



Fig. 1

Table 1. RESULT OF RUBIDIUM-STRONTIUM DATING

Sample No.	Sample	Locality	Rock type	SrN (p.p.m.)	Sr radiogenic (p.p.m.)	Rb (p.p.m.)	Apparent age
37	Biotite	Isis Point (Isispynten)	Gneiss	24.0	1.01	588	411 ± 7
7	Biotite	Isis Point (Isispynten)	Gneiss	38.3	0.83	553	358 ± 8
3	Biotite	Dove Bay (Duvofjorden)	Gneiss	7.4	1.10	609	374 ± 6
20	Biotite	Isis Point (Isispynten)	Gneiss	30.4	1.04	646	415 ± 10
42	Muscovite	Southern Land (north of Isis Point)	Granite aplite	< 0.1	2.17	1,370	378 ± 7
48	Muscovite	Southern Land (north of Isis Point)	Granite pegmatite	0.6	1.64	1,047	373 ± 10
51	Feldspar	North Cape (Nordhapp)	Granite pegmatite	51.2	0.19	84	537 ± 31
106	Biotite	Rijps Valley (Rijpdalen)	Schist	33.6	1.77	681	618 ± 11
	Muscovite			90.5	0.62	234	636 ± 20
	Whole rock			99.0	0.75	306	581 ± 19

$(^{87}\text{Rb } \lambda = 1.47 \times 10^{-11} \text{ yr}^{-1})$

while the adjacent synclines contain folded sediments. Sandford^{3,4} concluded from stratigraphical and structural evidence that an unconformity is present between the sediments and the basement, and that intrusive granodiorites occur in the lower part of the sediments. Either an unconformity exists between the Hecla Hoek sediments and the crystalline basement or there has been continuous deposition to the Lower Palaeozoic (compare with ref. 5), in which igneous activity is only related to the deeper part of the sedimentary pile.

Preliminary rubidium-strontium ages are given in Table 1, but as the samples are very small and were collected from inaccessible regions fringing the extensive ice caps they cannot be taken as representing the complete age pattern of North-East Land, and this must await the collection of more material with more extensive opportunities for sustained field work.

The age results indicate the eastern spread—more than 100 miles—of Caledonian ages from the main geosyncline of West Spitsbergen: but samples Nos. 106 and 51 were obtained from anticlinal areas in the basement structure and give pre-Caledonian ages, although the schists (106), in turn, are cut by Caledonian granite. The intersection (biotite-muscovite) age of the schists of 613 million years represents a minimum age of the metamorphism.

From this brief survey it is concluded that the Caledonian type ages are present in North-East Land as represented by both metamorphic and granitic rocks, while older ages are preserved in a few structurally favourable areas. Older ages are undoubtedly present, but the widespread Caledonian event has so saturated the area that greater ages may have been obliterated or 'smeared' by subsequent metamorphism.

The accompanying diagrammatic section (Fig. 1) across West Spitsbergen and North-East Land (about 200 miles) is based on refs. 2 and 4.

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Conodonts and Foraminifera from the Triassic of Israel

A COLLECTION of platy limestone of either latest Ladinian or earliest Carnian age, as determined by mega-fossils from Makhtesh Ramon, southern Israel, on treatment with acetic acid for ostracode investigations¹, yielded both conodonts and Foraminifera. Preliminary examination disclosed one genus each in the conodont families Polygnathidae and Coleodontidae, and representatives of the foraminiferal families Reophacidae and Nodosariidae. This is the first record of Triassic conodonts and Foraminifera in Israel.

Marl collected by Dr. N. Schulman (Hebrew University), about 3 km to the east of our locality and about 2 m higher stratigraphically, yielded, on washing, the same conodont faunule but no foraminifers. Similar conodonts and foraminifera are present in cuttings of a well about 40 km distant from the outcrop samples.

The conodonts are well preserved and amber coloured. Some have lighter coloured teeth which appear to be inserted in an amber base but which have the lamellar structure diagnostic of conodonts.

One of the foraminiferal genera resembles *Reophax*. The second genus is calcitic, apparently lamellar and uniserial, with faint, inner longitudinal rib-like projections. The intercameral foramina are surrounded by thick, high, collar-like necks about 4/5 the diameter of the chambers. The structure of this genus resembles that of some Palaeozoic Nodosariidae (for example, *Wanganella*).

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