

Thoracic Ribs. The thoracic ribs in *Gorgosaurus* are eleven in number on either side, and are long, slender, and double headed (Figures 22, 23, and 24). They lengthen from the first to the fourth, or possibly the fifth which is not fully preserved, and shorten rapidly to the eleventh. They are strongly curved near the vertebral end and flatly curved for the remainder of their length downward. The heaviest and strongest part of the ribs is in the neighbourhood of the tubercle which is separated from the head by a long, straight, laterally compressed neck. At and outward for a short distance from the tubercle the ribs have a somewhat inverted L-shaped cross section. With an increasing slenderness downward they become sub-quadrangular in cross section, then sub-circular, and finally narrowly oval near their termination with the greater diameter apparently directed inward and forward.

The laterally compressed neck increases in depth from the head to beneath the tubercle. In its downward and inward direction from the tubercle it inclines slightly forward to articulate with the body of the vertebra. Seen from above the neck is straight; in side view it shows a tendency to

bend slightly upward near the head. There is little, if any, increase in the size of the bone at the head whose articular facet is gently convex with a long oval outline of which the greater diameter is vertical.

The tubercle is developed postero-dorsally and extends backward horizontally, its breadth greatly exceeding its depth. It is continued outward along the shaft, for about one-fourth of the distance from the tubercle to the lower end of the rib, as a flange giving the bone a broad upper surface nearly at right angles to the deep anterior face and resulting in the inverted L-shaped cross section which adds greatly to the strength of the rib. Here the dorsal surface is nearly flat from side to side, the anterior face is slightly concave, being shallowly and longitudinally grooved, and the postero-ventral surface is deeply excavated.

With the cessation of the flange and their diminution in depth the ribs become sub-quadrangular in cross section with the dorsal and ventral faces nearly equal and the posterior face broader than the anterior

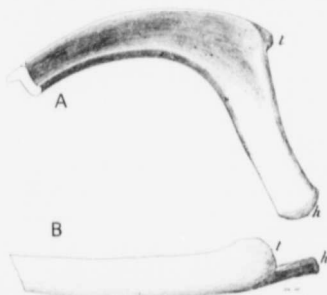


Figure 22. Right rib of third dorsal vertebra of type of *Gorgosaurus*; $\frac{1}{2}$ natural size. A, anterior view; B, superior view; h, head; t, tubercle.