

half of the centrum. Toward the base they increase rapidly in a fore and aft direction. In the type the spine is preserved to its full length in the fourth, fifth, and seventh vertebræ; that of the sixth is shorter, unduly so possibly on account of incomplete preservation distally; in the eighth and ninth the spine bases only are left. The zygapophyses, borne on strong, heavy processes are large, almost circular in outline, and are best seen in the specimen in the fourth, fifth, and sixth vertebræ where they and their processes have apparently been least affected by distortion (Figure 14A). A diapophysis is directed downward and backward from beneath the prezygapophysial process for articulation with the rib tubercle. The diapophysis in its entirety is preserved only in the eighth cervical where unfortunately it is crushed badly. It is this particular process to which the very complete rib, figured on page 33, was found attached. In the type specimen the right diapophysis of the ninth vertebra has been squeezed inward and pressed upward and those of the fifth, sixth, and seventh have been broken off, leaving an indication, however, of their true direction.

*Dorsal Vertebræ.* The dorsal vertebræ of Gorgosaurus, eleven in number, have a slight gradual increase in size from the first to the last. In the type specimen they, in common with other parts of the skeleton, have suffered from lateral pressure but otherwise they are in a good state of preservation and succeed each other in their proper relative position forming a continuous series. The right rib of each vertebra is present and may be said to be almost in place in each case (Figure 7). Eight of the ribs of the left side are wholly or partially represented but most of them have been displaced (Figure 6). Between the eleventh dorsal vertebra and the first sacral is a vertebra which apparently does not belong to the dorsal series as no rib belonging to it has been found; it is for the present regarded as a lumbar.

The centra of the dorsal vertebræ are evenly excavated on the sides and inferiorly, and have slightly concave anterior and posterior articular surfaces the concavity of which, however, is probably accentuated by the crushing to which the vertebræ have been subjected. The height of the centra exceeds their length and is less than that of the neural arch and spine combined. Their breadth is less than their height, the outline as seen from in front or behind being a broad oval, but as all the centra are abnormally compressed in no case is the true breadth preserved. There is a gradual increase in the size of the centra in passing backward in the series with a corresponding increase in length and size generally of the neural spines. Broad diapophyses, directed outward and upward and backward, are given off from well up on the neural arch. Those of the right side, viz., the lower side of the skeleton as found, are bent upward toward the neural spines whereas those of the