

Introduction

It is 50 years since the Danish cartographer and geologist Lauge Koch and the crew of the Dornier-Wal seaplane 'Perssuak' alighted from alongside the base ship S.S. Gustav Holm at Kings Bay (Svalbard, Fig. 1) on a flight of discovery to North Greenland. They passed Kronprins Christian Land, flying westward across the northern part of central Peary Land as far as J. P. Koch Fjord, before turning south and east to return along the southern margin of Peary Land, leaving Greenland by the coast of Kronprins Christian Land. When they landed at Kings Bay after a journey of 2200 km taking almost 12 hours they had solved the riddle of the supposed channel which explorer Robert Peary had earlier suggested separated the north-east tip of Greenland (Peary Land) from the rest of the island. The extreme western end of this supposed seaway was found to consist of the inner part of a major fjord, earlier named in honour of another Greenland explorer, J. P. Koch (Figs 1–3). The fjord thus extended many tens of kilometres farther south than could be discerned by Lauge Koch and Knud Rasmussen in 1917, from their observation point near its mouth, or by Koch in 1921 from his viewpoint on the Inland Ice far to the south.

At the outermost point of Perssuak's flight Koch discerned and mapped the topographic depression formed by Perssuak Gletscher, Gustav Holm Dal and the valleys to the south. The feature is clearly visible in one of the expedition's photographs (Koch 1940, fig. 51) of the inner part of J. P. Koch Fjord.

Since 1938 the area has received only rare visitors. During the Danish Peary Land Expedition 1947–50, J. C. Troelsen sledged westward along the southern margin of Peary Land to the head of J. P. Koch Fjord in the spring of 1949, making important (but unpublished) observations about the geology, including recognition of the Cambrian sequence. K. Ellitsgaard-Rasmussen passed down J. P. Koch Fjord in the spring of 1950 en route to the outer coast of Greenland. Geologists employed by the commercial Greenarctic Consortium visited the area briefly in the early 1970's, landing their reconnaissance aircraft on sand flats in Fimbuldal near the southern end of Gustav Holm Dal (Fig. 2). Peter Dawes and Anker Weidick (GGU) made a brief visit to the head of J. P. Koch Fjord in the summer of 1975, the former collecting the first Middle Cambrian fossils known from the Peary Land region (J. S. Peel in Dawes 1976). Sledge teams from 'Sirius' pass unobtrusively through the area in the course of patrolling the northern shore of Greenland.

Ten years ago the Geological Survey of Greenland

initiated the first stage of a regional geological investigation of North Greenland (Washington Land - Kronprins Christian Land), the North Greenland Project 1978–1980 and 1984–1985. In addition to the preparation of maps (scale 1: 500 000), the project has produced a wealth of new information concerning the geological structure and evolution of this remote part of Greenland. Preliminary results have been published as expedition reports (Rapport Grønlands Geologiske Undersøgelse, volumes 88, 99, 106, 126, 133); an embrasive study of the evolution of the Lower Palaeozoic Franklidian Basin sequence is given by Higgins et al. (in press).

By coincidence, the first camp of more than 70 field camps which I established as a participant in this project was sited in the valley to which the name Gustav Holm Dal was subsequently given (Frontispiece; Figs 1–3). Among the first fossils were trilobites and brachiopods from a dark, shaly unit eventually known as formation T2 (Ineson & Peel 1980, 1987; see also Peel 1979, 1982) and defined in the present volume as the Holm Dal Formation (Ineson, this volume).

The fossils from these earliest collections were dated as early Dresbachian, earliest Late Cambrian in terms of North American custom (A. R. Palmer in Peel 1979), and represented the second occurrence of strata of this age in Greenland (Palmer & Peel 1981). Their identification promoted recollection of the sequence during 1979, at which time J. R. Ineson (this volume) made detailed stratigraphic studies. The fossil material was examined by R. A. Robison in Copenhagen during May 1981 who recognised that the trilobite fauna combined early Dresbachian elements with agnostoid trilobites indicative of the latest Middle Cambrian Zone of *Lejopyge laevigata* of the Swedish standard sequence. It was this observation and the enthusiasm of Dick Robison to describe the trilobite fauna which ultimately led to the establishment of the present co-operative venture. At a relatively late stage, western outcrops of the formation were briefly examined during 1984 and a few collections of fossils were obtained from south-eastern Freuchen Land (Fig. 1).

Acknowledgments

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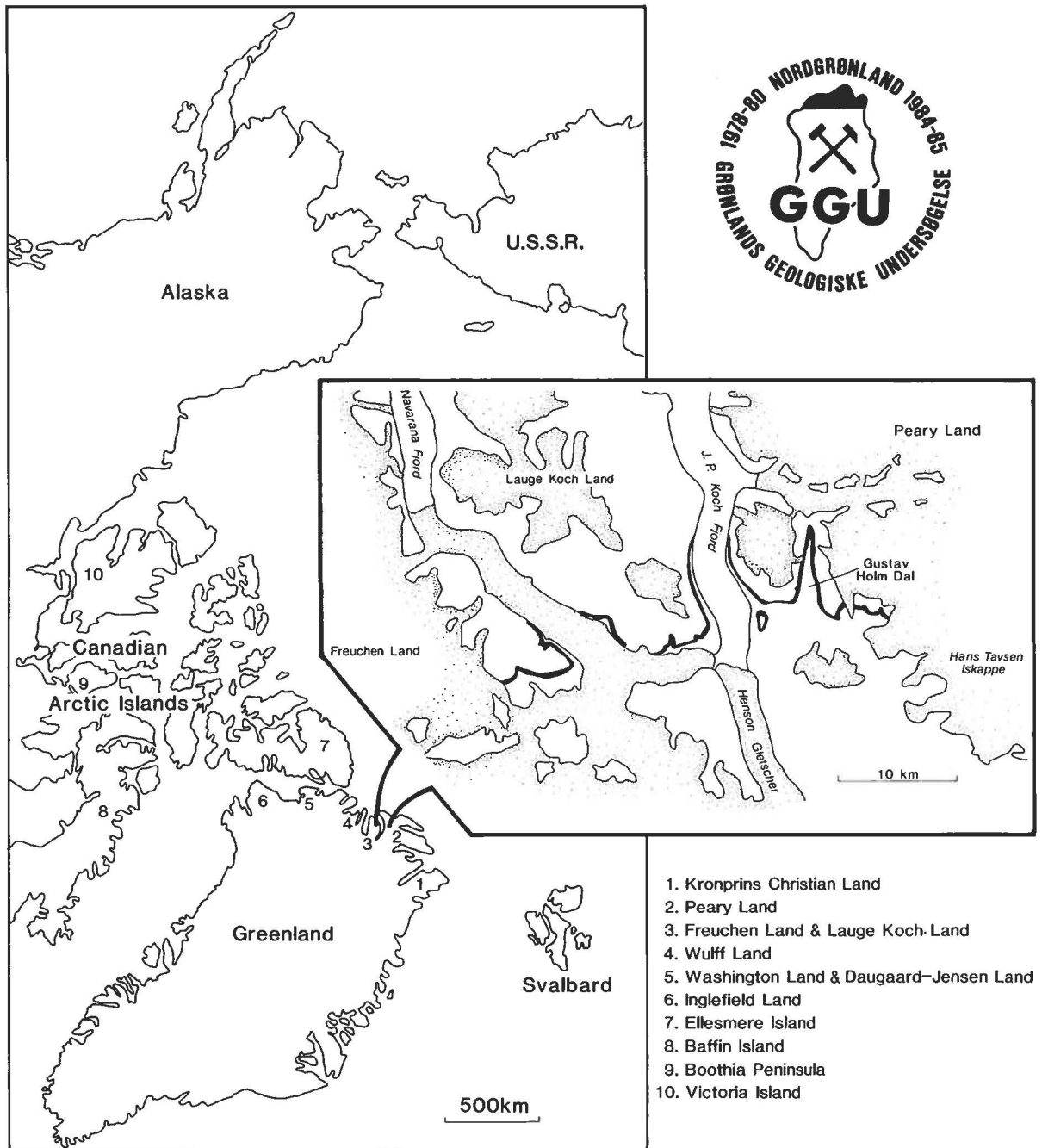


Fig. 1. Greenland viewed in polar projection showing the location of Gustav Holm Dal in the inner part of J. P. Koch Fjord. Outcrops of the Holm Dal Formation are shown in black. The formation was described and mapped during the North Greenland Project of the Geological Survey of Greenland (Grønlands Geologiske Undersøgelse, GGU), field activities of which extended from Kronprins Christian Land in the east to Washington Land in the west. The project logo is reproduced at the upper right.

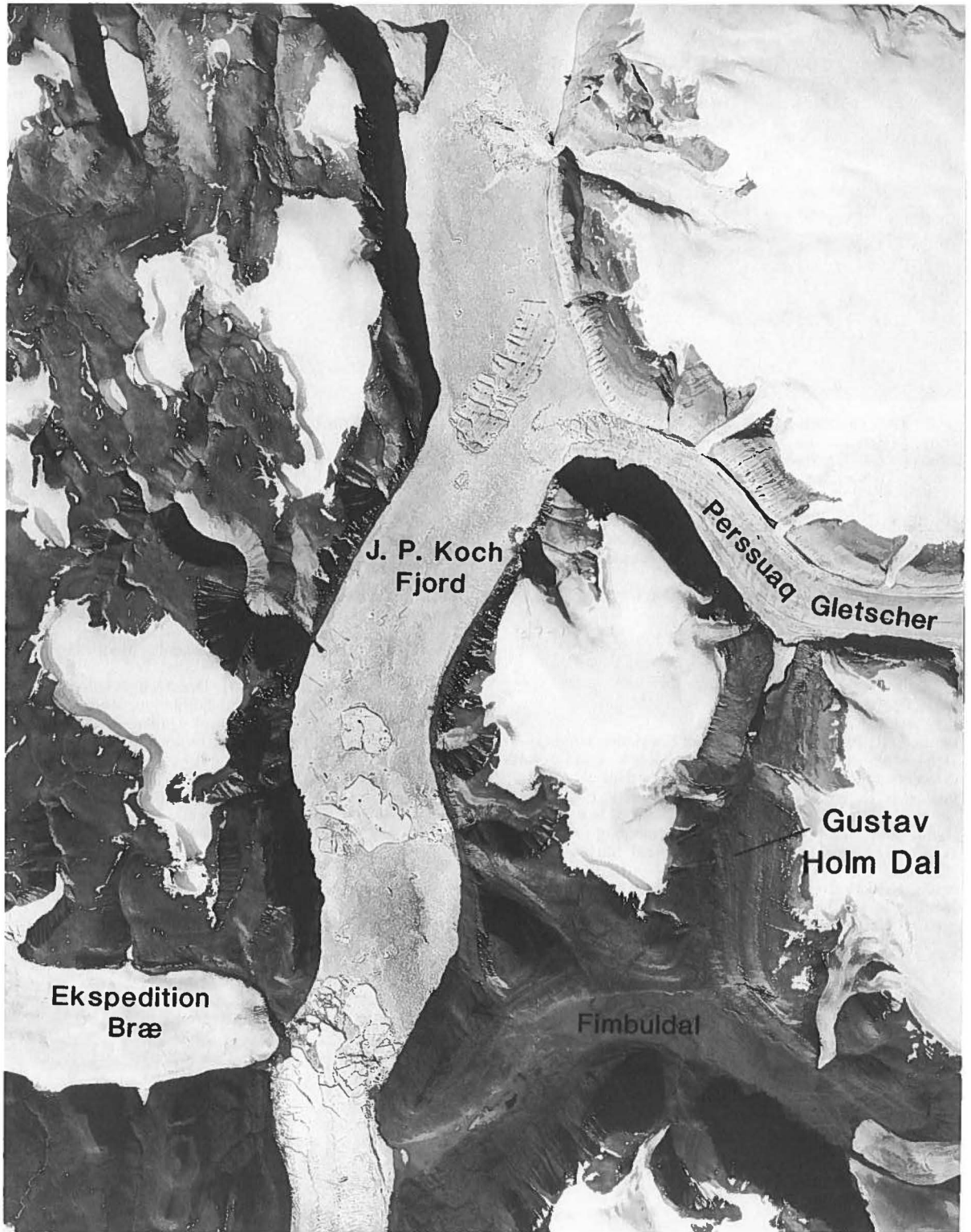


Fig. 2. Aerial photograph of the inner reaches of J. P. Koch Fjord showing Gustav Holm Dal extending north from Fimbuldal toward Perssuaq Gletscher (Copyright: Geodetic Institute, Copenhagen. Scale: 1:150 000).



Fig. 3. View eastward across J. P. Koch Fjord showing Gustav Holm Dal between the two ice caps in the middle distance. Perssuaq Gletscher lies to the left. The cliffs along J. P. Koch Fjord are in excess of 1 km high and exhibit a mainly carbonate sequence extending from the Lower Cambrian to the Middle Ordovician (Photo: Geodetic Institute, Copenhagen).

In the final compilation, Bente Thomas draughted figures which were reproduced by Jakob Laurup and Suzanne Maling Hansen. Esben Glendal and Bodil Skall-Jensen assisted with the computer manipulation of texts.

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