispida
Phoca Dauchars
Macrorhinus Leoninus

The Posterior Tibio Fibular Region

Deep Layer.

1. Popliteus
2. Flexor Longus Hallucis
3. Flexor Longus Digitorum
4 Tibialis Posticus.

Phoca Vitulina

The Popliteus

is a triangular muscle with a round tendon

Origin & arises

1. within the capsule of the knee joint from a shallow fossa situated below the termination of the external supracondyloid ridge on the lateral surface of the external condyle.

The tendon of origin turns round to the back of the external condyle & also takes origin from the cartilage throughout its posterior surface.

It crosses the back of the knee joint obliquely from without inwards, &

Insertion is inserted.

1 into the upper third of the ventral or anterior border of the tibia;

2 into the inner part of the internal or ventral condyle;

3 into the whole extent of the dorsal side of the internal lateral ligament;

4 & into the inner surface of the tibia anterior to the fossa

Marked oblique line posterior
to this ligament.

In

Phoca Hispida & Phoca
Delucharis it is Similar.

In
Macrurtunies Leminus

The tendon

Origin arises below a slight depression on the lateral side of the external condyle, otherwise as in Phoca Vitulina.

Inserted is inserted into the well marked triangular surface above the oblique line of the tibia, which is indistinct in Phoca Vitulina otherwise the same as Vitulina.

Phocæ Volutinæ

The Flexor Longus Hallucis

is an elongated fusiform mass of fibres and is the largest of the deep flexors of the back of the leg.

Origin It arises

1 From the inner surface of the fibula [illegible] backwards to the corner [illegible] of it;

2. From the inner surface of the tibia;

3 From the interosseous membrane.

It just overhangs the ventral border of the fibula & does not encroach far upon the interosseous space. The flexor longus digitorum touches its border & the tibialis posticus lies to its anterior side & beneath it. Anterior to the inner surface of the ankle joint it forms a tendon which is broad, flat, & strong: this runs in a groove on the backward projection of the astragalus through a fascial tunnel formed by the annular ligament.

In Phoca Hispida & in Phoca Dauchars

The organs & viscera are similar to Phoca Vitulina, but the development much more perfect than in it. The bulla being much larger & more pyriform. It can with safety be said that the bullæ were tremendous for the size of these two animals.

In Macrorhinus Leoninus

it is like Phoca Vitulina but in addition there was a dense fascia over its anterior surface. The belly was the same as in P. Vitulina, of fair size but nothing like the other two

Poca Tibialis

The Flexor Longus Digitorum

is a triangular muscle

Origin & arises

1. from the triangular surface of the fibula to the dorsal side of the interosseous membrane behind the tibio fibular fusion;
2. from the sharp edge of the inferior or ventral side of the tibia from behind the insertion of the popliteus to the middle of the shaft.

The tibialis posticus is to the outer side of the ventral border of the flexor longus hallucis behind (or above).

It forms a tendon which crosses to the dorsal border of the tibialis posticus, enters the dorsal furrow in the large groove above the internal malleolus beneath the division of the annular ligament.

Similar in

Phoca Hispidat

Phoca Leuchas.

In Macrorhinus Leoninus

it differs, for there is a large popliteal line & it arises from the whole of it. The ventral condyle of the tibia forms more of the internal surface than in the other seals, & in this seal it is like the posterior surface of the tibia in human anatomy: whereas in the others the popliteal line forms part of the ventral border of the shaft, & the anterior end of the popliteal line terminates in Phoca Hispida, P. Deuchars, & in Phoca Vitulina upon the inner dorsal side of its ventral condyle, but in this case it ends upon the dorsal condyle.

Rhoeo Vitulina

The union & insertion of the tendon of the flexor longus hallucis & the flexor longus digitorum

The tendon of the flexor longus is the largest in the sole; on its ventral or inner side one inch posterior to the os calcis the tendon of the flexor longus digitorum unites with it. Upon its dorsal or extensor aspect the plantaris tendon expands & is fused to it by its outer & under surface. & slip from the plantar fascia of the gracilis &c blends with it along the dorsal edge: opposite the proximal extremities of the metatarsals this union of tendons & plantar fascia divides. The part which corresponds to the flexor longus digitorum gives off two slips.

The ventral slip

descends to the distal end of the terminal phalanx of the hallux & is inserted there

Insertion

Phoca Vitulina

The dorsal slip

goes to the proximal dorsal side of the first phalanx of the same into which it is inserted

The rest of the tendons which

roughly are those of the flexor longus hallucis break up in a more complex manner.

For the second digit

two tendons spring out of the common one. The anterior is the superficial or perforated tendon which goes off an anterior slip and blends with the sheath

The superficial tendon

splits over the proximal end of the first phalanx & is inserted into the distal end of the same.

Insertion

The posterior or deep tendon

goes off a posterior slip which is inserted into the distal end of the metatarsal

Insertion

Phoca Vitulina

The deep tendon

passes through the slit in the superficial tendon &
Insertion is inserted
into the distal end of the terminal phalanx.

For the third digit

There are three slips coming off separately. Two come off anterior & posterior to each other. The third is a large, strong slip springing from the main tendon between the flexor tendons for the second & third digits.
This large slip is attached to the distal end of the third metatarsal.

The anterior one

divides into an anterior & posterior
Insertion slip. The anterior is inserted into the sheath, the superficial tendon or posterior slip to the last slip. is inserted as the other superficial tendons.

The posterior from the main tendon passes through the slit

Phoca Vitulina.

as the last and is inserted as in the former group.

For the Fourth digit

They are the same as the second digit with a slight difference. There is no posterior slip from the deep tendon, & the anterior slip to the sheath is formed by the continuation of the plantaris tendon, which only passes on its under surface with the great tendon.

Those for the Fifth digit.

Have the same attachments. The difference in this group as compared with the second digit being the formation of the superficial perforated tendon, which is out of the plantar fascia of the gracilis &c, and only joins the great tendon on its dorsal aspect. This superficial slip gives off a small one to the distal end of the metatarsal of the fifth digit.

In

Phoca Hispida to Phoca Denchens.

In Macrochiris Leoninus

the conbination tendon of the plantar surface divides into four slips.
The central or internal

one soon breaks into three.
The central & middle slips of these three are for the hallux, & have the same course & insertion as in Rhoca Vitulina.

The Dorsal of these three

is for the second digit & forms an anterior & posterior tendon, (which is the same as those for the second digit of Rhoca Vitulina without the posterior slip for the distal end of the metatarsal

For the third digit

they are similar to Rhoca Vitulina.

For the Fourth digit

they are similar to Rhoca vitulina, but the plantaris muscle forms a greater part of the tendons, & there is no posterior slip from the deep one.

For the Fifth digit

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the tendon is chiefly formed by the plantaris tendon & by the plantar fascia of the Gracelis.
It comes off in one slip which divides into two, these have the same insertion as in Phoca Vitulina.
There is no slit in the Superficial tendon.
All the slits of the other superficial tendons are lateral & not antero-posterior as in the other seals.

Phoca Vitulina

The Tibialis Posticus

is triangular & is to the outer side of the flexor longus digitorum.

Origin It arises
1. from the inner side of the interosseous membrane;
2. from the anterior two thirds of the inner surface of the tibia;
3 from the anterior third of the edge of the fibula near the interosseous membrane;
4. from the inner side of the dorsal condyle of the tibia beneath the fusion of the tibia & fibula.

It forms a strong tendon which passes beneath the flexor longus digitorum to its ventral side, enters the ventral division of the groove on the outer surface of the distal extremity of the tibia,

Insertion & is inserted
1. into the ventral & inner side of the astragalus, internal cuneiform, & the proximal end of the first metatarsal

In

Phoca Hispida & in Phoca Dorsbars similar

In Macrorhinus Leoninus similar

Phoca Vitulina
Phoca Hispida
Phoca Dauchata
Macrorhinus Leoninus

Pes.

Outer or Dorsal Region

1. Extensor Brevis Digitorum
2. Accessorius.

Phoca Vitulina

The Extensor Brevis Digitorum

Origin Arises
1 from the outer surface of the os calcis ventral to the peronei tendons;
2. & from the superior dorsal border of the os calcis;
3 & slightly from the surface below this.

It forms two muscular slips which end in two small tendons, the common extensor of the foot runs backwards between them.

The lower or ventral slip

---

goes between the first & second metatarsal bones & is inserted

Insertion 1 into the ventral side of the proximal end of the first phalanx of the first digit.

The dorsal or upper slip

---

goes between the heads of the fourth & fifth metatarsals & is inserted

Insertion

into the proximal end of the first phalanx of the third digit.

In Phoca Hispida.

& In Phoca Deuehars.

In Macrorhinus Leoninus

It is in two separate slips.

The dorsal slip

Origin Arises
from the os calcis ventrad to
the peronei & goes between the
first & second metatarsals, &
Insertion is inserted
into the proximal end of the
ventral side of the first phalanx
of the second digit, & by a
small tendon from the side
of this one into the distal
dorsal side of the first meta-
-tarsal.

The ventral or second slip

Origin Arises
from the astragalus on its
outer surface, &
from the same surface of
the scaphoid & external
cuneiform bones.

The tendon passes back to the
interval between the fourth
& fifth metatarsals, &
Insertion is inserted
into the proximal dorsal
side of the fourth digit.

Phrea Vitulina

The Accessorius

is a triangular muscle with its base directed outwards.

Origin — It arises.

1 from the dorsal surface & posterior end of the os calcis to the inner side of the groove for the long peroneal tendon.

The fibres pass inwards & obliquely backwards over the dorsal or superior border ~~border~~ of the hind ward corner of this bone. It forms a fine tendon which

Insertion — is inserted

1 into the upper or outer side of the tendon of the plantaris before this muscle reaches the combination tendon.

In Phoca Hispida

In Phoca Groenlandica.

In Macrorhinus Leoninus

It was wanting but
must probably decayed

Arctocephalus.

The Plantar Fascia

is formed out of the anterior layer of the plantaris, the slip from the tibialis posticus tendon, & that of the insertions of the semimembranosus & semitendinosus which extends backwards into the pes. At the distal extremity of the os calcis they join, & widen forming a complete covering for the structures of the inner surface of the sole as far as the heads of the metatarsal bones, where the fascia divides into five slips. The dorsal & ventral ones are the largest & almost traceable to the extremities of the first & fifth digits, the others are slender & disappear among the fat embedding the second, third, & fourth digits.