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AERORADIOMETRIC SURVEY IN THE SCORESBY SUND REGION, EAST GREENLAND

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Independent of the main East Greenland mapping project (see Henriksen, this report), an aeroradiometric survey was carried out in the Scoresby Sund region in July. Three areas were surveyed in detail: (a) the eastern part of Milne Land, (b) the southern part of Liverpool Land, east of Hurry Inlet and (c) west of the Schuchert Dal between Bjørnbo Gletscher and Ivar Baardsøn Gletscher. Furthermore, several reconnaissance flights were made over Jameson Land, in the Mestersvig area and to the north of Mestersvig as far as Loch Fyne.

The equipment

The aircraft used was a Dornier 28 with STOL capabilities operated at a slow cruising speed and at minimum ground clearance. The mean speed during radiometric sampling was 80 m.p.h. at a ground clearance of about 150 feet. The detecting system mounted in the aircraft consisted of two 6×4 inches NaI (Tl)

crystals and a four channel gamma ray spectrometer. The data were recorded in analogue form on paper charts.

The effectiveness and selectivity of the spectrometer equipment, dependent on the mean speed and ground clearance, was normally sufficient to identify anomalies of geological and economic interest. However, in areas of rugged topography the higher ground clearance and speed necessary for safety reasons, lowered the usefulness of the data because fewer, and hence less statistically significant, counts were received in the thorium and uranium channels. Added to this disadvantage is the fact that during operation over rugged topography it is absolutely necessary to make corrections for clearance deviations.

The results

On Milne Land at the border between the Caledonian crystalline complex and the Mesozoic sediments several radioactive anomalies were discovered. Anomalies had already been found by Nordisk Mineselskab A/S in the same region in 1970 within the basement area where isolated remnants of Mesozoic sandstone are found. The radioactivity, mainly due to thorium, originates from radioactive accessory minerals in the crystalline complex which were deposited as placers during the transgression in Upper Jurassic time.

The radiometric survey on Liverpool Land showed good correlation with the known surface geology and the principal rock types and structures could be distinguished. For future work it is planned to increase the volume of the detector crystals and to improve the data recording system; these steps will make the air-borne gamma spectrometry a valuable tool in geological mapping.

In 1970 a radioactive anomaly was discovered by Nordisk Mineselskab A/S just south of Bjørnbo Gletscher in the fault zone between late Caledonian intrusive granites and Permian sandstone and arkose. The fault zone, and the granites and sediments in the adjacent area, were overflown but no new anomalies were discovered. However, a moderate radioactive enrichment was found along the fault zone thus enabling this feature to be plotted in the more rugged and inaccessible areas.

A NOTE ON THE ISOTOPIC AGE DATING WORK CARRIED OUT ON SURVEY MATERIAL DURING 1971

The Survey has no laboratory capacity at present for isotopic age determinations and age date programmes for both "hard" and "soft" rocks are arranged commercially and through cooperation with Danish and foreign geological