

Lower Ordovician (Arenig/Llanvirn) fossiliferous volcanoclastic rocks, western New Brunswick and adjacent Maine

W. H. Poole¹ and Robert B. Neuman²

¹*Geological Survey of Canada (Emeritus), 601 Booth Street, Ottawa, ON K1A 0E8*

²*United States Geological Survey (Emeritus), Department of Paleobiology, National Museum of Natural History, Smithsonian Institution, Washington, DC 20560-0137, U.S.A*

Three newly discovered occurrences of brachiopods in Arenig/Llanvirn-age volcanoclastic rocks in Napadogan area of the Miramichi anticlinorium, New Brunswick link these rocks with the Shin Brook Formation about 125 km to the west in the Weeksboro-Lunksoos anticlinorium in Maine. Beneath these Ordovician volcanoclastic rocks are mudstone and quartz sandstone of the Miramichi Group in New Brunswick and the Grand Pitch Formation in Maine. Accumulations of well rounded pebbles and cobbles of this sandstone, locally as much as 3 m thick, appear here and there at the base of the fossiliferous volcanoclastic rocks. Despite deformation and surficial cover, the present outcrops permit the inference that the older strata were uplifted (Penobscot Orogeny) along rift faults that initiated formation of a back-arc upon Avalonian crust. The volcanoclastic strata in the Napadogan area, as much as several metres thick, are overlain by non-graphitic, varicoloured ribbon slate and slate-chert,

commonly manganiferous. The volcanoclastic strata seem to be equivalent to those hosting the Bathurst base metal ore bodies.

Despite the poor preservation of most brachiopod specimens, a few from the newly discovered localities retain features that permit their confident identification as genera that are compatible with those of the Celtic assemblage from elsewhere in Atlantic Canada and beyond. The most distinctive of these in the Napadogan area are several anomalously large dorsibiconvex, fine-ribbed shells from one locality that resemble the rare Baltic genus *Ukoa*. Smaller specimens in the shell beds associated with these probably belong to the genus *Monorthis* that was first described from Arenig-age sandstone on Anglesey, northwestern Wales and later reported from volcanoclastic sandstone of the Suri Formation of the Famatina "System", northwestern Argentina.