bearing segment may have been evolved from a wingless segment. Snodgrass (1926) has suggested that the insect's ancestor may have been a soft-bodied, segmented animal, resembling in its segmentation the soft-bodied larvæ of some modern insects. Modern adult arthropods, unlike their hypothetical ancestors, have the thorax modified as the locomotor region of the body, and are in general hard-shelled forms, having developed an external skeleton formed of calcareous or chitinous matter, and the hardening of the body wall has had a profound influence on the structure of the segments and on the general mechanism of the animal. The skeletal deposits have taken the form of segmental plates, of which the principal is a dorsal, or tergum and a ventral, or sternum. These two plates are separated on the sides of the segment by a membranous pleural area. The condition found in a wingless thoracic segment is fundamentally of this structure, except that a chitinous pleural plate is present and connected to the tergum and sternum by membranous regions. In the winged thoracic segment these plates have become modified to strengthen the thorax in order to provide solid attachment points for the muscles of the wings. This has come about by the formation of chitinous antecoxal and postcoxal bridges connecting the pleuron and sternum, as well as prealar and postalar bridges connecting the pleuron and tergum. The tergum has become secondarily divided to provide muscle attachment points. Thus the transition from the wingless thoracic segment to the winged segment has been one of strengthening the thorax to accommodate the muscle stresses concomitant with the acquisition of wings.

The embryonic history of insects substantiates the fact that the thorax was first differentiated as the locomotor region of the body by a specialization of three pairs of segmented appendages as the principal organs of progression, this being accomplished by the modification of the gnathal appendages to feeding organs and by the suppression of most of the abdominal appendages. Flight being a comparatively recent development as a further mode of progression, the development of wings and the perfection of the mechanism meant a further and much greater alternation in the structure of the wing-bearing segment than