they become fewer in number. Of known genera of the Mesonacidæ, *Mesonacis* and *Paedeumias* have a spine-bearing fifteenth segment, and the progression from the rib-like fifteenth segment of *Mesonacis* through the more rudimentary fifteenth segment of *Paedeumias robsonensis*, and the almost telson-like segment of *Paedeumias transitans* (which cuminates in the telson of *Olenellus*) is paralleled by the progression from the rib-like posterior segments of *Mesonacis* to the less rib-like segments of *Paedeumias transitans*. Moreover, the close relationship of the three genera is shown by the fact that in each the third segment is enlarged. That the number of rudimentary segments alone bears little or no relation to the relative primitiveness of the form is indicated by the fact that *Mesonacis*, which is clearly more primitive than *Paedeumias*, has less than one-third the number of rudimentary segments. *Nevadia*, which appears to be the most primitive as well as the earliest of the Mesonacidæ, does not seem to have reached the stage where differentiation of its segments might take place. In it there is a steady progressive decrease in the length of the pleural groove from the first to the eighteenth, with from six to eleven posterior segments whose pleural portion is unmarked.

In *Elliptocephala* the five segments posterior to the anterior thirteen (not fourteen as in the *Mesonacis-Paedeumias-Olenellus* line) are all spine-bearing, and are identical in everything but size. This feature has only been described for one other form, namely, *Redlichia chinensis*, and while the posterior five segments in this species are spine-bearing and do not otherwise differ from those anterior to them, we have no information as to the number of the anterior segments. It is at least 12 (*a*), however. In *Wanneria* there is a tendency toward nodes or spines on the anterior thirteen segments, and the fourteenth bears a short spine, but except in this respect it is indistinguishable from the progressively smaller segments posterior to it. In this genus there is no suggestion of a resorption of segments, and it seems natural to suppose that *Holmia* may have been derived from it since that genus also betrays no tendency toward resorption, and the anterior fourteen segments only of the sixteen bear spines. In neither *Holmia* nor *Wanneria* is there any enlargement of the third segment.

The fact that there is no enlargement of the third segment in *Nevadia* corroborates the indication given by the character of its ribs, and appears to justify us in believing it to be very primitive. The general resemblance between this genus and species of *Callavia* such as *eucharis* and *perfecta* (*b*) is worthy

(*a*) Walcott, Research in China, vol. 3, 1913, pl. 24, figs. 1, 1a.
(*b*) Walcott, Smithsonian Misc. Coll., vol. 57, No. 11, 1913, pl. 53, figs. 1 and 3.