

of note. *Schmidtellus mickwitzii* (Schmidt) (a), with its thirteen segments, absence of any enlargement of the third, and the presence of a spine on the eighth segment, is clearly distinct from *Mesonacis*, but its relationships are obscure. Of the genera in which there is no tendency toward resorption (*Wanzeria*, *Holmia*, and *Callavia*), *Callavia* (b) alone shows a tendency toward an enlargement of the third segment. The genera showing resorption (*Mesonacis*, *Paedumias*, and *Olenellus*) all have an enlarged third segment. This is also true for *Ellip. cephalo* (c), though the differentiation between the third and other ribs disappears in this species in the adult. In *Olenelloides* (d), a bizarre survivor of *Mesonacidae*, the third segment is enlarged.

The enlargement of the third segment appears to be important from a morphological standpoint, and it is preserved among Middle Cambrian trilobites bearing relationships to the Lower Cambrian *Mesonacidae* in the youthful forms of *Zacanthoides* (e), and the adult forms of *Albertella helena* (f). Its importance in the latter species is, however, largely negated by the fact that in the very closely related *Albertella boscworthi* (g) it is the fourth segment which is enlarged. In both species the total number of segments is the same, seven, but the number of segments uniting to form the tail is larger in *boscworthi* than in *helena*. The second segment is enlarged in the young of the following species of *Paradoxides*: *bohemicus* Boeck, *inflatus* Corda, *lyelli* Barrande, *rugulosus* Corda, and *spinosus* Boeck. In *Hydrocephalus carens*, *H. saturnoides* and *Paradoxid. pusillus* Barrande the anterior two segments are enlarged. In *Shumardia pusilla* (Sars) the fourth segment is large, irrespective of the number of segments between the fourth and the tail. In several species of *Cybele* it is the sixth pair, and *Cyphaspis barrandei* and *C. burmeisteri* are each characterized by the presence of a very long median spine on the sixth segment. In one species of *Iliaenus* (*hisingeri* Barrande) it is the first. In *Bathynotus* it is the eleventh and last. Median thoracic spines have been described for the following Cambrian species: *Saratogia hera* Walcott (h), *Norwoodia tenera* Walcott (i), and *N. gracilis* Walcott (j). *Zacanthoides*, which has been mentioned as one of the two Middle

- (a) Moberg in Moberg and Segerberg, 1906, Kongl. Fysik. Sällskapet Handl., N.F., Bd. 17, 1906, p. 35.  
 (b) Walcott, Smithsonian Misc. Coll., vol. 57, No. 11, 1913, pl. 53, figs. 1 and 3.  
 (c) Walcott, Smithsonian Misc. Coll., vol. 53, No. 6, 1910, p. 269.  
 (d) Peach, Quart. Jour. Geol. Soc. London, vol. 50, pp. 669-670, pl. 32, figs. 1-6.  
 (e) Walcott, Smithsonian Misc. Coll., vol. 53, No. 2, 1908, pl. 3, figs. 5 and 10.  
 (f) Idem, pl. 2, fig. 8.  
 (g) Idem, pl. 1, fig. 5.  
 (h) Smithsonian Misc. Coll., vol. 64, 1916, pl. 35, fig. 3b.  
 (i) Idem, pl. 28, fig. 2d.  
 (j) Idem, pl. 27, fig. 2f.