The investigation has shown that the characteristic flows are broad sheets measuring several hundred square kilometres representing typical flood basalts.

The study of the direction of magnetisation of the basalt flows using a hand compass was continued. In the short vertical range investigated the direction of magnetisation is almost entirely reversed except for a few flows which are anomalous.

A swarm of approximately east-west trending basaltic dykes on south-east Milne Land cuts both the Mesozoic sediments and the plateau basalts to the west.

Quaternary

Investigations of ice margin features and marine deposits were undertaken along Fønfjord, Rødefjord, Harefjord and Rypefjord.

In the outer part of Fønfjord traces of two glacial advances were identified. These two stages are separated by a marine level about 100 m above sea level. A younger marine level at about 90 m is probably synchronous with the moraine ridges and kame terraces formed during the younger glacial advance.

In the inner fjord region kame terraces and moraine ridges indicate a gradual retreat of the glaciers through the fjords. Shorelines are found at 60 m and at 40 m above sea level. Shell-bearing clay deposits are locally found up to about 60 m above sea level. Shells from these deposits were collected for C-14 dating. Drill core samples were collected from a few post-glacial lake deposits on Milne Land and west of Rypefjord.

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FIELD MAPPING IN JURASSIC AND LOWER CRETACEOUS SEDIMENTS OF JAMESON LAND AND MILNE LAND

T. Birkelund

In the third year of the five year project of mapping the Scoresby Sund region five field parties spent the seven-week season in the Mesozoic of Jameson Land and Milne Land. Three of the parties were sponsored by the Carlsberg Foundation and one of the participants, Dr. J. H. Callomon, by the Royal Society of London.

Two parties mapped the Upper Jurassic and Lower Cretaceous of Milne Land. The extent of the sediments is shown by Watt (1970). The eastern part of this area was earlier investigated by Rosenkrantz (1929) and later mapped by Aldinger (1935). The latter subdivided the succession lithologically as (a) Charcot Bugt Sandstone, (b) Oxford Clay, (c) Pecten Sandstone, (d) Kimmeridge Clay, (e) Glauconitic Series and (f) Hartz Fjeld Sandstone, the sequence ranging from the Middle Oxfordian to the Berriasian (Spath 1935, 1936; Callomon 1961). During the mapping remarkable changes in thickness and facies of the divisions within the area were demonstrated. Generally, the thickness of the lower divisions (a-d) decreases to the west, where the Pecten Sandstone is absent.

The mapping revealed that the area east of Lingula Ryg and Hennig Ryg consists of extensive land-slides and not of downfaulted blocks as suggested by Aldinger. The area east of Kronen likewise consists of land-slides.

Special attention was given to the superposition of Charcot Bugt Sandstone on the crystalline basement, and to the conditions of deposition of the Charcot Bugt Sandstone, Pecten Sandstone and Hartz Fjeld Sandstone on the basis of sedimentary structures and the abundant occurrence of trace fossils in these deposits. Fossils were extensively collected from all stratigraphical horizons.

One party mapped the area around Olympen, Parnas and Fossilbjerget in northern Jameson Land. The Upper Vardekløft Member and the Koch Fjeld Formation (Callomon 1970; Birkelund, Håkansson & Surlyk, in press) were studied in detail. Extremely well exposed fossiliferous sections in the Upper Vardekløft Member revealed evidence for a revision of the zonal scheme of the Boreal Middle Jurassic as published by Callomon (1959, 1961). Evidence provided by several new faunas made it possible to determine the age of the uppermost part of the Upper Vardekløft Member and the Koch Fjeld Formation more precisely than had previously been possible. A considerable variation in facies and age of the Koch Fjeld Formation from the west (south-west of Gimle) to the east (at Fossilbjerget) was demonstrated.

Three teams mapped a 10 km wide strip of the Jameson Land coast of Hurry Inlet. The problem of the relation between the Ørsted Dal Member of the Kap Biot Formation (as defined by Grasmück & Trümpy 1969) and the Kap Stewart Formation (as defined by Rosenkrantz 1929) received special attention. Macrofossils were collected from the plant-bearing beds of the Kap Stewart Formation and samples were collected for pollen and spore analysis from the whole Triassic–Jurassic succession. A special study was made of the abundant trace-fossils of the Neill Klint Formation. The Vardekløft Formation thins considerably as it is traced from north to south. Ammonites were collected from the Vardekløft Formation and from the largely unfossiliferous Koch Fjeld Formation. A visit was made to the type locality of the Koch Fjeld Formation in order to study more precisely the stratigraphical position of these sandstones and shales.

One team collected widely from extensive Berriasian outcrops in south central Jameson Land. Part of the region covered by Aldinger (1935, pl. 2) was mapped.

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GEOELECTRICAL SOUNDINGS IN HOLSTEINSBORG

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In the summer of 1969 a geoelectrical sounding programme was started in Holsteinsborg by the second author with equipment borrowed from the Institute for Applied Geology, the Technical University of Denmark. The following summer the work was followed up by further soundings at selected localities in the same area based on the results from the first summer.

The interpretation of data from the investigation is being carried out in cooperation with the first author from the Institute for Applied Geology.

The scope of the work was the evaluation of geoelectrical soundings in preliminary engineering geological investigations, especially delineation and depth of permafrost. Therefore Holsteinsborg was chosen as the working site, because within this town areas both with and without permafrost are present. Another advantage was the great number of boreholes, made by the Technical Organisation of Greenland, which gave a good basis for correlation.

The soundings were mostly carried out as point-profiles and only a single line-profile was measured. Altogether 18 profiles were measured; 6 of these were measured