

006250

GSC Loc. No: C-302223

NTS: Mayo, 105M/3

Fld. No: 94-RAS-27A

Collector: C.F. Roots/L. Thurogood

GEOGR - Lat./Long.: 63° 13' 9", 135° 24' 6"

UTM: Zone 8; 479800E, 7009890N.

Description: 26 km northwest of Clarke Peak, saddle of maroon argillite 3 km southwest of 5760' high point

STRAT - Rock Unit:

Description: Carbonate, northernmost (lowest, stratigraphically) of 5 samples, dark grey fine grained limestone

PALEO - Fossils: ichthyoliths

AGE - Phanerozoic

-----

GSC Loc. No: C-302224

NTS: Mayo, 105M/3

Fld. No: 94-RAS-27B

Collector: C.F. Roots/L. Thurogood

GEOGR - Lat./Long.: 63° 13' 9", 135° 24' 10"

UTM: Zone 8; 479750E, 7009890N.

Description: 26 km northwest of Clarke peak, maroon saddle, westmost of 5 samples

STRAT - Rock Unit:

Description: Carbonate, westmost, brown weathering, grey medium crystalline limestone

PALEO - Fossils: ichthyoliths?

AGE - Phanerozoic

-----

GSC Loc. No: C-302229

NTS: Mayo, 105M/3

Fld. No: 94-RAS-31-7

Collector: C.F. Roots

GEOGR - Lat./Long.: 63° 10' 56", 135° 27' 40"

UTM: Zone 8; 476780E, 7005805N.

Description: head of Nogold creek, trib flows north from black chert ridges

STRAT - Rock Unit:

Description: Carbonate, medium grey, fine crystalline limestone

PALEO - Fossils: sponge spicules

AGE - Phanerozoic

-----

**GSC Loc. No:** C-203011

**NTS:** Mayo, 105M/3

**Fld. No:** 92-RAS-73A

**Collector:** C. Roots

**GEOGR** - Lat./Long.: 63° 12', 135° 29' 10"

UTM: Zone ;

**Description:** SW spur, Nogold Plateau, 11.5km NE of Grey Hunter Peak

**STRAT** - Rock Unit:

**Description:** Carbonate, in Maroon shale, dark grey limestone with silicified? spheres

**PALEO** - Fossils: sphaeromorphs, spines

**AGE** - Phanerozoic?

**Remarks:** northernmost of 3 samples

**GSC Loc. No:** C-203012

**NTS:** Mayo, 105M/3

**Fld. No:** 92-RAS-73B

**Collector:** C. Roots

**GEOGR** - Lat./Long.: 63° 12', 135° 29' 10"

UTM: Zone ;

**Description:** SW ridge of Nogold Plateau, 11.5km NE of Grey Hunter Peak

**STRAT** - Rock Unit:

**Description:** Carbonate, Maroon shale within Grit, darker grey (than 72A) limestone, with quartz veins

**PALEO** - Fossils: spine

**AGE** - Phanerozoic?

**Remarks:** middle of 3 samples

**GSC Loc. No:** C-203013 / C-203008

**NTS:** Mayo, 105M/3

*Norris Exp 5A/498* **Fld. No:** 92-RAS-73C

**Collector:** C. Roots

**GEOGR** - Lat./Long.: 63° 11' 45", 135° 29' 10"

UTM: Zone ;

**Description:** SW ridge, Nogold Plateau, 11.5km NE of Grey Hunter Peak

**STRAT** - Rock Unit:

**Description:** Carbonate, Maroon shale within Grit Unit, black, fine crystalline limestone and poss Archimedes

**PALEO** - Fossils: sphaeromorphs, tubes, spines, ?crioconarids

**AGE** - Paleozoic *Early Devonian to late Late Devonian*

**Remarks:** southmost of 3 localities A single, finely - annulated element, and several other problematic elements imply an early Paleozoic age.

unproductive samples

No.	Field No.
02241,	92-RAS-4A
02242,	92-RAS-15B
02243,	92-RAS-16A
02244,	92-RAS-27B
02245,	92-RAS-J-11-2
02246,	92-RAS-J-11-3B
02247,	92-RAS-38A
02248,	92-RAS-J-14-6
02249,	92-RAS-39B
02250,	92-RAS-40A
03001,	92-RAS-42C
03002,	92-RAS-44C
03003,	92-RAS-59A
03004,	92-RAS-59B
03005,	92-RAS-60B
03006,	92-RAS-64A
03007,	92-RAS-67B
03009,	92-RAS-72A
03010,	92-RAS-72-2B
03014,	92-RAS-77-3B
03015,	92-RAS-77-3A

C Loc. No: C-202221

NTS: Mayo, 105M/2  
Fld. No: 91-RAS-103C

Collector: C. Roots

OGR - Lat./Long.: -63° 8', 135° 47' 30" — *MSO*

UTM: Zone ;

Description: Clarke Hills, Elevation 3700'; in ridge (woods) ~4 km W of Tiny Lake

RAT - Rock Unit:

Description: Carbonate, brown weathered olive-grey limestone with 1 cm clasts

LEO - Fossils: conodonts

Conodont taxa:

CAI: 4 - 4.5

coniform elements (12)

E - Late Cambrian - Early Ordovician

Remarks: Several morphotypes present. Dating could be improved.

*GULL LAKE*

C Loc. No: C-202229

NTS: Mayo, 105M/3  
Fld. No: 91-RAS-134A

Collector: C. Roots

OGR - Lat./Long.: 63° 8', 135° 28'

UTM: Zone ;

Description: Promontory W of N flowing creek, 4 km SW Sideslip Lake, elevation 4050'

RAT - Rock Unit: Hyland Group (same as 131B)

Description: Carbonate, H grey weathered, dark recrystallized lms, limy siltstone

LEO - Fossils: spicules

E - Phanerozoic

*RABBITKETTLE  
sr Nogold?*

C Loc. No: C-202232

NTS: Mayo, 105M/3  
Fld. No: 91-RAS-141A

Collector: C. Roots

OGR - Lat./Long.: 63° 8' 30", 135° 23'

UTM: Zone ;

Description: Small Mtn, SW of ridge line, 6 km E of Sideslip Lake, elevation 4850'

RAT - Rock Unit: Hyland (as at 140d) Group

Description: Carbonate, light brown, grey weathered limestone with contorted dolomite

LEO - Fossils: shell fragments

E - Phanerozoic

*GULL LAKE ?*

BC Loc. No: C-202234

NTS: Mayo, 105M/1  
Fld. No: 91-RAS-166D

Collector: C. Roots

COGR - Lat./Long.: 63° 12', 134° 28'  
UTM: Zone ;

Description: North-East Clarke Hills, 5 km W of Mist Lake, elevation 4600'

TRAT - Rock Unit: Road River Formation

Description: Carbonate, dark grey limestone pods

LEO - Fossils: organic material

GE - Phanerozoic

Remarks: sample bag reads 166c

-----

BC Loc. No: C-202240

NTS: Mayo, 105M/3  
Fld. No: 91-RAS-129B

Collector: C. Roots

COGR - Lat./Long.: 63° 5' 30", 135° 22'  
UTM: Zone ;

Description: 7 km SE of Sideslip Lake, elev. 4700'

TRAT - Rock Unit: Hyland Group

Description: Carbonate, Grey lms, fine trough crystallized laminate, fissile

LEO - Fossils: conodonts, mazuelloids, pellets

Conodont taxa: CAI: 5  
ramiform elements (3)

*Carniodus* sp. (5)

*Panderodus* sp. (5)

*Pterospathodus pennatus* (Walliser 1964) (4)

GE - Early-Middle Silurian, late Llandovery-early Wenlock

STEEL -

-----

54 unproductive samples

Field No.	GSC No.	Field No.	GSC No.
91RAS-26	C-177249	91RAS-137B	C-202230
91RAS-51	C-177249	91RAS-138C (Chert)	C-202238
91RAS-23	C-202202	91RAS-140D	C-202231
91RAS-123	C-202201	91RAS-161A	C-202233
91RAS-11D	C-202203	91RAS-161B (Chert)	C-202239
91RAS-29B	C-202205	91RAS-172B	C-202235
91RAS-40A	C-202206	90RAS-90B1	C-176414
91RAS-44B	C-202207	90RAS-90B2	C-176415
91RAS-45A	C-202208	90RAS-93D	C-176416
91RAS-46C	C-202209	90RAS-95A	C-176417
91RAS-47B	C-202210	90RAS-104D	C-176418
91RAS-48A	C-202211	90RAS-110A	C-176419
91RAS-53A	C-202212	90RAS-115B	C-176420
91RAS-54A	C-202213	90RAS-116B	C-176421
91RAS-54B	C-202214	90RAS-129B	C-176422
91RAS-81A -	C-202217	90RAS-140A	C-176423
91RAS-81B	C-202218	90RAS-178B	C-176424
91RAS-84C - <i>Kakras lake - no</i>	C-202219	90RAS-188B	C-176425
91RAS-96B (Chert)	C-202236	90RAS-192C	C-176426
91RAS-115A	C-202222	90RAS-194A	C-176427
91RAS-119B	C-202223	90RAS-195B	C-176428
91RAS-121A	C-202224	90RAS-195C	C-176429
91RAS-123B	C-202225	90RAS-198C	C-176432
91RAS-129A (Chert)	C-202237	90RAS-198D	C-176431
91RAS-131A	C-202226	90RAS-200B	C-176430
91RAS-131B	C-202227	90RAS-201A	C-176434
91RAS-131C	C-202228	90RAS-201B	C-176433

*head post roads -*

Start -  
Fossil Report.

ASC Loc. No: C-302223

NTS: Mayo, 105M/3  
Fld. No: 94-RAS-27A

Collector: C.F. Roots/L. Thurogood  
GEOGR - Lat./Long.: 63° 13' 9", 135° 24' 6" - MJO  
UTM: Zone 8; 479800E, 7009890N.  
Description: 26 km northwest of Clarke Peak, saddle of maroon argillite 3 km southwest of 5760' high point  
STRAT - Rock Unit:  
Description: Carbonate, northernmost (lowest, stratigraphically) of 5 samples, dark grey fine grained limestone  
PALEO - Fossils: ichthyoliths  
AGE - Phanerozoic

-----

ASC Loc. No: C-302224

NTS: Mayo, 105M/3  
Fld. No: 94-RAS-27B

Collector: C.F. Roots/L. Thurogood  
GEOGR - Lat./Long.: 63° 13' 9", 135° 24' 10" - MJO  
UTM: Zone 8; 479750E, 7009890N.  
Description: 26 km northwest of Clarke peak, maroon saddle, westmost of 5 samples  
STRAT - Rock Unit:  
Description: Carbonate, westmost, brown weathering, grey medium crystalline limestone  
PALEO - Fossils: ichthyoliths  
AGE - Phanerozoic

-----

ASC Loc. No: C-302225

NTS: Mayo, 105M/3  
Fld. No: 94-RAS-27C

Collector: C.F. Roots/L. Thurogood  
GEOGR - Lat./Long.: 63° 13' 6", 135° 24' 17"  
UTM: Zone 8; 479650E, 7009800N.  
Description: 26 km northwest of clarke peak, maroon argillite saddle, central  
STRAT - Rock Unit:  
Description: Carbonate, light brown weathering, grey limestone, est 1.5 m wide  
PALEO - Fossils: barren

-----

ASC Loc. No: C-302226

NTS: Mayo, 105M/3  
Fld. No: 94-RAS-27D

Collector: C.F. Roots/L. Thurogood  
GEOGR - Lat./Long.: 63° 13' 4", 135° 24' 13"  
UTM: Zone 8; 479700E, 7009720N.  
Description: 26 km northwest of clarke peak, maroon argillite saddle, southeast edge  
STRAT - Rock Unit: Nogold Succession Formation  
Description: Carbonate, Medium grey weathering limestone; most extensive bed  
PALEO - Fossils: barren

ASC Loc. No: C-202215

NTS: Mayo, 105M/8

Fld. No: 91-RAS-76A

Collector: C. Roots

EOGR - Lat./Long.: 63° 18', 134° 29'

UTM: Zone ;

Description: plateau 4 km E of Narrow Lake, 4700 feet,  
east end of spur

TRAT - Rock Unit:

Description: Carbonate, beige and grey weathered  
limestone with fine laminae; algal, reefoid

PALEO - Fossils: foraminifers?

AGE - ?Phanerozoic

---

ASC Loc. No: C-202216

NTS: Mayo, 105M/7

Fld. No: 91-RAS-77B

Collector: C. Roots

EOGR - Lat./Long.: 63° 18' 30", 135° 31'

UTM: Zone ;

Description: SW plateau, E of Narrow Lake, Elevation 5000  
feet, W end middle bump, Narrow Lake

TRAT - Rock Unit: Hyland? Group

Description: Carbonate, beige with grey limestone,  
greater than 4 m wide

PALEO - Fossils: foraminifers?

AGE - ?Phanerozoic

---

ASC Loc. No: C-202220

NTS: Mayo, 105M/3

Fld. No: 91-RAS-92D

Collector: C. Roots

EOGR - Lat./Long.: 63° 2' 30", 135° 3'

UTM: Zone ;

Description: NE of Clarke Pk in valley

TRAT - Rock Unit:

Description: Carbonate, Grey weathered dark grey lms,  
thick bedded

PALEO - Fossils: spicules

AGE - Phanerozoic

---

SC Loc. No: C-302227

NTS: Mayo, 105M/3

Fld. No: 94-RAS-27E

Collector: C.F. Roots/L. Thurogood

EOGR - Lat./Long.: 63° 13' 3", 135° 24' 12"

UTM: Zone 8; 479720E, 7009700N.

Description: 26 km northwest of Clarke peak, maroon argillite saddle, most extreme southeast (upper)

TRAT - Rock Unit: Nogold succession "

Description: Carbonate, Dark grey weathering limestone

PALEO - Fossils: barren

SC Loc. No: C-302228

NTS: Mayo, 105M/3

Fld. No: 94-RAS-31-3

Collector: C.F. Roots/K. Netherton

EOGR - Lat./Long.: 63° 10' 22", 135° 22' 9"

UTM: Zone 8; 481405E, 7004702N.

Description: 23 km northwest of Clarke peak, 4050' on shoulder north of chert ridge

TRAT - Rock Unit:

Description: Chert, medium bedded grey chert

PALEO - Fossils:

SC Loc. No: C-302229

NTS: Mayo, 105M/3

Fld. No: 94-RAS-31-7

Collector: C.F. Roots

EOGR - Lat./Long.: 63° 10' 56", 135° 27' 40"

UTM: Zone 8; 476780E, 7005805N.

Description: head of Nogold creek, trib flows north from black chert ridges

TRAT - Rock Unit:

Description: Carbonate, medium grey, fine crystalline limestone

PALEO - Fossils: sponge spicules

AGE - Phanerozoic

SC Loc. No: C-302230

NTS: Mayo, 105M/5

Fld. No: 94-RAS-35-6

Collector: C.F. Roots/K. Netherton

EOGR - Lat./Long.: 63° 17' 38", 135° 50' 49"

UTM: Zone 8; 457520E, 7018430N.

Description: 21 km northwest of Grey Hunter Peak, wooded east slope 1 km west of burned pond

TRAT - Rock Unit:

Description: Carbonate, grey recrystallized limestone, striped

PALEO - Fossils: barren

File C:WP\REPORTS\5AWN93

Report No. 5-AWN-93

Report on two lots of Devonian fossils from the Sideslip Lake map-area, NTS 105 M/3, Yukon Territory; submitted by Dr. Charlie Roots, Geological Survey of Canada, Department of Economic Development, Government of the Yukon, Box 2703, Whitehorse, Yukon, Y1A2C6.

The relevant parts of any manuscript prepared for publication that paraphrase or quote from this report should be referred to the Paleontology Subdivision, Calgary, for possible revision.

Field No. & Stratigraphy.

RAS-92-73c; from a 3 cm thick bed of black, finely crystalline limestone of the Maroon shale member of "Grit Unit" of the Hyland Group?

Locality, Fauna & Age.

Located on southwest ridge of "Nogold Plateau", in gully at head of west facing cirque, elevation 5000 ft., 11.5 km northeast of Grey Hunter Park, at 63°11'45"N, 135°29'10"W.

- *Nowakia*? sp.

- echinoderm ossicle with single axial canal

Age: Range of genus *Nowakia* is from latest Lochkovian of Early Devonian to about mid-Famennian of late Late Devonian (Lardeux, 1966, 1969).

GSC locality No. C-203008.

Field No. & Stratigraphy.

RAS-91-90b; dark brown siltstone unit of the Earn Group.

Locality, Fauna & Age.

Located on east side of a small wooded cone, 3 km west-southwest of Clarke Peak, elevation 4150 ft., at 63°02'00"N, 135°08'05"W.

cf. *Eleutherokomma reidfordi* Crickmay, 1950

*Eleutherokomma*? sp. - vague impression of a small specimen

Age: *Eleutherokomma reidfordi* Zone of Crickmay (1957), mid-Frasnian, early Late Devonian age.

GSC locality No. C-203017.

Comments

In sample C-203008 there are conical fragments with longitudinal and transverse markings suggestive of the cricoconarid genus *Nowakia*. Unfortunately, the shell material is recrystallized and the external ornament is too poorly preserved for a more precise identification. The range of the genus *Nowakia* is from latest Lochkovian of the Early Devonian to mid-Famennian of the late Late Devonian (Lardeux, 1966, 1969). Most tentaculitid genera do not extend beyond the pronounced extinction event which marks the end of the Frasnian.

Sample C-203017 contains an impression of part of the flank and sulcus of the pedicle valve of a spiriferid brachiopod suggestive of *Eleutherokomma reidfordi* Crickmay, 1950. This species is the name bearer of the *E. reidfordi* Zone of Crickmay (1957) which occurs typically in an interval, 157 feet (47.9 m) thick, at 444 feet (135.3 m) below the top of the Lower member of the Hay River Formation on Hay River as defined by Belvea and McLaren (1962). It indicates a mid-Famennian to early Late Devonian age. *E. reidfordi* occurs also in the Iratou

Formation in the subsurface of Alberta (Braun et al., 1989).

References

Belyea, H. R., and McLaren, D. J.

1962: Upper Devonian formations, southern part of Northwest Territories, northeastern British Columbia, and northwestern Alberta; Geological Survey of Canada, Paper 61-29, 74 p., 4 figs.

Braun, W. K., Norris, A. W., and Uyeno, T. T.

1989: Late Givetian to early Frasnian biostratigraphy of western Canada; The Slave Point-Waterways boundary and related events; in N. J. McMillan, A. F. Embry and D. J. Glass (eds.), Devonian of the World, Canadian Society of Petroleum Geologists, Memoir 14, p. 93-111.

Crickmay, C. H.

1950: Some Devonian Spiriferidae from Alberta; Journal of Paleontology, v. 24, no. 2, p. 219-225, pls. 36, 37.

Crickmay, C. H.

1953: New Spiriferidae from the Devonian of western Canada; published by author, Imperial Oil Limited, Calgary, Canada, 13 p., 6 pls.

Crickmay, C. H.

1957: Elucidation of some western Canada Devonian formations; published by author, Imperial Oil Ltd., Calgary, 15 p., 1 pl.

Crickmay, C. H.

1967: The method of indivisible aggregates in studies of the Devonian; published by author, E. de Mille Books, Calgary, 19 p., 4 pls.

Fisher, D. W.

1962: Small conoidal shells of uncertain affinities; in R. C. Moore (ed.), Treatise on Invertebrate Paleontology, Part W, Miscellanea, p. W98-W177, figs. 50-108, Geological Society of America and University of Kansas Press.

Lardeux, H.

1966: Les Tentaculites d'Europe occidentale et d'Afrique du Nord: Quelques résultats; Bulletin, Société d'Etudes Scientifiques de l'Anjou, T. 6, 1965-66, p. 59-78, 20 figs. 3 tables.

Lardeux, H.

1969: Les Tentaculites D'Europe Occidentale et D'Afrique du Nord; Editions du Centre National de la Recherche Scientifique, Paris, France, 238 p., 117 figs., 52 pls.

*A. W. Norris*

A. W. Norris



canada/yukon economic  
development agreement

April 17, 1993

Dr. A.W. Norris  
ISPG  
3303 - 33rd St NW  
Calgary, Alberta, T2L 2A7

Dear Dr. Norris:

Following our phone conversation April 16th I enclose two fossil collections from southern Mayo map area. One collection is a single specimen of a *Spirifer*-like brachiopod which I'll explain near the end. The other collection (field # RAS-92-73c / GSC C-203008), consisting of 5 pieces of dark grey limestone, is the 'hot' one. I sent smaller pieces to the Vancouver conodont lab, and they recently reported "tubes and criocanarids" (the residue C-203013 is also on its way to you from Steve Irwin in Vancouver).

This collection is important because it is from a dominantly sandstone unit correlated with the Hyland Group of Upper Proterozoic - Lower (I stretch it to Middle-) Cambrian age, and the preliminary call on the bioclastic debris is Silurian or Devonian. If this limestone, and the sandstone that overlies it, can be shown to be mid-Paleozoic it will be a big change to the distribution of the Hyland Group of central Yukon - that expanse of drab brown PCH on the Tectonic Assemblage map - and strengthen the case for a second silicilastic unit, lithologically indistinguishable from the older. Dirk Tempelman-Kluit found this limestone while on a field visit with me in late August of 1992.

This locality and most of Mayo map area lies within the Selwyn Basin, and within 10 km to the south are definite Earn Group, Road River and a Cambro-Ordovician correlative of Rabbitkettle Fm. The RAS-92-73c locality, however, lies amidst a sea of sandy rocks that have been called the 'Grit Unit' by Gabrielse and Blusson in the seventies, and (until now) correlated with the Upper Proterozoic - Lower Cambrian **Hyland Group**, defined by Steve Gordey in the DNAG (p. 138 of the Cordilleran volume) and his soon-to-be-released Memoir 428. In Mayo area the Hyland Group is strongly deformed, and is so lithologically undistinguished that I know not its true thickness. The sampled limestone layer, a single bed about 3 cm thick, lies within a extensive maroon shale band which is thickened by folds and thrust repeats. The maroon shale is probably in the upper part of the succession currently called Hyland Group, and is overlain by more sandstone. These rocks are considered by Gordey, Bob Thompson and others to correlate with similar lithology north of Dawson where *Oldhamia*, *Rusophycus*, *Planelites* and other trace fossils are present. There is less doubt that the Dawson succession matches the type Hyland Group in the Nahanni area. For some reason I have been less enthusiastic to corral the deformed rocks of Mayo in this all-inclusive, non-descript unit.

han there is with more prevalent, deformed rocks of Mayo.

Dirk and I drafted a Current Research note on the strata that enclose this locality, which we considered too young for Hyland Group. although we withdrew the note for want of solid data. In it we referred to the strata, including this limestone, as "the **Nogold Succession**", and noted that the bioclastic debris and mafic metavolcanic lenses found it were inconsistent with Hyland Group. We also suggested the Nogold Succession overlapped and conformably succeeded the Road River chert-shale sequence - I'll have to re-examine this contact. The attached figures were part of this aborted note.

Every field geologist submits specimens hoping for a certain diagnosis, and I've been disappointed many times. Our excitement with the dark grey limestone was piqued by the twig-like impressions, in particular the whorled grooves on the one circle with the over-optimistic "Archimedes?" inked beside it. The surface upon which it is exposed was created by a random hammer-blow; you have my go-ahead to comminute or dissolve the rock as necessary to expose better study material. Unfortunately, ~~this~~ this particular locality is mined-out, but I will certainly be on the lookout for limestone beds within the maroon shale from now on!

The second collection (field # RAS-91-90b and GSC# **C-203017**) illustrates how desperate I am to have even a single identifiable macro-fossil reported in the Mayo memoir. (The scrawl on the rock is not correct: although it may not be the "first fossil" in the map area, it is certainly the first one found in the map area.) But for the official document I would like yours (or a colleague's) professional opinion, if either of these imprints has any diagnostic features.

This collection is from dark-grey mudstone/siltstone that overlies a lens of chert-pebble conglomerate at least 80 m thick. I have no doubt that this is Earn Group; this locality is on strike with the Dromedary Mountain - Earn lake area, and I have seen Mississippian *Spiriferids* from the Crystal Creek locality there (about 25 km SEE of these specimens) that looked similar, - to my untrained eye. I am, however, unacquainted with the abutting, or overlapping research interests of various paleontologists at ISPG and if you feel another should provide an opinion on these poor specimens, would you kindly submit them on my behalf?

As for myself and the family: I've been working for the Cordilleran Section since January 1988, and was seconded last year to Whitehorse where the Territorial government is running a geoscience office with MDA funding. MaryAnn (former cook for Mike Cecile and Larry Lane) and I are expecting our first baby in late May / early June (how typical geologists offspring: Conceived at the end of a field season and born just before the next) which will bring my parents driving from Quebec for a Yukon holiday and to see their second grandchild. Fred is *emeritus* with Environment Canada for another year, then one of his too-many plans is to write up the geology of Queen Maud Land. The Antarctic rock samples have been mouldering in the family basement for 40 years, but almost nobody has visited those remote nunataks in the