



FIGURE 2—Brigus Formation, Branchian series, Early Cambrian, Pearl Street, North Weymouth, Mill Cove, Norfolk County, Massachusetts. 1, 3, *Callavia broeggeri* Walcott, 1890. 1, Partial cephalon, dorsal view, MCZ 109352, $\times 2$; 3, thoracic pleura, dorsal view, MCZ 109359, $\times 2$. 2, 4, *Plesionevadia burri* (Walcott, 1910). 2, Lectotype cephalon, dorsal view, MCZ 109362, $\times 1.7$; 4, cephalon, dorsal view, MCZ 109364, $\times 1.8$.

British Museum of Natural History (BMNH); Lapworth Museum, School of Earth Sciences, University of Birmingham (BU); Los Angeles County Museum of Natural History (LACMIP); Museum of Comparative Zoology, Harvard University (MCZ); Royal Ontario Museum (ROM); Sedgwick Museum, University of Cambridge (SM); and the Yale University Peabody Museum (YPM).

Abbreviated list of taxa analyzed, and where applicable recent publication with synonymy list and relevant material examined.—*Daguinaspis ambroggii* Hupe and Abadie, 1950, see Geyer (1996); *Parafallotaspis grata* Fritz, 1972; *Pseudojudomia egregia*; *Nevadella eucharis* (Walcott, 1913), see Fritz (1992); *Cirquella espinata* Fritz, 1993; *Cirquella nummularia* Fritz, 1993; *Bradyfallotaspis fusa* Fritz, 1972; *Paranevadella subgroenlandicus*; *Geraldinella corneiliana* Fritz, 1993; *Cambropallas telesto* Geyer, 1993, see Geyer and Palmer (1995), YPM 37621; *Andalusiana cornuta* Szdzy, 1961, see Geyer and Palmer, 1995; *Judomia tera*, see Lieberman (1998); *Bondonella typica* Hupé, 1953, see Geyer and Palmer (1995); and *Neltneria jacqueti*, see Geyer and Palmer (1995).

Order REDLICHIIIDA Richter, 1932
Suborder OLENELLINA Walcott, 1890
Superfamily "NEVADIOIDEA" Hupé, 1953
Genus PLESIONEVADIA new genus

Type species.—*Callavia burri* Walcott, 1910.

Included species.—None (monotypic).

Diagnosis.—Anterior cephalic border not prominently separated from extraocular area by furrow; parafrontal band anterior of anterolateral margins of L4 (LA) long (exsag.), length approximately equal to 0.5 times length (sag.) of L0; ocular lobes contact frontal lobe at posterior part of frontal lobe, gradually increase elevation between axial furrows and their mid-point; posterior tips of ocular lobes developed opposite S0; mid-interocular ridge present; width (tr.) of interocular area equal to two to three times width of ocular lobe; distal margins of L3 convex outward; S2 conjoined medially; axial part of L0 with node present; and genal spine angle developed opposite medial part of distal margin of L0.

Etymology.—Named by combining "Plesio" with "nevadia" for the taxon's close morphological resemblance and phylogenetic position relative to the genus *Nevadia*.

Discussion.—Traditionally (i.e., Walcott, 1910; Palmer and Repina, 1993), the sole species within this genus was assigned to *Callavia*. This was likely originally done to reflect the belief that all species in the Avalonian terrane of eastern North America belonged to *Callavia* and thus shared close genealogical propinquity; however, at the generic level this is not tenable unless all species within the Olenellina are assigned to the genus *Callavia*.

Instead, the species *P. burri* shares many more characters with taxa of the genera *Nevadia* and *Nevadella*, as both Raw (1936) and Fritz (1972, 1992) recognized. However, *P. burri* does not have a sister-taxon relationship with species of *Nevadia* or *Nevadella* exclusive of other taxa within the Olenellina. Specific evidence for excluding *P. burri* from *Callavia* and placing it down the tree include the following characters and character states listed above and in Table 1 that define nodes of the cladogram in Figure 1, *P. burri*: lacks 2(1); lacks 3(1); lacks 5(1); lacks 9(2), has 9(1); lacks 14(1); lacks 18(1); lacks 23(1); lacks 28(1); lacks 32(2), has 32(1); and lacks 39(1). It also differs from the type of the genus *Callavia* in the condition of other character states (see Table 1). Fritz (1992) also discussed differences between *Callavia* and taxa traditionally assigned to *Nevadia* and *Nevadella*. *Plesionevadia burri* is excluded from *Nevadia* and *Nevadella* because it differs from species of those taxa in the condition of the following characters and character states listed above and in Table 1: lacks 3(1); lacks 14(1); and lacks 17(2), has 17(0).

PLESIONEVADIA BURRI (Walcott, 1910)
Figure 2.2, 2.4

Olenellus sp. BURR, 1900, p. 45; GRABAU, 1900, p. 665, pl. 34, fig. 1a, b. *Callavia burri* WALCOTT, 1910, p. 280, pl. 28, figs. 9, 10; RAW, 1936, p. 243, 250; RAW, 1936, p. 243, 250, 276; TASCH, 1952, p. 486, fig. 1n; PALMER AND REPINA, 1993, p. 14. *Nevadella burri* (Walcott). FRITZ, 1972, p. 22.

Types.—Walcott's (1910) two figured specimens are syntypes (pl. 28, figs. 9, 10). The complete cephalon, MCZ 109362 (Fig. 2.2) (also Grabau [1900, pl. 34, fig. 1a]), from "the dark purplish Lower Cambrian slates of Pearl Street, North Weymouth" (Grabau, 1900, p. 667), Mill Cove, Norfolk Co., Massachusetts, is designated the lectotype. USNM 56795b of the Smithsonian Institution becomes a paralectotype.

Other material examined.—MCZ 109362, 109364.

Occurrence.—Thus far, this species is only known from the type locality, which is discussed in detail and figured by Landing (1988). The locality is treated there as within the Weymouth Formation. However, a revised biostratigraphy was presented in Landing (1996) where the type locality was designated as comprising the Brigus Formation of the Early Cambrian Branchian series.

Discussion.—Raw (1936) and Fritz (1972, 1992) recognized the close affinity this species shared with taxa assigned herein to *Nevadia* and *Nevadella*. Raw (1936) suggested the creation of a new genus, *Nevadella*, to accommodate *P. burri*, as well as several other taxa, but throughout his paper he repeatedly referred to the species as "*Callavia*" *burri* or *C. burri*. Tasch (1952) gave a