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CAMBRIDGE SPITSBERGEN EXPEDITION, 1968

[By P. I. Maton and W. B. Harland, Department of Geology, University of Cambridge. Reports of previous expeditions in this series appeared in the *Polar Record*, Vol 14, No 88, 1968 and earlier issues.]

Stratigraphical, structural and geophysical investigations in Vestspitsbergen, under the direction of W. B. Harland, Department of Geology, University of Cambridge, were continued by an expedition led by P. I. Maton, and organized by Maton and W. T. Horsfield. The main party left Newcastle on 20 June and returned on 31 August. A total of 22 men participated, including eight members of the British Schools Exploring Society 1968 Spitsbergen Expedition from 26 July. The expedition was organized in four parties, A, B, K and C and there was interchange of personnel between the first three. G. S. Boulton and G. R. Coope of Birmingham University left Spitsbergen on 26 July, and Harland joined the expedition from 12 July to 9 August.

Expedition motorboats *Salterella II* (9 m) crewed by Party B, and *Collenia* (8 m) crewed by Party K, transported parties A, B, and K. *Salterella II* logged 1910 nautical miles averaging 6 knots, and *Collenia* logged 592 miles at 5.5 knots. R. A. Browne and M. P. Scott supervised the re-erection of a 15 by 8 m building, donated by the Norges Teknisk Naturvitenskapelige Forskningsråd (NTNF), as a boathouse for subsequent overwintering of *Salterella II* at Ny Ålsund.

Party A (leader W. T. Horsfield, with R. F. Barrow, G. S. Boulton and G. R. Coope) worked mainly in western Oscar II Land investigating the Hecla Hoek stratigraphy and the superimposed mid-Palaeozoic and Tertiary structures of the west Spitsbergen fold belt. Boulton continued his studies of glacial deposits, especially at Uversbreen and Aavatsmarkbreen, while Coope collected for insect studies as opportunities offered. After work in Engelsbukta, Harland joined Horsfield and Barrow for work in St Jonsfjorden, based at Bullbreen. Then after a period with Party K on Prins Karls Forland, Party A returned to St Jonsfjorden for the remainder of the expedition. Amongst other things a fossiliferous conglomerate was an unexpected discovery.

Party B (P. I. Maton, leader, with C. V. Reeves, and R. A. Browne and C. S. Nash both of Guildford County Technical College) continued gravity surveys in north and west Spitsbergen using *Salterella II* and a Worden gravimeter loaned by the Institute of Geological Sciences. Isfjordrenna at the mouth of Isfjorden was also traversed with a seaborne magnetometer.

Salterella II was commissioned after overwintering at Longyearbyen. Sea ice in north Spitsbergen persisted, and prevented the planned extension of the 1967 gravity survey there. The intended coverage in western Spitsbergen was therefore greatly amplified, and 260 stations were occupied around the shores of, and inland from, Krossfjorden, Kongsfjorden, Forlandsundet, St Jonsfjorden, and north-west Isfjorden from bases at Nordvestøyane, Ny Ålesund, around Forlandsundet, at Selvågen and Engelsbukta. Thereafter parties A, B, and K were withdrawn to Ny Ålesund whence *Salterella II* returned to Longyearbyen on 22 August for overwintering at Hotellneset.

Party K (leader D. N. McGill, and W. B. Harland, with J. C. Hughes and M. P. Scott both of Guildford Technical College) refitted and crewed *Collenia* (based at Ny Ålesund) for transport around Forlandsundet. The main base was at Selvågen on Prins Karls Forland where Harland worked with various members on the stratigraphy of the southern part of the island and McGill organized magnetic land traverses in support of Party B. Similar work was undertaken for shorter periods at Engelsbukta, Sarsøyra, Kaffiøyra and Strathmoredalen.



Party C (M. J. P. Welland, leader, with A. C. Clarke, N. A. Peacock, and J. C. Tipper) continued the work contracted to the University of Cambridge by Norsk Polar Navigasjon A/S, Trondheim, to investigate the post-Hecla Hoek stratigraphy and post-Caledonian structure of southern Spitsbergen. The party was taken by Norwegian government vessel *Nordsyssel* to Stormbukta, Sørkapp, on 28 June and was moved by *Nordsyssel* on 30 July to Bautaen, Hornsund. From this base Ostrogradskifjella was visited by sledge for six days. *Nordsyssel* returned the party to Longyearbyen on 21 August.

The expedition is indebted to the Sysselmann and the Store Norsk Spitsbergen Kulkompani for hospitality and assistance at Longyearbyen; and at Ny Ålesund to the NTNf and the Kings Bay Kulkompani. Grants were received from the Natural Environment Research Council and the Gino Watkins Fund.