

*Thoracic Ribs.* Of the pair of ribs assigned to the anterior dorsal vertebra (?fourth or fifth) the one of the right side is complete and well preserved, the left one is in an equally good state of preservation but lacks a short piece from the lower end.

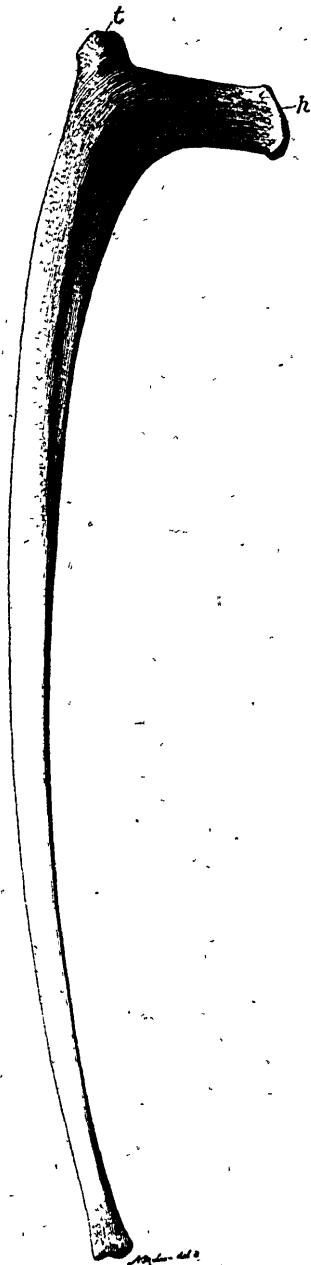


Figure 33. Right rib of ?fourth or fifth dorsal vertebra of paratype of *Edmontosaurus*; anterior view obliquely from without; † natural size. h, head; t, tubercle.

These anterior ribs (Figure 33) are long and strongly built with a moderately curved, tapering body or shaft, a well-developed head and tubercle, and a deep, thin neck. In the upper half of the shaft the bone is thick with a rounded border along the antero-internal curve and down to the head; along the postero-external curve and between the tubercle and the head it comes to a rather thin edge. The broadest part of the rib is below the tubercle. The posterior face in the upper half of the shaft, and for a short distance past the tubercle toward the inner border of the neck, is transversely concave. For a corresponding distance on the anterior face the surface is transversely convex, the convexity developing down the shaft into a well-defined median ridge which merges farther down into the antero-internal border. It is along this ridge that the bone is thickest. In the lower half of the shaft the bone becomes more nearly ovate in cross-section being somewhat thicker near the outer curve with the greatest diameter directed extero-internally. Along this lower portion of the shaft the rate of taper is lessened. At the extreme lower end the bone thickens and there is a roughened surface for the attachment of the costal cartilage. The neck is directed downward, inward, and slightly forward at an angle of about 110 degrees to the upper part of the shaft.

The head of the rib is set rather squarely across the neck and expands to a thickness which is twice that of the neck near its lower border. Its articular surface is undulating, pitted, and rugose with an irregular lengthened oval outline about twice as deep as broad.

The tubercle is prominent but much smaller than the head. Its articular surface is about half that of the head in area and is set at much the same angle. From the point of view at which the rib has been drawn neither of these articulating surfaces is fully seen in Figure 33.