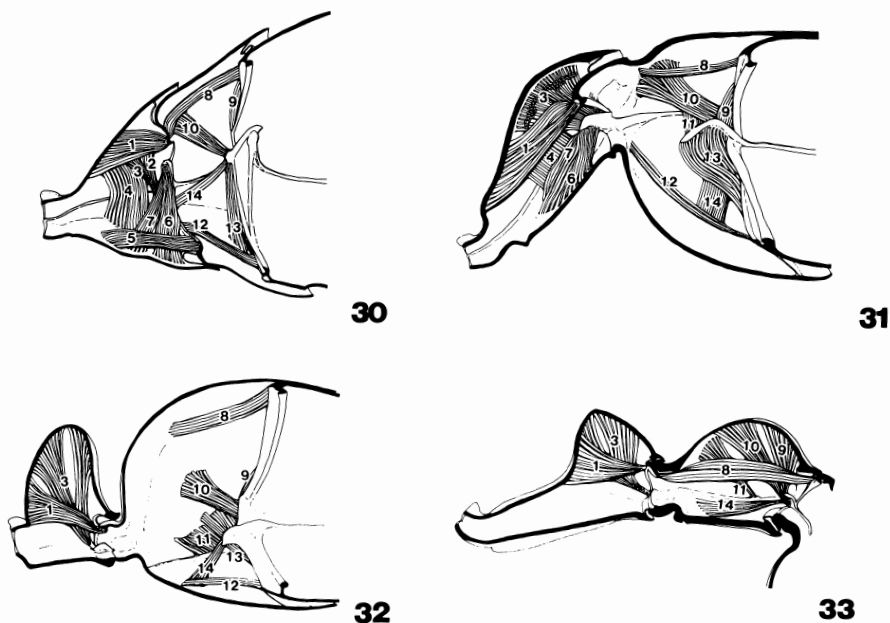


*Musculature in the third segment to move the fourth segment*

1) Ground plan: The third segment in Aculeata generally includes seven or eight pairs of the muscles (Nos. 8 to 15) that serve to move the fourth segment (Figs. 17 & 18). The positions of these muscles are illustrated in Fig. 30. The origins, insertions and functions of them are described in Table 2.

2) Modifications: Among the aculeates, only the members of Formicidae show the positional and functional modifications of the musculature of the third segment (Fig. 33). In Myrmicinae, Pseudomyrmecinae, Myrmeciinae, Cerapachyinae and the ponerine tribe Amblyoponini and Ectatommini, the muscles No. 10 are inserted to the anterolateral margins of the pretergum of the fourth segment (Figs. 24, 25 & 33). In these formicids, the muscles No. 8 are originated from the part of the pretergum of the third segment (Figs. 18 & 33). Additionally, in Myrmicinae and the ponerine tribe Ectatommini the end of muscles No. 8 are attached on the lobe developed on the anterior margin of the pretergum (Fig. 27).

In the ponerine tribe Amblyoponini and Ectatommini, and Cerapachyinae



Figs. 30-33. Diagrams of 4 grades of the skeletomuscular modification correlating with the formation of additional petiole or additional petioles in Aculeata, showing the musculature in right half of the second and third abdominal segments, excluding spiracular muscles; 30, ground-plan condition; 31, apomorphic condition in the first type; 32, apomorphic condition in the second type; 33, apomorphic condition in the third type. Arabic numerals indicate the muscle numbers.