cartilage. The presence of any one of these features renders a derivation from the articular surface very improbable; and the combination of two or more of them renders it almost impossible.

Recently, in a knee in this dissecting-room, two quite loose cartilages with ossifying nuclei were found—one, of the size of a pea, under the fore part of the external interarticular cartilage; the other of the size of a bean, upon the middle of the same interarticular cartilage, which was here softened and partially destroyed. The latter, by its pressure upon the femur, had caused softening of the articular cartilage in a limited area; and the softened portion, together with a thin layer of subjacent bone, was in process of separation. The specimen is in the University Museum, and is interesting as showing a necrotic state of cartilage, with the changes observable in cartilage under this condition.

AN UNUSUAL ARRANGEMENT OF THE PSOAS MUSCLE.

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In the early part of the present winter session we observed, in the course of dissection of a middle-aged male subject, an unusual subdivision of the psoas muscle, there being apparently four psoæ on each side. On the *right* side the *psoas magnus* arose by mixed fleshy and tendinous slips from the sides of the bodies and anterior surfaces of the transverse processes of the upper four lumbar vertebræ, from the tendinous arches over the lumbar arteries, and from the sides of all the intervertebral discs between the last dorsal and the 5th lumbar vertebra. It also took origin from a slender tendinous arch which passed outwards from the fascia at the level of the 1st lumbar intervertebral disc to about the middle of the last rib.

The *psoas parvus* took origin by fleshy fibres from the side of the body of the 1st lumbar vertebra and upper part of the side of the body of the 2nd lumbar vertebra, and from the fibrous arch crossing the first lumbar artery. Its course was downwards, in front of the psoas magnus, to terminate in a long tendon, which, about 3 inches above Poupart's ligament, spread out into the iliac fascia, through which it was inserted into the ilio-pectineal line. From the under surface of the tendon, at the point where it formed the above expansion, a few muscular fibres arose and formed a narrow sheet of muscle, which passed downwards to fuse with the internal surfaces of the iliacus and psoas muscles.

The *psoas tertius* arose from the inner half of the 12th rib, in intimate connection with the insertion of the quadratus lumborum, and also from the tips of the transverse processes of the first four lumbar vertebræ between the origin of the psoas magnus and the insertion of the quadratus lumborum. It passed downwards, in front

of the quadratus lumborum and iliacus, and ended in tendinous fibres, which fused, near the level of Poupart's ligament, with the tendons of the psoas magnus and psoas quartus.

The *psoas quartus* was a small muscle which arose, by a small fleshy slip, from the anterior surface of the lower and inner part of the tendon of the quadratus lumborum; also by a larger slip from the transverse process of the 5th lumbar vertebra, and from the intertransverse ligament in its inner half. It passed downwards, to fuse with the tendons of the psoas magnus and psoas tertius, at the level of Poupart's ligament.

All the above muscles were separated by distinct cellular intervals, in which ran branches of the lumbar and ilio-lumbar arteries for their supply. Branches of the anterior crural nerve were traced into each division of the psoas.

On the *left* side the *psoas magnus* and *psoas parvus* had their origins, course, and insertions, similar to those on the right side; but there were no fibres arising from the tendon of the psoas parvus to correspond with those described on the right side. The *psoas tertius* took origin from the anterior surfaces of the transverse processes of the 3rd and 4th lumbar vertebræ, and had an insertion similar to that on the right side. The *psoas quartus* arose by two slips from the transverse processes of the 4th and 5th lumbar vertebræ. The course and the insertion were as on the right side.

The above arrangement appears to us the more noteworthy, in that it exhibits several interesting points of resemblance to the disposition of the psoas in the Seals, which we will now proceed to indicate.

The descriptions of the muscles in the various Seals are taken from Dr Strettell Miller's account of the myology of the *Pinnipedia* in the "Challenger" *Report on the Seals* (Zoology, vol. xxvi. part lxviii. pp. 176–179).

In *Arctocephalus gazella* the psoas magnus "arises by a series of muscular slips, from the posterior halves of the last four dorsal vertebræ, from their intervertebral discs, *and from the ventral surfaces of the ribs* and the ligaments of the rib joints. In the lumbar region it arises from the whole of the ventral surfaces of the 1st, 2nd, 3rd, and 4th lumbar vertebræ, and from their intervertebral discs and transverse processes." The origin here described from the ribs resembles the unusual origin from fascia reaching outwards to the last rib, which we have described for the psoas magnus.

In *Macrorhinus leoninus* the psoas magnus "is inserted into the posterior ventral spine of the ilium, *which is fused with the pectineal eminence.*"

May not, therefore, the psoas parvus of human anatomy be a part of the psoas magnus retaining this attachment? The muscular slip described as arising from the under surface of the tendon of the psoas minor on the right side would support this view.

In other respects the greater part of the psoas magnus in Man and the Seals is doubtless homologous.

The psoas parvus in a large *Phoca vitulina* arose "from the ventral

surfaces of the 14th and 15th ribs and their rib-joints, from the sides of the 14th and 15th vertebræ (dorsal?), from the ventral surfaces of the bodies of these vertebræ, and from the ventral surfaces of the transverse processes of all the lumbar vertebræ." In a smaller *Phoca vitulina*, *Phoca barbata*, *Phoca hispida*, *Macrorhinus*, and *Arctocephalus* it arises from the tips of the transverse processes of the 2nd, 3rd, and 4th lumbar vertebræ.

Its origin is thus, in all cases, associated with transverse processes of lumbar vertebræ, and, when more extensive, with the ventral surfaces of ribs and dorsal vertebræ. Therefore, it is equivalent to the psoas tertius hominis.

The psoas tertius in Seals is almost exactly homologous with the psoas quartus hominis. Thus, in *Arctocephalus gazella* the psoas tertius arises "from the sides and ventral surfaces of the lower border of the second last lumbar vertebra, from the upper half of the same part of the last lumbar, and from the intervertebral disc between it and the 2nd lumbar, and from the root of the transverse process of the last lumbar."

The homologies thus indicated may be represented in the accompanying table :—

Seals.	Man.
Psoas magnus, ...	Psoas magnus. / Psoas parvus.
Psoas parvus, ...	Psoas tertius.
Psoas tertius, ...	Psoas quartus.