



**PAPER 74-39**

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## **BIOSTRATIGRAPHIC DETERMINATIONS OF FOSSILS FROM THE SUBSURFACE OF THE DISTRICTS OF FRANKLIN AND MACKENZIE**

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1975



Energy, Mines and  
Resources Canada

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**GEOLOGICAL SURVEY  
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#### ABSTRACT

Identifications and age determinations are presented for fossils from 21 wells in the Districts of Franklin and Mackenzie. Ages range from Cambrian to Tertiary and are based on identifications of spores, pollen, dinoflagellates, acritarchs, conodonts, foraminifers, ostracodes, corals, brachiopods, trilobites, pelecypods and cricoconarids.

#### RÉSUMÉ

Les auteurs donnent les identifications et les âges des fossiles provenant de 21 puits des districts de Franklin et de Mackenzie. Les âges des fossiles s'étendent du Cambrien au Tertiaire et sont déterminés par les études des spores, des grains de pollen, des dinoflagellés, des acritarches, des conodontes, des foraminifères, des ostracodes, des coraux, des brachiopodes, des trilobites, des pelecypodes et des cricoconarides.

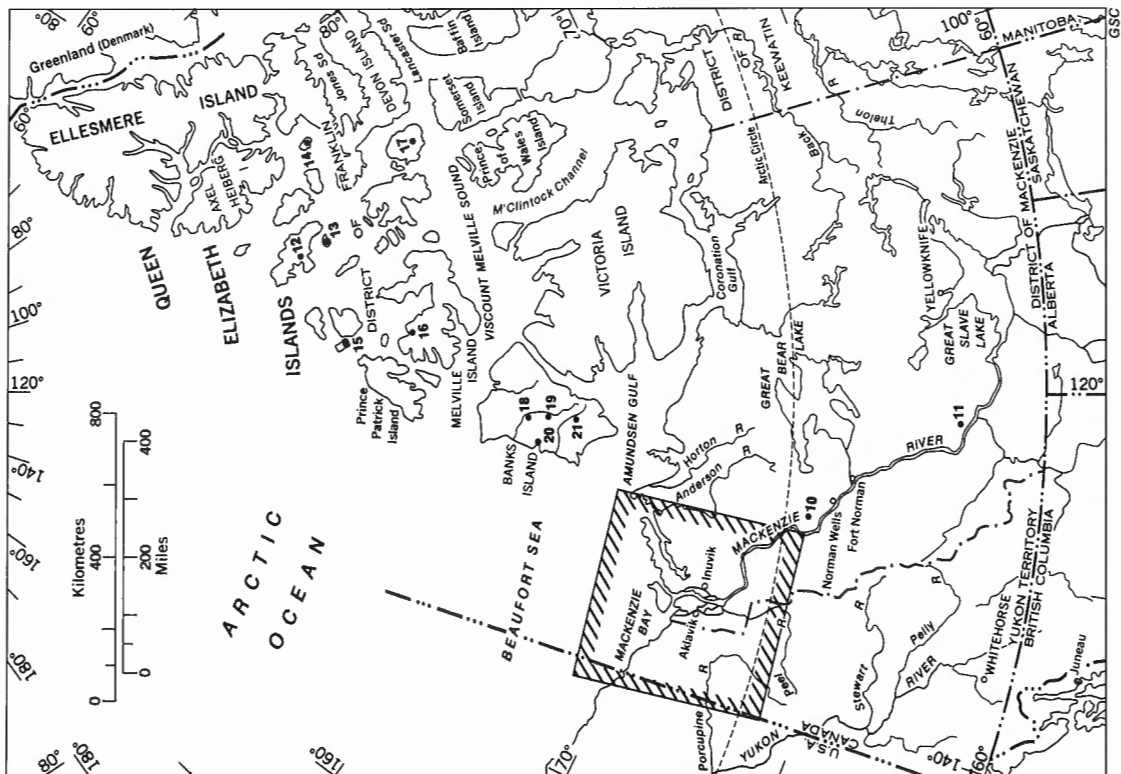


FIGURE 1a. Locality map, shaded area shown in more detail in Figure 1b

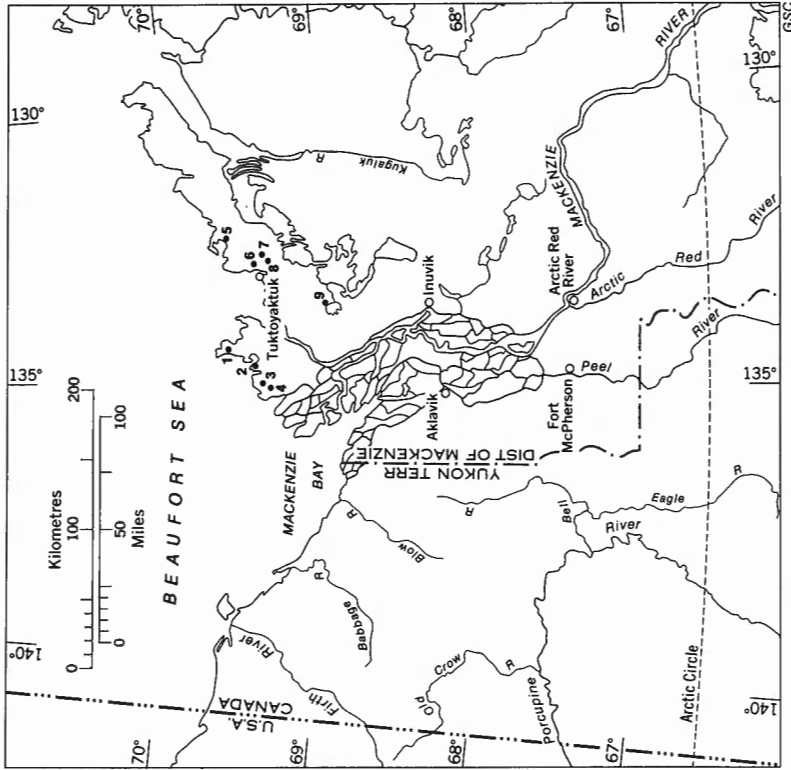


FIGURE 1b. Locality map, Mackenzie Delta

# BIOSTRATIGRAPHIC DETERMINATIONS OF FOSSILS FROM THE SUBSURFACE OF THE DISTRICTS OF FRANKLIN AND MACKENZIE

## INTRODUCTION

The assimilation of information obtained from wells drilled in northern Canada is of prime importance to the continuing exploration of the petroleum resources of the region. Biostratigraphic dating of rocks penetrated by wells allows precise correlation of strata with rock units in other wells and with outcropping formations. It provides important age control for reconstructions of the structural configuration of the subsurface rocks and of the patterns of sedimentation during geological time.

Where possible, the fossiliferous intervals in the wells have been assigned to formations. G. R. Davies, R. W. Macqueen, W. S. MacKenzie, N. C. Meijer-Drees, A. D. Miall, D. W. Myhr, K. J. Roy, C. J. Yorath and F. G. Young, all of the Geological Survey of Canada, are responsible for these assignments. The stratigraphic frameworks have not yet been established for the intervals reported in the remaining wells and formational assignments are not possible. The fossils are stored in the collections

of the Geological Survey of Canada in Calgary, except for some samples that are the property of Texaco Exploration Canada Limited.

The information in this paper has been used by stratigraphers of the Institute of Sedimentary and Petroleum Geology in research on the subsurface geology of northern Canada, part of which has been abstracted to appear in editions of the Schedule of Wells published by the Department of Indian Affairs and Northern Development. The paper includes studies conducted by R. E. Dunay and P. F. Sherrington of Robertson Research (North America) Ltd., and by J. B. Waterhouse of the University of Toronto. Texaco Exploration Canada Limited kindly provided samples prepared from cuttings for examination by T. P. Chamney.

The paper was compiled by B. S. Norford; similar reports have been published by the Geological Survey of Canada as Papers 70-15, 71-15, 72-38 and 74-11.

## WELLS STUDIED AND SHOWN ON FIGURES 1a AND 1b

Locality	Well Name	Year Completed	Ages Reported	Authors
1	Imperial Ivik J-26	1972	Tertiary	Brideaux-Sweet
2	Imperial-I.O.E. Mallik L-38	1972	Tertiary	Chamney
3	I.O.E. Taglu D-55	1972	Tertiary	Brideaux
4	Imperial-I.O.E. Taglu West P-03	1972	Tertiary	Chamney
5	Imperial-I.O.E. Kimik D-29	1972	Jurassic, Tertiary	Chamney
6	I.O.E. Mayogiak J-17	1971	Jurassic, Cretaceous	Jeletzky
7	Imperial-I.O.E. Pikiolik M-26	1972	Cretaceous, Tertiary	Chamney
8	Imperial-I.O.E. Pikiolik E-54	1972	Devonian, Jurassic, Cretaceous	Chamney-Jeletzky- Pedder
9	Gulf-Mobil Parsons F-09	1972	Cretaceous	Brideaux
10	Aquitaine Brackett Lake C-21	1973	Ordovician	Uyeno
11	Fina <i>et al.</i> Willow Lake L-59	1971	Ordovician	Norford
12	Panarctic <i>et al.</i> Dome Bay P-36	1972	Triassic, Jurassic	Dunay-Sherrington
13	Panarctic-Tenneco King Christian N-06	1971	Triassic, Jurassic	Dunay
14	B.P. <i>et al.</i> Graham C-52	1972	?Permian, Triassic, Cretaceous	Dunay-Sliter

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<u>Locality</u>	<u>Well Name</u>	<u>Year Completed</u>	<u>Ages Reported</u>	<u>Authors</u>
15	Panarctic <i>et al.</i> Brock C-50	1972	Permian, Triassic	Dunay-Sherrington- Waterhouse
16	B.P. <i>et al.</i> Emerald K-33	1973	Triassic, Jurassic, Cretaceous	Dunay-Sherrington
17	Panarctic-Deminex Cornwallis Central Dome K-40	1971	Cambrian	Fritz
18	Elf Uminmak H-07	1972	Devonian	Sweet
19	Elf Nanuk D-76	1972	Devonian, Cretaceous	Chamney-Norris
20	Elf <i>et al.</i> Storkerson Bay A-15	1971	Devonian	McGregor
21	Deminex <i>et al.</i> Orksut I-44	1973	Ordovician, Devonian, Jurassic, Cretaceous	Hopkins-Chamney- McGregor-Uyeno

#### CORRELATIONS AND IDENTIFICATIONS OF FOSSILS

Tertiary Assemblages  
(smaller palynomorphs; megaspores)  
by W. W. Brideaux and A. R. Sweet

Imperial Ivik J-26

69°35'42"N, 134°20'38"W, Figure 1b, loc. 1

Depth 5,490-11,382 ft., core;  
upper fluvio-deltaic unit,  
0-7,320 ft.; transition zone,  
7,320-9,550 ft.; shale unit,  
9,550-T.D., GSC locs.  
C-24158 to C-24180,  
C-26454 to C-26463

Figures 2a and 2b show the distribution of megaspores and of microspores and pollen for the cored intervals. The following ages can be deduced from the microspores.

5,490 ft.; Eocene(?) to Miocene  
8,133- 8,845 ft.; Eocene  
10,211-11,339 ft.; Early Tertiary  
11,339-11,369 ft.; Early Tertiary(?)  
11,369-11,382 ft.; Late Cretaceous or  
Tertiary

Comments (W.W.B.): GSC localities C-24159 to C-24163, C-24165, C-24166 and C-24168 to C-24172 yielded plant debris and relatively few trilete spores and pollen; these are probably Eocene in age. Only GSC locality C-24158 (5,490 ft.) yielded well-preserved angiosperm pollen. In general, all samples were dominated by plant debris and derived spores of various ages.

The triporate grains, indicated as questionably derived (?DR) on the accompanying chart, are very poorly preserved and may be derived grains belonging to *Paraalnipollenites* Hills and Wallace. Their preservation is too poor to permit identification to the species level.

Comments (A.R.S.): Two species of *Azolla* are present in the samples. *Azolla* sp. A is represented by numerous 9-floated megaspore complexes which superficially resemble *A. primaeva* (Penhallow) Arnold. However, these megaspore complexes are

found with attached aglochidiate massulae resembling those of the extant species *A. pinnata* R. Brown. These aglochidiate massulae also occur in a dispersed state throughout all the samples. The earliest known occurrence of this form of massula is Paleocene. However, aglochidiate massulae found in association with 9-floated megaspore complexes are known only from Oligocene or younger strata.

*Azolla* sp. B represents glochidiate massulae, the glochidia bearing a close resemblance to those of the extant species *A. filiculoides* Lam. The oldest known occurrence of this type of glochidia is of Oligocene age. Hence, both species of *Azolla* found in these samples indicate an Oligocene or younger age (note *Azolla* sp. B was not recovered below 8,785 ft. and hence the reliability of an Oligocene or younger age assignment is less below 8,785 ft.). Excepting for *Costathea tenuis* (Dijkstra) Hall and *Azolla*, all other megaspores reported in these samples are considered to be derived or possibly derived. All samples containing abundant *Azolla* are most likely of continental origin.

Cretaceous and Tertiary Assemblages (palynomorphs)  
by W. W. Brideaux

I.O.E. Taglu D-55

69°24'14"N, 134°59'34"W, Figure 1b, loc. 3

Depth 9,498-9,510 ft., core,  
GSC loc. C-23758

coarse and fine organic debris  
*Taxodiaceapollenites* sp.  
*Tiliaepollenites* sp.  
*Gleichentidites* sp.  
*Laevigatosporites* sp.  
*Osmundaacidites* sp.  
fungal filaments, unidentified  
age: ?Tertiary

Depth 10,526-10,533 ft., core,  
GSC loc. C-23761



coarse and fine organic debris  
fungal filaments, unidentified  
*Taxodiaceapollenites* sp.  
age: indeterminate

Comments: Low numbers of specimens in the residues reflect the paucity of information available palynologically from these samples. The great amounts of organic debris, mainly plant material, suggest a high energy environment in which the spore and pollen material have been removed selectively, or alternatively destroyed by mechanical or chemical means.

Gulf Mobil Parsons F-09  
68°58'34"N, 133°31'33"W, Figure 1b, loc. 9

Depth 9,337-9,357 ft., core;  
coal-bearing division (upper mbr.),  
487-507 ft. below top,  
GSC loc. C-22945

abundant carbonized plant debris  
derived Devonian and Carboniferous spores  
*Cicatricosisporites* spp.  
*Lycopodiumsporites* sp.  
*Alisporites* spp.  
*Podocarpidites* sp.  
*Gonyaulacysta orthoceras* (Eisenack) (Sarjeant)  
*Oligosphaeridium albertense* (Pocock) Davey  
and Williams  
age: Early Cretaceous, Valanginian to  
Albian

Depth 9,357-9,377 ft., core;  
coal-bearing division (upper mbr.),  
507-527 ft. below top,  
GSC loc. C-22946

abundant carbonized plant debris  
derived Devonian and Carboniferous spores  
*Cicatricosisporites australiensis* (Cookson)  
Potonié  
*Lycopodiumsporites* sp.  
*Oligosphaeridium* spp.  
*O. asterigium* (Gocht) Davey and Williams  
*Imbatodinium* sp.  
*Hystriosphera ramosa* (Enhrenberg) Davey  
and Williams  
age: Early Cretaceous, probably Hauterivian  
or Barremian

Depth 9,377-9,397 ft., core;  
coal-bearing division (upper mbr.),  
527-547 ft. below top,  
GSC loc. C-22947

derived Devonian and Carboniferous spores  
*Appendicisporites* sp.  
*Cicatricosisporites* sp.  
*Klukisporites?* sp.  
age: Early Cretaceous

Depth 9,396-9,397 ft., core;  
coal-bearing division (upper mbr.),  
546-547 ft. below top,  
GSC loc. C-22948

derived Devonian and Carboniferous spores  
abundant plant debris

various small trilete spores  
bisaccate pollen, unidentified  
*Alisporites* spp.  
*Podocarpidites* sp.  
*Rogalskisporites* sp.  
age: Early Cretaceous

Depth 9,814-9,824 ft., core;  
lower sandstone division, about  
124-134 ft. below top,  
GSC loc. C-22380

derived Carboniferous spores  
*Cicatricosisporites hughesi* Dettmann  
*C. hallei* Delcourt and Sprumont  
*Lycopodiumsporites austroclavatidites*  
(Cookson) Potonié  
*Sestrosporites pseudoalveolatus* (Couper)  
Dettmann  
*Januasporites* cf. *J. spiniferus* Singh  
*Pilosisporites trichopapillosus* (Thiergart)  
Delcourt and Sprumont  
*Gleicheniidites senonicus* Ross sensu Skarby  
*Rogalskisporites* sp.  
*Osmundacidites* sp.  
*Alisporites grandis* (Balme) Dettmann  
*A. bilateralis* Rouse  
*Phyllocladidites* cf. *P. inchoatus* (Pierce)  
Norris  
*Podocarpidites multesimus* (Bolkovitina)  
Pocock  
bisaccate pollen grains (dominant)  
*Cerebropollenites mesozoicus* (Couper)  
Nilsson  
rare, poorly preserved dinoflagellate cysts  
age: Early Cretaceous

Depth 9,824-9,834 ft., core;  
lower sandstone division, about  
134-144 ft. below top,  
GSC loc. C-22381

derived Carboniferous spores  
*Coronatispora* sp.  
*Klukisporites* sp.  
*Sestrosporites pseudoalveolatus* (Couper)  
Dettmann  
*Cicatricosisporites australiensis* (Cookson)  
Potonié  
*Alisporites bilateralis* Rouse  
*A. grandis* (Balme) Dettmann  
bisaccate pollen grains (dominant)  
*Scriniodinium* sp.  
*Imbatodinium* sp.  
*Gonyaulacysta helicoidea* (Eisenack and  
Cookson) Sarjeant  
age: Early Cretaceous, Hauterivian to  
Barremian

Comments: The miospore and microplankton assemblages recovered from between the depths of 9,337 and 9,397 feet comprise few species, each represented by a few specimens. Consequently, age determinations are difficult beyond the series level, but all six samples are probably Early Cretaceous, and several possibly are Neocomian (Hauterivian to Barremian).

Both samples from between 9,814 and 9,834 feet are dominated by bisaccate grains and, between 9,814 and 9,824 feet, these grains comprise perhaps

95 per cent of all grains on the slides. Such an assemblage most likely indicates an environment of deposition situated in an upper coastal plain region (A. R. Sweet, pers. com., after work of Jansa) and the large amount of fragmented plant debris and recycled material suggests deposition in a relatively high energy regime, at or near a source of continental detrital material. The few, rare dinoflagellates noted in the two samples do not provide sufficient palynological evidence for a shallow marine environment of deposition.

Jurassic, Cretaceous and Tertiary Assemblages  
(foraminifers and associated microfaunas)  
by T. P. Chamney

Imperial-I.O.E. Mallik L-38

69°27'44"N, 134°39'25"W, Figure 1b, loc. 2

Depth 7,543-7,558 ft., core;  
shale unit, 1,468-1,483 ft.  
below top,  
GSC locs. C-19726 to C-19727

*Haplophragmoides* sp. T1  
*Hyperammina?* sp.  
*Ammodiscus?* sp.  
siliceous spheres  
plant cuticle (orange-brown)  
megaspores IB var. sp. 4  
age: Tertiary, undifferentiated  
environment: restricted marine

Imperial-I.O.E. Taglu West P-03

69°22'59"N, 135°00'07"W, Figure 1b, loc. 4

Depth 4,850-4,857 ft., core;  
transition zone, 450-457 ft.  
below top,  
GSC loc. C-19721

*Haplophragmoides* sp.  
plant cuticle  
megaspore, black carbonized  
amber fragments (orange)  
age: indeterminate  
environment: nonmarine to transitional

Depth 4,857-4,864 ft., core;  
transition zone, 457-464 ft.  
below top,  
GSC loc. C-19722

*Quinqueloculina* sp.  
*Haplophragmoides?* sp.  
vertebrate bone  
plant cuticle  
siliceous spheres  
age: Tertiary, undifferentiated  
environment: restricted marine

Depth 9,365-9,372 ft., core;  
Reindeer Formation, 885-892 ft.  
below top,  
GSC loc. C-19725

*Quinqueloculina* sp.  
*Haplophragmoides* sp.  
*Ammodiscus?* sp.  
*Hyperammina* sp.

*Textularia?* sp.  
megaspore IC sp.  
age: Tertiary, ?Paleocene  
environment: restricted marine

Imperial-I.O.E. Pikiolik M-26

69°25'55"N, 132°37'26"W, Figure 1b, loc. 7

Depth 2,317-2,322 ft., core;  
Reindeer Formation equivalent,  
1,397-1,402 ft. below top,  
GSC loc. C-19638

*Ammodiscus* spp.  
*Haplophragmoides?* spp.  
megaspores IVA sp. 3  
megaspores IB sp. 6  
carbonized wood  
age: ?Tertiary

Depth 2,322-2,328 ft., core;  
Reindeer Formation equivalent,  
1,402-1,408 ft. below top,  
GSC loc. C-19639

*Haplophragmoides* sp.  
?fish scale  
spine, ?echinoid  
?plant cuticle  
age: indeterminate  
environment: transitional brackish

Depth 2,328-2,333 ft., core;  
Reindeer Formation equivalent,  
1,408-1,413 ft. below top,  
GSC loc. C-19640

*Haplophragmoides* sp. (indeterminate  
chambered fragment)  
phlogopite mica  
age: indeterminate  
environment: ?nonmarine

Depth 2,333-2,341 ft., core;  
Reindeer Formation equivalent,  
1,413-1,421 ft. below top,  
GSC loc. C-19641

*Gavelinella* ex gr. *G. ammonoides* (Reuss)  
*Bathysiphon* sp. 4  
*Haplophragmoides* sp. 5  
*Saccammina* sp.  
*Ammodiscus* sp.  
pelecypod shell fragments  
megaspores IB sp. 6  
megaspores IA sp.  
megaspores IIID sp.  
age: ?Tertiary/Cretaceous boundary  
environment: restricted marine with  
access to open marine

Depth 2,833-2,837.5 ft., core;  
Tent Island Formation, 33-37.5  
ft. below top,  
GSC loc. C-19642

*Nonion* sp. 1A  
?algal sphere (or radiolarian)  
coal  
carbonized wood

- plant remains  
age: Tertiary/Cretaceous boundary  
environment: restricted marine to brackish swamps
- Depth 3,416-3,425 ft., core;  
Tent Island Formation, 616-625 ft. below top,  
GSC loc. C-19645
- Haplophragmoides* spp.  
*Trochammonoides* ex gr. *T.* sp. 9  
*Ammodiscus* sp. 5  
megaspore sp.  
amber (orange)  
age: Tertiary/Cretaceous boundary,  
possibly Late Cretaceous  
environment: restricted marine
- Depth 5,546-5,556 ft., core;  
upper sandstone division equivalent,  
top 10 ft.,  
GSC loc. C-19647
- Hippocrepina* cf. *H. barksdalei* (Tappan)  
*Conorbina* sp. 6  
*Glomospirella* sp.  
*Haplophragmoides* ex gr. *H. goodenoughensis* Chamney  
age: Aptian to Barremian  
biostratigraphic equivalent: upper sandstone division in part  
environment: restricted marine, with access to open marine
- Depth 5,556-5,560.5 ft., core;  
upper sandstone division equivalent,  
10-14.5 ft. below top,  
GSC loc. C-19648
- Glomospirella* sp.  
*Haplophragmoides* sp.  
*H.* ex gr. *H. goodenoughensis* Chamney  
*Saccammina* sp. 16  
*Hippocrepina barksdalei* (Tappan)  
*Reophax* cf. *R. tundraensis* Chamney  
spines  
columnal sp. 8  
echinoderm fragments sp. 2  
plant rootlet  
age: Aptian to Barremian  
environment: restricted marine
- Depth 5,560.5-5,572.5 ft., core;  
upper sandstone division equivalent,  
14.5-26.5 ft. below top,  
GSC loc. C-19649
- Reophax tundraensis* Chamney  
*Ammobaculites agglutinans* (d'Orbigny) sensu Franke  
*Conorbina* sp. 6  
*Serovaina* sp.  
*Pseudoglandulina* cf. *P. mitabilis* (Reuss)  
*Lenticulina* ex gr. *L. wisniowskii* (Myatliuk)  
*Ammodiscus* "elongate" sp.  
*Textularia* ex gr. *T. topagorukensis* Tappan  
*Haplophragmoides topagorukensis* Tappan  
*Hyperammia* sp.  
*Hippocrepina barksdalei* (Tappan)
- echinoderm spine  
age: Aptian to Barremian  
biostratigraphic equivalent: silty zone or older  
environment: open marine
- Depth 5,572.5-5,576 ft., core;  
upper sandstone division equivalent,  
26.5-30 ft. below top,  
GSC loc. C-19650
- Marssonella* sp. 24B  
*Haplophragmoides* spp.  
*H.* ex gr. *H. neocomianus* Chapman  
*Ammobaculites agglutinans* (d'Orbigny) sensu Franke  
*Lenticulina* ex gr. *L. varians* (Borneman)  
*Gravellina* sp. 3  
*Gaudryina* sp.  
*Textularia* sp.  
*Saccammina* sp. 16  
*Reophax tundraensis* Chamney  
carbonized wood  
fish scales and bone  
age: Aptian  
biostratigraphic equivalent: upper sandstone division in part  
environment: restricted marine
- Imperial-I.O.E. Kimik D-29  
69°38'05"N, 132°22'10"W, Figure 1b, loc. 5
- Depth 4,270-4,277 ft., core;  
Reindeer Formation equivalent,  
183-190 ft. above base,  
GSC loc. C-19612
- Spiroplectammina* sp.  
*Inoceramus* sp. (prisms)  
plant cuticle  
pyrite  
age: ?Tertiary  
environment: restricted marine
- Depth 4,406-4,415 ft., core;  
Reindeer Formation equivalent,  
45-54 ft. above base,  
GSC loc. C-19613
- Chalmasia* sp.  
megaspore 1A sp. 1  
megaspore 1B sp. 1  
age: ?Tertiary  
environment: brackish
- Depth 4,415-4,421 ft., core;  
Reindeer Formation equivalent,  
39-45 ft. above base,  
GSC loc. C-19614
- Haplophragmoides?* sp.  
radiolaria (discoid)  
megaspore fragments  
plant fragments  
vertebrate bone  
coal fragments  
age: ?Tertiary  
environment: restricted marine

Depth 7,651-7,662 ft., core;  
Tent Island Formation, 3,191-  
3,202 ft. below top,  
GSC loc. C-19617

*Cyclammina* sp. 1A  
*Trochamminoides* ex gr. *T.* sp. 9  
*Trochammina* sp.  
*Bathysiphon* sp.  
*Hyperammina* sp.  
algal spheres  
pyrite replacement  
age: Late Cretaceous, ?Campanian  
biostratigraphic equivalent: Schraeder  
Bluff Formation  
environment: marine, restricted in part

Depth 8,463-8,467 ft., core,  
GSC loc. C-19618

*Reophax* ex gr. *R. densa* Tappan  
*Haplophragmoides* ex gr. *H. goodenoughensis*  
Chamney  
*H.* ex gr. *H. canui* Cushman  
*Lenticulina* sp. (pyrite replaced)  
*Ammobaculites* cf. *A. barrowensis* Tappan  
*Triplasia?* sp.  
*Glomospirella* sp.  
*Lagena* sp. (pyritized)  
*Dentalina* sp. (pyritized)  
*Trochammina* sp.  
age: Jurassic, Early to Middle  
biostratigraphic equivalent: Husky  
Formation  
environment: marine

Depth 8,467-8,468 ft., core,  
GSC loc. C-19619

*Frondicularia lustrata* Tappan  
*Lenticulina* sp. 39 and vars.  
*Saracenaria* sp.  
*Astacolus* sp.  
*Planularia?* sp.  
*Marginulinopsis* sp.  
*Lagena* sp.  
*Dentalina* spp. (chambers)  
*Vaginulina sherbormi* (Franke)  
*Eurycheilostoma?* sp.  
*?Ostracoda* sp.  
*Bathysiphon* ex gr. *B. scintillata* Chamney  
*Ammodiscus* sp.  
*A.* ex gr. *A. thomsi* Chamney  
*Saccammina?* sp.  
*Ammobaculites alaskensis* Tappan  
*Haplophragmoides* ex gr. *H. goodenoughensis*  
Chamney  
*H.* ex gr. *H. canui* Cushman  
age: Jurassic, ?Early to Middle  
biostratigraphic equivalent: Husky  
Formation  
environment: open marine

Depth 8,468-8,470 ft., core,  
GSC loc. C-19620

*Monoceratina* sp.  
*Haplophragmoides canui* Cushman  
*Trochamminoides?* sp.  
*Reophax* ex gr. *R. densa* Tappan

gastropoda (turret type)  
vertebrate bone, red  
age: Jurassic, Early to Middle  
biostratigraphic equivalent: lower  
Kingak Formation  
environment: restricted marine

Depth 8,544-8,544.5 ft., core,  
GSC loc. C-19621

*Haplophragmoides* ex gr. *H. neocomianus*  
Chapman  
spines  
bone  
pyrite  
age: Mesozoic, ?Jurassic  
environment: very restricted marine

Depth 8,545-8,550 ft., core,  
GSC loc. C-19622

?white carbonate fragments  
pyrite  
?minute chambered Foraminifera (*Haplophrag-*  
*moides?*)  
age: ?Mesozoic  
environment: ?nonmarine

Jurassic and Cretaceous Assemblages (pelecypods)  
by J. A. Jeletzky

I.O.E. Mayogiak J-17  
69°26'42"N, 132°48'12"W, Figure 1b, loc. 6  
(Note GSC Paper 74-11, p. 11-14)

Depth 8,839.7-8,857.5 ft., core;  
Husky Formation, top 17.8 ft.,  
GSC locs. C-24298 to C-24300

*Buchia* sp. indet.  
*B. okensis* (Pavlow)  
age: Early Cretaceous, early Berriasian,  
*Buchia okensis* Zone

Depth 8,988 ft., core;  
Husky Formation, 148 ft.  
below top,  
GSC loc. C-24303

*Buchia* cf. *B. fischeriana* (d'Orbigny) sensu  
lato  
age: probably *Buchia fischeriana* Zone

Depth 8,989 ft., core;  
Husky Formation, 149 ft.  
below top,  
GSC loc. C-24304

*Buchia fischeriana* (d'Orbigny)  
age: Late Jurassic, Late Tithonian,  
*Buchia fischeriana* Zone

Depth 8,994 ft., core;  
Husky Formation, 154 ft.  
below top,  
GSC loc. C-24305

*Buchia fischeriana trigonoides* (Lahusen)  
age: probably *Buchia fischeriana* Zone,  
possibly the upper part rather than  
the lower part

Comments: The Jurassic-Cretaceous boundary can be placed tentatively within the interval 8,858 to 8,988 feet. In the northern Richardson Mountains, the *Buchia okenis* Zone is restricted to the Red-weathering shale member of the Husky Formation and the *Buchia fischeriana* Zone is developed in the lower part of the Arenaceous member and the top part of the Lower member of the same formation (Jeletzky, 1967, p. 30-35).

Ordovician, Devonian,  
Jurassic and Cretaceous Assemblages  
(palynomorphs; foraminiferal and related  
microfaunas; conodonts)  
by W. S. Hopkins, Jr., T. P. Chamney,  
D. C. McGregor and T. T. Uyeno

*Deminex et al.* Orksut I-44  
72°23'45"N, 122°42'09"W, Figure 1a, loc. 21

Depth 3,902-3,932 ft., core;  
Kanguk Formation, 892-922 ft.  
below top,  
GSC loc. C-29057

*Sphagnum antiquasporites* Wilson and Webster  
*Cicatricosisporites* sp.  
*C. australiensis* (Cookson) Potonié  
cf. *Contignisporites* sp.  
*Lycopodiacidites* sp.  
miscellaneous bisaccate conifer pollen  
*Glyptostrobus* sp.  
*Expressipollis* sp.  
*Aquilapollenites* sp.  
*Hystriospheraeridium* sp.  
age: probably Maastrichtian, possibly  
Campanian (see comments)

Depth 4,274-4,307 ft., core;  
Isachsen Formation, 20-53 ft.  
below top,  
GSC loc. C-29058

*Klukisporites* sp.  
*Concavissimisporites* sp.  
*Classopollis* sp.  
*Tsuga* sp.  
*Tricolpites?* sp.  
age: post-Middle Albian (see comments)

Comments (W.S.H.): Preservation of the palynomorphs is very poor with most specimens being unidentifiable. However, there is little doubt that GSC locality C-29057 is latest Cretaceous in age. GSC locality C-29058 is nearly barren but the presence of a possible tricolpate pollen grain suggests an age at least as old as Late Cretaceous. *Klukisporites* and *Concavissimisporites* are typically Early Cretaceous. The age of this sample may be Albian.

Depth 4,700-4,800 ft., cuttings;  
Mould Bay Formation, 17-117 ft.  
below top,  
GSC loc. C-30092

*Haplophragmoides* spp.  
*H. ex gr. H. canui* Cushman  
*Lituotuba ex gr. L. gallupi* Chamney  
*Reophax* sp. (coarse, inflated)  
*Glomospirella* cf. *G. elongata* Chamney

*Ammodiscus ex gr. A. silicea* Terquem  
age: Early Neocomian  
environment: restricted marine (shallow)

Depth 4,800-4,900 ft., cuttings;  
Mould Bay Formation, 117-217 ft.  
below top,  
GSC loc. C-30093

*Haplophragmoides* spp.  
*H. cf. H. barrowensis* Tappan  
*H. ex gr. H. canui* Cushman  
*Arenoturrisspirillina waltoni* Chamney  
*Ammodiscus* spp.  
*Glomospirella?* sp.  
*Lenticulina ex gr. L. excavata* (Terquem)  
pelecypod shell fragments  
glaucanite  
age: Cretaceous/Jurassic boundary  
environment: marine, access to open  
marine

Depth 4,900-5,000 ft., cuttings;  
Mould Bay Formation, 217-317 ft.  
below top,  
GSC loc. C-30094

*Haplophragmoides* spp. (coarse, small)  
*H. barrowensis* Tappan  
*Eoguttulina* cf. *E. liassica* (Strickland)  
*Trochammina ex gr. T. canningensis* Tappan  
megaspores  
ostracode sp. (smooth elongate)  
age: Late Jurassic, Tithonian?  
environment: open marine

Depth 5,000-5,100 ft., cuttings;  
Mould Bay Formation, 317-417 ft.  
below top,  
GSC loc. C-30095

*Haplophragmoides* spp. (similar to 5,100-  
5,200 ft.)  
*Ammodiscus* spp. (similar to 5,100-5,200 ft.)  
age: Late Jurassic  
environment: restricted marine, shallow

Depth 5,100-5,200 ft., cuttings;  
Mould Bay Formation, 417-517 ft.  
below top,  
GSC loc. C-30096

*Haplophragmoides* spp.  
*H. cf. H. barrowensis* Tappan  
*H. ex gr. H. canui* Cushman  
*Ammodiscus* cf. *A. orbis* Lalicker  
*Bathysiphon* cf. *B. anomalocoelia* Tappan  
pelecypod shell fragments  
megaspores  
ostracode sp. (slipper-shape)  
trixion spines (radiolaria?)  
age: Late Jurassic  
environment: restricted marine, shallow

Depth 5,200-5,300 ft., cuttings;  
Mould Bay Formation, 517-617 ft.  
below top,  
GSC loc. C-30097

*Textularia* cf. *T. areoplecta* Tappan

- Eoguttulina* cf. *E. liassica* (Strickland)  
*Sagoplecta?* sp. (pyritized)  
*Haplophragmoides* ex gr. *H. canui* Cushman  
*H.* cf. *H. barrowensis* Tappan  
 megaspores and plant rootlets  
 pyrite  
 age: Late Jurassic
- Depth 5,300-5,400 ft., cuttings;  
 Mould Bay Formation, basal 40 ft.,  
 Wilkie Point Formation, top 60 ft.,  
 GSC loc. C-30098
- Ammobaculites* cf. *A. barrowensis* Tappan  
*Lenticulina* sp.  
*Trochammina* sp.  
*Arenoturrispirillina* ex gr. *A. jeletzkyi*  
 Chamney  
*Haplophragmoides* spp. (small, coarse)  
*H.* cf. *H. kingakensis* Tappan  
 age: Late Jurassic  
 environment: marine, access to open  
 marine
- Depth 5,400-5,500 ft., cuttings;  
 Wilkie Point Formation, 60-160 ft.  
 below top,  
 GSC loc. C-30099
- Astacolus* cf. *A. pediacus* Tappan  
*Nodosaria* sp. (pyritized)  
*Trochammina* spp.  
*T.* ex gr. *T. sablei* Tappan  
*Ammobaculites barrowensis* Tappan  
*Haplophragmoides kingakensis* Tappan  
*Arenoturrispirillina* ex gr. *A. intermedia*  
 Chamney  
*Gravellina?* sp.  
 age: Late Jurassic
- Depth 5,500-5,600 ft., cuttings;  
 Wilkie Point Formation, 160-260 ft.  
 below top,  
 GSC loc. C-30100
- Microfauna as at 5,400-5,500 ft., with addition of:  
*Ammodiscus* sp. (small)  
*Gravellina* sp. (dwarf)  
*Bolivina?* ex gr. *B. lathetica* Tappan  
 (pyritized)  
 age: Jurassic
- Depth 5,600-5,700 ft., cuttings;  
 Wilkie Point Formation, 260-360 ft.  
 below top,  
 GSC loc. C-30101
- Discorbis?* sp.  
*Lenticulina* cf. *Astacolus connudatus* Tappan  
*Haplophragmoides* spp.  
*Hippocrepina* sp.  
 glauconite  
 pelecypod shell fragments  
 age: Late Jurassic, Oxfordian?  
 environment: open marine
- Depth 5,700-5,800 ft., cuttings;  
 Wilkie Point Formation, 360-460 ft.  
 below top,  
 GSC loc. C-30102
- Ammobaculites* sp. (giant)  
*Haplophragmoides* spp.  
*Astacolus* sp.  
*Trochamminoides* sp. (giant)  
*Glomospirella* sp.  
 spines  
 age: Late Jurassic  
 environment: marine, access to open  
 marine
- Depth 5,800-5,900 ft., cuttings;  
 Wilkie Point Formation, 460-560 ft.  
 below top,  
 GSC loc. C-30103
- Trochamminoides* spp. (including species  
 from 5,700-5,800 ft.)  
*Haplophragmoides* sp.  
*Ammodiscus* ex gr. *A. thomsi* Chamney  
*Bathysiphon* sp.  
*Astacolus* cf. *A. connudatus* Tappan  
 age: Jurassic  
 environment: marine, access to open  
 marine
- Depth 5,960 ft., core;  
 Wilkie Point Formation,  
 620 ft. below top,  
 GSC loc. C-28072
- Lycopodium* sp.  
 age: possibly Early Cretaceous (see  
 comments)
- Depth 5,960-5,970 ft., cuttings;  
 Wilkie Point Formation, 620-630 ft.  
 below top,  
 GSC loc. C-30104
- Haplophragmoides* spp.  
*H.* sp. 95  
*Arenoturrispirillina* sp. 6  
*Ammobaculites* ex gr. *A. alaskensis* Tappan  
 pyrite rods  
 age: Jurassic undifferentiated, possible  
 cavings  
 environment: marine, undifferentiated
- Depth 5,980-5,992 ft., core;  
 Wilkie Point Formation,  
 640-652 ft. below top,  
 GSC loc. C-30106
- megaspore II A sp. 12  
 age: indeterminate, Jurassic?  
 environment: nonmarine?
- Depth 5,996 ft., core;  
 Wilkie Point Formation,  
 656 ft. below top,  
 GSC loc. C-28073
- cf. *Kuyliaporites* sp.



cf. *Murospora* sp.  
*Deltoidospora* sp.  
cf. *Sphagnum* sp.  
*Lycopodium* sp.  
*Gleicheniidites* sp.  
miscellaneous bisaccate conifer pollen  
*Glyptostrobus* type  
*Monosulcites* sp.  
cf. *Tsuga* sp.  
*Classopollis* sp.

age: possibly Early Cretaceous (see comments)

Depth 5,992-6,000 ft., core;  
Wilkie Point Formation,  
basal 8 ft.,  
GSC loc. C-30107

*Ammodiscus* cf. *A. orbis* Lalicker  
*Haplophragmoides* sp.  
pyrite replacing organic remains (possibly indicating an unconformity)  
age: Jurassic, Early? or Middle?  
environment: marine, restricted

Depth 5,900-6,000 ft., cuttings;  
Wilkie Point Formation,  
basal 100 ft.,  
GSC loc. C-30108

*Astacolus* cf. *A. connudatus* Tappan  
*Reophax* sp. (giant, coarse)  
*Haplophragmoides* spp.  
spines  
age: indeterminate  
environment: marine undifferentiated

Depth 6,000-6,015 ft., cuttings;  
Eids Formation, top 15 ft.,  
GSC loc. C-30109

*Styliolina* spp.  
*Tentaaculites* sp.  
plant megaspore PIB sp. 2  
pyrite  
age: Middle Devonian, Givetian  
biostratigraphic equivalent: Hare Indian Formation  
environment: marine, near-shore

Depth 6,002 and 6,017 ft., core;  
Eids Formation, 2 and 17 ft.  
below top,  
GSC locs. C-28074 and C-28075,  
respectively

*Ancyrospora* sp.  
*Chelinospora concinna* Allen  
*Cymbosporites ?cyathus* Allen  
*C. ?catillus* Allen  
*Dictyotrilites* sp.  
*Laevigatosporites* sp.  
*Lophotrilites* sp.  
cf. *Perotrilites bifurcatus* Richardson  
age: Middle Devonian, Givetian

Depth 9,010-9,110 ft., cuttings;  
GSC loc. C-29857

*Ozarkodina exigua* (Philip) → *O. expansa*  
Uyeno and Mason (P element)

age: probably Early Devonian, Emsian  
(probably Late Emsian)

Depth 9,500-9,600 ft., cuttings;  
GSC loc. C-29858

*Panderodus* spp. (fragmentary)  
age: Middle Ordovician to Middle Devonian

Comments (W.S.H.): Both GSC localities C-28072 and C-28073 are loaded with organic trash, contain very few, poorly preserved palynomorphs and these are not especially age diagnostic. An Early Cretaceous age is a possibility.

Comments (D.C.M.): The spores in GSC localities C-28074 and C-28075 are somewhat carbonized and in general are rather poorly preserved. Those that can be identified indicate a Givetian age, possibly late Givetian.

Comments (T.T.U.): The platform element in GSC locality C-29857 is a transitional form between *Ozarkodina exigua* and *O. expansa*. The former has been reported from Emsian strata at Royal Creek, Yukon (Klapper, 1969); the latter has been found at several localities in the Arctic Islands, Yukon and the western District of Mackenzie, in strata of late Early to early Late Emsian age (Uyeno and Mason, in press).

Devonian, Jurassic and Cretaceous Assemblages  
(foraminiferal and related microfossils; cricoconarids)  
by T. P. Chamney and A. W. Norris

Elf Nanuk D-76  
73°05'13"N, 123°23'45"W, Figure 1a, loc. 19  
(Note Miall, 1974b)

Depth 2,002-2,250 ft., cuttings;  
Kanguk Formation, 62-310 ft.  
below top,  
Texaco samples

*Haplophragmoides* spp.  
*Ammodiscus* sp. (small to medium)  
*Saccammina* sp.  
age: Late Cretaceous, Campanian to Maastrichtian

Depth 2,250-2,710 ft., cuttings;  
Kanguk Formation, 310-770 ft.  
below top,  
Texaco samples

*Quinqueloculina* spp.  
age: Late Cretaceous, Late Campanian  
biostratigraphic equivalent: Riding Mountain Formation

Depth 2,710-2,845 ft., cuttings;  
Kanguk Formation, 770-905 ft.  
below top,  
Texaco samples

*Cyclammina* sp. 1A  
*Bathysiphon* sp. 3  
*Verneulinoides* ex gr. *V. fischeri* Tappan  
(short, flaring species)

*Haplophragmoides* sp.  
age: Late Cretaceous, Campanian  
biostratigraphic equivalent: Assemblage  
Zone 11C (depth 9,200 ft.;  
Chamney, 1971) of Reindeer  
D-27 well

Depth 2,845-3,100 ft., cuttings;  
Kanguk Formation, 905-1,160 ft.  
below top,  
Texaco samples

*Verneuilinoides* ex gr. *V. fischeri* Tappan  
(short, flaring species)  
age: Late Cretaceous, Late Santonian to  
Early Campanian  
biostratigraphic equivalent: tentatively  
correlated with the pale  
shale zone equivalent

Depth 3,140 ft., cuttings;  
Kanguk Formation, 1,200 ft.  
below top,  
GSC loc. C-23762

*Ammodiscus* ex gr. *A. turbinatus* Chapman  
age: Late Cretaceous  
environment: marine

Depth 3,170 ft., cuttings;  
Kanguk Formation, 5 ft.  
above base,  
GSC loc. C-23763

"*Cyclammina*" ex gr. *C.* sp. 1A  
*Marssonella* sp. 16  
*Verneuilinoides?* ex gr. *V. fischeri* Tappan  
age: Cretaceous, ?Late

Depth 3,180 ft., cuttings;  
Christopher Formation, 5 ft.  
below top,  
GSC loc. C-23764

*Haplophragmoides* sp.  
*Spiroplectammina?* sp.  
*Bathysiphon* sp. 3  
*Verneuilinoides* ex gr. *V. fischeri* Tappan  
*Marssonella* sp. 16  
age: Cretaceous, ?Late

Depth 3,190 ft., cuttings;  
Christopher Formation, 15 ft.  
below top,  
GSC loc. C-23765

*Ammodiscus* ex gr. *A. turbinatus* Chapman  
*A. cretaceus* (Reuss)  
*Haplophragmoides* sp.  
age: Cretaceous, ?Late

Depth 3,240 ft., cuttings;  
Christopher Formation, 65 ft.  
below top,  
GSC loc. C-23766

"*Cyclammina*" ex gr. *C.* sp. 1A  
*Ammodiscus* ex gr. *A. turbinatus* Chapman  
age: Late Cretaceous, caved

Depth 3,175-3,320 ft., cuttings;  
Christopher Formation, top 145 ft.,  
Texaco samples

*Haplophragmoides* spp.  
*Verneuilinoides borealis* Tappan  
*Arenobulimina paynei* Tappan  
*Gaudryina* ex gr. *G. nanushukensis* Tappan  
*Ammodiscus* sp. (giant form, 1.1 mm diam.)  
*Pelosina* sp.  
*Ammobaculites* ex gr. *A. fragmentarius*  
Cushman  
*Spiroplectammina* sp.  
age and correlation: Early Cretaceous,  
Middle to Late Albian;  
similar to the assemblages  
of the bentonitic shale  
equivalent (Christopher  
Formation in part)

Depth 3,390 ft., cuttings;  
Christopher Formation, 215 ft.  
below top,  
GSC loc. C-23767

"*Cyclammina*" ex gr. *C.* sp. 1A  
age: Late Cretaceous, caved

Depth 3,550 ft., cuttings;  
Christopher Formation,  
375 ft. below top,  
GSC loc. C-23768

*Haplophragmoides* cf. *H. sluzari* Mellon and  
Wall  
age: Early Cretaceous, Albian

Depth 3,590 ft., cuttings;  
Christopher Formation,  
415 ft. below top,  
GSC loc. C-23769

"*Cyclammina*" ex gr. *C.* sp. 1A  
age: Late Cretaceous, caved

Depth 3,595-3,700 ft., cuttings;  
Christopher Formation, basal 95  
ft. and Ibbett Bay Formation, top  
5 ft.,  
Texaco samples

*Reophax* spp. (small but coarsely agglutinated)  
*Psamminopelta?* sp.  
*Glonospirella?* sp.  
age and correlation: Early Cretaceous;  
some indication of the  
*Reophax tundraensis*  
Assemblage (Early Albian  
to Aptian) as developed in  
the upper Isachsen Forma-  
tion or silty zone equiv-  
alent

Depth 4,160-4,240 ft., cuttings;  
Bids Formation, 20-100 ft. below  
top,  
GSC loc. C-24620

*Nowakia* cf. *N. barrandei* Bouček and Prantl  
age: late Early Devonian

Comments (T.P.C.): The Upper Cretaceous/Lower Cretaceous boundary is at approximately 3,175 feet at the base of a 75-foot interval of vari-coloured shales that include jarosite. The underlying sequence provides an abrupt change of microfauna with Early Cretaceous index species such as *Ammobaculites fragmentarius* Cushman, *Verneuilinoides* ex gr. *V. borealis* Tappan and *Psammimopelta?* sp. *Ammodiscus* ex gr. *A. turbinatus* Chapman and "*Cyclammina*" ex gr. *C. sp. 1A* are such large forms that they are easily observed in the lithological samples during examination for logging and can be recorded all the way down the borehole.

Comments (A.W.N.): Although the material in GSC locality C-24620 is very poorly preserved, the overall shape, fine, very closely spaced longitudinal markings, and sharply angular annular rings suggest that the species is closely related to *Nowakia barrandei*. In Bohemia this species occurs in the upper part of the Zlichovian (Emsian). Lithologic studies of the well by A. D. Miall (1974b) suggest that the contact between Lower Cretaceous and Devonian rocks is at 3,695 feet.

Devonian, Jurassic and Cretaceous Assemblages  
(foraminiferal and  
associated microfaunas; pelecypods; corals)  
by T. P. Chamney, J. A. Jeletzky and A. E. H. Pedder

Imperial-I.O.E. Pikiolik E-54  
69°23'15"N, 132°44'35"W, Figure 1b, loc. 8

Depth 7,821-7,833 ft., core;  
upper sandstone division equivalent,  
16-28 ft. below top,  
GSC loc. C-19712

*Hyperammina* sp.  
*Haplophragmoides* sp.  
*Hippocrepina* sp.  
*Ammodiscus* sp. 2  
pyrite  
age: Early Cretaceous (undifferentiated)  
environment: restricted marine

Depth 7,833-7,836 ft., core;  
upper sandstone division equivalent,  
28-31 ft. below top,  
GSC loc. C-19713

*Quadriformina?* sp.  
*Haplophragmoides* sp.  
*Reophax?* *tundraensis* Chamney  
ostracode sp.  
siliceous spine  
age: Early Cretaceous, Aptian to Early  
Albian  
environment: restricted marine

Depth 8,098-8,106 ft., core;  
upper shale-siltstone division,  
about 208-216 ft. below top,  
GSC loc. C-19714

*Verneuilinoides?* sp. (very coarse)  
*Haplophragmoides* sp. (giant form)  
*Reophax* cf. *R. tundraensis* Chamney  
plant rootlets  
age: Early Cretaceous  
environment: restricted marine

Depth 8,120-8,125 ft., core;  
upper shale-siltstone division,  
about 230-235 ft. below top,  
GSC loc. C-19715

*Haplophragmoides* ex gr. *H. goodenoughensis*  
Chamney  
*H.* ex gr. *H. neocomianus* Chapman  
*Hyperammina* or *Bathysiphon* sp.  
calcareous spines (?productid)  
pyritized wood  
megaspores ID sp.  
age: Early Cretaceous, Barremian to  
Aptian  
environment: restricted marine

Depth 8,498-8,506 ft., core;  
probably upper shale-siltstone  
division, 608-616 ft. below top,  
GSC loc. C-19716

*Ammobaculites* ex gr. *A. agglutinans* (d'Orbigny)  
*Saccammina* sp.  
*Hyperammina* sp.  
*Haplophragmoides* sp.  
*Verneuilinoides?* or *Gravellina* sp.  
*Ammodiscus* ex gr. *A. thomsi* Chamney  
*Inoceramus* sp. (prisms)  
age: Cretaceous/Jurassic boundary  
biostratigraphic equivalent: ?lower  
sandstone division  
environment: restricted marine

Depth 8,812-8,822 ft., core;  
Husky Formation, about 52-62 ft.  
below top of lower mbr.,  
GSC loc. C-19717

microfossils similar to those at depths 8,822-  
8,827 ft., plus:

*Lenticulina* cf. *L. wisniowskii* (Myatliuk)  
*Haplophragmium?* sp.  
*Viviparus* sp. (operculum)  
age: Middle to Late Jurassic  
biostratigraphic equivalent: middle to  
lower Kingak Formation  
(lower Husky Formation)

Depth 8,822-8,827 ft., core;  
Husky Formation, about 62-67 ft.  
below top of lower mbr.,  
GSC loc. C-19718

*Arenoturrispirillina* sp. 1  
*Glomospirella* sp.  
*Haplophragmoides* ex gr. *H. canui* Cushman  
*H.* ex gr. *H. goodenoughensis* Chamney  
*Reophax* ex gr. *R. tundraensis* Chamney  
*Ammobaculites* cf. *A. agglutinans* (d'Orbigny)  
*Verneuilinoides* sp.  
*Lenticulina* cf. *L. wisniowskii* (Myatliuk)  
*Lagena* sp. (pyritized)  
*Trochammina* sp.  
*Orbulina?* sp.  
*Dentalina* sp.  
*Viviparus* sp. (operculum)  
pelecypod shell fragments  
age: Middle to Late Jurassic  
environment: open marine, but shallow

Depth 8,837-8,849 ft., core;  
Husky Formation, about 77-89 ft.  
below top of lower mbr.,  
GSC loc. C-19719

*Lenticulina* ex gr. *L. wisniowskii* (Myatliuk)  
and varieties  
*Pseudoglandulina mutabilis* (Reuss)  
*Astacolus* cf. *A. pediacus* Tappan  
*Marginulinopsis* cf. *M. phragmites* Loeblich  
and Tappan

*Trochammina* sp.  
*Haplophragmoides* spp.  
*H. canui* Cushman  
*Lituotuba irregularis* Tappan  
*Ammobaculites barrowensis* Tappan  
*Haplophragmoides* cf. *H. barrowensis* Tappan  
*Glomospirella* sp.  
age: Middle to Late Jurassic  
biostratigraphic equivalent: Rierdon  
Formation  
environment: open marine, but shallow

Depth 8,838-8,844 ft., core;  
Husky Formation, about 78-84 ft.  
below top of lower mbr.,  
GSC locs. C-19704 and C-19705

*Buchia* sp. indet.  
*B. fischeriana* (d'Orbigny)  
age: Late Jurassic, Late Tithonian,  
*Buchia fischeriana* Zone

Depth 8,849-8,872 ft., core;  
Husky Formation, about 89-112  
ft. below top of lower mbr.,  
GSC loc. C-19720

very abundant agglutinated Foraminifera simi-  
lar to those at depths 8,837-8,849 ft., plus:

*Reophax metensis* Franke  
*Lituotuba irregularis* Tappan  
*Arenoturrispirellina* cf. *A. jeletzkyi*  
Chamney  
*Fronicularia lustrata* Tappan  
*Astacolus pediacus* Tappan  
ostracode spp.  
age: Late Jurassic  
biostratigraphic equivalent: Kingak  
Formation  
environment: open marine

Depth 8,851 ft., core;  
Husky Formation, about 91 ft.  
below top of lower mbr.,  
GSC locs. C-19706 and C-19707

*Buchia* (sensu lato) sp. indet.  
*B.* cf. *B. fischeriana* (d'Orbigny)  
*B.* cf. *B. piochii* (Gabb) sensu lato  
age: Late Jurassic, Late Tithonian,  
probably *Buchia fischeriana*  
Zone

Depth 8,863 ft., core;  
Husky Formation, about 103 ft.  
below top of lower mbr.,  
GSC loc. C-19709

indeterminate pelecypod  
*Buchia fischeriana* (d'Orbigny)  
age: Late Jurassic, Late Tithonian  
*Buchia fischeriana* Zone

Depth 8,865 ft., core;  
Husky Formation, about  
105 ft. below top of lower  
mbr.,  
GSC loc. C-19710

*Buchia* (sensu lato) sp. indet.  
age: Late Jurassic (late Oxfordian)  
to early Early Cretaceous  
(late Valanginian)

Depth 9,073 ft., core;  
Gossage Formation, 83 ft.  
below top,  
GSC loc. C-21798

cf. *Pachyfavosites* sp.  
age: ?Late Silurian to Middle Devonian

Depth 9,097.5 ft., core;  
Gossage Formation, 107.5 ft.  
below top,  
GSC loc. C-21799

*Amphipora* sp.  
*Spongonaria richardsonensis* Crickmay  
age: Early Devonian, probably Emsian

Depth 9,099 ft., core;  
Gossage Formation, 109 ft.  
below top,  
GSC loc. C-21800

*Alveolites?* sp. (not sectioned)  
*Spongonaria richardsonensis* Crickmay (frag-  
ment)  
*Neostriphophyllum* sp. (broad sense)  
age: Early Devonian, probably Emsian

Depth 9,100 ft., core;  
Gossage Formation, 110 ft.  
below top,  
GSC loc. C-21801

*Squameofavosites* sp.  
age: Late Silurian to Middle Devonian

Depth 9,102 ft., core;  
Gossage Formation, 112 ft.  
below top,  
GSC loc. C-21802

*Amphipora* sp.  
*Squameofavosites?* sp. (fragment)  
*Spongonaria* cf. *S. richardsonensis* Crickmay  
*Neostriphophyllum* sp. (broad sense)  
age: Early Devonian, probably Emsian

Depth 9,102.2 ft., core;  
Gossage Formation, 112.2 ft.  
below top,  
GSC loc. C-21803

*Favosites* sp.  
age: Silurian to Middle Devonian

Depth 9,104-9,107 ft., core;  
Gossage Formation, 114-117 ft.  
below top,  
GSC locs. C-21804 to C-21806

*Spongonaria* cf. *S. richardsonensis* Crickmay  
age: Early Devonian, probably Emsian

Comments (J.A.J.): The interval 8,838 to 8,863 feet is within the *Buchia fischeriana* Zone which is present also in the I.O.E. Mayogiak J-17 well (q.v.) at a depth of 8,989 feet. The Jurassic-Cretaceous boundary probably is situated not much higher than at a depth of 8,740 feet in the Pikiolik E-54 well.

Comments (A.E.H.P.): The species that comprise the genus *Spongonaria* were known previously only from Emsian strata in the Yukon Territory, although the genus is similar to *Zelolasma*, which occurs in Siegenian or Emsian beds in eastern Australia. The occurrence of a distinct species of *Amphipora* in GSC localities C-21799 and C-21802 and the restricted range of *Spongonaria* in the Yukon indicate that the ages of all these samples fall within a narrow time interval.

The rocks providing the collections should be correlated with the lower Ogilvie Formation of the Yukon (but certainly not with the youngest beds of that formation, which, in the Mount Burgess area, are as young as Givetian) and with part, at least, of the Gossage and Bear Rock Formations of the north-west District of Mackenzie.

Triassic, Jurassic and Cretaceous Assemblages  
(foraminifers and palynomorphs)  
by R. E. Dunay and P. F. Sherrington  
[Robertson Research (North America) Limited]

Panarctic et al. Dome Bay P-36  
78°25'52.4"N, 103°15'47.54"W, Figure 1a, loc. 12

Depth 7,053-7,073 ft., core;  
undivided Borden Island-Heiberg  
Formations, 958-978 ft. below top,  
GSC loc. C-30845/7053-7073

*Corrugatisporites amplexiformis* (Kara-  
Murza) Pocock  
*C. anagrammensis* (Kara-Murza) Pocock  
*Classopollis simplex* Reyre  
*Chasmatisporites* spp.  
*Polycingulatisporites circulus* Simoncsics  
and Kedves  
*Mancodinium* cf. *M. semitabulatum* Morgenroth  
age: Early Jurassic, Late Pliensbachian  
to Toarcian

Comments (R.E.D.): A Middle to Late Liassic age is indicated by the Late Pliensbachian to Toarcian dinoflagellate *M.* cf. *M. semitabulatum*. *Corrugatisporites amplexiformis*, *C. anagrammensis* and *Classopollis simplex* all are common components of Liassic palynofloras in the Canadian Arctic.

Depth 8,020-8,050 ft., core;  
Blaa Mountain Formation, 174-204  
ft. below top,  
GSC loc. C-30845/8020-8050

*Nodosaria shublikensis* Tappan/*N. mitis*  
(Terquem and Berthelin)  
*Vaginulinopsis acrolus* Tappan  
*Astacolus connudatus* Tappan  
*Ammobaculites* sp. (common)  
*Reophax* sp.  
*Haplophragmoides?* sp.  
*Ammodiscus* sp. 4  
*A.* cf. *A. aspera* (Terquem)/*A. silicea*  
(Terquem)  
*Trochammina* sp. (common)  
*Saccammina* sp.  
indeterminate agglutinating foraminifera  
metacopid ostracode fragments (common)  
fish teeth  
holothurian? sclerite  
sponge spicules  
age: Late Triassic, Karnian to Norian

Comments (P.F.S.): Although the sample proved to be palynologically barren, the fairly diverse foraminiferal microfauna can be ascribed to the *N. shublikensis/mitis* Assemblage Zone that ranges throughout the Upper Triassic in the Sverdrup Basin. Metacopid ostracode fragments are not known in the Rhaetian of the Sverdrup Basin and their presence restricts the age to Karnian or Norian.

Panarctic-Tenneco King Christian N-06  
77°45'54.04"N, 101°02'19.19"W, Figure 1a, loc. 13

Depth 9,566-9,595 ft., core,  
GSC loc. C-30231/9566-9595

*Micrhystriidium* spp.  
*Polycingulatisporites* cf. *P. circulus*  
Simoncsics and Kedves  
age: Early Triassic

Comments (R.E.D.): The palynofora is corroded, highly carbonized, and dominated by nondiagnostic species of *Micrhystriidium*. The genus often is present in abundance in Lower Triassic rocks and such correlation tentatively is indicated. *Polycingulatisporites* cf. *P. circulus* is a common constituent of Lower Triassic to Middle Jurassic floras.

Depth 10,989-11,018 ft., core,  
GSC loc. C-30231/10984-11018

*Lunatisporites* cf. *L. rhaeticus* (Schulz)  
*Micrhystriidium* spp.  
aff. *Ovalipollis ovalis* Krutzsch  
*Polycingulatisporites* sp.  
age: Early Triassic

Comments (R.E.D.): The lower age limit is considered to be Scythian, because of the presence of *L.* cf. *L. rhaeticus*, a striate bisaccate species that ranges throughout the Triassic. *Polycingulatisporites* is common in Middle Triassic floras in the Canadian Arctic and, coupled with the complete absence of Norian-Rhaetian dinoflagellates, certainly indicates an age older than Norian.

B.P. et al. Panarctic Emerald K-33  
76°02'43"N, 113°43'21"W, Figure 1a, loc. 16

Depth 2,105-2,118.5 ft., core,  
GSC loc. C-30844/2105-2118.5

*Haplophragmoides topagorukensis* Tappan  
*Ammobaculites fragmentarius* Cushman  
A. aff. *A. wenonahae* Tappan  
*Ammodiscus* sp.  
*Saccammina lathrami* Tappan  
*Reophax troyeri* Tappan  
*Trochammina?* *ribstonensis* Wickenden  
*Bathysiphon brosegi* Tappan  
*Saracenaria projectura* Stelck and Wall  
S. aff. *S. trollopei* Mellon and Wall  
*Lenticulina* sp.  
*Marginulina?* sp.  
indeterminate spheres  
*Inoceramus* sp. (fragments)  
*Alisporites bilateralis* Rouse  
A. *grandis* (Cookson) Dettmann  
A. *thomasi* Pocock  
*Dictyophyllidites senonicus* Ross  
*Osmundacidites wellmani* Couper  
*Stereisporites antiquasporites* (Wilson and Webster) Dettmann  
S. *cicatricosus* (Rogalska) Danze-Corsin and Laveine  
*Cyathidites* sp.  
C. *australis* Couper  
*Cedripites cretaceus* Pocock  
*Tsugaepollenites mesozoicus* Couper  
*Lycopodiumsporites austroclavitudites* (Cookson) Potonié  
L. *reticulumsporites* (Rouse) Dettmann  
*Tigrisporites* sp.  
*Pareodinia ceratophora* Deflandre  
*Hystriochosphaeridium* sp.  
*Pseudoceratium* sp.  
*Canningia* sp.  
aff. *Cyclonephelium* sp.  
*Botryococcus* spp.  
derived Paleozoic spores  
age: Early Cretaceous, Early to Middle Albian

Comments (P.F.S.): The fairly diverse microfauna contains mainly long-ranging Cretaceous species; however, the presence of abundant *Ammobaculites fragmentarius* along with the calcareous species *Saracenaria projectura* and S. aff. *S. trollopei* indicates an Albian age.

Comments (P.E.D.): The palynoflora is of general Cretaceous aspect. The dinoflagellate *Pareodinia ceratophora* indicates an age no younger than Albian, whereas the absence of angiosperm taxa suggests an age no younger than Middle Albian.

Depth 4,008-4,038 ft., core;  
Savik Formation, 372-402 ft.  
below top,  
GSC loc. C-30844/4008-4038

*Eoguttulina liassica* (Strickland)  
*Trochammina* aff. *T. sablei* Tappan  
*Bathysiphon* sp.  
*Saccammina* sp.  
*Textularia* cf. *T. areoplecta* Tappan

*Ammobaculites* spp.  
A. cf. *A. imlayi* Loeblich and Tappan  
*Dietyomitra* sp.  
megaspore  
*Dietyotriletes crateris* (Balme) Pocock  
*Corrugatisporites anagrammensis* (Kara-Murza) Pocock  
*Tsugaepollenites mesozoicus* Couper  
*Contignisporites problematicus* (Couper) Döring  
*Carnisporites granulatus* Schulz  
*Lycopodiacidites* sp.  
*Nannoceratopsis gracilis* Alberti  
*Mancodinium semitabulatum* Morgenroth  
derived Paleozoic palynomorphs  
age: Early Jurassic, Toarcian

Comments (R.E.D.): The occurrence of the dinoflagellates *Mancodinium semitabulatum* and *Nannoceratopsis gracilis* indicates a Toarcian age. This determination is supported by the presence of *Corrugatisporites anagrammensis* and *Carnisporites granulatus*, both of which commonly are encountered in Liassic assemblages.

Comments (P.F.S.): The foraminiferal assemblage is broadly consistent with a Toarcian age determination, although most of the species present range up into Middle and even Upper Jurassic strata.

Depth 5,420-5,458 ft., core;  
Bjorne Formation, 7-45 ft.  
below top,  
GSC loc. C-30844/5420-5458

*Ammobaculites* spp.  
*Haplophragmoides?* sp.  
indeterminate agglutinated Foraminifera  
*Camarozonosporites rudis* (Leschik) Klaus  
*Striatoabieites aytugii* Visscher  
*Distalanulisporites* cf. *D. punctus* Klaus sensu Pautsch  
*Protodiploxypinus schizeatus* (Mädler) Scheuring  
P. cf. *P. gracilis* Scheuring  
*Falcisporites* cf. *F. stabilis* Balme  
*Lycopodiacidites* "ANI-1"  
*Stereisporites* "ANI-1"  
*Carnisporites* sp.  
*Polycingulatisporites* spp.  
aff. *Cordaitina* sp.  
age: Middle Triassic

Comments (R.E.D.): Middle Triassic age is indicated by the combined presence of *Striatoabieites aytugii*, *Lycopodiacidites* "ANI-1" and *Stereisporites* "ANI-1", all of which are common constituents of Middle Triassic palynofloras elsewhere in the Sverdrup Basin. *Camarozonosporites rudis* and the genus *Protodiploxypinus* also often are found in Middle Triassic assemblages.

Permian, Triassic and Cretaceous Assemblages  
(foraminiferal and  
associated microfaunas; palynomorphs)  
by R. E. Dunay [Robertson Research  
(North America) Limited] (5,252-5,262 ft.) and  
W. V. Sliter (U.S. Geological Survey)

B.P. et al. Graham C-52  
77°21'14"N, 90°51'25"W, Figure 1a, loc. 14

Depth 560-580 ft., cuttings;  
Christopher Formation,  
117-137 ft. above base,  
GSC loc. C-22476

*Haplophragmoides rota* Nauss  
*H. gigas* Cushman  
*Bathysiphon* sp.  
*Quadrимorphina ruckerae* Tappan  
*Eponides morani* Tappan  
*Conorboides umiatensis* (Tappan)  
*Gavelinella stictata* (Tappan)  
*Saracenaria* cf. *S. dutroii* Tappan  
*S.* cf. *S. trollopei* Mellon and Wall  
*Dentalina* sp.  
*Globulina prisca* Reuss  
*Pyrulina* sp.  
age: Middle Albian

Depth 580-610 ft., cuttings;  
Christopher Formation,  
87-117 ft. above base,  
GSC loc. C-22477

*Haplophragmoides gigas* Cushman  
*Reophax troyeri* Tappan  
*Pseudobolivina rayi* (Tappan)  
*Quadrимorphina* cf. *Q. ruckerae* Tappan  
*Serovaina* sp.  
*Valvulinaria loetterlei* (Tappan)  
*Conorboides umiatensis* (Tappan)  
*Gavelinella stictata* (Tappan)  
*Saracenaria* cf. *S. dutroii* Tappan  
*S. spinosa* Eichenberg  
*Rectoglandulina kirschmeri* Tappan  
*Globulina prisca* Reuss  
age: Early to Middle Albian

Depth 650 ft., cuttings;  
Christopher Formation,  
47 ft. above base,  
GSC loc. C-22478

*Bathysiphon* sp.  
*Saccamina lathrami* Tappan  
*Gaudryina* cf. *G. cushmani* Tappan  
*Haplophragmoides gigas* Cushman  
*H. topagorukensis* Tappan  
*Pseudobolivina rayi* (Tappan)  
*Valvulinaria* cf. *V. loetterlei* (Tappan)  
*Gavelinella stictata* (Tappan)  
*Saracenaria* sp.  
*S. dutroii* Tappan  
age: Early to Middle Albian

Depth 5,252-5,262 ft., core;  
Schei Point Formation, 397-407  
ft. below top,  
GSC loc. C-30843/5252-5262

*Dietyophyllidites harrisii* Couper

*Ricciisporites tuberculatus* Lundblad  
*Kyrtonisporites* cf. *K. speciosus* Madler  
*Torosporis auritorus* Reinhardt  
*Polycingulatisporites* sp.  
age: Late Triassic, Norian-Rhaetian

Comments (R.E.D.): Both *K.* cf. *K. speciosus* and  
*T. auritorus* are Late Triassic species and the pre-  
sence of *R. tuberculatus* indicates a Norian or  
Rhaetian age.

Depth 7,332-7,342 ft., core;  
?Troid Fiord Formation, 347-357 ft.  
below base of Bjerne Formation,  
GSC loc. C-22485

*Haplophragmoides* sp. (rare, poorly preserved)  
*Bathysiphon* sp. (rare, poorly preserved)  
age: probably Permian, but possibly  
Triassic

Permian and Triassic Assemblages  
(foraminiferal and  
associated microfaunas; palynomorphs; brachiopods)  
by R. E. Dunay and P. F. Sherrington [Robertson  
Research (North America) Limited]  
(2,507-2,592 ft. and 5,110-5,140 ft.)  
and by J. B. Waterhouse (University of Toronto)

Panarctic et al. Brock C-50  
77°49'00.12"N, 114°17'24.09"W, Figure 1a, loc. 15

Depth 2,507-2,592 ft., core;  
Blind Fiord Formation,  
768-853 ft. below top,  
GSC loc. C-30842/2507-2592

*Epigondolella?* sp.  
scolecodont  
fish tooth  
shell fragments  
*Carnisporites mesozoicus* (Klaus) Madler  
*Lunatisporites* spp.  
*L.* cf. *L. acutus* Leschik  
*Striatissaccus pellucida* (Goubin)  
*Polycingulatisporites* cf. *P. circulus*  
Simoncsics and Kedves  
*Aratrisporites tenuispinosus* Playford  
*Gnetaceapollenites* cf. *G. steevesi*  
Jansonius  
*Straitoabietes* spp.  
*S. samoilovichii* (Jansonius)  
*Stereisporites* "ANI-1"  
*Cycadopites* sp.  
*Protohaploxylinus* sp.  
*Duplicisporites* sp.  
*Micrhystridium* spp.  
*M. setasessitante* Jansonius  
*Veryhachium* spp.  
age: probably late Middle Triassic  
(Ladinian), perhaps early  
Late Triassic (Karnian)

Comments (R.E.D.): *Stereisporites* "ANI-1",  
*Striatissaccus pellucida* and *Aratrisporites tenu-*  
*ispinosus* indicate Middle Triassic age. The re-  
mainder of the palynoflora is broadly consistent  
with this determination, although the presence of  
*Duplicisporites* sp. indicates that Karnian age can-  
not be entirely excluded.

Comments (P.F.S.): The presence of the conodont *Epigondolella?* indicates that the sample is no older than Late Ladinian.

Depth 5,110-5,140 ft., core,  
Blind Fiord Formation,  
3,371-3,401 ft. below top,  
GSC loc. C-30842/5110-5140

*Ammodiscus* spp. 4 and 7  
*Ammobaculites* sp. and sp. 15  
*Gnetaceapollenites* sp.  
*G. scotti* Jansonius  
*G. steevesi* Jansonius  
*Lunatisporites hexagonalis* (Jansonius)  
*L. noviaulensis* Leschik  
*Aumancisporites* cf. *A. striatus* Alpern sensu  
Jansonius  
*Striatoabieites ayugii* Visscher  
*Striatissaccus goswicensis* Mädlar  
*Aratrisporites pilosus* (Leschik) Mädlar  
*Kraeuselisporites* sp.  
*Micrhysitridium* spp.  
*M. setasessitante* Jansonius  
age: late Early Triassic (Smithian-  
Spathian)

Comments (R.E.D.): A typical Early Triassic palynoflora; the presence of *Aratrisporites* (a genus not known to occur in strata older than late Early Triassic) restricts the age to Smithian-Spathian.

Comments (P.F.S.): The microfauna, although relatively abundant, consists of long-ranging species that are typical of Late Permian to Early Triassic.

Depth 6,267 ft., core;  
?Degerbols Formation,  
832 ft. below top,  
GSC loc. C-22064

*Horridonia granulifera* (Toula)  
*Spiriferella* sp.  
*Neospirifer* sp.

Depth 6,268.5 ft., core;  
?Degerbols Formation,  
833.5 ft. below top,  
GSC loc. C-22066

*Horridonia granulifera* (Toula)  
*Waagenoconcha* sp.  
*Stenosclisma spitzbergiana* (Stepanov)

Depth 10,912-10,913 ft., core;  
?Nansen Formation, 82-83 ft.  
below top,  
GSC loc. C-22070

*Cleiothyridina* cf. *C. subexpansa* (Waagen)  
of Harker 1960

Comments (J.B.W.): The material is extremely difficult to extract, so that specific identity is based on shape rather than ornament. Kazanian or late Kungurian (Irenian) age seems likely. *Horridonia granulifera* was reported from the F1 zone in the Yukon Territory by Bamber and Waterhouse (1971) and also from the limestone unit at the top of the Tahkhandit Formation in Alaska by Brabb and Grant

(1971) but no date other than Word (i.e. Kungurian-Kazanian) was assigned by Grant. The species is known from both Kazanian and Kungurian (Filippovian) beds in Spitzbergen (Gobbett, 1963) and occurs in the Kazanian Trold Fiord Formation of the Sverdrup Basin.

Devonian Assemblages (palynomorphs)  
by D. C. McGregor and A. R. Sweet

Elf Uminmak H-07  
73°36'29"N, 123°00'30"W, Figure 1a, loc. 18  
(Note Miall, 1974b)

Depth 2,881-2,900 ft., core;  
Griper Bay Formation,  
23-42 ft. below top,  
GSC loc. C-23953

megaspores:

*Ancyrospora* sp.  
*A. ? magnifica* Owens  
*Lagenicula* sp. A of Hills *et al.*, 1971  
(Figs. 1-3)  
*Hystriocsporites* sp.  
*Auroraspora macromanifestus* (Hacquebard)  
Richardson

selected miospores:

*Lophozonotriletes* spp.  
*L. cristopher* (Luber) Kedo  
*Stenozonotriletes simplex* Naumova  
*Cyclogranisporites* spp. of McGregor and  
Owens, 1966 (Pl. XXVI,  
figs. 3-4)  
*Diaphanospora perplexa* Balme and Hassell  
*Hymenozonotriletes? semilucensis* (Naumova)  
Kedo  
unidentified taxon of McGregor and Owens,  
1966 (Pl. XXVII, fig. 19)  
age: Late Devonian, early to mid-  
Famennian  
biostratigraphic equivalent: Griper Bay  
Formation

Comments (A.R.S.): The megaspore and miospore assemblage matches that found above the 2,850-foot interval of Hills, Smith and Sweet (1971) in the outcrop of Banks Island. The environment of deposition of that interval is interpreted as upper coastal plain. Lithologic studies by Miall (1974b) indicate the contact between Cretaceous and Devonian rocks to be at 2,858 feet.

Elf *et al.* Storkerson Bay A-15  
72°54'00"N, 124°33'29"W, Figure 1a, loc. 20  
(Note GSC Paper 74-11, p. 4 and Miall, 1974a)

Depth 5,700-5,800 ft., cuttings;  
Ibbett Bay Formation, 15-115 ft.  
below top,  
GSC loc. C-23441

*Cymbosporites?* spp.  
*Verruciretusispora?* cf. *V. magnifica* (Owens)  
McGregor  
age: probably Middle Devonian (Givetian)



Comments (D.C.M.): The spores are highly carbonized and in general are in very poorly preserved, fragmentary condition. No species are identifiable and the generic identifications are tentative. The overall impression implies a Givetian age.

Ordovician Assemblages (corals)  
by B. S. Norford

Fina et al. Willow Lake L-59  
62°08'40"N, 121°56'00"W, Figure 1a, loc. 11

Depth 2,357-2,379 ft., core;  
Mount Kindle Formation,  
110-132 ft. below top,  
GSC locs. C-28092 to C-28095

*Catenipora?* sp.  
?streptelasmid coral  
*Palaeofavosites?* sp.  
?trilobite and echinoderm fragments  
rhynchonellid brachiopod  
age: Late Ordovician to Silurian

Depth 2,381-2,384 ft., core;  
Mount Kindle Formation,  
134-137 ft. below top,  
GSC loc. C-28096

*Bighornia* sp.  
*Favistina?* sp.  
*Tollina* sp.  
*Palaeofavosites* sp.  
age: Late Ordovician

Comments (B.S.N.): The fauna of GSC locality C-28096 is typical of that commonly developed in the lower few hundred feet of the Mount Kindle Formation (Norford and Macqueen, in press).

Ordovician Assemblage (conodonts)  
by T. T. Uyeno

Aquitaine Brackett Lake C-21  
65°10'02"N, 125°05'08"W, Figure 1a, loc. 10

Depth 3,878-3,891 ft., core;  
Franklin Mountain Formation  
GSC locs. C-23686 to C-23688

*Drepanodus* cf. *Acodus oneotensis* Furnish of  
Ethington and Clark (1971,  
Pl. 1, fig. 3)  
*Acontiodus staufferi* Furnish  
*Seandodus?* sp.

Comments (T.T.U.): The above list is based on form taxonomy. The total weight of samples processed was 817 gm. This is a characteristic fauna of North American Lower Ordovician platform facies. Owing to lack of forms in common with the faunas of the North Atlantic province, it cannot be correlated precisely with the standard sequences in Europe. The fauna is too small to be fitted precisely into any established North American zonation, but it is Early Ordovician in age, ranging from Faunas C to E in the scheme of Ethington and Clark (1971) and probably within the older part of this range. The form figured by these authors as "*Acodus*" *oneotensis* is restricted to their Fauna C, which may be equiv-

alent to the higher part of the Tremadocian; Fauna E may be correlated with the (early Arenigian) Billingen Substage, Latorpian Stage (Ethington and Clark, 1971). In Australia, Druce and Jones (1971) found *Acontiodus staufferi* and *Acodus oneotensis* restricted to the base of their *Cordylodus rotundatus-C. angulatus* Assemblage Zone that they dated as late Tremadocian.

Cambrian Assemblages (trilobites and brachiopods)  
by W. H. Fritz

Panarctic-Deminex Cornwallis Central Dome K-40  
75°09'40.27"N, 94°43'13.70"W, Figure 1a, loc. 17

Depth 10,023 ft., core,  
GSC loc. C-29841

*Lingulella?* sp.  
age: not diagnostic

Depth 10,047 ft., core,  
GSC loc. C-29842

corynexochid trilobite  
*Ankoura?* sp.  
age: probably Late Cambrian, tentatively  
Dresbachian

Depth 10,051-10,052 ft. core,  
GSC loc. C-29843

corynexochid trilobite  
*Ankoura?* sp.  
*Eureka*-like free cheek  
age: probably Late Cambrian, tentatively  
Dresbachian

Comments (W.H.F.): Corynexochid trilobites are rare in rocks younger than Middle Cambrian. The *Ankoura?* sp. bears many features that commonly are seen on trilobites of the early Late Cambrian *Cedarria-Crepicephalus* Zone. GSC locality C-29843 contains two free cheeks resembling those of the late Late Cambrian genus *Eureka*.

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