When I received the recent paper by Opell (1979, Bull. Mus. Comp. Zool. Harvard, 148:443-549) on american Uloboridae, I was highly astonished by the discovery of the haplogyne nature of some genera. In a paper then still in press (Brignoli, P. M. 1979, Rev. Arachnol., 2:275-282) I had indeed considered a species of one of these genera, Polenecia producta (Simon, 1873) as typically entelegyne. Fearing to have misinterpreted the structure of the vulva of this species, I re-examined my material; the results can be seen in Figs. 1-5.

Each half of the vulva of Polenecia producta consists, I think, of an atrium (a), weakly sclerotized, which opens on the internal margin of the epigyne and from which depart three ducts of different lengths, leading respectively to a pair of accessory spermathecae (as 1, as 2) with long connecting ducts and to a principal spermatheca (ps), heavily sclerotized and internally relatively complicated, with a very short connecting duct. From this spermatheca departs a long fertilization duct (f).

Opell has interpreted the principal spermatheca as an “accessory gland.” In addition to the evident connection to the atrium (Figs. 3-4) the heavy sclerotization of this structure also makes Opell’s hypothesis unlikely, for it is a highly unusual feature for a “gland,” which suggests an ectodermic origin. In no other spiders are “sclerotized glands” known; on the contrary, sclerotized and internally complicated spermathecae are very common, for example in the Agelenidae.

As a whole, the vulva of Polenecia resembles strongly that of some Hahniidae; in many species of that family there is a weakly sclerotized atrium and there are two pairs of spermathecae, connected with the atrium by two separate ducts of different lengths, uniting in a single, less sclerotized, duct shortly beyond the atrial region (for illustrations, see Harm. M. 1966, Senckenberg. biol., 47:345-370 and Brignoli, P. M. 1978, Entom. Basiliensis, 3:31-56). The only relatively unusual feature in the vulva of Polenecia is in the marked structural difference between the two types of spermathecae.

My findings throw some doubts also on the interpretations by Opell of the vulvae of Tangaroa, Waitkera, Ariston, Siratoba and Hyptiotes. (I hope to find the time for examining this last genus in the near future). Opell considers the Uloboridae as an unique example of a family uniting together haplogyne and entelegyne genera. More research is necessary to ascertain if this is truly the case, but at the moment I am not inclined to accept Opell’s hypothesis.

The presence of a fertilization duct is a physiologically important character, because it indicates that the process of fertilization is different from that in the true haplogynes. In
Figs. 1-5.—Polenecia producta (Simon, 1873): 1, vulva, ventral aspect; 2, vulva, dorsal aspect; 3-5, one half of the vulva magnified, ventrally, latero-dorsally and latero-ventrally (in this order); "as" accessory spermatheca, "a" atrium, "f" fertilization duct. Scales in mm.

the entelegynes the eggs are fertilized in the uterus externus (Wiehle, H. 1967, Senckenberg. biol., 48:183-196), which is evidently completely inside the body; in the haplogynes the eggs are fertilized more externally, in the atrium (or bursa copulatrix) which is not exactly homologous with the uterus externus. A certain confusion has arisen from the use of this term for both groups of spiders. The differences between the two kinds of uterus externus are well shown in figs. 8 and 29 of Wiehle (op. cit).

The details of the fertilization are still largely unknown, but the physiological distance between a haplogyne and an entelegyne spider is considerable, and, mutatis mutandis, is comparable with that between a placental and a non-placental mammal.

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