Review of the Survey's activities in 1980

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The Geological Survey of Greenland carries out all the practical and scientific aspects of geological investigations in Greenland on behalf of the State, advises the Mineral Resources Administration (The Ministry for Greenland) concerning mineral licences and concessions, and supervises mining activity on behalf of the Mineral Resources Administration including environmental control in cooperation with the Greenland Fisheries Investigations (GF).

Major field activities were continued in the eastern part of North Greenland, where the Survey had 11 field parties and supporting personal. As in the two previous years the project was run jointly with a group from the Geodetic Institute carrying out land surveying in the area. Three helicopters and a STOL aircraft provided the transport facilities. In 1980 geological field work was concentrated on the Proterozoic–Palaeozoic sediments of Kronprins Christian Land. Work was also continued in the fold belt in northern Peary Land and one party investigated the volcanic rocks on the northern coast. Two parties mapped the Palaeozoic to Tertiary rocks of the Wandel Sea Basin in the coastal areas of the north-eastern part of the region. One party sampled for petroleum source rock evaluation. The work in 1980 completes the first phase of the systematic geological mapping of eastern North Greenland; the second phase, comprising the central part of North Greenland, is planned to start in 1983 and be completed in two years.

During the year the compilation of two remaining 1:500 000 geological map sheets no. 2 and 4 (fig. 2) from West Greenland were completed and delivered to the drawing office for the preparation of the colour plans for printing. These now complete the series of four sheets covering West Greenland from Kap Farvel to Melville Bugt. During the summer work continued on the fifth sheet to the north that covers the Thule area, where two parties continued mapping the Proterozoic gneisses along the Lauge Koch Kyst on the northern side of Melville Bugt.

In East Greenland an aerial reconnaissance was carried out over the inaccessible terrain on the southern margin of the Scoresby Sund 1:500 000 geological map sheet (no. 12) (where coast-parallel dyke swarms and coastal faulting run out to sea).

Field work for the 1:100 000 map series continued on Svartenhuk Halvø and in the Agpat region, and work started in the Fiskefjord region. On Svartenhuk Halvø two parties investigated the Tertiary basalts and the Cretaceous–Tertiary sediments. With field work providing the basic data, preparation of the map was continued with the help of a photogrammetric instrument in Copenhagen. In the Agpat region a group of three parties from the University of Copenhagen completed the field work necessary for the sheet 70 V.2 N. Work was started on the Fiskefjord sheet (64 V.1 N) with one party. This sheet is a northern continuation of the work just completed on the sheet covering Godthåbsfjord to the south.

Three 1:100 000 sheets were published at the end of the year, one from West Greenland – Sinarssuk 63 V.2 S, and two from East Greenland – Carlsberg Fjord 71 Ø.1 S and Kap Leslie 70 Ø.2 N.

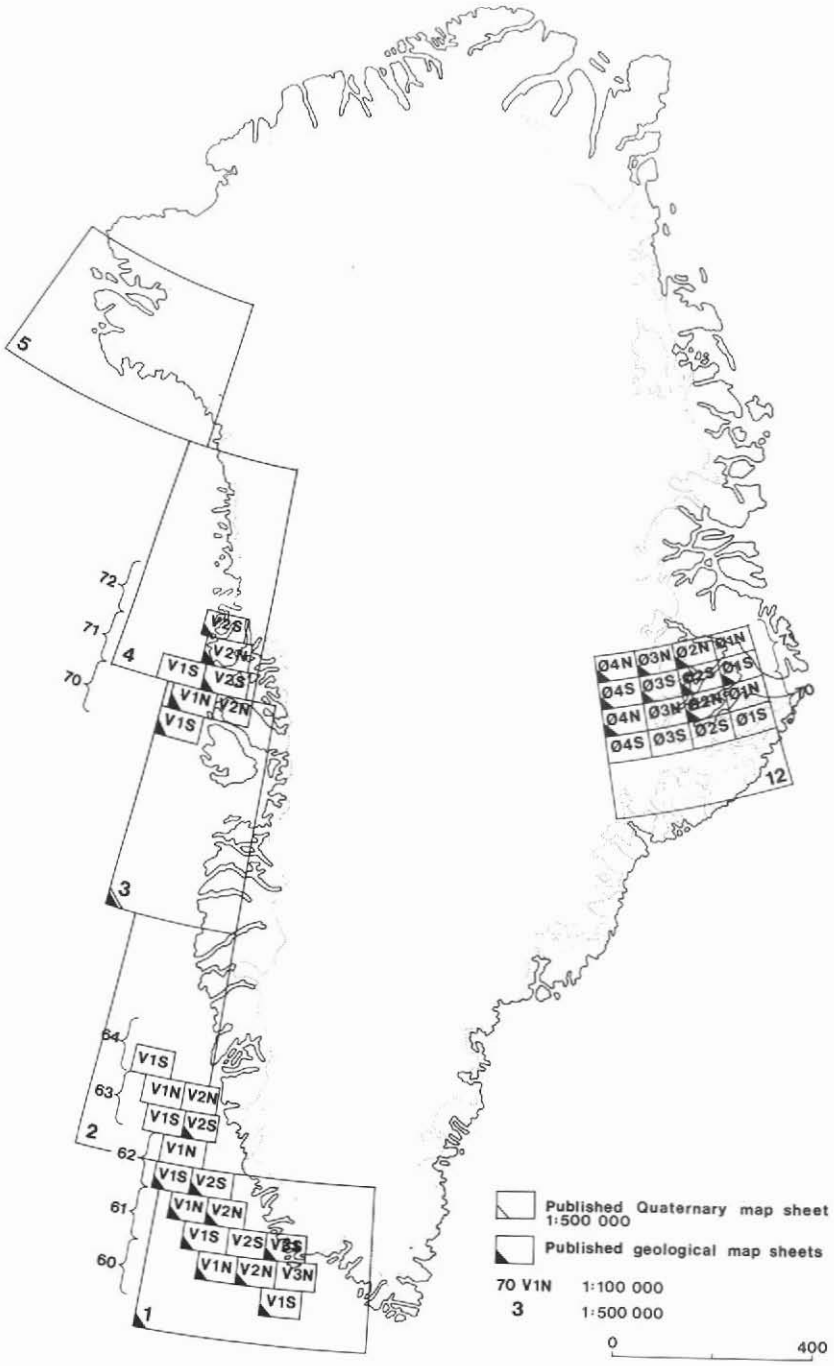

Fig. 2. Map sheets published and in preparation by the Survey (see inside rear cover).

Work continued on the detailed mapping of the southern part of the Ilímaussaq intrusion. An orthophoto mosaic prepared for this area was a great asset in the mapping of the rock types.

In Godthåbsfjord and around Isukasia, work continued to gain a better geological understanding of the region surrounding the early Archaean rocks and its associated iron ore deposit.

There was a considerable increase in the Survey's activity in connection with glaciological investigations during the year. The collection of glaciological data continued in Johan Dahl Land and during the year the field programme was extended to include measurements in the accumulation area for the first time determining the total mass balance of Nordbogletscher. The configuration and sediment thickness of the bottom of Nordbosø was determined by seismic reflection. At Qamanârssûp sermia (in the inner part of Godthåbsfjord) the glaciological investigations started in 1979 were continued, and were extended with the establishment of a net work of ablation stakes on the glacier.

In addition to glaciological investigations in the field, emphasis was placed on models for runoff patterns which can be applied to hydrological basins where no hydrological data are available. This is a potentially important contribution to large parts of West Greenland where there is interest in the hydroelectrical potential of an area. At the same time a Glacier Inventory is under construction as a first catalogue of all the glaciers in West Greenland and their physiography.

In 1980 the Section for Ore Geology continued their work with ground investigation and interpretation of uranium enrichment in the Søndre Strømfjord and Godthåbsfjord regions and in South Greenland. In South Greenland the work was coordinated with the Syduran project which completed the field investigations and is now compiling the results of their reconnaissance radiometric and geochemical exploration programme for uranium. An area in the Igaliko syenite complex was shown to be enriched in thorium and uranium. A pitchblende mineralisation was discovered in the fault system on the Igaliko peninsula.

The Coal project contined the laboratory analyses of the material collected in 1979. The chemical analysis and petrographic studies indicate that the coal is heavily weathered and oxidised and is of low rank, high volatile bituminous C variety. The second, and final, field season on Nûgssuaq was completed in 1980 where the profile measuring started the previous year was continued with the addition of 19 profiles. It also included a drilling programme in which 1000 m of drill core were recovered from four boreholes for laboratory study.

Offshore East Greenland the first season of seismic work was carried out under the NAD project. The NAD project has as its objective the mapping of the continental margin of East Greenland by means of aeromagnetic and marine geophysical survey, and to prepare a petroleum geological assessment of the region. The aeromagnetic survey was carried out in 1979 and the data processing and interpretation were continued during 1980. Despite initial difficulties the 1980 seismic survey was carried out according to plan and 2610 km of seismic, gravity and magnetic profiles were obtained. Ice conditions were favourable and profiles were obtained as far north as 73°.

As in previous years the Survey carried out its inspection of the lead-zinc mine at Mârmorilik. Close control is maintained over spillage into the adjacent fjords, and during the year the results of the 1978–1979 laboratory control were published.

The year saw five members of the scientific staff leave the Survey; only two of these appointments were filled during the year. After the death of Gilroy Henderson a new leader

of the Oil, Gas and Coal Section was appointed and takes up his duties at the beginning of the new year. One short-term contract appointment was made in connection with the NAD project.