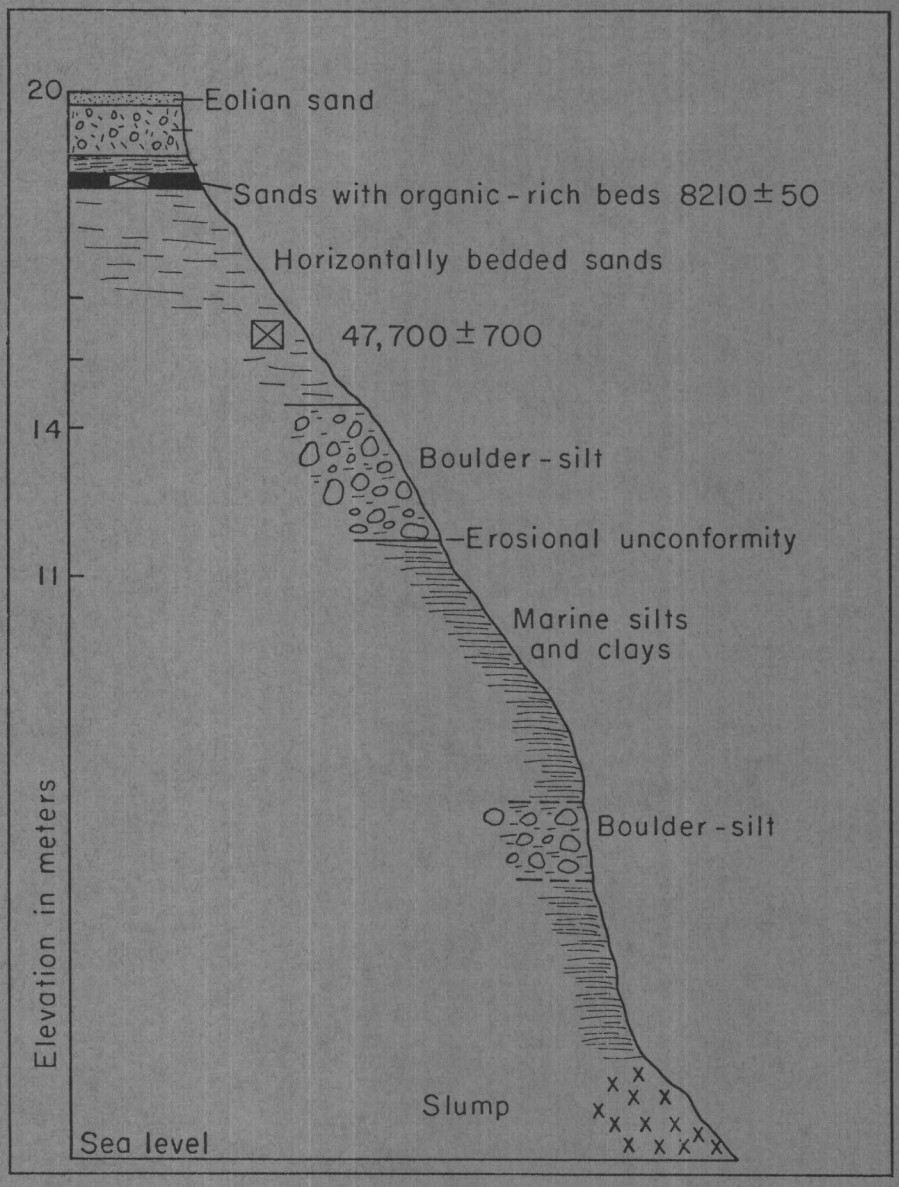
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RADIOCARBON DATE LIST III
BAFFIN ISLAND, N.W.T., CANADA

Compiled by

J. T. Andrews



Contributors

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Occasional Paper No. 21

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INSTITUTE OF ARCTIC AND ALPINE RESEARCH • UNIVERSITY OF COLORADO

RADIOCARBON DATE LIST III: BAFFIN ISLAND, N.W.T., CANADA

Compiled by
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University of Colorado
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PREFACE

This Occasional Paper is the fourth radiocarbon date list to deal wholly or mainly with samples from Baffin Island (Andrews and Drapier, 1967; Andrews and Miller, 1972; Andrews, 1975b). These ^{14}C dated samples form much of the chronological framework for a long-term investigation into the late Quaternary glacial history and paleoclimatology of the eastern Canadian Arctic.

J. T. Andrews
May 24, 1976

ACKNOWLEDGMENTS

Most of the field support for the summers of 1974 and 1975, when the vast majority of these samples were collected, was provided by a grant from the National Science Foundation, GA-41562 (EAR 74-01857 A01) entitled "Amino acid, radiometric, and relative dating of multiple tills and marine sediments ≥40,000 BP, eastern Canadian Arctic: A contribution to Quaternary chronology and climatic change." This grant supported the field investigations of G. H. Miller, W. W. Locke III, P. W. Birkeland, and P. T. Davis and partly supported Dr. C. Schlüchter and Dr. R. W. Feyling-Hanssen. The field program of A. S. Dyke was conducted under a contract with Parks Canada, Quebec Region, Government of Canada. In addition, Dyke's dates from the Quebec Department of Natural Resources (Qu) were provided by a contract between Parks Canada and this laboratory, (directed by Dr. P. La Salle). Fifteen of the dates in this list were purchased by funds to J. T. Andrews from the University of Colorado's Council on Research and Creative Work. The radiocarbon dates provided by Dr. M. Stuiver, Quaternary Isotopes Laboratory, University of Washington, were partly supported by the above-noted NSF grant but Stuiver's laboratory was also supported by National Science Foundation grant DES 72-01712 A01. Dr. R. Stuckenrath's contribution was part of NSF grant GA-41562 and we thank the Smithsonian Institution for invaluable assistance to our program.

Other agencies and laboratories have assisted individuals working under the umbrella of INSTAAR's eastern Canadian Arctic field program. Dr. W. Blake of the Geological Survey of Canada has kindly dated samples submitted by G. H. Miller, N. Ten Brink, A. S. Dyke, and J. T. Andrews. Dr. J. Terasmae, Brock University, provided dates on samples submitted by Dr. C. Schlüchter and A. S. Dyke and assisted Schlüchter in his field expenses. Dr. G. S. Boulton had his samples dated through the cooperation of Professor F. Shotton of Birmingham University, England. Dr. J. Labyrie and Mme G. Delibrias have most kindly dated two samples. Irene Stehli of Dicar Corporation proved to be most helpful and interested in our dating program.

Mr. Rolf Kihl of the INSTAAR Sedimentology Laboratory should take much of the credit for his rigorous attention to details of sample preparation and data filing. Finally, I would like to thank the contributors for their assistance in compiling this date list.

ABSTRACT

Eighty-five new radiocarbon dates are described and located for the coast of east Baffin Island between Latitudes 66° and 72° N. The dates are clustered in Cumberland Peninsula and in the area between Cape Henry Kater, Clyde Fiord, and Scott Inlet. The greatest number of samples are on buried soils and/or peats. The majority of these date from the Neoglacial, although a number have ^{14}C ages of between 8,000 to 11,000 BP and one is slightly older than 50,000 BP (probably a minimum age). Marine shells constitute the second major class of sample material. A significant number of these samples date between 35,000 and 48,000 BP with another subset dating between 8,000 and 10,000 BP. Samples are located by (1) 1:250,000 NTS Map Sheet, (2) latitude and longitude, and (3) UTMG reference system. This last method is based on identification within 10 x 10 km grid squares marked on the Canadian 1:250,000 map sheets. The grid location is given by a six-digit reference accurate to $\pm$100 m. This is an easier method for locating sites than latitude and longitude coordinates.

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INTRODUCTION

The radiocarbon dates included in this list were collected and dated for three separate, but related, investigations into the Late Quaternary glacial chronology and paleoclimatology of Baffin Island, N.W.T. Canada. These three topics are identified as:

1) The age of raised marine deposits that crop-out frequently along the outer coast of Baffin Island at elevations from 0 to 80 m a.s.l. and which have ^{14}C ages of $\geq$35,000 BP.
2) The age and interpretation of the low, pronounced marine transgressive facies that cross-cut the older deposits and with radiocarbon ages of between 8,000 and 10,000 BP.
3) The age of complex series of buried soils and peats that occur along the outer coast and on Cumberland Pennisula and which typically date from less than 5,000 years ago.

Topics (1) and (2) above are being combined with studies of the enclosed marine faunas (cf. Feyling-Hanssen, 1976) whereas point (3) involves an on-going, and growing interest in the climate-vegetation-pollen-glacier responses during the Neoglacial across this sector of the eastern Canadian Arctic (cf. Nichols, 1975; Boulton et al, 1976; Nichols and Andrews et al., in prep.; Andrews et al, in prep.). Topic (2) is associated with the continuing investigation into the place and importance of the Cockburn Moraines in the late glacial chronology of the northeastern margin of the Laurentide Ice Sheet (Andrews, 1975a). Finally, the location, elevation, and the stratigraphic setting of the numerous sites where marine shells date 35,000 BP are important in any discussion of the local glaciers/Laurentide Ice Sheet interrelationships (Miller, 1976).

ORGANIZATION

The radiocarbon dates are ordered first on the basis of the Canadian 1:250,000 map series (Figure 1) and secondly from oldest to youngest for each map sheet. Two location methods are used: the usual method of reporting the location by latitude and longitude is followed, but in addition all dates are also located using the Universal Transverse Mercator Grid (UTMG) system. All of the Canadian 1:250,000 map sheets covering Baffin Island are crossed by a 10 x 10 km grid (4 x 4 cm on this map scale) that is part of a world-wide grid reference system. On each map sheet, larger units than the 10 x 10 km squares are designated by capital letters. To locate a radiocarbon-dated site the following steps should be followed (UTMG: MK563910; Broughton Airport Okoa Bay Map Sheet, 26P)

1) Select the correct map sheet,
2) Locate the area covered by the large units, e.g. Mk,
3) Locate N-S-oriented numbered grid line, e.g. 5,
4) Read in from left (west) 0.63, the distance to the next grid line,
5) Repeat for the E-W-oriented grid, e.g. 910.

Thus each site is identified by a six-digit reference that has a resolution to a 100 x 100 m square. This resolution is commensurate with the scale and accuracy of the 1:250,000 arctic map series. The UTMG is significantly easier to use than latitude and longitude and thus less apt to cause errors.

Apart from the use of the UTMG system, the format used in this date list closely approximates that used in Radiocarbon. Table 1 lists the abbreviations of the laboratories that dated samples for the various contributors. Details of counting procedures, equipment, etc., for these laboratories can be found in various issues of Radiocarbon. Note that GSC dates on marine shells are corrected for isotopic fractionation according to the $\delta^{13}C$ o/oo content. The identification on most notes, e.g. GRL-136-S refers to the INSTAAR Lab. No.

A COMMENT ON THE DATES

In previous date lists (Andrews and Miller, 1972; Andrews, 1975b) tables have been presented on the number of samples within different age classes and on the number of dates on different materials. Tables 2 and

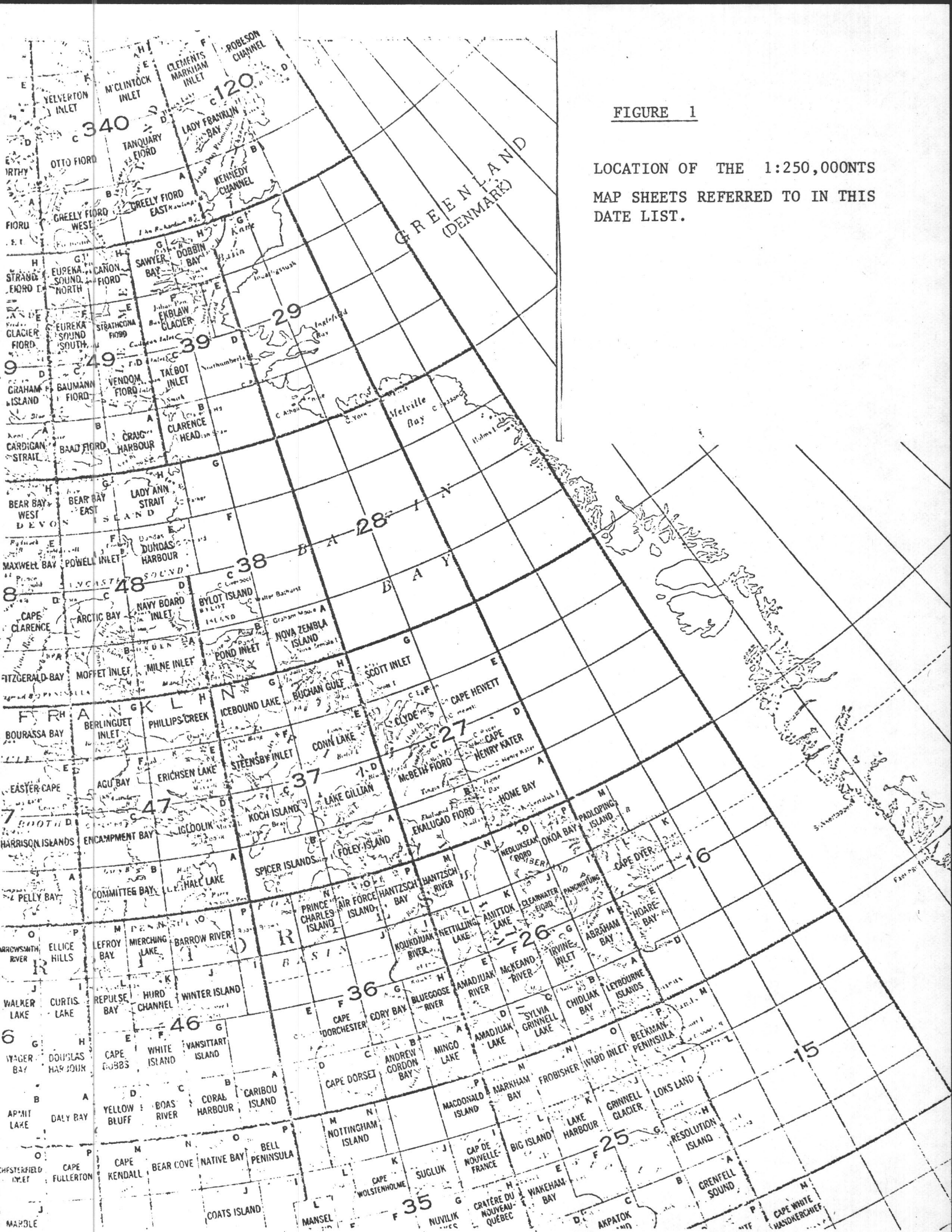


FIGURE 1

LOCATION OF THE 1:250,000NTS MAP SHEETS REFERRED TO IN THIS DATE LIST.

3 repeat this information for these current samples. The presence of 15 finite radiocarbon dates on marine shells between 33,000 and 48,000 BP is some measure of the large number of exposed marine sediments along the outermost east coast of Baffin Island. Because of the well-known problems of contamination of marine shells with ages 30,000 BP most of these reported dates were based on large collections (frequently 1,000 g of shell) and moderate leaches (40-45%) have been applied. The reliability of the finite dates are currently being cross-checked by a number of methods, namely: U-series dates, amino acid ratios, biostratigraphy (benthic foraminifera and mollusca), geological field mapping, and ^{14}C dates on progressive fractions of shell material. This latter research is being conducted by Dr. M. Stuiver, Quaternary Isotopes Laboratory, University of Washington.

Many of the dates less than 4,000 years old are from buried soils and peats that occur within sequences of niveo-eolian sediments and the soils/peats thus may represent important episodes of climatic stability and favorability for plant growth. However, there are problems in obtaining conformable ^{14}C dates from these sequences (cf. Andrews, 1975b) probably due to rapid root and ground water penetration in these excessively well-drained deposits. Dr. R. Struckenrath is researching the problem of determining where the source of contamination might be.

TABLE I

Radiocarbon Laboratory Identification

Birm	Birmingham University, England
BGS	Brock University, Canada
DIC	Dicar Corporation, U.S.A.
GaK	Gakushin University, Japan
Gif	Gif-sur-Yvette, Centre des Faibles Radioactivés, France
GSC	Geological Survey of Canada, Canada
QL	Quaternary Isotopes Lab., U. of Washington, U.S.A.
Qu	Quebec Department of National Resources, Canada
SI	Smithsonian Institution, U.S.A.

TABLE II

Number of Radiocarbon Dates Performed on Different Materials (and Different Date Lists)

MATERIAL	NO. DATES (This List)	1972	1975
marine shell	33	29	7
soil	6	6	19
organic rich sediments/peats	37	10	9
wood	2	0	1
whalebone	2	3	2
moss	2	4	1
organic mud	3		

TABLE III

Number of Radiocarbon Dates in Different Age Classes

Age Class, yrs. BP	No. Dates	1972	1975
0-999	14	16	18
1000-1999	13	6	6
2000-2999	10	1	7
3000-3999	4	1	0
4000-4999	2	2	1
5000-5999	3	3	2
6000-6999	6	1	2
7000-7999	4	5	2
8000-8999	7	4	2
9000-9999	4	2	1
10,000-10,999	1		
11,000-11,999	1		
--------	----		
30,000-40,000	7	} 11	} 2
40,000-51,000	9		

RADIOCARBON DATES BY 1:250,000 NTS MAP SHEET

1. Clearwater Fiord (map sheet no. 26J. 66-67 N, 66-68 W)

GSC-2183 SOUTHERN CUMBERLAND PENINSULA 8660±110

$\delta^{13}C$ oo/o -0.4

Marine shells (GRL-147-S) collected August, 1974, by A. S. Dyke on the surface at 55-60 m, Southern Cumberland Peninsula (66^{o} 32.5'N, 66^{o} 16'W) (UTMG:FD 215 825) Species: Portlandia arctica. Comments (A.S.D.): Very thin values with periostricum, many paired. Shells were collected from in situ positions from silt bottomset deltaic sediments, which are overlain by coarse well-sorted and bedded (dipping) sands. The sands terminate upward in a very extensive terrace at 70 m a.s.l. No obvious higher marine terrace is present in this vicinity. Fifteen km northwest of the collection site is a terrace formed of bouldery gravel and lying 115 m a.s.l. This may represent a higher marine level or a fluvial deposit, most likely the latter. This date is very similar to GSC-2001 (8690±90) (Andrews, 1975b) on the 50-m marine limit at Pangnirtung 55 km southeast of this site. It documents a generally northwestward tilt of the early Holocene shoreline. The marine sediments were deposited by rivers draining three outlet glaciers of the Penny Ice Cap at a time when these glaciers terminated near the site. Deglaciation from the moraines marking the positions of these three glaciers, thus, commenced ca. 8700 BP.

GSC-2111 CUMBERLAND SOUND 7770±100

Marine shells (GRL-149-5) collected August, 1974, By A. S. Dyke at a depth of 0-1 m, Cumberland Sound (66° 24.5'N, 66° 27.5'W) (UTMG:FD 130 685). Species: Serripes groenlandicus. Comments (A.S.D.): Shells were collected from in situ positions in horizontally bedded sands and silts which form a very extensive terrace at 34 m a.s.l. The sands overlie fossiliferous, horizontally bedded silts. The 34-m terrace lies downstream (southward) from the 70-m terrace dated at 8670±110 by GSC-2183 and northwest of the 28-m terrace dated at 7610±65 by DIC-334. The relation between this date and the other two quoted above shows (a) the average rate of emergence between 7770 and 8670 BP was about 4 m per century, and (b) the 7700 BP shoreline is tilted upward toward the northwest.

DIC-334 AMERICAN HARBOUR, CUMBERLAND SOUND 7610±65

Marine shells (GRL-148-S) collected August, 1974, by A. S. Dyke on the surface at 22-28 m, American Harbour (66° 15.5'N, 66° 33'W) (UTMG:FD 105 505). Species: Hiatella arctica and Mytilus edulis. Comments (A.S.D.): Fragments and whole values collected from small deflation hollows on top of a 28-m terrace and from the upper 6 m of a wave-eroded bluff. The enclosing sands are well sorted and stratified with foreset and topset bedding. The 28-m terrace is the highest marine feature at the site. However, 2.5 km northward, a distinct beach lies at 35 m and 11 km to NNE a delta terrace lies at 61 m. The latter is the highest marine deposit on this portion of the Cumberland Sound Coast. DIC-334 dates a relative sea level stand at 28 m above present. See comments on GSC-2183 and GSC-2111.

Qu-299 NEAR SOUTHERN MARGIN OF PENNY ICE CAP 6800 ± 600

Fibrous peat (GRL-206-0) collected August, 1974, by A. S. Dyke at a depth of 106-109 cm, near the southern margin of the Penny Ice Cap (66°50.5'N, 66°17.5'W) (UTMG:FE 190 160), elevation ca. 420 m. Comments (A.S.D.): A 3-cm thick fibrous peat layer underlain by sand with occasional small quantities of organic matter which is in turn underlain by rhythmically banded fluvial sands down to the frost table at 170 cm. Sampled material is overlain by fluvial sands interbedded with sandy organic layers. Modern roots observed at a depth of 60 cm. Section exposed on the west side of a large river draining a Penny Ice Cap outlet glacier 1 km downstream from the ice margin. The date is a minimum for deglaciation of the area and shows that by 6800 BP the glacier had receded to approximately its present dimensions or was possibly smaller than present. The large standard error may indicate that the 3 cm of peat accumulated over a lengthy period of time (i.e. 1000-1500 yr) around 6800 BP. At 8670 ± 100 BP (GSC-2183) the glacier stood at a system of lateral moraines preserved downvalley from this site. Thus, the glacier retreated about 22 km in a period of less than 1900 yr. At least one stillstand occurred during that period as marked by the presence of a recessional moraine. Qu-299 also provides a date on a higher water level in the meltwater stream indicating a period when ablation and discharge were much higher than present. Comment (J.T.A.) Pollen analysis by Short indicates large percentage of Betula pollen.

GSC-2211 UNNAMED BAY, WEST OF MILLUT BAY 6120 ± 90
$\delta^{13}C$ o/oo +1.6

Marine shells, Mya truncata (articulated) with fragments of Clinocardium ciliatum and Macoma calcarea (id. W. Blake, Jr.) from 24.5 m a.s.l. and depth of 0.5-1.0m. (66°36'N, 67°40'W) (UTMG:ED 590 870). Coll. 1974 by Norman Ten Brink. Comment (N.T.B.): sample probably related to a relative sea level of 30.6 m as indicated by beach ridges and top of delta in which shells were found. Shells were collected from upper few centimeters of "foreset"(?) clay-silt-sand beds at contact with overlying 0.5-1.0m thick topset gravelly beds. The date provides a minimum estimate on the local deglaciation.

GSC-2258 MILLUT BAY, CLEARWATER FIORD 6060 ± 170

Marine shells (GRL-154-S) collected September, 1974, by A. S. Dyke (66°33'N, 67°30'W) (UTMG:ED 655 910). Species: Portlandia arctica (identified by W. Blake, Jr.) 0-3 m above highest tide. Comments (A.S.D.): Very fragile shell fragments and small whole valves. Periostricum present on nearly all pieces. Sample collected from the surface of eroded bottomset clay and silt, overlain by sandy foreset beds with shallow dip terminating in a 15 m a.s.l. terrace several square kilometers in extent. No terraces in the immediate vicinity lie between 15 and 58 m. Stratigraphically the sample may relate to either the 15-m or 58-m levels or perhaps some position in between. The regional picture (Dyke, in prep.) suggests it relates to a sea level ≥15 m above present and possibly to the 58-m level. The site lies 3 km up ice from a Laurentide Ice Sheet moraine (Ranger Moraine) and the date is a minimum for deglaciation. A date of 6100 ± 90 (GSC-2211) from a site 7 km further west (up ice) indicates that deglaciation occurred slightly earlier (6500 BP ?).

GSC-2138 SHILMILIK BAY, CLEARWATER FIORD 5800 ± 70
$\delta^{13}C$ o/oo + 2/4

Marine shells (GRL-155-5) collected September, 1974, by A. S. Dyke (66°36.6'N, 67°19'W) (UTMG:ED 740 885) 0-1 m above the highest tide. Species: Mya sp. (identified by W. Blake, Jr.). Comments (A.S.D.): Valves and paired valves collected but many were broken during collection due to fragile nature. Some shells have Fe stains and many had periostricum attached at time of collection. Shells were collected from bottomset silt which are overlain by foreset sand. A terrace at 17.5 m and another at 21.5 m occur above the sample site. A prominent terrace lies at 53 m farther up valley. Because the sediments are exposed only over a small area near the collection site it is not possible to definitely tie the sample into its exact relevant sea level. The regional picture provided by other dates in the area, however, strongly suggests that the date relates to either the 17.5 m or 21.5 m terrace and not to the 53 m level. The site lies 5 km beyond a Laurentide Ice Sheet end moraine (Ranger Moraine, Dyke, in prep.).

DIC-335 CLEARWATER FIORD 5710 ± 80

Marine shells (GRL-150-S) collected September, 1974, by A. S. Dyke 0-1 m above highest tide, Clearwater Fiord (66°38'N, 67°56'W) (UTMG:ED 465 910), at a depth of <1 m. Comments (A.S.D.): Includes fragments, valves, and paired valves. The shells were collected from a slightly stoney silt which is overlain by sand and gravel. Terraces occur at 9, 17, and 37 m. The highest terrace laterally contacts to a small terminal moraine. The presence of the stones in the shelly silt probably indicates that ice stood at the nearby moraine. The stratigraphy examined allows relation of the shells to either the 17 m or 37 m terrace if the stones in the silts are not given any particular interpretation. A few kilometers southeast of this site GSC-2103 (this date list) dates a 35-m level at 5560 ± 70 BP. DIC-335 is, therefore, interpreted as dating the 37-m marine limit and an ice frontal position adjacent to it. Separation of the ice caps on northern and southern Baffin Island should have followed this date. See comments on GSC-2103 and references listed there.

GSC-2103 HEAD OF KANGILO FIORD 5550 ± 70
$\delta^{13}C$ o/oo - 0.7

Shells (GRL-151-S) from surface of stream cut collected September, 1974, by A. S. Dyke at 27-32 m, Head of Kangilo Fiord (66°33'N, 67°56'W) (UTMG:ED 465 825). Species: (W. Blake, Jr.) Mya truncata (dated), others: Hiatella arctica, Clinocardium ciliatum, Serripes groenlandicus, Macoma sp. Comments (A.S.D.): Shells are thin and fragile and many have periostricum attached and many have Fe stains. Shells come from bottomset silt and clay sediment immediately below foreset and topset gravel. The bottomsets outcrop 2 m below an extensive delta terrace at 35 m a.s.l. The marine limit at 47 m is recorded by a very small terrace remnant. Many boulders in the topset beds are striated. The delta is therefore interpreted as an ice-contact feature. GSC-2103 dates (a) an ice marginal position near the proximal end of the delta which is 20 km behind a prominent Laurentide Ice Sheet end moraine believed to the Cockburn equivalent (Dyke, in prep.) and (b) a sea level ≥ 35 m and ≤ 47 m but≈35 m. The separation of the ice caps on northern and southern Baffin Island should have followed this date which is surprisingly young in light of the dates from Foxe Basin (Blake, 1966; Dyke, 1974).

BGS-271 VALLEY OF AN OUTLET GLACIER, SE PENNY ICE CAP 3260 ± 100

Buried soil A-horizon (GRL-219-0) collected September, 1974, by A. S. Dyke and L. Charron (66°52'N, 66°02'W) (UTMG:FE 295 195) at a depth of 141 cm and an elevation of approximately 600 m. Comments (A.S.D.): A 0.5-2.0 cm thick, dark brown, coarse sandy horizon. The dark color was partially due to presence of organic matter. No modern rootlets were noted near the sampled horizon but nearly all organic matter was < 125 μ in size. The date was obtained on this fraction only. The buried soil is underlain by boulder gravel (glaciofluvial) which is weakly oxidized. It is overlain by stratified alluvial sands and gravel (alluvial fan). Sample site is 1 km south of the active margin of the Penny Ice Cap which lies 100-200 m behind a late Neoglacial Moraine. Deglaciation of the site occurred prior to deposition of the glaciofluvial gravel on which the A-horizon developed and, therefore, considerably prior to 3260 BP.

BGS-269 MOUTH OF PANGNIRTUNG FIORD 2450 ± 90

Sandy organic mud (GRL-216-0) collected July, 1974, by A. S. Dyke and N. W. Ten Brink (66°07'N, 66°03'W) (UTMG:FD 335 359) at a depth of 63-92 cm and elevation of 24 m. Comments (A.S.D.): Base of a small bog overlying raised beach gravel. Date is on < 125 μ size fraction. Bog developed behind a raised reef on the lip of the raised beach. At time of collection the permafrost table coincided with the beach-bog contact. It was hoped that the basal peat would provide a reasonable age on the 24 m beach. However, in light of other dates on marine molluscs (Andrews and Miller, 1972; Andrews, 1975b - see dates GSC-2001) from near this site BGS-269 is much too young. It does, however, date the beginning of peat growth which may relate to aggradation of the permafrost table as the site became elevated above sea level or to a climatic shift toward wetter conditions.

SI-2557 IGLUTALIK LAKE (OUTER PANGNIRTUNG FIORD) 2090 ± 175

Organic lake sediment, (GRL-270-0) 86-100 cm depth, "Iglutalik Lake" (66°07'N, 66°05'W) (UTMG:ED 320 377) near mouth of Pangnirtung Fiord. Collected by P. T. Davis, 1975. Comments (P.T.D.): Sample small, diluted and counted at reduced pressure. Four replicate one metre sediment cores collected for palynological analysis. Date indicates higher sediment accumulation rate than expected (.04 cm/yr). Sediment organic content also high for the Arctic (10-15%). Return to "Iglutalik Lake" summer 1976 hopefully will extend sediment-coring depth to span at least the last 10,000 years.

BGS-270 MOUTH OF PANGNIRTUNG FIORD 1810 ± 90

Lacustrine organic mud (GRL-217-0) collected July, 1974, by A. S. Dyke and N. W. Ten Brink (66°07'N, 66°02'W) at a depth of ca. 0.5 m and a sample elevation of 105 m. Comments (A.S.D.): Date is on < 125 μ fraction. A small pond on the surface of a raised marine delta. Material was collected with soil auger while standing on a boulder near the center of the pond. The depth of organic sediments is unknown.

GSC 2084 MILLUT BAY, CLEARWATER FIORD 1790 ± 80

Buried soil A-horizon (GRL-164-0) collected August, 1973, by A. S. Dyke (66°40'N, 67°33'W) (UTMG:ED 640 950) at a depth of 0.7 m and elevation of 52 m. Comments (A.S.D.): The < 125 μ fraction contained many modern roots (M. Kuc, unpubl. Bryological Report, 1974) and was not used. The buried soil is overlain by 0.7 m of sand. Two small shell fragments were found in the sand and it was, therefore, initially considered to be marine. In light of the age, however, the sand layer is likely of eolian origin. GSC-2084 provides a date on the onset of eolian sand accumulation, and therefore, probably relates to a period of drier, cooler summers.

Qu-240 MILLUT BAY, NEAR MOUTH OF CLEARWATER FIORD 1560 ± 120

Whale bone (GLR-11-B) collected September, 1974, by A. S. Dyke (66°38'N, 67°34'W) (UTMG:ED 630 910) at a depth of 0-5 cm and elevation of 1.5 m. Comments (A.S.D.): Three connected whale vertibrae lying near a whale skull. The bones were embedded in the modern soil by 2/3 their height. A few lichens grew on the exposed surfaces of the bone and plant roots penetrated the outer portions of the bone which lay below the surface. The bones were soaked in distilled water and scrubbed prior to submission to the dating laboratory. Collagin fraction dated. The bones occurred on a terrace 1.5 m above highest tide line, and they provide a date on this relative sea level. Following 1560 ± 120 BP sea level fell to a position somewhat below its present level.

BGS-267 VALLEY OF AN OUTLET BLACIER, SE PENNY ICE CAP 970 ± 80

Buried soil A-horizon (GRL-220-0) collected September 7, 1974, by A. S. Dyke and L. Charron (66°49'N, 66°06'W) (UTMG:FE 275 150) at a depth of 24-26 cm and elevation of apporximately 500 m. Comments (A.S.D.): Fine sand and silt with few pebbles and organic matter. Modern rootlets were observed to extend through the dated horizon. Dated fraction is < 125 μ size. Buried soil developed on the surface of an alluvial fan and was buried by eolian sand. The overlying sand contains two other A-horizon layers. The dated organic layer is underlain by oxidized sand and gravel which constitutes the buried B horizon. Oxidation extends to a depth of 90 cm. Dates the onset of accumulation of eolian sand at the site and burial of the soil. The extent of oxidation in the buried B horizon indicates a lengthy period of soil formation prior to burial. Terasmae (1975) has examined pollen in this section.

Qu-305 CUMBERLAND SOUND, FIORD NORTH OF KEKERTELUNG ISLAND 830 ± 70

Buried soil A-horizon (GRL-212-0) collected August, 1974, by A. S. Dyke (66°24'N, 66°30'W) (UTMG:FD 120 673) at a depth of 50-55 cm at 0.55 m above highest tide line. Comments (A.S.D.): Material comes from two closely spaced buried vegetation mats. Modern rootlets penetrate through the sampled horizon. Macrofossil material was hand-picked from the sample and submitted for dating. The lower of the two sampled horizons overlies marine sand. It is overlain by interbedded eolian (dune) sand and thin soil organic layers. The soil developed on the marine sand after relative sea level fell to near or slightly below its present position. Thus, the date provides control on a low sea level position. The date also records the time of onset of eolian sand accumulation at the site. The source of this sand lies in the immediately adjacent marine sediments.

Qu-241 HEAD OF SHARK FIORD, CUMBERLAND SOUND 770 ± 80

Whale bone (GRL-9-B) collected August, 1974, by A. S. Dyke (66°36'N, 66°44'W) (UTMG:FD 006 880) at a depth of 0-10 cm and elevation of 1 m. Comments (A.S.D.): Portion of whale skull 90% embedded in modern soil. A sample approximately 30 x 20 x 20 cm was split from a much larger piece in the field. The exterior of the bone was rotten (easily cut with a knife) and penetrated by plant roots. This outer portion was cut off prior to submission to the dating laboratory. Date is on the collagin fraction. The bone was collected from near the center of an old Inuit occupation site containing several tent rings. The seaward edge of this site (including tent ring) is presently being destroyed by wave action. 770 ± 80 years ago this site was occupied by Inuits. At that time sea level was slightly lower than present. Recent submergence is marked at the same location by the presence of a soil (with A horizon organics) overlain by prograding beach gravel.

Qu-308 CLEARWATER FIORD 620 ± 210

Peat (GRL-215-0) collected September, 1974, at the high tide line, Clearwater Fiord (66°36'N, 67°55.5'W) (UTMG:ED 476 910), by A. S. Dyke. Comments (A.S.D.): 8 cm thick indurated, dry peat (black in color) overlying indurated, oxidized gravel. North side of Clearwater Fiord, 1 km from its head. The gravel probably represents a small pocket beach deposit. No reason for the induration has been ascertained. Both the gravel and the peat are presently being wave eroded and the peat surface is obviously "dead" as no plants were growing on it at the time of collection. Cessation of peat growth was most likely due to the recent rise of relative sea level. As the average age of the peat layer is 620 years, sea level must have been lower than present 6 centuries ago. This agrees with other dates on recent submergence of the area (Pheasant and Andrews, 1973). See comments on BGS-272 and BGS-295, this date list.

2. Pangnirtung (Map Sheet No. 26I. 66° -67°N, 64° -66°W)

GSC-2083 HEAD KINGNAIT FIORD 8480 ± 270
$\delta^{13}C$ o/oo + 0.5

Marine shells, GRL-95-S, Mya truncata, Mya psueudoarenaria, Macoma sp. (id. W. Blake, Jr.) from gully walls in small delta at head of Kingnait Fiord (66°21.5'N, 64°21'W) (UTMG:MJ 387 594), at 4-8 m with delta surface at 16 m a.s.l. Collected in 1973 by J. T. Andrews. Comment (J.T.A.): shells occur in lowermost basal bottomset sequence of clayey silts that are overlain by steeply dipping foresets and relate to former water plan at ca. 16 m. The 16 m terrace is a prominent feature of the head of Kingnait Fiord and it can be walked out for 2-3 km upvalley. Above this elevation there is only washed (?) bedrock and a limit of perched boulders at 27-30 m a.s.l. The date is slightly older than another shell sample from 1-2 km downfiord GaK-4837 at 7990 ± 170 BP (Andrews, 1975b, p. 83) although the two dates are statistically similar. This latter sample was collected at 13 m and probably relates to the 16 m terrace not the 27-30 m marine limit which may be considerably older.

Qu -304 NEAR SOUTHERN MARGIN OF THE PENNY ICE CAP 4460 ± 210

Fibrous peat (GRL-211-0) collected August, 1974, by A. S. Dyke (66°39.5'N, 65°47.5'W) (UTMG:LJ 765 965) at a depth of 560-590 cm and elevation of 300 m. Comments (A.S.D.): Sample collected from several thin strata of fibrous peat separated by eolian sand. The section shows 610 cm of interbedded peat and eolian sand overlying oxidized coarse gravel. Section exposed in small gully flowing into the eastern side of a major river draining an outlet glacier of the Penny Ice Cap, and about 10-15 m above the main river level. It is located 2 km downstream from the active ice margin. Qu-304 provides a minimum date on deglaciation as well as a date on the base of a thick section of peat and sand. The considerable oxidation of the underlying outwash gravel indicates a period of soil formation following deglaciation and preceding deposition of the peat and sand sequence. At 8670 ± 110 BP (GSC-2183) the side was covered by 600 m of

ice which terminated near to the side of GSC-2183. This expanded position is marked by lateral moraines. Retreat recommenced at 8670 BP and considerably prior to 4460 BP the outlet glacier had attained a position near or behind the present ice margin. The period from 4460 BP to the present was marked by numerous episodes of peat formation interspersed with periods of eolian sand deposition. The source of the sand lies in the sandur which occupies the valley bottom. See comments on Qu-299 and BGS-271. Prior to the soil forming interval which preceded 4460 BP the level of water was several metres higher than present, indicating much more rapid ablation and higher discharges.

WINDY LAKE SERIES, PANGNIRTUNG PASS

Sandy organic-rich sediment collected from a small gully ca. 10 km north of head of Pangnirtung Fiord, in Pangnirtung Pass on the west side of the Weasel R. (66°31°N, 65°28'W) (UTMG:LG 893 789) at elevation of 105 ± 15 m. a.s.l. Samples collected 1973 and 1974 by G. H. Miller and 1975 by P. T. Davis. Submitted J. T. Andrews.

Lab. No.	Date	Depth (cm)	Fraction Dated	INSTAAR Lab. No.
GaK - 5282 *	650 ± 230	4-9	>125μ (μ=mu)	GRL-178-0
GaK - 5449	640 ± 155	4-9	<125μ	GRL-178-0
GaK - 5450	960 ± 200	9-14	>125μ	GRL-179-0
DIC - 327	850 ± 65	14-25	<125μ	GRL-194 and 194-0
DIC - 390	1500 ± 85	63-69.5	>125μ	GRL-188-0
GaK - 5411	1990 ± 180	69.5-76	>125μ	GRL-189-0
(DIC - 515	2470 ± 390	89-91	>125μ	GRL-265-0)†
GaK - 5412	2060 ± 85	90-97.5	>125μ	GRL-185-0
DIC - 328	3840 ± 55	113-119.5	>125 & <125μ	GRL-181-0
(DIC - 333	2980 ± 190	155-160	>125μ	GRL-248-0)
(DIC - 402	3070 ± 75	155-160	<125μ	GRL-248-0)
(SI - 2556	3650 ± 200	192-198	>125μ	GRL-269-0)

* The depth of this sample was incorrectly reported in Andrews, 1975b.

† Samples in parentheses were not collected in 1973 and were based on resampling the field exposure.

Comment (J.T.A.): Samples date a major organic-rich sediment that has been analyzed for pollen (Nichols, 1975; Andrews et al in prep.). SI-2556 was a small sample and was diluted and counted at reduced pressure. The dates indicate some problems in establishing a conformable series of dates on this well-drained, cumulative, organic-rich profile. The dates near the surface indicate that the sediment ceased to accrete (or was eroded?) about 600 years ago. A full report on the lithology and palynology of this section is in progress.

OWL RIVER PEAT

Gif-3493	155-160 cm*	1870 ± 90
Gif-3494	289-294 cm*	2660 ± 100

Fibrous peat from river level and from top of buried peat in 3 m river-cut exposure of the Owl River, Pangnirtung Pass (66°45'N and 64°42'W) (UTMG:MK 242 044) at 180-200 m a.s.l. Collected 1973 by G. H. Miller. Comment (J.T.A. & G.H.M.): Sample was washed through a sieve at the University of Colorado to remove coarse sand and to facilitate removal of rootlets. Pollen analysis has been performed by A. Millington on three sections of peat between depths of 155 and 294 cm depth. The peat is overlain by 1.5 m of niveo-eolian sands (the layered sands of Thompson, 1954) that reflect increased dryness and aridity in the northern sector of Pangnirtung Pass. Plant macrofossil identification by P. J. Webber indicated that the lowermost and uppermost peat consisted of Sphagnum shoots and leaves with Salix twigs. There was evidence in the form of rootlets for in situ development but the site also received alluvial detritus.

* These dates are reported in correct stratigraphic sequence because of mis-labelling during sample preparation at INSTAAR. Sample descriptions of the two samples are sufficiently different as that we are confident that this switch occurred.

Qu-302 SERIES NEAR SOUTHERN MARGIN OF PENNY ICE CAP 2120 ± 80

Organic bearing sands (GRL-209-0) collected August, 1974, by A. S. Dyke (66°39'N, 65°46.5W) (UTMG:LJ 780 960) at a depth of 148-150 cm and elevation of ca. 290. Comments (A.S.D.): Detrital organics including twigs, leaves, and stems in a coarse fluvial sand matrix. Sample collected from a natural stream cut. The stream carries meltwater and sediment from a hanging cirque glacier located near the terminus of a large outlet glacier of the Penny Ice Cap. The section is located 1 km downstream from the margin of the latter glacier. The sampled horizon lies near the top of a coarse boulder gravel fan of shallow gradient deposited by meltwater from the hanging cirque glacier located near the terminus of a large outlet glacier of the Penny Ice Cap. The section is located 1 km downstream from the margin of the latter glacier. The sampled horizon lies near the top of a coarse boulder gravel fan of shallow gradient deposited by meltwater from the hanging cirque glacier. The coarse fan material is overlain by 3 closely spaced autochthonous peat layers (See Qu-303) separated by coarse glaciofluvial sands. These are overlain by 130 cm of complexly bedded sands, fine gravels, and detrital organic bearing sands. Qu-302 dates from near the end of the period of deposition of the bouder gravel and may thus mark the end of a period of high stream competence (high ablation?) or a lateral shift in the stream course.

Qu-303 1640 ± 130

Fibrous peat (GRL-210-0) collected August, 1974, by A. S. Dyke (66°39'N, 65°46.5'W) (UTMG:LJ 780 960) at a depth of 130 cm and elevation of ca. 290 m. Comments (A.S.D.): Compacted fibrous peat from 3 strata (ca. 1 cm thick) separated by coarse sand strata (also ca. 1 cm thick). The peat is definitely "in situ". The dated peats represent three incipient soils closely spaced in time which developed on a boulder gravel fan (see Qu-302). It is overlain by 130 cm of complexly bedded sand, fine gravels, and detrital organic bearing sands. Qu-303 dates the time of burial of the peat layers. Following this date deposition occurred up to 160 cm above present stream level indicating either higher discharges or that the stream followed a different course.

BGS-268 LOWER KOLIK RIVER BALLEY, PANGNIRTUNG FIORD 1500 ± 80

Buried soil A-horizon (GRL-221-0) collected September 1974 by A. S. Dyke (66°10'N, 65°49'W) (UTMG:LJ 750-425) at a depth of 84-96 cm and elevation of ca. 150 m. Comments (A.S.D.): Buried A-Horizon underlain by lacustrine sediments oxidized to a depth of 34 cm below the sample. Modern rootlets were observed to extend through the dated horizon. Dated fraction is <125-μ size. Dated horizon is overlain by eolian sands interbedded with organic layers (average of six layers per decimeter). Dates the onset of eolian sand accumulation and the base of a pollen section (Terasmae, 1975). Date GX-3271 (Andrews, 1975b) is on a very similar soil within a few meters of this site. The difference between the two dates (ca. 500 yr) may reflect interlaboratory variation, differences in sample preparation, etc.

Qu-301 8 km NORTHWEST OF WINDY LAKE, PANGNIRTUNG PASS 1170 ± 150

Fibrous peat (GRL-208-0) collected August, 1974, by A. S. Dyke (66°36.2'N, 65°43.2'W) (UTMG:LJ 796 896) 38-44.5 cm and elevation of ca. 660 m. Comments (A.S.D.): Modern roots were observed to extend through the sample peat layer. Sample was treated with NaOH prior to dating to remove modern organic material. The sample was collected from a natural stream cut in a glacial outwash fan deposit of very shallow gradient. The present meltwater stream runs at a level 127 cm below the top of the section. The buried peat horizon is underlain by outwash gravel. Immediately underlying the peat is a 5.5-cm-thick reduced (gleyed?) horizon. This is, in turn, underlain by 28.5 cm of oxidized gravel overlying unoxidized gravel. The peat represents the top of a buried soil profile. The soil is overlain by fluvial gravel and sand with two interbedded autochthonous peat layers. No B horizon development was noted below these upper peat layers. They therefore formed over shorter time periods than the dated soil. Qu-301 provides a maximum date on burial of the soil (date of burial plus mean residence time). As burial requires deposition of fluvial sediments considerably higher than the present stream level, it may relate to a

period of increased ablation on the adjacent glacier. Alternately it may relate to a lateral shift in the stream course. Two other similar events occurred more recently.

3. Abraham Bay (Map Sheet No. 26H 65° -66°N, 66° -64°W).

SOUTH SIDE, KINGNAIT FIORD

BGS-295	37-42 cm	GRL-252-0	150 ± 100
BGS-272	53-57 cm	GRL-222-0	890 ± 90

Sandy organic sediment with good fibrous structure collected from -0.5 m a.s.l. and overlain by 37 cm of shingle storm beach, south side of Kingnait Fiord (65°58'N and 64°45'W) (UTMG:MJ 20 18). Collected 1974 by P. W. Birkeland and W. Locke III. Comment (A.S.D.): Dates are on >125μ fraction. BGS-295 only had water wash. The basal date is similar to several other ^{14}C ages on buried soils and organic sediments which indicated that relative sea level has risen some 0.5 to 1.0 m in the last 1,000 years or so (Pheasant and Andrews, 1973; see other ^{14}C date lists -- Andrews and Miller, 1972; Andrews, 1975b). Date on top of peat might be too young in view of lack of pretreatment. Organic-rich sediment exposed by trenching and found it lies on sands and gravels. Two dates from sites 24 m apart.

4. Cape Dyer (Map Sheet No. 16L 66° -67°N, 61° -64°W).

SI-2548 DONARD LAKES, N.W.T. 109.1% modern

Salix twigs (GRL-17-W), id. by C. Wright and W. Locke III, from Donard Lakes (66°39'30"N, 61°45'40"W) (WNJ5494) N.W.T., at elevation of 427 m, at trimline around permanent snowfield in valley bottom (cf. Wright, 1975). Lichenometry and field relations suggest a date of 20 to 40 BP for this sample. Possible contamination by living moss noted in the field. Very high ^{14}C ratio suggests significant addition of radioactive material, perhaps by fallout. Collected 1975 by Wright and Locke; subm. by J. T. Andrews.

5. Padloping Island (Map Sheet No. 16M 67° -68°N, 62° -64°W).

EAST COAST BROUGHTON ISLAND SERIES

BGS-304	33,640 ± 1300
BGS-305	38,470 ± 2450
BGS-306	40,710 ± 5500

Marine shells collected by C. Schluchter" (67°33'N, 63°47'W) (UTMG:MK 642 927) in 1974 at elevations of ca. 15, 12, and 10 respectively, in raised marine sediments. Comment (C.S.): The results suggest that the fossil localities belong to the Cape Broughton Interstadial (Feyling-Hanssen, 1976). This is in agreement with the lithostratigraphic position (BGS-304 and BGS-305 are in between two strata of diamictic character) and all three samples are definitely below the 42-46 m marine shoreline. The age of BGS-304 is contradictory to the biostratigraphic and amino-acid age determination, being too young. Detailed discussion in Schluchter", (in prep.).

CAPE BROUGHTON SERIES

QL-60	26 m a.s.l.	36,300 ± 300*
QL-180	16-18 m a.s.l.	39,600 ± 500
QL-179	5 m a.s.l.	45,400 ± 600

Marine shells GRL-101-S; GRL-138-S; and GRL-137-S) mainly Hiatella arctica and Mya truncata but also containing Chlamys islandicus from Cape Broughton (67°38.38'N, 63°57.2'W) (UTMG:ML 597 029). Site exposed along a section 100 m+ in extent. Fossiliferous marine sands overlie a till which rests on wave-cut rock platform. QL-60 collected in 1973 by G. H. Miller and other two by P. T. Davis in 1974. Comment (J.T.A.): Large 1000-g shell samples collected. Acid leach of 40-45% applied. The age of the three different samples are in correct stratigraphic sequence. QL-60 is close to the type strata for the Cape Broughton Interstadial, defined by Feyling-Hanssen (1976) on micropaleontological grounds. The date on QL-179 is similar to that derived from the same unit previously (cf. Andrews, 1975b, SI-1335, apparent age 46,950 ± 2050 BP). Additional site data and discussion in Andrews et al., 1976.

* This date has been changed by the laboratory very slightly from when first reported (35,900 ± 300).

SI-2555 PADLOPING ISLAND, N.W.T. 2570 ± 75

Peat (GRL-266-0) 1.5 m above mean high tide, overlying 10-20 cm of pebbly sand on bedrock on extreme southern tip of Padloping Island (67°00'N, 62° 46'W) (UTMG:NK 098 311). Date comes from the lowest 3 cm of the peat which is 20 cm thick. Collected in 1973 by G. H. Miller, subm. by J. T. Andrews. Comment (J.T.A.): Sample submitted to obtain basal date for peat monolith that has been analyzed for pollen. The site is presently being eroded by wave action due to coastal submergence over the last 1000 years. Date may indicate climatic change that enabled peat to form.

SI-2549 BROUGHTON ISLAND, N.W.T. 810 ± 80

Peat (GRL-259-0) exposed at mean tide level and overlain by shingle beach of modern storm level, in bay north of Broughton village (67°34'N, 63°59'W), Broughton Island, N.W.T. (UTMG:MK 578 953). Collected in 1975 by J. T. Andrews. Comment (J.T.A.): Date is similar to several others that have been collected and dated from northern and southern Cumberland Peninsula (Pheasant and Andrews, 1973; Andrews and Miller, 1972; Andrews, 1975b and this date list).

6. Okoa Bay (Map Sheet No. 26P 67° -68°N, 64° -66°W).

QL-178 NEAR HUDSON BAY COMPANY 45,500 ± 600

Marine shells (GRL-136-S) from 18 m a.s.l. above the Hudson Bay Company Store, Broughton Island (67°33.68'N, 64°05'W) (UTMG:MK 570 943). Collected 1974 by P. T. Davis. Some exposures show thick-walled Hiatella arctica, whereas a separate sample (GRL-106-S) contained fragments of Chamlys islandicus. Other spp. Serripes groenlandicum, Balanus spp., and Mya truncata. Comment (J.T.A.): There are several bulldozed and scraped exposures north of the store and the possibility exists that there are deposits of more than one age present. This appears to be born out by amino-acid ratios (G. H. Miller, unpubl. data). The benthic foraminifera assemblages are similar to those in the type section of the Cape Broughton Interstadial (Feyling-Hanssen, 1976). This date is from approximately the same side as SI-1336 (apparent age 42,700 ± 2250 or >38,000 BP) (Andrews, 1975b; Andrews et al. 1975; 1976).

QL-181 PIGOJOAT 44,800 ± 500

Marine shells (GRL-139-S) collected in 1974 from mainland cliff section by P. T. Davis about 10 km NW of Cape Broughton. Sample from sandy silt overlain by coarser till-like sediments. Site about 15 m a.s.l. (67°43'N, 64°17'W) (UTMG:ML 565 115). Shells collected primarily as float on cliff face but none found above 15 m. Species: Hiatella arctica, Mya truncata, Astarte borealis, Astarte montagui, Hemithyris psittacea and possible fragment of Mytilus. Comment: (P.T.D. and J.T.A.) top of section ca. 30 m a.s.l. Upper 15 m is composed of material with large boulders whereas lower 15 m consists of interbedded sands, pebbles, clays, and cobbles. Age may be minimum.

QL-182 KIVITOO 36,000 ± 300

Marine shells (GRL-140-S) on surface on ridge-like feature near the old settlement of Kivitoo (67°57'N, 64°52'W) (UTMG:ML 219 370), collected 1974 by P. T. Davis. Shells locally prolific and mainly Hiatella arctica and Mya truncata. Site elevation 68 m a.s.l. but local major marine terrace closer to 45 m a.s.l. Site formerly interpreted as delta (Pheasant, 1971). Comment (P.T.D. and J.T.A.): Form of the deposit is not compatible with interpretation as delta. Could be a lateral moraine made up of reworked marine sediments. Elevation of feature is virtually the same as well-defined marine limits across the bay on Idjuniving Island (Pheasant, 1971; Pheasant and Andrews, 1973). Date is younger than expected as lies on the distal side of the 59,000 ± 9000 BP date ^{230}Th and ^{231}Pa from the middle of Quajon Fiord (Andrews et al. 1975). 40-45% leach applied and contamination might still be a problem. Amino acid ratios suggest the Kivitoo deposit is older than the type Quajon Interstade, but approximately equals Cape Broughton Interstadial of Feyling-Hanssen (1976).

GaK-5479 HEAD QUAJON FIORD 8980 ± 180

Marine shells (GRL-141-S) Mya truncata and Serripes groenlandicus collected from exposure in marine terrace cut by small stream in the easternmost valley at the head of Quajon Fiord (67°37'N and 65°10'W) (UTMG:ML 014 075). Shells come from elevation of 7-10 m (est.) and 25-27 cm below the surface. Collected 1974 by R. Weaver. Comment (J.T.A.): This is the oldest shell date so far collected close to the terminus of a late Wisconsin glacial margin. Large end moraines block the western valley and are associated with a marine limit of 34 m a.s.l. (Pheasant and Andrews, 1973). The 34 m marine limit extends into the ice-free eastern valley. The date cannot be well-tied into the age of the marine limit because of inadequate stratigraphic exposure but the age is very close to that estimated for the moraines by lichenometry (Miller and Andrews, 1972; Andrews, 1975a).

MAKTAK BLACIER PEAT SERIES

Birm 370	top 5 cm	1480 ± 160
Birm 535	24-26 cm	1970 ± 200
Birm 536	51-53 cm	2240 ± 190
Birm 380	88-100 cm	2500 ± 170

Peat included in late Neoglacial moraine at snout of Maktak Glacier (67°22'N, 65°04'W) (UTMG:MK 108 744) at elevation of ca. 60 m. Collected in 1972 by G. S. Boulton. Comment (J.T.A.): The stratigraphy of this site and the plant and pollen analysis are documented in Boulton et al. (1976). The other dates from the fiord head of Maktak (Andrews and Miller, 1972; Andrews, 1975b) indicate that the late Neoglacial expansion (with retreat starting about 80 years ago (Boyer, 1972))was the most extensive glacier advance of the last several thousand years.

SI-2550 BAFFIN ISLAND - BROUGHTON CHANNEL 1025 ± 100

Moss (GRL-260-0) collected 1 m from snowbank margin in late July, 1975, by J. T. Andrews. Site lies at ca. 155 m a.s.l. opposite Broughton village and below an early Wisconsin lateral moraine (67°32'30"N, 64°09'W) (UTMG:MK 501 921). Comment: The date on the moss is the oldest date that has been obtained so far on the development of late Neoglacial snowbanks (Andrews et al., in press). The few dates so far have been closer to 300 years old. The date indicates that a permanent snowbank developed against the steep proximal slope of the lateral moraine about 1000 BP and that since that time the ground has not been exposed long enough to either destroy the moss or to allow new plant growth.

DIC-331 IDJUNIVING ISLAND Modern

DIC-401 850 ± 75

Organic-rich sediments (GRL-245-0 and GRL-253-0) from wave-cut bank on SE tip of Idjuniving Island, mouth of Quajon Fiord (67°55'N, 64°42'W) (UTMG:ML 293 330) from ca. 19 m a.s.l. Collected 1974 by P. T. Davis (GRL-253-0) and 1969 by D. R. Pheasant (GRL-245-0). Comment (J.T.A.): GRL-245-0 was sampled from a peat monolith at a depth of 3 to 4.2 cm below modern surface. Modern rootlets were handpicked out of the sample. GRL-253-0 was taken from a depth of 30-36 cm where these sediments overlie a Dorset site, rapidly being destroyed by wave erosion. Earlier dates (Andrews and Miller, 1972) included an age of 1205 ± 120 BP (GX-1812) from 15-18 cm depth. DIC-331 indicates that the present surface is not a relic surface dating prior to the Little Ice Age (see Windy Lake Series, this date list). DIC-401 is younger than expected in view of GX-1812. However, charcoal from 23-26.5 cm was dated earlier at "modern" (GX-1681) (Andrews and Miller, 1972, p. 272) and thus indicates that for some reason this site is heavily contaminated.

7. Nedlukseak Fiord (Map Sheet No. 260 67° -68°N, 66° -68°W).

Qu-307 NEAR WEST END OF GREENSHIELD LAKE 1610 ± 230

Fibrous peat (GRL-214-0) collected September, 1974, by A. S. Dyke (67°06.6'N, 67°03'W) (UTMG:EE 850 440) at a depth of 45-61 cm and elevation of ca. 460 m. Comments (A.S.D.): Fibrous peaty material from four thin layers below the surface of a fluvial terrace. The sampled material is enclosed in fluvial silt and clay (?) and over- and underlain by fluvial sands on east side of the river draining the lobe of the western Penny Ice Cap which dams the western end of Greenshield Lake. The site is 1.5 km south of the active ice margin. Qu-307 provides a very minimum data on deglaciation of the site and dates a period of higher river level which indicates greater ablation and discharge. Three kilometers southeast of the sample site is a lateral moraine at an elevation of ca. 700 m. This moraine is correlated on the basis of weathering and elevation with the 8670 ± year-old moraines deposited by other outlets of the Penny Ice Cap farther to the east. The portion of the ice cap adjacent to the dated site is as advanced now as it has been at any time during the Neoglacial, judging from the completeness of lichen cover which extends right up to the ice margin and the absence of ice-cored moraines. Retreat from the lateral moraine, therefore, probably occurred during mid- to early Holocene time as was the case farther to the east. See comments on Qu-304, Qu-299 and BGS-271.

8. Home Bay (Map Sheet No. 27A 68° -69°N, 64° -68°W).

GSC-2175 CAPE HOOPER, DRIFTWOOD 6510 ± 70

Wood fragment (GRL-16-W) (Picea sp., id. by L. D. Wilson, G.S.C.), 29 x 3 x 5 cm collected in stream bed dissecting small raised marine delta at head of small inlet (east side), 22 km W of Cape Hooper (Fox 4) airstrip. (68°28'N, 67°22'W) (UTMG:EF 660 955). Top of delta and local marine limit was 13 m a.s.l., sample elevation 5 m a.s.l. Collected September 16, 1974, by G. H. Miller. Comments (G.H.M.): Due to protected nature of inlet, storm beach was at 1 m a.m.h.t., above which was well-vegetated ground. Area is not a human travel route, hence sample is considered to be derived from delta. Marine shells, including Mytilus edulis found in stream bed and presumably were derived from delta, although frozen ground prevented excavation of delta. Driftwood is rare on Buffin Island, and this is oldest sample yet dated (driftwood collected by B. G. Craig from north Buffin Island dated 940 ± 130 BP (GSC-239)). Date for this sample falls within the main driftwood accumulation episode in the high arctic (Blake, 1972), and was also a period of optimum marine and terrestrial climate on Baffin Island (Miller, 1973). Sample elevation of 5 m is lower than predicted for 6500 ± BP emergence (C. F. Andrews et al 1970) who suggest a value of ~10-15 m a.s.l. (their figure 12), or close to the apparent marine limit.

9. Cape Henry Kater (Map Sheet No. 27D 69° -70°N, 64° -68°W)

QL-185 CAPE HENRY KATER 36,600 ± 350 BP

Mollusc shells (GRL-174-S) collected from exceptionally prolific fossiliferous marine sands exposed in cut bank of main river at Cape Henry Kater (69°09'N, 66°48'W) (UTMG:EG 868 725). This collection from 23 m a.s.l.; delta top at 27 m a.s.l. collected September, 1974 by G. H. Miller. Comment (G.H.M.): Deposit post dates the main depositional episode at the Cape which is related to the main mid-Wisconsin glaciation. Micro- and macrofauna at this site are very diverse and contain species of subarctic water affinity, including very abundant whole valves of Chlamys islandicus. Shells from the main depositional episode are slightly older and contain a less diverse fauna of both micro and macro fossils. Hiatella arctica valves in the dated deposit are also thinner than valves of the same species in the older sediments. Local marine limit (mid-Wisconsin age) is probably ca. 70 m a.s.l., relative sea level of dated deposit is 27 m a.s.l.

DIC-332 AULITIVIK ISLAND, McBETH FIORD 8650 ± 80

Molluscs (GRL-182-S) collected from raised marine delta in small bay on NW side Aulitivik Island, outer McBeth Fiord (69°33'N, 67°48'W) (UTMG:EH 464 273). Primarily whole valves of M. truncata, H. arctica and S. groenlandicus collected between 10 and 16 m a.s.l. from stream bed dissecting delta. Delta surface and local marine limit at 17 m a.s.l. collected September, 1974 by G. H. Miller. Outer one-third of shells leached in pretreatment. Comment (G.H.M.): Shell date provides age of late Wisconsin marine limit in the area. Shells were traceable to within 2 m of delta surface, and although source stratum could not be located, they are considered indigenous as locally abundant and not fragmented. Older marine sediments in outer McBeth Fiord extend to more than 70 m a.s.l. (>35,000 BP).

10. McBeth Fiord (Map Sheet No. 27C 69° -70°N, 68° 72°W).

GSC-2215 ITIRBILUNG FIORD 9110 ± 160
$\delta^{13}C$ o/oo + 1.0

Large fragments of Mya truncata (GRL-306-S) collected from marine silts in major bay, north side Itirbilung Fiord, ca. 1 km inland (69°19'N, 68°06'W) (UTMG:EG 346 889). Shells collected at 49 m a.s.l., relate to a marine limit of 54 m on the distal side of low moraine in this bay. Collected September 13, 1974 by G. H. Miller. Comment (G.H.M.): Site visited in attempt to resolve King's (1969) assignment of low moraine as Cockburn equivalent with Miller and Dyke's (1974) map showing Cockburn ice margin lying several tens of km inland. Shells from distal side of moraine must postdate moraine formation, hence deny King's interpretation as Cockburn - age equivalent. King's original site that dated 8670 ± 140 (I-3236) at 48 m a.s.l. appeared to be soliflucted till rather than glacially deposited till overlying the fossiliferous marine sands. 10% leach; sample mixed with dead gas for counting.

11. Clyde (Map Sheet No. 27F 70° -71°N, 68° -72°W).

QL-188 INTERGLACIAL SOIL 50,400 ± 1000 900

Humus-rich silty sands (GRL-204-0), containing numerous pebbles and cobbles from 28 m a.s.l. in the Clyde Cliffs 3 km SE of Kogalu River mouth (70°42'N, 68°56'W) (UTMG:EJ 034 420). Dated portion consisted of the <125μ fraction. No modern rootlet penetration noted. Small sample size; date may be minimum estimate. Collected August, 1974 by G. H. Miller. Comments (G.H.M.): Soil originally noted by Feyling-Hanssen (1967: Profile IV). Thickness and intensity of the soil unit varies laterally along the cliff, but is traceable for several hundred meters until the land surface drops below the level of the soil. Soil horizon has been severely contorted, presumably due to glacial overriding at some later date. Overlain by coarse marine sands (ice-contact?), correlated with the Upper Kogalu Marine Sediments on amino acid ratios. Pollen from the soil unit is dominated by birch pollen, and is indicative of interglacial conditions (Miller et al., in prep). Date is younger than expected, but approaching the limits of the method. Soil overlies marine sands and a prominent pre-Wisconsin till at 23 m a.s.l. Several other marine and till units occur lower in the section.

QL-183 UPPER KOGALU 47,700 ± 700 BP

Marine shells (GRL-172-S) collected at ca. 15 m a.s.l. from horizontally stratified marine sediments overlying the uppermost till in the Clyde Cliffs 3 km NW of Kogalu River mouth (70°43'N, 69°03'W) (UTMG:DJ 979 525). Shells in situ, consisting primarily of whole paired valves of H. arctica, M. truncata, Astarte, and S. groenlandicus. Collected August, 1974 by G. H. Miller, 40% leach pretreatment. Comment (G.H.M.): Shells come from the type locality of the Upper Kogalu Marine Sediments (Miller et al., in prep.) overlying till of the most recent Clyde Forelands glaciation at 13 m a.s.l. The Upper Kogalu sediments are nonconformably overlain at 19 m a.s.l. by organic pats (QL-187; this date list) and 1.5 m of marine sediments of the late Wisconsin marine transgression. Date on shells in undisturbed marine strata indicates that most recent foreland's glaciation occurred prior to 47,000 years ago, and that late Wisconsin ice did not reach the area.

QL-186 LATE UPPER KOGALU 41,400 ± 500

Shell fragments (GRL-177-S) collected from coarse sand unit overlying uppermost till in Clyde Cliffs 10.5 km SE of Kogalu River mouth (70°39'N, 68°45'W) (UTMG:EJ 102 376), at same locality as Feyling-Hanssen's (1967) Profile IX. Coarse marine sands vary between 27 and 33 m a.s.l. in places overlain by Holocene eolian sand. Shells scattered throughout marine unit, fragmented due to local transport in high energy (littoral) environment. Possible old beach ridge at the locality. Shell species include S. groenlandicus, H. arctica, M. truncata, Astarte sp. and the warm-water pecten Chlamys islandicus. Collected August, 1974 by G. H. Miller. 40% leach pretreatment. Comment (G.H.M.): Original sample from same strata collected by Feyling-Hanssen (1967) dated 40,000 ± 1700 (GSC-796). New date is not different within error margin. Foraminifera from same strata indicative of relatively warm Wisconsin interstadial conditions (pers. commun, R. W. Feyling-Hanssen, 1975), macrofauna diversity and occurrence of "warm" water molluscan species implies similar conditions. Beach ridge morphology at surface implies no subsequent ice advance reached this section. This unit is correlated with the Upper Kogalu Marine Sediments (QL-183) on the basis of ^{14}C dates and amino acid ratios. However, it may be slightly younger as it relates to a relative sea level at ca. 33 m.

QL-184 CLYDE FIORD 40,000 ± 300

Fragmented thick valves (GRL-173-S) predominantly of M. truncata, H. arctica, and some Balanus sp. collected from frost boil in (marine?) silts, 52 to 56 m a.s.l. on NE side, middle Clyde Fiord (70°18.5'N, 68°59'W) (UTMG:EH 004 998). Shell fragments locally abundant in only a few boils. Collected July, 1974 by G. H. Miller. Comment (G.H.M.): Locality originally collected by Smith (1966) and dated 34,900 ± 2100 (I-1832). New date is statistically older. Smith (1966) related deposit to low^{1700} lateral moraine terminating immediately down fiord. Weathering on surface boulders at the locality is more advanced than on late Wisconsin moraines, and shells may be contemporaneous with a recessional phase of the last forelands glaciation (see also QL-136, QL-183, and QL-186, this date list). Although shells are not in situ, abrasion has been minimal, and shells have probably not been transported far.

QL-136 KOGALU RECESSIONAL 33,600 ± 300 BP

Shells (GRL-156-S) collected from undisturbed raised marine delta 11 km inland from Kogalu River Mouth, NW side of river (70°37'N, 69°10'W) (UTMG:DJ 948 360). Primarily in situ paired valves of Portlandia arctica, cemented by carbonate mud; H. arctica also present. Delta top at 42 m a.s.l. collected August, 1974 by G. H. Miller. Comment (G.H.M.): Delta was formed by a glacial meltwater stream during a recessional phase from the last forelands glaciation. At Kogalu River Mouth, tilt of the last glaciation is overlain by fossiliferous strata dated 47,700 ± 700 BP (QL-183, this date list), indicating ice had receded behind the present coast by this time (Miller, 1976). Intact, undisturbed nature of this delta confirms that late Wisconsin ice did not reach the Clyde Forelands through the Ayr Lake Valley. Small sample size and carbonate cement in this collection may mean date is a minimum estimate. Additional evidence that date is minimum is a shell sample from 27 to 33 m a.s.l. from the cliffs dating 41,400 ± 500 (QL-186, this date list) relating to a relative sea level of ca. 33 m. This relative sea level should be younger than the 42 m level of the Kogalu delta, hence the true age of the delta should probably be >41,000 years BP.

GSC-2201 BACK-FILLED DELTA 9880 ± 200

Plant remains (GRL-287-0), primarily well-preserved fragments of the moss Scorpidium turgescens (rh Jens.) Loeske,(id. by W. Weber, University of Colorado), from a marine delta back-filled into the Clyde Cliffs, ca. 4 km SE of Kogalu River Mouth (71°12'N, 71°22'W) (UTMG:EJ 040 415) elevation of sample ca. 25 m, delta top at ca. 29 m a.s.l. Sample exposed in stream-cut bank, excavated back 30 cm to near permafrost boundary to avoid contamination. No modern rootlets noted. Collected August 29, 1974 by G. H. Miller. Comments (G.H.M.): Because delta is inset into main cliff section it indicates a marine transgression postdating the last major episode of cliff formation. Sample age may be slightly older than true age of delta as organic detritus in a lower delta along the Kogalu River was several thousand years older than the ^{14}C age of in situ shells (see SI-2613 and SI-2614). Mandibles of tadpole shrimp and ephippia of Daphnia (id. by J. V. Matthews, Jr., GSC) testify as to the marine origin of the delta sediments.

DIC-375 RAVENSCRAIG HARBOR 8610 ± 1885 BP

Thin (1 cm) organic lens (GRL-251-0) (mostly mosses) interbedded with clean marine sands, horizontally bedded from Ravenscraig Harbor, outer Eglington Fiord (70°41'N, 69°47.5'W) (UTMG:DG 705 418). Organic lens overlain by 15 cm marine sands, two lesser organic lenses 3 cm apart, then 1 m of marine sands and 25-30 cm eolian sandy silt. Modern rootlets penetrate to the upper organic horizons, but none noted in collected horizon. Face cleaved back 40 cm for sample collection. Elevation of sample 9 m a.s.l., top of feature 10.5 m a.s.l. Collected August, 1974 by G. H. Miller. Both acid and base pretreatment - large error term due to small sample size after base pretreatment. Comment (G.H.M.): Marine deposits in the vicinity extend to at least 26 m a.s.l., probably to over 70 m. Relative sea level at time of organic deposition may have been 16 m a.s.l. (prominent marine level). Other prominent marine feature in the vicinity are between 13 and 16 m a.s.l.

GSC-2283 INUGSUIN FIORD 8290 ± 90

Marine shells (GRL-307-S) collected from river-cut bank in raised marine delta, east side outer Inugsuin Fiord, 39 km SW of Halliday Point (70°02'N, 68°33'W) (UTMG:EH 172 685). Most valves were paired and collection is considered in situ. Shells were excavated from a locally abundant site at 8.5 m a.s.l., 1.5 m below the delta surface. Delta grades to the local marine limit at 12 m a.s.l. Collected September, 1974 by G. H. Miller. Comment (G.H.M.): Date relates to the marine limit phase and is slightly older than a sample collected from the same area dated 7750 ± 135 BP (I-2831). A sample a few tens of kilometers up-fiord gave an age of 8190 ± 120 BP (Y-1705) relating to a marine plane 28 m a.s.l.(C. F. Andrews & Ives, 1972).

QL-187 KOGALU RIVER 8210 ± 50 BP

Organic pats, (GRL-244-0) 20 cm thick, nonconformably overlying clean, well-sorted marine sands of QL-183 at 19 m a.s.l. in Clyde Cliffs 3 km NW of Kogalu River Mouth (70°43'N, 69°03'W) (UTMG:DJ 979 525). Organic pats are conformably overlain by 30 cm silt/clay sediments and 1 m of coarse oxidized sand, which is in turn overlain by 30 cm of eolian sandy silt, that mantles much of the forelands. Type locality of the Ravenscraig Marine Sediments (Miller et al., in prep.). Collected August, 1974 by G. H. Miller. No modern rootlet penetration noted; face cleared back 40 cm for collection. Comment (G.H.M.): Date further reinforces absence of late Wisconsin ice in the Clyde Forelands, and documents a marine transgression caused by isostatic depression beyond the ice sheet margin due to rigidity of the lithosphere (Andrews, 1975a). Other dates on late Wisconsin marine sediments from the forelands are GSC-2201 and SI-2614; this date list. Organic material identified by W. Weber, Univ. of Colorado as the moss Drepanocladus trichophyllus (Warnst.) Podpera.

TRUELOVE BAY SERIES

SI-2617 SHELL 6835 ± 100 BP

In situ molluscs (GRL-257-S) from raised marine delta complex in Truelove Bay, outer Clyde Fiord (70°11'N, 68°56'W) (UTMG:EH 027 862). Mostly whole, paired valves of Hiatella arctica, Mya truncata, and Mytilus edulis collected from slightly dipping foreset beds ca. 3 m above river level, 11 m a.s.l. Shells found in association with organic muck and plant macrofossils in lenses separated by clean, well-sorted sand lenses. Delta surface at 20 m a.s.l., local marine limit ca. 25 m a.s.l. Collected July, 1974 by G. H. Miller.

SI-2618 PLANT DETRITUS Too small to date

Washed-in plant macrofossils (GRL-283-0) from same locality as SI-2617. Comment (G.H.M.): Dated in an attempt to compare shell and plant ^{14}C ages. Shell date is slightly younger than other dates from this complex (7740 ± 140 (GSC-556), 7000 ± 150 (GSC-599)) (Andrews & Drapier, 1967).

KOGALU RIVER, POSTGLACIAL SERIES

SI-2613 6110 ± 170

Shells

Thin valves of Astarte sp. (GRL-256-S) and some Mya truncata collected from stream bed dissecting low level marine delta 3 km up Kogalu River, Clyde Forelands (70°39'30"N, 69°04'W) (UTMG:DJ 984 420). Delta postdates last foreland's glaciation and last main marine depositional episode. Delta surface 9 m a.s.l. Small sample, diluted and counted at reduced pressure. Collected August 1974 by G. H. Miller.

SI-2614 Plant Detritus 11,360 ± 320

Organic lens, (GRL-282-0) 1 cm thick, in delta of SI-2613, ca. 3 m a.s.l. Many thin organic lenses throughout delta, shells also seen in these partings. Small sample, diluted and counted at reduced pressure. Collected August, 1974 by G. H. Miller.

Comment on series (G.H.M.): Late Wisconsin marine limit not well defined in this region, but transgressive marine sediments of late Wisconsin age extend to at least 29 m a.s.l. in the vicinity (GSC-2201 and QL-187, this date list). Lower elevation of this delta suggests it is ca. 2000 to 3000 years younger than the higher features. ^{14}C age of shells is close to the expected age, whereas date on plant detritus is too old. Because the entire Clyde Forelands remained ice-free during the last 30,000 or more years, washed-in "old" organic debris may have contaminated sample, resulting in "old" apparent age.

12. Scott Inlet (Map Sheet No. 27G 71° -72°N, 68° -72°W).

QL-177 CAPE SMITH (SCOTT INLET) 45,200 ± 800 BP

Shells from ice marginal raised marine delta (GRL-160-S) at the cape on the southeastern edge of Scott Inlet (71°07'N, 70°47'W) (UTMG:DJ 343 900). Primarily whole and fractured valves of Hiatella arctica and Mya truncata collected from stream cut and tracable to fossiliferous horizon 3 to 4 m below delta surface. Elevation of delta top is 74 m a.s.l. Collected August, 1974 by M. T. Anderson for G. H. Miller. Due to small sample size, only 20% leach in pretreatment. Comment (G.H.M.): This delta is one of several marine deposits at 70 to 75 m a.s.l. in the outer Scott Inlet region, all of which are considered to have been formed during a pre-late Wisconsin advance. A similar feature 15 km to the southeast described by Ives and Buckley (1969) gave an ^{14}C age of 36,250 ± 3600 (I-2581), but this is likely a minimum date as it should be at least the same age as QL-177; amino-acid ratios on H. arctica valves from the two localities showed no appreciable differences (Miller, unpublished data).

SCOTT INLET SERIES

SI-2612 37 m Shells 10,095 ± 95

In situ valves of Hiatella arctica (GRL-255-S) from locally prolific bottom-set silt/clay deposit 37 m a.s.l. on distal (inland) side of prominent low moraine, major valley N side outer Scott Inlet (71°12'N, 71°22'W) (UTMG:DK 151 077). Local marine limit behind this locality is 46 m a.s.l. Collected August, 1974 by G. H. Miller.

SI-2610 17 m Shells 9550 ± 90

In situ whole valves of Mya truncata (GRL-254-S) and Hiatella arctica from stream-cut bank in massive raised marine delta complex, major valley, N side outer Scott Inlet (71°11'30"N, 71°2'W) (UTMG:DJ 155 989). Shells are in foreset beds at 17.4 m a.s.l. and are related to the age of the delta surface at 40 m a.s.l. Delta top grades to a maximum elevation of 46 m a.s.l. farther inland (local marine limit). Two meters above shell collection is a prominent horizon of organic detritus (SI-2611), see below. Despite extensive collection and search in stream beds, only valves of M. truncata and H. arctica were found. Collected August, 1974 by G. H. Miller.

SI-2611 19 m Organic Detritus 7505 ± 100

Concentrated organic horizon, (GRL-281-0) 30 to 35 cm thick outcroping 1.5 m above SI-2610. Organics are in matrix of fine sand and silts, over- and underlain by coarse marine sands. Organic lenses are locally discontinuous, but outcrop in a roughly continuous horizon along 40 m of river-cut bank, parallel to dip of foreset beds. Sample collected 50 cm in from face, 19 m a.s.l., August, 1974 by G. H. Miller.

Comment on Series (G.H.M.): SI-2612 on shells from bottom set silts should relate to marine limit phase. Date of 10,095 ± 95 is slightly older than other late Wisconsin marine limit dates, but not unrealistic. The date of 9550 ± 90 for SI-2610, which relates to a slightly lower marine level (40 m), is in keeping with its stratigraphic position. The organic horizon (SI-2611) was dated as part of a test on the concordance, or lack thereof, between shell and plant detritus dates. The discrepancy between SI-2611 and SI-2610 and 2612 is not readily explained, but the shell dates are considered closer to the true marine limit age. In particular, the impoverished mollusc fauna indicates the delta is >8200 BP; fossiliferous sediments throughout eastern Baffin Island ≤8200 BP have a more diverse molluscan fauna. Evidence for an

older marine level above the 46 m level was suggested by remnant boulder beaches and terraces at 70 to 75 m a.s.l. On the south side of Scott Inlet an ice-contact delta at 73 m a.s.l. gave an apparent ^{14}C date of 45,200 ± 800 BP (QL-177, this date list).

The younger age of the organic matter horizon may mean that it accumulated as a terrestrial peat in a gully incised into the delta ca. 7500 years ago, and subsequent uplift caused further gully dissection, halting further peat accumulation. There was not, however, any firm evidence in the stratigraphy to support this explanation. See also DIC-378 (this date list) for a younger peat accumulation in a gully within the same delta complex.

DIC-374 CAPE ADAIR 9480 ± 165 BP

Thick organic lens (GRL-249-0) in raised marine sediments NW of Cape Adair and ca. 2 km inland (71°32'N, 71°53'W) (UTMG:ca. CK 980 400), exposed in small stream bank. Organics from near base of cut, 1.5 to 2.0 m below the surface, dipping down stream. Face cleared back 30 cm to avoid surface contamination, no modern rootlet penetration noted. Elevation of surface is ca. 22 m a.s.l. (by altimeter, but high winds make measurement tentative). Hot base and acid pretreatments. Collected August, 1974 by G. H. Miller. Comment (G.H.M.): Late Wisconsin marine limit along the Cape Adair forelands is represented as a conspicuous strandline traceable for many kilometers, and is considered to represent the maximum eustatic transgression prior to significant isostatic uplift. Late Wisconsin ice did not reach the forelands. The transgressive sediments are generally thin (<5 m), consisting mostly of reworked older marine sediments, which extend up to >70 m a.s.l. in the vicinity. Date is similar to others from coastal forelands. At the collection locality 17 cm of very recent eolian sands overlay 23 cm of older eolian sediments which overlay a buried A horizon developed on oxidized marine sands. Oxidation extended 25 cm below which were unoxidized marine sands down to the organic lens, 1.7 m below the surface. (Andrews, 1975a).

DIC-378 SCOTT INLET PEAT 4260 ± 475 BP

Basal peat (GRL-250-0), leaves, and twigs (25 cm thick) collected from eolian sand/organic unit deposited in previously incised gully in late Wisconsin marine delta complex, outer Scott Inlet (71°12'N, 71°20'W) (UTMG:DK 155 001). Peat unit overlies boulder/silt (till) and is overlain by ca. 4 m of eolian sands with occasional organic partings, surrounded by higher marine deposits. Elevation of sample, 15 m a.s.l., top of eolian unit, 21 m a.s.l., surrounding marine units extend to 35 m a.s.l. No modern rootlet penetration noted. After standard hot base pretreatment of sample by laboratory insufficient material remained for date, hence base-soluble material dated. Collected August, 1974 by G. H. Miller. Comment (G.H.M.): Late Holocene eolian deposition is common throughout eastern Buffin Island, often with a peat unit at or near the base and containing numerous, thin organic partings. Basal peats generally date between 5000 and 2000 BP. Peat probably accumulated under more favorable climatic conditions than those of today. Large areas of exhumed peat surfaces exposed in the area.

13. Buchan Gulf (Map Sheet No. 37H 71° -72°N, 72° -76°W).

CAPE HUNTER SERIES

SI-2620 SHELL 7780 ± 115 BP

In situ shells (GRL-258-S) from prolific deposit exposed in river-cut bank in extensive raised marine deposit in valley 12 km SE of Cape Hunter, NE Baffin Island (71°36'N, 72°19'W) (UTMG:WO 947 466). Shells collected from horizontally bedded basal silts, overlain by foreset beds. Shell deposit 8 m a.s.l., surface of deposit in 11 m a.s.l., local marine limit ca. 12 - 14 m a.s.l. Shells included Mya truncata, Hiatella arctica, Mytilus edulis and a single Astarte. Collected August, 1974 by G. H. Miller.

SI-2621 PLANT DETRITUS Too small to date

Organic-rich sands (GRL-284-0) from same locality as SI-2620, immediately over-lying shell-bearing strata. Comment (G.H.M.): Shell date gives age of local marine limit in this valley. Sediments were derived from melting of local glacier complex at head of valley, and indicate ice had melted substantially by 7800 BP. Late Wisconsin marine limit 25 km to the north is 16 - 18 m a.s.l. Organic sands collected to compare carbonate and organic dates, but insufficient sample collected.

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