

BIOSTRATIGRAPHIC SIGNIFICANCE OF A LOWER CAMBRIAN TRILOBITE IN THE HAZEN FORMATION, JUDGE DALY PROMONTORY, ELLESMERE ISLAND

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During the summer of 1973 members of a field party of Sproule Associates Ltd., Calgary, headed by Mayr, found a trilobite of Early Cambrian age in scree of rocks mapped as Archer Fiord Terrane (Christie, 1964) or Ellesmere Group (Christie, 1974). The location is on Judge Daly Promontory, Ellesmere Island, at longitude 81°23.3'N and latitude 66°21.7'W (Fig. 1), about 1 km northwest of a small lake. The specimen (Fig. 2) is now part of the collection which Sproule Associates Ltd. donated to the Paleontological Collections (catalogue number 10958) at the University of Alberta and was recently reidentified by W.H. Fritz, Geological Survey of Canada. D.R. Dolphin of Norcen Energy Resources Limited, Calgary, kindly gave permission for re-examination of the specimen by the Geological Survey of Canada. W.H. Fritz states that the trilobite may belong to the genus *Wanneria* and thus indicate the medial part of the *Bonnia-Olenellus* Zone in the upper part of the Lower Cambrian.

The mapping in 1973 showed that the Archer Fiord Terrane consisted of two formations, the Grant Land Formation (Trettin, 1971) and an unnamed overlying formation of laminated, argillaceous lime-mudstone with intraformational conglomerate in the lower part. The unnamed formation overlies the Grant Land Formation with gradational contact and the top of the Grant Land Formation was drawn at the base of the first significant limestone with intraformational conglomerate. The trilobite was found on bedrock mapped as Grant Land Formation and thus included in that formation. Recent work by the Geological Survey of Canada (Trettin et al., 1979, this volume) revealed that the unnamed formation is a facies of the Hazen Formation (Trettin, 1971, 1976) and that the upper boundary of Grant Land Formation should be drawn below the first carbonate. That boundary is more than 500 m below the one mapped in 1973 and thus the trilobite, set in a Hazen limestone matrix, belongs in the lower part of that formation.

The Hazen Formation is highly diachronous and poorly fossiliferous, and the Early Cambrian age of the lower part of the formation at Ella Bay (Trettin et al., 1979) is

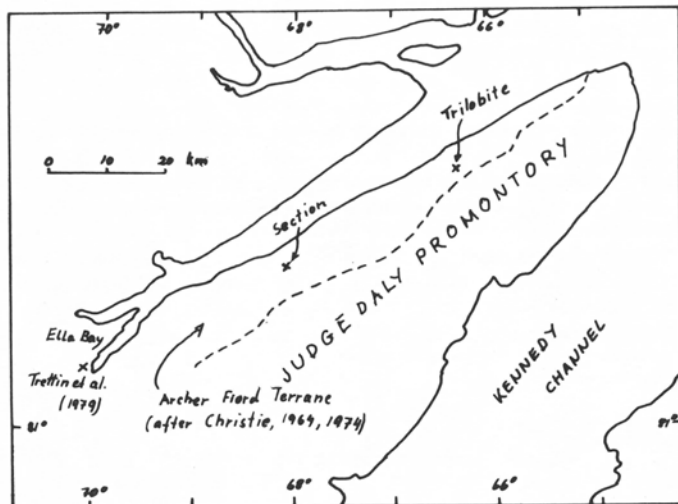


Figure 1. Index map of Judge Daly Promontory.

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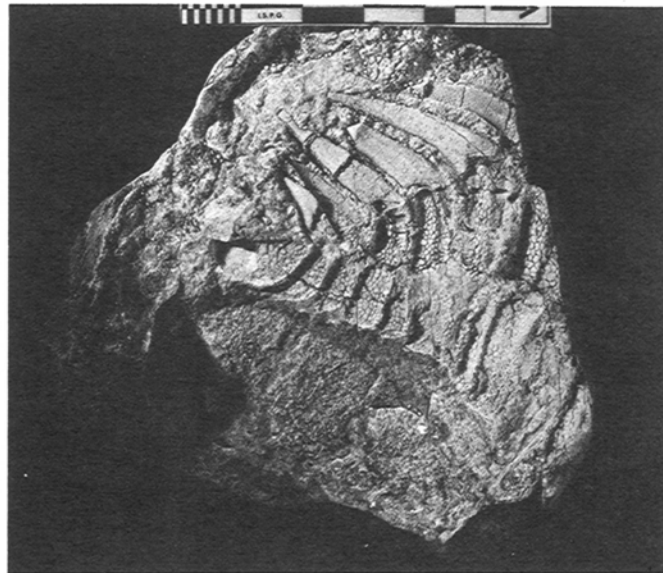


Figure 2. Posterior part of *Wanneria?* sp. Scale in centimetres. ISPG 1223-1

corroborated by the 1973 specimen and extended northeastward along structural strike for almost the whole length of Judge Daly Promontory. A rapid increase in thickness of the Hazen Formation is also apparent. Trettin et al. (1979) reported a thickness of about 600 m from Ella Bay; the 1973 field observations at an unnamed glacier (81°15.5'N, 68°00'W) about 35 km northeast of the Ella Bay location (Fig. 1) and subsequent photogrammetric measurements at that locality by Sproule Associates Ltd., indicate a thickness in the order of 2000 m. At the 1973 locality the Hazen Formation is overlain by rocks assigned to the Copes Bay Formation. The thickness increase reflects the transition from starved basin sediments in the northwest to platform sediments in the southeast part of Judge Daly Promontory.

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