

SYSTEMATIC GEOLOGICAL MAPPING IN THE PEARY LAND – KRONPRINS CHRISTIAN LAND REGION, NORTH GREENLAND

General introduction to the present collection of papers

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The third and last season of the three year systematic field mapping programme in eastern North Greenland was carried out in June–August 1980. The work concluded the field investigations for the 1:500 000 map sheet covering the region north of *c.* lat. 81°N and east of *c.* 40°W. In addition, reconnaissance investigations were carried out south of the planned map sheet boundary and general geological investigations were included in the research of the whole area.

This report presents the main results of the third year's geological field investigations, and in addition some results of laboratory research on previous years' material. Similar reports on the two first years results were published as GGU Reports no. 88, 1979 and no. 99, 1980.

The expedition in 1980 numbered 35, comprising 12 geological two-man parties and 11 supporting personnel including aircraft crews. The geological parties were divided into several working groups, each covering a specific area or topic. The major activity was concentrated in Kronprins Christian Land, which had not been systematically investigated during the first two years. The distribution of the geological parties was as follows.

In Kronprins Christian Land the rocks in the Caledonian fold belt were investigated by two parties. One investigated the older gneisses and supracrustal rocks in the central region and another party mapped the Upper Proterozoic – Lower Palaeozoic sediments in the thrust belt to the west. The mainly Palaeozoic foreland sequence east of Danmark Fjord was investigated by two parties, who also visited various localities in southern Peary Land.

The mapping of the mainly Lower Palaeozoic sequence in the North Greenland fold belt in the western part of Johannes V. Jensen Land was carried out by two teams who continued the mapping of the eastern part of the fold belt begun in 1979.

The Carboniferous – Tertiary Wandel Sea Basin deposits, which occur mainly in the eastern coastal areas of the region, were investigated by two parties and the Upper Cretaceous Kap Washington Group volcanics in the extreme north were mapped by one party. Continuation of the palaeomagnetic investigations of representative rock units from the Proterozoic to Quaternary sequence was carried out by one team, and one other team made an initial evaluation of the hydrocarbon potential. In addition to the work of some of the above mentioned field teams, special sampling for radiometric dating was undertaken by one geologist, while sampling for the geochemical survey was carried out by many of the field parties and by one geologist who sampled specially for this programme.

As in previous years a tent base camp at the mouth of Jørgen Brønlund Fjord served as an operation centre for the two small helicopters and a small STOL aircraft. The work of the

expedition was again carried out in close cooperation with a surveying group from the Geodetic Institute, Copenhagen, who worked mainly in the region between Kronprins Christian Land and Danmarkshavn (76°N). The geodetic party had their own tent base camp at Centrum Sø and this base was also used for support of geological parties working in the southern part of the region. Transport of the whole expedition to and from Greenland was carried out with help from the Royal Danish Air Force, who air lifted material and personnel from Denmark to Station Nord and return.

After the three years field work in eastern North Greenland the first phase of the planned geological mapping and general investigations in North Greenland has been fully accomplished. The results of the work will be worked up during the coming years and published in due course. In all 35 geologists have participated in the three years field work and most of them are currently engaged in the geological working up of the field data. A fully coloured 1:500 000 map covering the area north of 81°N and east of 40°W will be published, and in addition a number of special maps at scale 1:100 000 are planned. The second phase of the Survey's North Greenland project will include the central part of North Greenland between J. P. Koch Fjord in the east and Hall Land in the west. The field work for this second phase is planned for 1983 and 1984.

The present report contains 12 contributions from the participating individual geologists and geophysicists. Two preliminary geological maps are published as fold-out maps, one map covering the Kronprins Christian Land area (Map 1) and one map covering the North Greenland fold belt area (Map 2). Together with the previously published fold-out map of the central area (GGU Rapport 88) the whole area is now covered by published preliminary maps.

The areas covered by the present collection of contributions are indicated on fig. 1.