



MEMOIR 401

**PRE-MESOZOIC GEOLOGY IN THE SUBSURFACE
OF PEEL RIVER MAP AREA, YUKON TERRITORY
AND DISTRICT OF MACKENZIE**

D.C. PUGH

1983

APPENDIX I

Paleontology and Mineralogy

Reports: Paleontology:

CRS-5-MSB-1969
716-928-2011-JBW-1970
APA-1972
MES-PALEOZ-7-TPC-1972
OS-7-BSN-1972
D-5-AWN-1972
MP-7-TTU-1972
G-6-WHF-1973
RRNA-059- -1973
S-1- RT-1973
WHR-F-48- -1973
PS-002-DML-1974
16-TTU-1974
1-AWN-1977
4-TTU-1978
3-NSI-1978
AWN-97-AEHP-1979 and note
9-RST-1979

Mineralogy:

79-XR-10
80-XR-7

Report by M.S. Barss to H.L. Martin (Calgary) on palynomorphs in four wells from the Yukon Territory. (NTS-106L)

Locality: Shell Peel River YT K-9, 66°18'35.72"N, 134°01'02.22"W

Loc. C-3333 (2650 ft), CRS# 1177/B1049	Age - Mesozoic
Loc. C-3334 (2694 ft), CRS# 1178/B1050	Age - Probably Cretaceous
Loc. C-3335 (2747 ft), CRS# 1179/B1051	Age - Tournaisian
Loc. C-3336 (2800 ft), CRS# 1180/B1052	Age - Tournaisian
Loc. C-3337 (2847 ft), CRS# 1181/B1053	Age - Tournaisian
Loc. C-3338 (3300 ft), CRS# 1182/B1054	Age - Tournaisian
Loc. C-3339 (3848 ft), CRS# 1183/B1055	Age - Tournaisian
Loc. C-3340 (4405 ft), CRS# 1184/B1056	Age - Tournaisian
Loc. C-3341 (4891 ft), CRS# 1185/B1057	Age - too few spores present
Loc. C-3342 (5000 ft), CRS# 1186/B1058	Age - too few spores present

Locality: Shell Peel River YT H-59, 66°38'17.878"N, 134°39'33.055"W

Loc. C-3343 (897 ft), CRS# 1187/B1059	Age - U. Jurassic - L. Cretaceous
Loc. C-3344 (947 ft), CRS# 1188/B1060	Age - U. Jurassic - L. Cretaceous
Loc. C-3345 (1011 ft), CRS# 1189/B1061	Age - Tournaisian
Loc. C-3346 (1200 ft), CRS# 1190/B1062	Age - Strunian
Loc. C-3347 (1525 ft), CRS# 1191/B1063	Age - Strunian
Loc. C-3348 (2006 ft), CRS# 1192/B1064	Age - Strunian
Loc. C-3349 (2462 ft), CRS# 1193/B1065	Age - Strunian

Locality: Shell Peel River YT B-06, 66°35'09.4"N, 134°45'37.5"W

Loc. C-3356 (940-980 ft), CRS# 1200/B1072	Age - L. Cretaceous
Loc. C-3355 (980-1020 ft), CRS# 1199/B1071	Age - L. Cretaceous
Loc. C-3357 (1060-1090 ft), CRS# 1201/B1073	Age - mixed assemblage, L. Cretaceous with much reworked material

Loc. C-3358 (1090-1120 ft), CRS# 1202/B1074 Age - Tournaisian
Loc. C-3350 (1310 ft), CRS# 1194/B1066 Age - Tournaisian
Loc. C-3351 (1955 ft), CRS# 1195/B1067 Age - Tournaisian
Loc. C-3352 (2612 ft), CRS# 1196/B1068 Age - Strunian
Loc. C-3353 (3005 ft), CRS# 1197/B1069 Age - Strunian
Loc. C-3554 (3491 ft), CRS# 1198/B1070 Age - Strunian

Locality: Western Minerals Chance No. 1 YT, M-08, 66°07'46"N, 137°31'27"W

Loc. C-3359 (8500-8600 ft), CRS# 1203/B1075 Age - Viséan

NB.

According to the position of the Devonian-Carboniferous boundary adopted by the 1935 Heerlen Congress, what I have called Strunian would be latest Devonian (equivalent to very latest Famennian or Strunian of Belgium). Note that the early Tournaisian is of Devonian age according to this decision, i.e. to the base of the *Gattendorfla* zone. This is the boundary now accepted by most stratigraphers of the German school and by most conodont workers.

On the other hand, if one chose to accept one of the boundary positions suggested by Mamet (1967, Int. Cong. Devonian System, Proc. vol. II, pp. 995-1007), i.e. the base of the *Quasiendothyra kobeltusana* zone (foraminifera), the spores in this assemblage would be of Lower Carboniferous (but still early Tournaisian) age, or possibly very latest Devonian (Famennian).

For reference to the boundary problem see also Bouckaert, Streef and Thorez, 168, Ann. Soc. Soc. Geol. Belgique, 91: 317-336.

Report by J.B. Waterhouse, University of Toronto

C Soc. Mobil West Minerals, Blackie, YT M-59, 65°58'54"N, 137°11'10"W

GSC C-2987
6319 ft

"Leiorhynchus" carboniferum Girty

GSC C-3988
6325 ft

Quadratia cf. *hirsuteformis* (Walcott)

GSC C-2989
6336 ft

?*Quadratia* sp.

These species are typical of the Aq zone in the northern Yukon (see Bamber and Waterhouse, 1971, Bull. Can. Petrol. Geol. 19, p. 110) of Chesteran age, or late Visean according to the European time scale.

C Soc. Mobil West Minerals, Blackie, YT M-59, 65°58'54"N, 137°11'10"W

C-4351
1961 ft

99 ft above top of Chance Sand, *Tornquistia*

C-4352
1961-61.5 ft

98.5 to 99 ft above top of Chance Sand in Hart River Formation. ?Tiny chonetids that might be *Tornquistia*, but not finally established

C-4353
1965.5-1975 ft

?*Tornquistia*
Attenuatella sp.

C-4354
1974 ft

86 ft above top of Chance Sand
Tornquistia

C-4356
2173 feet

113 feet below top of Chance Sand
Spiriferid indet as buried in matrix

The determination of *Tornquistia* lacks certainty because in spite of lengthy preparation no dorsal interiors could be found to reveal the diagnostic double septa. However, the identification seems likely in view of the presence also of *Attenuatella*. Both point to a Sakmarian age, of the Et and Ea zones of the Jungle Creek Formation in Bamber and Waterhouse, for C-4351-4354 inclusive. But this would imply that most of the C zones, i.e. the Ettrain Formation and equivalents are missing, which I would not expect.

Report by A.P. Audretsch - Well History Report

Palynological results of Shell Sainville River K-63,
66°22'36.93"N, 133°12'15.47"W, NWT,

Well cuttings and sidewall cores were examined. In general the spores, pollen, and micro-plankton recovered were extremely poorly preserved.

- 0 - 170 ft - No Samples
- 170 - 1400 ft - Lower Cretaceous (Albian). The following micro-plankton types could be identified: *Diconodinium multispinum*, *Paleoperidinium cretaceum*, *Gardodinium eisenachii*, *Fromae amphora*, *Hysterothosphaeridium* sp., *PterospERMOPATA* sp., *Broomea jeageri*, *Paleostomocystus fragillies*, and *Odontochitina operculata*. Of the pollen and spores conifers, *Cicatricosisporites hallai*, *Trilobosporites spiverrucatus*, *Classopollis torosus*, *Cicatricosisporites australensis*, *Gleicheniidites senonicus* and *Taxodium* were recognized. The total assemblage suggests an Albian age.
- 1400 - T.D. ft - ML/DU. (probably Strunian). The floral assemblage is very poorly preserved. Very few different types are present. *Lophosonotriletes lepidophytes* is the most common species. The last several hundred feet are so carbonized that identification is practically impossible. *Lophosonotriletes lepidophytes* is known from the Lowermost Mississippian and Uppermost Devonian sediments.

Stratigraphy & Footage

Locality, Microfossils & Age

GSC Loc. Nos.

Ammobaculites ex gr. *A. fragmentarius*
 Cushman (very coarse agglutinated)
 ?*Verneulinoides* sp.
Trochamminoides sp.
 age: Albian, Early, is an
 additional older marine
 unit than 14 C combined
 with previous assemblage to
 provisionally designate it
 as 14 D or is the more open
 marine facies of upper 15.
 environment: open marine but
 near shore
 (?shallow)

350 to 450 ft

Trochammina n. sp. (small, moderately
 high spired) (?*Recurvoides* sp.) C-17008
 ?*Marginulina* cf. *M. inepta* (Reuss) C-17009
Dentalina strangulata (Reuss) C-17010
Saracenaria valanginiana Bartenstein
 and Brandt
Gavelinella ex gr. *G. awunensis* Tappan
Glomospirella cf. *G. paramodiscus*
 McGill and Loranger
Hyperammina spp., very common
Hippocrepina spp.
Saccamina cf. *S. lathrami* Tappan
Gaudryina cf. *G. barrowensis* Tappan
 ?*Conorbina* sp.
 echinoid spine
 age and correlation: Albian,
 Early and on the basis of the
 very abundant *Hyperamminoides*
 spp. is tentatively referred to
 subdivision 15.
 environment: continuous access
 to open marine
 conditions but near-
 shore, shallow

450 to 650 ft

Arenobullimina cf. *A. paynei* Tappan C-17011
Lenticulina spp. C-17012
Ammobaculites n. sp. (moderately coarse) C-17013
Haplophragmoides cf. *H. topogorukensis* C-16798
 Tappan C-17014
Marginulina n. sp. C-17015
Conorboides ex gr. *C. umlatensis* Tappan C-17018
Saracenaria spp.
Marginulinopsis sp.
 ?*Colina* sp.
Siphonotextularia ex gr. *S. ravi*

Stratigraphy & Footage

Locality, Microfossils & Age

GSC Loc. Nos.

	<p><i>Miliammina</i> ex gr. <i>M. sproulet</i> Nauss ?<i>Textularia</i> sp. <i>Pseudonodosaria</i> sp. <i>Ammodiscus</i> ex gr. <i>A. mangusi</i> Tappan age and correlation: Albian/Aptian transition, probably marine Aptian facies of the upper part of subdivision 16. (<i>Siphotextularia</i> spp. zone).</p>	
650 to 750 ft	<p><i>Gaudryina</i> ex gr. <i>G. tappanas</i> Chamney <i>Trochammina</i> sp. (small "nucleate" forms) <i>Glomospira</i> ex gr. <i>G. subarctica</i> Chamney <i>Conorboides</i> ex gr. <i>C. unlatensis</i> Tappan (very abundant repeated occurrence) <i>Marginulina</i> ex gr. <i>M. sulcifera</i> (Reuss) ? nov. gen. "<i>Lituotubella</i>" sp. ?<i>Globoratolites alaskensis</i> Tappan <i>Lagena</i> ex gr. <i>L. apiculata</i> (Reuss) <i>Saracenaria</i> spp. <i>Lenticulina</i> spp. ?<i>Vaginulinopsis</i> sp. <i>Dentalina</i> sp. age and correlation: Aptian/Barremian transition, possibly condensed marine Barremian with <i>G.</i> ex gr. <i>G. tappanas</i> Chamney, equivalent to subdivision 17. environment: good open marine conditions</p>	<p>C-17016 C-17017</p>
750 to 870 ft	<p><i>Globoratolites</i> ex gr. <i>G. alaskensis</i> Tappan <i>Conorbina-Canorboides</i> spp. consortium lagenid foraminifers very common <i>Siphotextularia</i> spp. Ostracoda sp. <i>Reophax</i> ex gr. <i>R. liasica</i> Franke (very coarse agglutinated) <i>Reophax (Protonina)</i> n. sp. (large, coarse) ?nov. gen. "<i>Bathydiscus</i>" sp. <i>Haplophragmoides</i> ex gr. <i>H. goodenoughensis</i> Chamney <i>Ammodiscus</i> ex gr. <i>A. alaskensis</i> Tappan</p>	<p>C-17019 C-17020 C-17021 C-17022</p>

Stratigraphy & Footage

Locality, Microfossils & Age

GSC Loc. Nos.

Textularia sp.

Gaudryina cf. *G. topagorukensis* Tappan
age and correlation: Neocomian,
?Late Neocomian (Barremian-
Hauterivian) tentatively
designated as a new Delta
biostratigraphic subdivision 18.
environment: continued access to
open marine condi-
tions but the
coarse agglutinated
benthonic forms of
the lower part
indicating near-
shore slightly
turbid conditions

870 to 1050 ft

?*Gryphae* sp. pelecypod shell fragments C-16873
Reophax ex gr. *R. metensis* Franke C-17023
Astacolus (*Marginulinopsis*) *calliopsis* C-17024
Tappan C-17025
Saracenaria spp. C-17026
?*Serovaina* sp. (minute) C-17027
Ammodiscus cf. *A. orbis* Lalicker
Marginulina ex gr. *M. utricula* Terquem and
Berthelin
Ostracoda sp. (?*Monoceratina* sp.)
Marginulinopsis sp. (ribbed, short)
Haplophragmoides cf. *H. canui* Cushman
Arenoturrispirulina intermedia Chamney
Hippocrepina spp.
?*Thuramminoides* sp.
sponge axons

age and correlation: Jurassic, Upper
to ?Middle. This biostratigraphic
subdivision is unconformably over-
lain by Late Neocomian. Until
boreholes west and south of this
location are studied to complete
the sequence from known surface
exposures in the Richardson
Mountains, the biostratigraphic
subdivision will not be numbered
in the previous sequence in
descending stratigraphic
succession.

<u>Stratigraphy & Footage</u>	<u>Locality, Microfossils & Age</u>	<u>GSC Loc. Nos.</u>
1050 to 1110 ft	algal oögonia: <i>Chovanella</i> sp. ("pagoda" forms) <i>Sycidium</i> sp. ? <i>Trochiliscus</i> sp. cricoconarids: ? <i>Styliolina</i> sp. (very large) ? <i>Tentaculites-Nowakia</i> sp. age and correlation: Devonian, ? Middle equivalent in part to "Methy" Formation.	C-17028 C-17029
1110 to 1300 ft	no distinctive microfossils abundant pyrite and quartz crystals age: indeterminate	C-17030 C-17031 C-17032 C-17033 C-17034

Report No. OS-7-BSN-1972

Report by B.S. Norford on fossils from core from the Grandview Hills No. 1A-37 well, District of Mackenzie (NTS 95J; 106M,0; 107A; 116J).

<u>Depth</u>	<u>Well, Fossils and Age</u>	<u>GSC Loc. No.</u>
	Richfield Oil Corp. et al. Granview Hills No. 1A-37, 67°06'12"N, 130°52'30"W	
3148 1/2 ft	gastropod (?)	C-18045
3549 ft	indeterminate coral age: Middle Ordovician to Permian	C-18046
3566 ft	gastropod (?)	C-1927
4211 ft	indeterminate fossil	C-18047
4219 ft	indeterminate tabulate coral age: Middle Ordovician to Permian	C-18048

Report by A.W. Norris on samples from Aquitaine Arco Treeless Cr.I-51 well, located at 67°50'42"N, 135°24'28"W, (NTS 106M), District of Mackenzie.

<u>Depth</u>	<u>Observations</u>	<u>GSC Loc. Nos.</u>
Core #2; 3773 to 3778 ft	Veinlets of secondary white calcite Scattered marcasite No megascopic organic remains	C-7644
Core #2; 3778 to 3783 ft	Small blebs of marcasite No megascopic organic remains	C-7645
Core #2; 3783 to 3788 ft	Marcasite No megascopic organic remains	C-7646
Core #2; 3788 to 3793 ft	Finely disseminated marcasite No megascopic organic remains	C-7647
Core #2; 3793 to 3795 ft	Finely disseminated marcasite Secondary white coarsely crystalline calcite No megascopic organic remains	C-7648
Core #2; 3795 to 3797	Finely disseminated marcasite White crystalline calcite No megascopic organic remains	C-7649
Core #3; 4000 to 4405 ft	Slickensiding structures No megascopic organic remains	C-7650
Core #3; 4405 to 4410 ft	Slickensiding structures No megascopic organic remains	C-7651
Core #3; 4410 to 4415 ft	Slickensiding structures <i>Tasmanites?</i> sp. - small amber coloured form age: possibly Devonian	C-7652
Core #3; 4415 to 4420 ft	No megascopic organic remains	C-7653
Core #3; 4420 to 4423 ft	Rock has been crushed and fissures filled with coarsely crystalline calcite No megascopic organic remains	C-7654
Core #1; 3384 to 3385.5 ft	Abundant scattered marcasite No megascopic organic remains	C-7655

<u>Depth</u>	<u>Observations</u>	<u>GSC Loc Nos.</u>
Core #2; 3385.5 to 3387 ft Softer, finer rock fragments	Slickensiding structures No megascopic organic remains	C-7656
Core #2; 3387 to 3387.25 ft	Sample to A.E. Foscolos and not seen	C-7657
Core #4; 4338 to 4338.25 ft Softer, finer rock fragments	Finely disseminated marcasite No megascopic organic remains	C-7658
Core #4; 4986 to 4990 ft Hard coarse fragments of dark finely crys- talline dolomite	Fine veinlets of white calcite No megascopic organic remains	C-7947
Core #4; 4990 to 4995 ft	Slickensiding structures Finely disseminated marcasite No megascopic organic remains	C-7948
Core #4; 4995 to 5000 ft	Echinoderm ossicle with a single axial canal Vague markings suggestive of a brachiopod age: Paleozoic	C-7949
Core #4; 5000 to 5005 ft	Enchinoderm ossicle with single axial canal Considerable slickensiding age: Paleozoic	C-7950
Core #4; 5005 to 5010 ft	Considerable slickensiding No megascopic organic remains	C-7951
Core #5; 5875 to 5832 ft	Fine marcasite No megascopic organic remains	C-7952
Core #6; 5990 to 5994 ft	Fine veinlets of white calcite No megascopic organic remains	C-7953

Comments

All of the above samples were systematically and carefully examined under a binocular microscope in search of organic remains for dating the rocks. Recrystallized echinoderm ossicles with single axial canals were noted in samples C-7949 and C-7950, and vague markings suggestive of a brachiopod are present in sample C-7949. These merely suggest a Paleozoic age.

A small questionable amber coloured fragment, suggestive of the sporomorph *Tasmanites* sp., was noted in sample C-7652. *Tasmanites* would suggest a Devonian age for the containing beds between 4410 to 4415 feet depth.

None of the rock reacts with dilute hydrochloric acid, and therefore there appears to be little hope of obtaining microfossils from any of the samples.

Report No. MP-7-TTU-1972

Report by T.T. Uyeno on Conodont samples from Amoco-Ulster-Scurry A1 Inuvik D-54 well, western District of Mackenzie, submitted by C.J. Yorath (NTS 107B and C).

<u>Depth</u>	<u>Wt. (g)</u>	<u>GSC Loc. No.</u>	<u>Remarks</u>
2334 to 2360 ft	1,233	C-12999	No conodonts

Report No. E-6-WHP-1973

Report by W.H. Fritz on 17 collections of Middle and Lower Cambrian fossils from the Mobil Coville E-15 well on the west side of Coville Lake (67°14'18"N, 126°18'25"W) N.W.T. The request for fossil identifications was made by W.S. MacKenzie in 1973. Footages in the left column are drilling depths from the top of the well indicating fossil horizons in the Mt. Cap Formation, (NTS 96 M).

<u>Depth</u>	<u>Microfossils and Age</u>	<u>GSC Loc. Nos.</u>
	Covered	
4845 to 4850 ft	cf. <i>Eirathia</i> sp. <i>Hyalithes</i> sp.	C-23650
4755 ft	<i>Amecephalus</i> sp. ?" <i>Albertella</i> " <i>levis</i> Walcott <i>Glossopleura</i> sp.	C-23669
4758 ft	<i>Glossopleura</i> sp. <i>Micromitra</i> sp. undet. trilobite (New genus?)	C-23670
4759 ft	<i>Glossopleura</i> sp. undet. trilobite (New genus?)	C-23671
4760 ft	<i>Glossopleura</i> sp. undet. trilobite (New genus?)	C-23672
4811 ft	<i>Amecephalus</i> sp.	C-23673
4812 ft	<i>Amecephalus</i> sp.	C-23674
4813 ft	<i>Amecephalus</i> sp.	C-23675
4819 ft	<i>Amecephalus</i> sp. <i>Caborcella?</i> sp. <i>Hyalithes</i> sp.	C-23676
4824 ft	<i>Amecephalus</i> sp.	C-23677
4825 ft	<i>Amecephalus</i> sp. <i>Hyalithes</i> sp.	C-23678
4826 ft	<i>Amecephalus</i> sp.	C-23679
4827 ft	<i>Amecephalus</i> sp. <i>Hyalithes</i> sp. <i>Micromitra</i>	C-23680

<u>Depth</u>	<u>Microfossils and Age</u>	<u>GSC Loc. Nos.</u>
4829 ft	<i>Amecephalus</i> sp. <i>Hyalithes</i> sp.	C-23681
4830 ft	<i>Amecephalus</i> sp. <i>Hyalithes</i> sp.	C-23682
4837 ft	<i>Amecephalus</i> sp. <i>Hyalithes</i> sp.	C-23683

Early Middle Cambrian

Lower Cambrian *Bonnia-Olenellus* Zone

4900 ft	<i>Micromitra</i> sp. <i>Olenellus</i> sp.	C-23684
4902 ft	<i>Olenellus puertoblancoensis</i> (Lochman)	C-23685

Comments

The boundary between the Lower and Middle Cambrian is within the 63-foot interval between localities C-23683 and C-23684. The presence of the Late Lower Cambrian trilobite *Olenellus puertoblancoensis* in locality C-23685 indicates that little or no Lower Cambrian strata were removed by Middle Cambrian erosion.

Amecephalus sp. in localities C-23683 through C-23673 indicates an early Middle Cambrian age, as this genus spans the earliest three zones in the Middle Cambrian. A wide tail (tr.) associated with *Amecephalus* heads at locality C-23679 and a *Caboroella?* sp. head with a relatively wide glabella at locality C-23676 suggest, but does not prove, a late *Albertella* Zone or a *Glossopleura* Zone age for strata at these localities.

The lithology and fossils in the present collection are similar to those seen in the Mt. Cap Formation at the site of the type McDougal Group on the Canal Road (64°56'N; 127°16'W; GSC Paleo. report G-14-1969-WHF; GSC Paper 70-1, Pt. A, p. 110), N.W.T. It is tentatively postulated that the early Middle Cambrian *Plagiura*-*Pollabella* Zone and part of the *Albertella* Zone is missing in the type McDougal section.

Report No. RRNA-059-1973

Report by Robertson Research (North America) Limited (Well History Report).

MEMORANDUM NO. 19

PALYNOLOGICAL ANALYSIS OF CUTTINGS SAMPLES

(INTERVAL 90-6500 FT) FROM THE WESTCOAST ET AL PORCUPINE YT-F72 WELL

PROJECT NO. RRNA/059

INTERVAL 90-900 FT; Permian to Mississippian

Carboniferous palynomorphs, in particular *Densosporites bilatus*, *D. pseudoannulatus*, *D. spinosus*, *D. landesii*, *Murospora intorta*, *M. aurita*, *Knowlsporites* spp. and *Triquitrites* spp. dominate the palynofloras in this interval. *Tripartites*, a genus which is considered restricted to the Lower Carboniferous, is present in samples 90-180 ft, 360-540 ft, 540-710 ft, and 730-900 ft.

Although these Carboniferous taxa are dominant, the Permian genera *Weylandites* and *Vittatina* are occasionally found throughout the interval. A few specimens of these genera are definitely present in samples 180-360 ft, 360-540 ft, and 730-900 ft. Badly corroded grains attributable to *Vittatina* are also found in samples 90-180 ft.

The palynomorphs in this interval are deep brown in color, and would most likely be classified 4 on a 1 to 6 scale.

INTERVAL 1030-3000 FT; Middle to Upper Devonian, Givetian to Frasnian

This interval contains a rather diagnostic Givetian to Frasnian pollen assemblage comprised of such distinctive forms as *Retusotriletes semisonalis*, *R. greggii*, *Verrucetretusispora magnifica*, *Archeoperisaccus* cf. *opiparus*, and specimens attributable to *Hystriohosporites*. As a whole, the assemblage is dominated by species of the retusoid genera *Retusotriletes* and *Verrucetretusispora*. In this interval, unoxidized palynomorphs exhibit a very dark brown to black color, thereby classifying them as 5 to 6 on a 1 to 6 scale.

INTERVAL 3000-4600 FT; ?Middle to ?Lower Devonian

The presence of a specimen attributable to *Emphanisporites* at 3000-3100 ft, a genus considered restricted to the Middle to Lower Devonian, suggests that sediments of that age have been penetrated. Spores which are similar to palynomorphs found in Middle and Lower Devonian deposits of Eastern Canada are occasionally found throughout this interval. *Diatyotrilletes* sp. cf. McGregor, *Camarosonotrilletes* cf. *breviculus*, *Verrucosisporites* sp. cf. McGregor, and aff. *Retioulatisporites ematenata* are examples of such taxa. However, this age determination must remain provisional, as little published data is available on Arctic Lower Devonian palynofloras, and since the assemblage here shows little similarity with Lower Devonian palynofloras of Eastern Canada.

Furthermore, this and succeeding intervals contain numerous Givetian to Frasnian palynomorphs, such as *R. semisonalis*, *R. greggii*, and *V. magniflora*. It is assumed that these taxa are, at least in part, caved. Unoxidized residues from this interval were not examined. However, the deep brown color of the oxidized palynomorphs indicates that they were most likely originally very dark brown to black (5 to 6 on a 1 to 6 scale).

INTERVAL 4600-4900 FT; ?Silurian

A single test of *Desmoohittina*, a chitinozoan genus restricted to Lower Devonian - Ordovician strata, is present at 4600-4700 ft. This specimen is most similar to the Silurian and Ordovician species of *Desmoohittina*, and is thus the first organism encountered suggesting a Silurian or older age. The presence of two additional *Desmoohittina* tests at 4800-4900 ft further substantiates a Silurian to Ordovician age. One of these latter individuals has affinities with *D. sulcata*, a Middle Silurian form, perhaps suggesting an additional refinement of the age of this interval.

As stated previously, Givetian to Frasnian palynomorph taxa, as well as some indeterminate spores, are also present.

The chitinozoa are black, and are thus classed as 6.

INTERVAL 4900-6500 FT; Age indeterminate

This interval is barren of recognizable palynomorphs. A few highly carbonized spores are present, but their poor condition of preservation renders them unidentifiable.

The spores and other debris in this interval are black, and thus are rated as 6.

Report No. S-1-RT-1973

Report by R. Thorsteinsson on one collection of fossils from core from C.D.R. Tenlen Lake A-73 well, District of Mackenzie (NTS 106 O).

<u>Well, Depth, Formation</u>	<u>Fauna and Age</u>	<u>GSC Loc. No.</u>
C.D.R. Tenlen Lake A-73 67°52'07"N, 130°43'21"W		
Depth 3517 ft, core. Unmd unit (Delorme Equiv.) 313 ab.b 445 bit. of unit	Fish fragments, of the Family Cyathaspidae, genus and species indet. age: family ranges Wenlockian to Gedinnian, but age of these fragments probably Late Silurian, Ludlovian or Pridolian	C-28116

Well History Report
Chevron SOBC Gulf Ridge YT F-48
April 18, 1973

Paleontological Determinations

0-3660	No determinations
3660-3880	Barremian
3960-4280	Hauterivian
4360-4520	Hauterivian or older Lower Cretaceous
4620-4890	Oxfordian to Portlandian
4960-5350	Probable Jurassic (undef.) age
5420-6063	Upper Devonian? (Frasnian/Famennian)

Report by D.M. Loranger, (Paleo. Serv. Ltd.)

BIOSTRATIGRAPHIC ZONATION

SHELL AKLAVIK A-37

NORTHWEST TERRITORIES

March 1974

PALYNOLOGY

Summary

The distribution of 74 terrestrial and 50 marine species of palynomorphs is plotted and discussed. Middle and Upper Albian marine assemblages occur abruptly above marine Barremian assemblages at 2800 ft. Below 3500 ft. the section is dated as early Cretaceous with a possible transition to late Jurassic below 4600 ft. No palynofloras were obtained below 6790 ft.

Upper Albian	70-900 ft	Marine
Middle Albian	1000-1600 ft	Restricted marine
Middle Albian	1700-2100 ft	Marine
Middle Albian	2200-2700 ft	Restricted marine
Barremian	2800-3400 ft	Marine
Lower Cretaceous	3500-3900 ft	Nonmarine
Lower Cretaceous	4000-4500 ft	Marine
Neocomian or Upper Jurassic	4600-6790 ft	Restricted marine

No playnofloras obtained below 6790 ft

MICROPALAEONTOLOGY

Summary

Microfossil study of the complete sampled interval 70-8790 ft in the Shell Aklavik A-37 well yielded good results. The microfaunas recovered were abundant in number (102 species) and showed much variation in species. Arenaceous material predominated throughout; however, six recognizable zones are present which correlate to Alaska and the Sverdrup Basin. Their ages range from upper Middle Albian to Jurassic. Rocks of Lower? Permian and Middle Devonian? age are believed to be represented in sparse faunas in the lower levels of the borehole.

<i>Verneuilinoides borealis</i>	610 ft
<i>Glomospira subarctica</i>	650 ft
<i>Haplophragmoides canui</i>	2850 ft
<i>Ammodiscus thomasi</i>	3650 ft

<i>Arenoturrispiellina</i> sp.	3800 ft
<i>Triplasia kingakensis</i> - <i>Ammobaculites barrowensis</i>	4600 ft
Fusulinidae	5750 ft
<i>Webbinelloidea</i> sp.	6150 ft

Fusulinidae: 5750 ft

Two fusulinids were found at 5750 ft which are indicative of Permian age. Fusulinids have been found in the Belcher Channel Formation of the Grinnell Peninsula, which has been assigned an Artinskian age. This would indicate upper Lower Permian, and a possible correlation with the Assistance Formation. Because of the sparse material (only 2 specimens) no thin sections were made--although this section would be a good one from which to obtain more material and attempt to identify the species.

Webbinelloidea sp.: 6150 ft

The occurrence of *Webbinelloidea* sp. at 6150 ft suggests a possible age of Middle Devonian. This genus has been reported from the Silurian-Devonian of Nevada (McClellan, 1973) and the Middle Devonian of central Ohio (Conkin and Conkin, 1970). Associated ostracodes are representatives of facies-controlled faunas with long ranges in the Paleozoic and could be Upper or Middle Devonian or perhaps older.

Report No. 16-TTU-1974

Report by T.T. Uyeno on 5 lots of conodonts from ditch cuttings of Gulf-Mobil Caribou N-25 well, northern Yukon Territory, Lat. 66°14'46"N, Long. 134°50'04"W; submitted by Dr. B.G. Langhus, Gulf Oil Canada Ltd. (NTS 106 L).

<u>Depth in well</u>	<u>Conodonts and Age</u>	<u>GSC Loc. No.</u>
760-800 ft	a single conodont fragment, possibly of A ₁ element age: indeterminate	C-30408: 760-800 ft
810-850 ft	<i>Polygnathus</i> cf. <i>P. nodocostata</i> <i>nodocostata</i> Branson and Mehl (single P element fragmentary) age: Late Devonian, Famennian, probably <i>P. rhomboidea</i> Zone (do II β) to Upper <i>P. styriaca</i> Zone (do V)	C-30408: 810-850 ft
860-900 ft	two conodont fragments, possibly P and A ₁ elements of <i>Polygnathus</i> age: indeterminate	C-30408: 860-900 ft
910-950 ft	<i>Palmatolepis</i> sp. (a single fragment of P element; possibly referable to <i>Palmatolepis gracilis</i> Branson and Mehl) age: Late Devonian	C-30408: 910-950 ft
960-1000 ft	<i>Palmatolepis gracilis</i> Branson and Mehl (P element) <i>P. cf. P. distorta</i> Branson and Mehl (3 fragmentary P elements) age: Late Devonian, Famennian, probably restricted to the range of Lower <i>P. quadrantinodosa</i> Zone (do II β) to Middle <i>S. velifer</i> Zone (do III β)	C-30408: 960-1000 ft

Comments

Conodonts listed above were received already picked and mounted on slides. As these conodonts were derived from ditch cuttings, the age given for each stratigraphic interval should be considered as youngest possible age for that interval.

Except for a single specimen from 960'-1,000' interval, all the conodonts were highly fragmented. Unfortunately, the stratigraphic range of the species represented by that single well-preserved specimen is relatively long [*Palmatolepis gracilis* ranges from *P. rhomboidea* Zone (do II β) through Upper *S. costatus* (do VI)], although it is still restricted to the Famennian.

The notation following conodont zonal names is that of ammonoid "stufen", based on zonation in the Rhenish Schiefergebirge of Germany.

Report No. 1-AWN-1977

Report by A.W. Norris on one lot of fossils from core of the Husky et al., Porcupine Yukon Territory G-31 well, Yukon Territory (NTS 116 K); submitted by Dr. D.C. Pugh, January 27, 1977.

<u>Depth & Stratigraphy</u>	<u>Locality, Fauna and Age</u>	<u>GSC Loc. No.</u>
Depth: 5030-5031 ft; top of Box 5 of Core 1. Dark grey to black fractured limestone with fractures in- filled with white calcite.	66°22'22"N, 140°06'13"W <i>Gasterocoma? bioaula</i> Johnson and Lane, 1969 age: mid Emsian (late Early Devonian) to early Eifelian (early Middle Devonian).	C-67900

Comments

The distinctive echinoderm ossicles with dumb-bell and cross-like shaped axial canals (*Gasterocoma? bioaula*) are widely distributed in North America and elsewhere. In the northern Yukon Territory they occur typically in the lower part of the Ogilvie Formation, in the Cranswick Formation, and in the middle member of the Prongs Creek Formation. In Alaska they occur in the middle (inter-bedded limestone and shale) member of the McCann Hill Chert of the Nation River area, and in the upper part of the Salmontrout Limestone of the Porcupine River area. *G? bioaula* ranges in age from about mid Emsian (late Early Devonian) to early Eifelian (early Middle Devonian), but on the basis of conodont dating seems to occur most abundantly in rocks of late Emsian age.

The submitted sample is probably from the Ogilvie Formation. The rock of the sample is highly fractured, exhibits slickensiding, and is probably involved in faulting.

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Report No. 4-TTU-1978

Report by T.T. Uyeno on 18 lots of conodont samples from five wells in northern Yukon Territory, submitted by D.C. Pugh (NTS 116 G, H, I; 106 L).

Intervals (ft) and Stratigraphy

Well, Conodonts and Age

GSC Loc. No.

8121-8151
Road River Fm.
(1452 g)

SOBC Blackstone Y.T. D-77;
65°46'10.77"N, 137°14'54.78"W
Belodella sp.
Osarkodina stygia (Flajs)
Pandorinellina optima (Moskalenko)
Panderodus spp.
age: *Osarkodina* n. sp. D
Zone of Klapper and
Johnson (1977) to
pesavis Zone of
Fåhraeus (1971);
late Lochkovian to
early Pragian.

C-13298/8121-8151

8151-8180
Road River Fm.
(1970 g)

Belodella sp.
Osarkodina stygia (Flajs)
O. n. sp. D of Klapper and
Johnson (1977)
O. cf. *O. johnsoni* (Klapper)
Panderodus spp.
Pedavis sp.
age: *Osarkodina* n. sp. D
Zone of Klapper and
Johnson (1977); late
Lochkovian.

C-13298/8151-8180

Comments

Both the *Osarkodina* n. sp. D and *pesavis* Zones have been recognized previously in the Road River Formation at Royal Creek, Y.T. (Fåhraeus, 1971, p. 669; Klapper in Lenz and Pedder, 1972, p. 15).

6792-6824
"Delorme"? Fm.
(1303 g)

Peel Plateau Eagle Plains Y.T. No.
1 N-49;
66°48'54"N, 138°08'30"W.
Panderodus spp.
unassigned M element
age: Mid-Ordovician to Mid-
Devonian, probably
Silurian

C-30261/6792-6824

Comments

The unassigned M element, a neoprioniodonton, somewhat resembles "*Neoprioniodus*" *costatus* Walliser, a Silurian form.

<u>Interval (ft) and Stratigraphy</u>	<u>Well, Conodonts and Age</u>	<u>GSC Loc. No.</u>
7048-7069 (896 g)	<i>Osarkodina excavata</i> (Branson and Mehl) <i>Panderodus</i> spp. age: Silurian to Early Devonian (Wenlockian? to early Emsian), but probably Wenlockian? to Ludlovian.	C-30261/7048-7069

Comments

The probable Wenlockian? to Ludlovian age is suggested by the occurrence in the collection of forms that resemble *Panderodus simplex* (Branson and Mehl).

7069-7097 Mt. Kindle Fm.? (1235 g)	<i>Osarkodina excavata excavata</i> (Branson and Mehl) <i>O. confluens</i> (Branson and Mehl) <i>Panderodus</i> spp. <i>Belodella</i> sp. age: Silurian, probably Wenlockian? to Ludlovian.	C-30261/7069-7097
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Comments

With the critical Pa element missing, the presence of *Osarkodina confluens* is somewhat questionable. There are forms present in the collection, however, that closely resemble the remaining constituent elements of this apparatus. *O. confluens* is restricted to the Silurian.

7337-7377 Mt. Kindle Fm.? (1508 g)	<i>Belodella</i> <i>Osarkodina excavata excavata</i> (Branson and Mehl) <i>Panderodus</i> spp. age: Silurian (Wenlockian?-Ludlovian) to Early Devonian.	C-30261/7337-7377
7876-7906 upper Franklin Mt. Fm. (1227 g)	NOTE: the identification and age remarks of this interval are those of R.S. Tipnis. cf. <i>Belodina</i> n. sp. 1 of Barnes (1977) <i>Panderodus gracilis</i> (Branson and Mehl)	C-30261/7876-7906

Interval (ft) and Stratigraphy

Well, Conodonts and Age

GSC Loc. No.

age: *Panderodus gracilis* is a long ranging taxon (Middle to Late Ordovician). However, younger elements of the species are usually sharply recurved, a feature not associated with these specimens (Barnes, 1977).

The taxon *Belodina* n. sp. 1 was dated by Barnes (1977) as late Middle to early Late Ordovician

The sample, therefore, may be late Middle to early Late Ordovician and [Fauna 8-10 (?11) of Sweet et al., 1977].

The following intervals did not yield any conodonts:

<u>Intervals (ft)</u>	<u>Formation</u>	<u>Wt. of Sample (g)</u>	<u>GSC Loc. No.</u>
7048-7069	Mt. Kindle?	896	C-30261/7048-7069
7337-7377	Mt. Kindle?	1508	C-30261/7337-7377
7678-7688	Mt. Kindle?	719	C-30261/7678-7688
7696-7706	Mt. Kindle?	924	C-30261/7696-7706
9070-9102	Franklin Mtn.	921	C-30261/9079-9102
9327-9343	Franklin Mtn.	752	C-30261/9327-9343
10122-10147 Franklin Mtn. Fm (1202 g)	I.O.E. Stony I-50; 135°22'46"W. no conodont	67°29'44"N	C-13744/10122-10147

<u>Interval (ft) and Stratigraphy</u>	<u>Well, Conodonts and Age</u>	<u>GSC Loc. No.</u>
10942-10968 upper Franklin Mtn. Fm. (1354 g)	a single fragmentary cone age: indeterminate	C-13744/10942-10968
5012-5042 Gossage Fm. (1432 g)	Inexco Husky et al. Procupine Y.T. G-31; 66°20'22"N, 140°06'13"W Indet. fragments only age: indeterminate	C-49984/5012-5042
6793-6807 upper Franklin Mtn. Fm. (1442 g)	no conodont	C-49984/6793-6807
5294-5320 "rhythmic" Franklin Mtn. Fm. (1721 g)	Banff Aquitaine Arco Rat Pass K-35; 67°54'43"N, 135°21'57"W no conodont	C-12637/5294-5320
5980-6004 "rhythmic" Franklin Mtn. Fm. (1270 g)	no conodont	C-12637/5980-6004

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1971: Lower Devonian conodonts from the Michelle and Prongs Creek Formations, Yukon Territory; J. Paleontol., v. 45, p. 665-683.
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1971: North American Middle and Upper Ordovician conodont faunas; Geol. Soc. Amer., Mem. 127, p. 163-193.

Palynological report by N.S. Ioannides on 14 samples from drill cuttings of the Atlantic Ontaratus K-04 borehole, District of Mackenzie (NTS 106; 66°33'37.5"N, 130°46'10.3"W - G.S.C. Loc. No. C-15567). The samples were submitted for examination by Dr. D.C. Pugh.

Sample Interval (ft)

Comments on palynomorphs and Age

160-220

Three samples prepared from this interval yielded very similar microfloras. In addition to terrestrially derived Cretaceous palynomorphs, marine elements were represented in fair abundance. They included *Odontochitina operculata* (O. Wetzel) Deflandre and Cookson, *Oligosphaeridium complex* (White) Davey and Williams, *O. pulcherrimum* (Deflandre and Cookson) Davey and Williams, *Gardodinium eisenacki* Alberti, *Muderongia asymmetrica* Brideaux, *M. staurota* Sarjeant and *Cyclonephellium* sp. cf. *C. tabulatum* Davey and Verdier.

Reworked material was present comprising several specimens of the typical latest Devonian spore *Spelasotriletes lepidophytus* (Kedo) Streeel. The presence of this species indicates an age of Fa2d-Tn1b (Tn1a referred to as Strunian by some authors). *S. lepidophytus* was associated with *Auroraspora macra* Sullivan, and apparently younger forms (Mississippian) such as *Densosporites* cf. *intermedius* Butterworth and Williams and *Lycospora pellucida* types. These elements may have been derived from the Peel River area to the west. Rare, probably pre-*lepidophytus* spores (?Frasnian) were also observed.

age: The dinoflagellates recovered suggest a Lower Albian (or late Aptian) age.

300-430
(7 samples)

A seemingly drastic qualitative change was documented at 300 ft. Abundant Frasnian palynomorphs such as species of *Archaeosporisaccus*, *Hystriacosporites*, *Ancyrospora*, *Calyptosporites velatus* (Eis.) Richardson and the megaspore species *Ooksisporites connatispinosus* Chi and Hills and *Lagenicoula devonica* Chaloner, were seen (megaspores identified by A.R. Sweet). Accompanying members included *S. lepidophytus* and other late Devonian and Mississippian forms in association with Lower Cretaceous palynomorphs. The "Frasnian" complex was progressively reduced from 300 ft down to 430 ft.

Sample Interval (ft)

Comments on palynomorphs and Age

The known occurrences of reworked Frasnian into Cretaceous outcrop samples in the Peel River region and north of Ontonagon river have led the writer to have the coal sample at 430 ft prepared twice for verification (hand-picked coal fragments ultrasonically treated). It contained among others, abundant bisaccate pollen, *Classopollis*, *Cyathidites* and *Cerebropollenites mesosolous* (Couper) Nilsson, an assemblage not typical of, but often found in Lower Cretaceous nonmarine sediments. The total absence of both marine Cretaceous elements and Paleozoic palynomorphs indicates a probable age: Lower Cretaceous age for this interval.

440-560
(4 samples)

An influx of Frasnian spores, associated with sporadic Strunian or younger elements, occurred at 400 ft and persisted down to 560 ft. As above, among others, species of *Archaeoperisaccus*, *Hystriocsporites*, *Anoxyrospora*, *Lagenicula devonica*, *Ookisporites connatispinosus* and *Calyptosporites velatus* dominated the assemblages. For the Cretaceous-Devonian boundary to be drawn with certainty further samples should be prepared down the section. At present, because of the rather abrupt reappearance of Frasnian elements at 440 ft and their numerical age: persistence down to 560 ft, a provisional Frasnian age is proposed for this interval.

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Report No. AWN-97-AEHP-79

Report by A.B.H. Pedder on seventy-two (72) lots of Devonian fossils from A.W. Norris's Mount Burgess section (Operation Porcupine section 116J-5 and section 24 of Geological Survey of Canada Paper 67-53) NTS 116J.

<u>Field No. and Stratigraphy</u>	<u>Locality, Fauna and Age</u>	<u>GSC Loc. No.</u>
308NBg-115, 5 ft up, Ogilvie Fm., 117.9 ft above base 2072.2 ft below top	Mount Burgess 66°03'N, 139°35.2'-37'W <i>Alveolites</i> sp. undet. <i>Grabaulites?</i> sp. indet. <i>Lekanophyllum</i> sp. indet. indet. solitary rugose coral trilobite fragments bi-axial crinoid ossicles age: Devonian, Zlichovian to early Eifelian	54278
308NBh-117 Ogilvie Fm., talus, 149 ft above base 2041.1 ft below top	Same section dasycladacean algal fragments <i>Thecostegites</i> sp. nov. <i>Aulopora</i> sp. indet. <i>Aulozystis</i> sp. undet. gastropods, indet. bi-axial crinoid ossicles age: Devonian, Zlichovian to early Eifelian	54897
308NBi-118, 6 ft up Ogilvie Fm., 155.3 ft above base 2034.8 ft below top	Same section dasycladacean algal fragments (as in 54897) <i>Alveolites</i> sp. undet. <i>Lekanophyllum</i> sp. undet. bi-axial crinoid ossicles age: Devonian, Zlichovian to early Eifelian	54898
308NBi-123, 19 ft up Ogilvie Fm., 309.2 ft above base 1880.9 ft below top	Same section <i>Stachyodes</i> sp. undet. <i>Roemertpora</i> sp. cf. <i>R. spelaeana</i> (Etheridge) <i>Aulacophyllum</i> (s.l.) sp. indet. gastropod, indet. bi-axial crinoid ossicles age: Devonian, Zlichovian or Dalejan.	54281

<u>Field No. and Stratigraphy</u>	<u>Locality, Fauna and Age</u>	<u>GSC Loc. No.</u>
308NBm-126, 29 ft up Ogilvie Fm., talus, 364.2 ft above base 1825.9 ft below top	Same section <i>Stachyodes</i> sp. indet. <i>Scoltopora</i> sp. indet. <i>Paracorylas</i> sp. undet. abundant trilobite fragments ostracodes, not studied age: Devonian, but no Famennian	54282
308NBn-127, base Ogilvie Fm., 377.5 ft above base 1812.6 ft below top	Same section stromatoporoid debris, indet. tabulate coral debris, indet. bi-axial crinoid ossicles age: Devonian, Zlichovian to early Eifelian	54283
308NBo-127, Ogilvie Fm., talus, 409.7 ft above base 1780.4 ft below top	Same section <i>Stachyodes</i> sp. indet. coenitid coral?, indet. ambocoeliid brachiopod, indet. trilobite fragments ostracodes, not studied age: Devonian, but not Famennian	54284
309NBa-130, 1.5 ft up Ogilvie Fm., 437.7-444.2 ft above base, 1749.5-1752.4 ft below top	Same section <i>Stachyodes</i> sp. undet. ambocoeliid brachiopod, indet. ostracodes, not studied age: Devonian, but not Famennian	54256
309NBc-133 Ogilvie Fm., 464.2-467 ft above base, 1723.1-1725.9 ft below top	Same section <i>Pachyfavosites</i> sp. undet. <i>Thamnopora</i> sp. undet. <i>Aulopora</i> sp. undet. (not sectioned) <i>Zonophyllum</i> sp. nov. <i>Diaphyllum</i> (s.l.) ? sp. indet. gastropods, small, not studied <i>Tentaaculites</i> sp. indet. brachiopods, indet. highly fragmented single axis crinoid ossicles age: Early or Middle Devonian	54257
309NBd-136, 5.5 ft up Ogilvie Fm., 477.5-491.5 ft above base, 1698.6-1712.6 ft below top	Same section <i>Pseudoastinodictyon</i> sp. undet. (identified by C.W. Stearn) age: Devonian?	54258

<u>Field No. and Stratigraphy</u>	<u>Locality, Fauna and Age</u>	<u>GSC Loc. No.</u>
309NB3-137, 6 ft up Ogilvie Fm., talus, 497.5 ft above base, 1692.6 ft below top	Same section <i>Stachyodes</i> sp. indet. (heavily silicified) fragments of rugose corals, brachiopods and gastropods, as well as lithic clasts (debris flow bed?) age: Devonian, but not Famennian	54259
309NBh-147 Ogilvie Fm., talus, 549.4-564.4 ft above base, 1625.7-1640.7 ft below top	Same section <i>Tikhinella</i> sp. nov. <i>Stachyodes</i> sp. indet. (silicified) <i>Amphipora</i> sp. indet. (silicified) fragments <i>Stromatopora</i> sp. indet. (silicified) <i>Displyllum</i> (s.l.)? sp. indet. (silicified fragment) <i>Conocardium?</i> sp. indet. (in thin section only) ostracodes, abundant, not studied rare single axis crinoid ossicles age: Devonian debris bed(s), if all from same interval, Eifelian to Frasnian	54261
309NB1-150 Ogilvie Fm., 573.1-578.1 ft above base, 1612.0-1617 ft below top	Same section <i>Stachyodes</i> sp. indet. (silicified) <i>Thamnopora</i> sp. indet. (silicified), not sectioned gastropods, not studied brachiopods, very fragmentary, indet. ostracodes, not studied age: Devonian, but not Famennian	54262
309NBj-151 Ogilvie Fm., talus 600.1 ft above base 1590 ft below top	Same section encrusting stromatoporoid, undet. <i>Alveolites</i> sp. undet. <i>Aulopora</i> sp. indet. <i>Zonophyllum</i> sp. nov., flattened excentric form age: Devonian, Pragian to Eifelian	54901

<u>Field No. and Stratigraphy</u>	<u>Locality, Fauna and Age</u>	<u>GSC Loc. No.</u>
309NBk-155, 6 ft up Ogilvie Fm., 616.7 ft above base, 1573.4 ft below top	Same section <i>Thamnopora?</i> sp. indet. (silicified) <i>Aulopora</i> sp. <i>Roemeripora</i> sp. indet. (silicified) <i>Dendrostella</i> sp. nov. gastropods, few, indet. ostracodes, not studied age: Devonian, probably Middle Devonian	54902
309NB1-158 Ogilvie Fm., 636.2-642.2 ft above base, 1547.9-1553.9 ft below top	Same section <i>Tikhinella</i> sp. nov. <i>Amphipora</i> sp. undet. <i>Stromatophora</i> sp. indet. (silicified) <i>Cylochastetes</i> sp. undet. <i>Thamnopora</i> sp. undet. age: Devonian, probably Eifelian	54263
311NBa-168 Ogilvie Fm., talus, about 800 ft above base, 1390.1 ft below top	Same section <i>Syringostroma?</i> sp. cf. <i>S. confertum</i> (Stearn) (identified by C.W. Stearn) ambocoeliid brachiopod, indet. large indet. brachiopod (not <i>Stringocephalus</i> sp.) age: Probably Devonian	54903
312NBa-169 Ogilvie Fm., talus 811.8 ft above base 1378.3 ft below top	Same section <i>Favosites</i> sp. undet. <i>Thamnopora</i> sp. indet. <i>Mariuailites</i> sp. undet. <i>Coenites</i> sp. indet. <i>Lekanophyllum</i> sp. indet., fragment brachiopod fragments orthoconic nautiloid, indet. single axis crinoid ossicles age: Middle Devonian	54264
312NBb-169, 12 ft up Ogilvie Fm., talus 823.8 ft above base 1366.3 ft below top	Same section <i>Aulopora</i> sp. indet. <i>Pachyfavosites</i> sp. undet. <i>Alveolites</i> sp. indet. age: Early or Middle Devonian	54265
312NBc-170, 6-13 ft up Ogilvie Fm., talus 835.9-849.6 ft above base, 1340.5-1354.2 ft below top	Same section <i>Favosites</i> sp. undet. <i>Alveolites</i> sp. (Hume form) <i>Utaratula?</i> sp. nov., ex gr. <i>U. (?) praecolara</i> (Crickmay) age: Middle Devonian, late Eifelian	54904

<u>Field No. and Stratigraphy</u>	<u>Locality, Fauna and Age</u>	<u>GSC Loc. No.</u>
312NBd-171 Ogilvie Fm., talus 849.6-892.1 ft above base, 1298.0-1340.5 ft below top	Same section Stromatoporoid, encrusting, indet. <i>Favosites</i> sp. undet. <i>Thamnopora</i> sp. indet. <i>Cladopora</i> sp. indet. <i>Sociophyllum glomerulatum</i> (Crickmay) age: Middle Devonian, late Eifelian	54905
312NBe-173 Ogilvie Fm., talus, 895.1-913.5 ft above base, 1276.6-1295 ft below top	Same section <i>Syringopora</i> sp. indet. ostracodes not studied single axis crinoid ossicles age: Silurian to Permian	54906
312NBf-174 Ogilvie Fm., 913.5-917.8 ft above base, 1272.3-1276.6 ft below top	Same section stromatoporoids, indet. (silicified) <i>Thamnopora</i> sp. indet. (silicified) age: Devonian, but not Famennian	54907
312NBg-175 Ogilvie Fm., talus 917.8-919.8 ft above base, 1270.3-1272.3 ft below top	Same section two different rock types in collection: a, b. (a) <i>Amphipora</i> sp. indet. bulbous stromatoporoid, indet <i>Thamnopora</i> sp. indet. <i>Trypanopora</i> sp. indet. (b) <i>Favosites</i> sp. undet. <i>Syringopora</i> sp. undet. (same as 54906) <i>Ceonites?</i> sp. indet. <i>Utaratuia?</i> sp. nov., cf. <i>U. (?) praecolara</i> (Crickmay) single axis crinoid ossicles age: Devonian (a) Zlichovian to Givetian (b) late Eifelian	54908
312NBh-177 Ogilvie Fm., talus, 920.8-940.5 ft above base, 1249.4-1269.3 ft below top	Same section <i>Favosites</i> sp. undet. age: Silurian to Middle Devonian	54909
312NBi-179, 10 ft up Ogilvie Fm., 943.3- 992.3 ft above base 1197.8-1246.8 ft below top	Same section <i>Tienodiotyon</i> sp. cf. <i>T. jainaraini</i> Stearn and Mehrotra <i>Favosites</i> sp. undet. age: Early or Middle Devonian	54910

<u>Field No. and Stratigraphy</u>	<u>Locality, Fauna and Age</u>	<u>GSC Loc. No.</u>
312NBj-181, 5-13 ft up Ogilvie Fm., talus, 1000.3-1008.3 ft above base, 1181.8-1189.8 ft below top	Same section two different rock types in collections: a, b (a) <i>Amphipora</i> sp. undet. bulbus stromatoporoid, not studied (b) <i>Favosites</i> sp. undet. <i>Syringopora</i> sp. indet. (same as 54906) trilobite fragments ostracodes, not studied age: Early to Middle Devonian	54266
312NBk-182 Ogilvie Fm., 1011.8-1019.3 ft above base, 1170.8- 1178.3 ft below top	Same section laminar stromatoporoid, not studied <i>Favosites</i> sp. undet. <i>Alveolites</i> sp. undet. <i>Mariusilites</i> sp. undet. small, indet. digitate tabulate coral (fragments) auloporid coral, indet., fragment <i>Radiastrae verrilli</i> (Meek) s.l. "Xystriphyllum" <i>hyperbolicum</i> Crickmay ostracodes, not studied single axis crinoid columns age: Devonian, late Eifelian	54911
312NB1-183 Ogilvie Fm., 1019.3-1022.3 ft above base 1167.8- 1170.8 ft below top	Same section <i>Amphipora ramosa</i> (Phillips) <i>Dendrostella trigemma</i> (Quensedt) ostracodes, not studied age: Middle Devonian, probably late Eifelian	54912
312NBm-183 Ogilvie Fm., 1022.3-1031.1 ft above base, 1160.0- 1167.8 ft below top	Same section bulbous stromatoporoid identified by C.W. Stearn as <i>Anostylostroma?</i> sp. indet. age: not determined	54267
313NBa-185 Ogilvie Fm., talus 1039.9-1055.4 ft above base, 1134.7- 1150.2 ft below top	Same section two different rock types in collection a, b. (a) <i>Amphipora</i> sp. undet. digitate stromoporoid, silicified indet. <i>Thamnopora</i> sp. indet., silicified auloporid coral?, heavily silicified	54268

<u>Field No. and Stratigraphy</u>	<u>Locality, Fauna and Age</u>	<u>GSC Loc. No.</u>
	<p>(b) <i>Favosites</i> sp. undet., not sectioned age: (a) Middle Devonian probably Eifelian (b) Silurian to Middle Devonian</p>	
<p>313NBb-186, 9.8 ft up Ogilvie Fm., talus 1055.4-1067.0 ft above base, 1123.1-1134.7 ft below top</p>	<p>Same section <i>Amphipora</i> sp. undet. encrusting stromatoporoid, undet. <i>Dendrostella trigemme</i> (Quenstedt) ostracodes, not studied age: Middle Devonian, probably late Eifelian</p>	54269
<p>313NBc-187, 14.4 ft up Ogilvie Fm., 1081.4 ft above base, 1108.7 ft below top</p>	<p>Same section <i>Amphipora ramosa</i> (Phillips) stromatoporoid closely associated with <i>Alveolites</i> sp. undet. <i>Dendrostella trigemme</i> (Quenstedt) age: Middle Devonian, probably Eifelian</p>	54914
<p>313NBd-187, 30 ft up Ogilvie Fm., talus 1097 ft above base, 1093.1 ft below top</p>	<p>Same section <i>Thamnopora</i> sp. undet. <i>Crassialveolites</i> sp. indet. <i>Radiastraea tapetiformis</i> (Crickmay) ostracodes, not studied rare crinoidal debris age: Middle Devonian, late Eifelian</p>	54915
<p>313NBe-187, 38 ft up Ogilvie Fm., 1105 ft above base, 1085.1 ft below top</p>	<p>Same section <i>Favosites</i> sp. undet. <i>Utaratulia?</i> sp. nov., cf. <i>U.?</i> <i>praeolara</i> (Crickmay) age: Middle Devonian, probably late Eifelian</p>	54916
<p>314NBa-189, 6 ft up Ogilvie Fm., talus 1121.5 ft above base, 1068.6 ft below top</p>	<p>Same section <i>Favosites</i> sp. undet. <i>Thamnopora</i> sp. indet., fragment <i>Alveolites</i> sp. indet., fragment <i>Crassialveolites?</i> sp. indet. partly silicified pentamerid and other brachiopod fragments ostracodes, not studied single axis crinoid ossicles age: probably Devonian</p>	54917

<u>Field No. and Stratigraphy</u>	<u>Locality, Fauna and Age</u>	<u>GSC Loc. No.</u>
314NBb-189, 13 ft up Ogilvie Fm., talus 1128.5 ft above base, 1061.6 ft below top	Same section encrusting stromatoporoid, undet. Caunopore consortium <i>Favosites</i> sp. indet. <i>Alveolites</i> sp. indet. <i>Coenites</i> sp. indet. <i>Aulozystis</i> sp. indet. <i>Psydracophyllum lonsdaleiaforme</i> Pedder <i>Sociophyllum glomerulatum</i> (Crickmay) bryozoan, brachiopod and trilobite fragments <i>Spirorbis</i> sp. undet. ostracodes, not studied single axis crinoid ossicles age: Middle Devonian, late Eifelian	54270
314NBc-189, 17 ft up Ogilvie Fm., talus 1132.5 ft above base, 1057.6 ft below top	Same section <i>Favosites</i> sp. undet. <i>Thamnopora</i> sp. indet. (fragments) <i>Aulozystis</i> sp. undet. <i>Microplasma caespitosum</i> (Schlüter) <i>Spinatrypa?</i> sp. indet. (thin section only) trilobite fragments (thin section only) ostracodes, not studied single axis crinoid ossicles age: Middle Devonian, late Eifelian	54918
314NBd-190, 5 ft up Ogilvie Fm., 1137.9 ft above base, 1052.2 ft below top	Same section encrusting stromatoporoid, indet. <i>Favosites</i> sp. undet. <i>Thamnopora</i> sp. indet. (rare fragments) <i>Alveolites</i> sp. undet. <i>Aulozystis</i> sp. undet. <i>Grypophyllum</i> sp. nov. ostracodes, not studied single axis crinoid ossicles age: Middle Devonian	54919

<u>Field No. and Stratigraphy</u>	<u>Locality, Fauna and Age</u>	<u>GSC Loc. No.</u>
314NBc-190, 13 ft up Ogilvie Fm., 1145.9 ft above base, 1044.2 ft below top	Same section encrusting and bulbous stromatoporoids, not studied <i>Favosites</i> sp. undet. <i>Syringopora</i> sp. undet. <i>Dendrostella trigemma</i> (Quenstedt) small var. <i>Australophyllum?</i> sp. indet. (inadequately preserved) <i>Grypophyllum?</i> sp. indet. <i>Sociophyllum</i> sp. nov. ostracodes, not studied age: Middle Devonian, late Eifelian or Givetian	54920
314NBf-190, 25 ft up Ogilvie Fm., 1157.9 ft above base, 1032.2 ft below top	Same section bulbous stromatoporid, not studied <i>Amphipora ramosa</i> (Phillips) <i>Cylochaetetes</i> sp. undet. <i>Crassialveolites</i> sp. undet. <i>Aulopora</i> sp. indet. <i>Dendrostella trigemma</i> (Quenstedt) <i>Sociophyllum</i> sp. nov. (as in 54920) age: Middle Devonian, late Eifelian or Givetian	54921
314NBg-191, 6 ft up Ogilvie Fm., 1163.4 ft above base, 1026.7 ft below top	Same section bulbous stromatoporoid, not studied <i>Amphipora ramosa</i> (Phillips) <i>Stringocephalus</i> or <i>Omolonia</i> sp. indet. (pedicle valve only) age: Middle Devonian, Givetian	54251
314NBh Ogilvie Fm., 1183.4-1203.6 ft above base, 986.6-1006.7 ft below top	Same section <i>Anostylostroma</i> sp. cf. <i>A. humile</i> (Galloway and St. Jean) (identified by C.W. Stearn) age: Middle Devonian	54922
314NBi-193, 9 ft up Ogilvie Fm., 1214.4 ft above base, 975.7 ft below top	Same section <i>Anostylostroma</i> sp. cf. <i>A. humile</i> (Galloway and St. Jean) age: Middle Devonian	54923
314NBj-194, 7 ft up Ogilvie Fm., talus 1236.9-1244.9 ft above base, 945.2-953.2 ft below top	Same section encrusting stromatoporoid, not studied <i>Amphipora ramosa</i> (Phillips) <i>Dendrostella trigemma</i> (Quenstedt) <i>Stringocephalus</i> sp. undet. age: Middle Devonian, early Givetian	54924

<u>Field No. and Stratigraphy</u>	<u>Locality, Fauna and Age</u>	<u>GSC Loc. No.</u>
314NBk-194, 6 ft up Ogilvie Fm., talus 1290.9 ft above base, 899.2 ft below top	Same section <i>Amphipora ramosa</i> (Phillips) <i>Dentrostella trigemma</i> (Quenstedt) <i>Stringocephalus</i> or <i>Omolonia</i> sp. indet. (pedicle valve only) age: Middle Devonian, early Givetian	54925
314NBm-197 Ogilvie Fm., 1345.4 ft above base, 844.7 ft below top	Same section <i>Amphipora ramosa</i> (Phillips) <i>Dentrostella trigemma</i> (Quenstedt) age: Middle Devonian, late Eifelian or Givetian	54253
314NBn-198, 19 ft up Ogilvie Fm., 1365.2 ft above base, 824.9 ft below top	Same section stromatoporoid, not studied <i>Microalveolites?</i> sp. nov. <i>Cranaena?</i> sp. undet. age: not determined, but probably Early or Middle Devonian	54926
314NBp-201, 5.3 ft up Ogilvie Fm., talus 1399.3 ft above base, 790.8 ft below top	Same section <i>Anostylostroma intermedium</i> Klovan (identified by C.W. Stearn) <i>Stringocephalus</i> sp. indet. age: Middle Devonian, Givetian	54255
314NBg-204 Ogilvie Fm., 1457.1 ft above base, 733 ft below top	Same section <i>Amphipora ramosa</i> (Phillips) <i>Ferestromatopora laminosa</i> (Lecompte) age: Devonian, but not Famennian	54927
315NBa-209, 5 ft up Ogilvie Fm., 1539.9 ft above base, 650.2 ft below top	Same section <i>Amphipora ramosa</i> (Phillips) <i>Anostylostroma intermedium</i> Klovan (identified by C.W. Stearn) <i>Dentrostella trigemma</i> (Quenstedt) age: Middle Devonian, late Eifelian or early Givetian	54928
315NBb-212, 2 ft up Ogilvie Fm., 1562.5 ft above base, 627.6 ft below top	Same section bulbous stromatoporoid, indet. age: not determined	54929

<u>Field No. and Stratigraphy</u>	<u>Locality, Fauna and Age</u>	<u>GSC Loc. No.</u>
315NBc-213 Ogilvie Fm., talus 1572-1575.2 ft above base, 614.9- 618.1 ft below top	Same section <i>Anostylostroma</i> sp. cf. <i>A.</i> <i>intermedium</i> Kiovan <i>Amphipora ramosa</i> (Phillips) ostracodes, not studied age: Middle Devonian or Frasnian	54930
315NBd-214, 11 ft up Ogilvie Fm., 1586.2-1587.2 ft above base, 603.9- 604.9 ft below top	Same section <i>Amphipora ramosa</i> (Phillips), not sectioned <i>Anostylostroma intermedium</i> Kiovan (identified by G.S. Stearn) age: Devonian, but not Famennian	54931
315NBe-217 Ogilvie Fm., 1622.7-1630.6 ft above base, 559.5-567.4 ft below top	Same section <i>Amphipora ramosa</i> (Phillips) ostracodes, not studied age: Devonian, but not Famennian	54932
315NBh-222, about 4 ft up, Ogilvie Fm., 1686.5-1699 ft above base, 491.1- 503.6 ft below top	Same section <i>Amphipora ramosa</i> (Phillips) age: Devonian, but not Famennian	54935
315NBi-225, Ogilvie Fm., 1722.1-1724.1 ft above base, 466-468 ft below top	Same section <i>Amphipora ramosa</i> (Phillips) age: Devonian, but not Famennian	54936
315NBj-228, 6.5 ft up Ogilvie Fm., 1761.9 ft above base, 428.2 ft below top	Same section <i>Amphipora ramosa</i> (Phillips), not sectioned <i>Stringocephalus</i> sp. indet. age: Middle Devonian, Givetian	54937
315NBk-230 Ogilvie Fm., 1790.4-1795.4 ft above base, 394.7-399.7 ft below top	Same section massive stromatoporoid, not studied age: not determined	54938

<u>Field No. and Stratigraphy</u>	<u>Locality, Fauna and Age</u>	<u>GSC Loc. No.</u>
315NB1-232 Ogilvie Fm., talus 1831.4 ft above base, 258.7 ft below top	Same section <i>Amphipora ramosa</i> (Phillips) <i>Stromatopora</i> sp. undet. <i>Dendrostella</i> sp. nov. <i>Stringocephalus</i> sp. cf. <i>S.</i> <i>obesus</i> Grabau age: Middle Devonian, Givetian	54939
315NBm-233 Ogilvie Fm., 1831.4-1845.7 ft above base, 344.4- 358.7 ft below top	Same section <i>Amphipora ramosa</i> (Phillips) <i>Dendrostella</i> sp. nov. <i>Stringocephalus</i> sp. cf. <i>S.</i> <i>obesus</i> Grabau age: Middle Devonian, Givetian	54940
315NBn-234 Ogilvie Fm., 1845.7-1861.4 ft above base, 328.7-344.4 ft below top	Same section <i>Amphipora ramosa</i> (Phillips) <i>Dendrostella</i> sp. nov. <i>Stringocephalus</i> sp. cf. <i>S.</i> <i>obesus</i> Grabau gastropod, indet. age: Middle Devonian, Givetian	54941
315NB0-237, 16 ft up Ogilvie Fm., 1908.5 ft above base, 281.6 ft below top	Same section <i>Amphipora ramosa</i> (Phillips) not sectioned <i>Stringocephalus</i> sp. undet. (reported by A.W. Norris age: Middle Devonian, Givetian	54942
315NBp-241, 1 ft up Ogilvie Fm., 1943-1951 ft above base, 239.1-247.1 ft below top	Same section bulbous and encrusting stromatoporoids, not studied <i>Amphipora ramosa</i> (Phillips) stringocephalinid fragments age: Middle Devonian, Givetian	54943
315NBq-248, 19 ft up Ogilvie Fm., 2032.7 ft above base, 157.4 ft below top	Same section <i>Stringocephalus</i> sp. indet. age: Middle Devonian, Givetian	54944

<u>Field No. and Stratigraphy</u>	<u>Locality, Fauna and Age</u>	<u>GSC Loc. No.</u>
315NBr-249, 6 ft up Ogilvie Fm., 2043.5 ft above base, 146.6 ft below top	Same section <i>Stachyodes thomasolarki</i> Stearn (identified by C.W. Stearn) <i>S. costulata</i> Lecompte (identified by C.W. Stearn) age: probably Middle Devonian, or Frasnian	54945
315NBs-251 Ogilvie Fm., talus 2070.8 ft above base, 119.3 ft below top	Same section <i>Amphipora ramosa</i> (Phillips) <i>Geranocephalus</i> sp. cf. <i>G. inoptnus</i> Crickmay ostracodes, not studied age: Middle Devonian, Givetian	54946
315NBt-254, 9 ft up Ogilvie Fm., 2098.4 ft above base, 91.7 ft below top	Same section <i>Amphipora ramosa</i> (Phillips) stringocephalinid fragments age: Middle Devonian, Givetian	54947
315NBu-257, 4 ft up Ogilvie Fm., 2128.8 ft above base, 61.3 ft below top	Same section <i>Amphipora ramosa</i> (Phillips) age: Devonian, but not Famennian	54948
315NBv-258, 3 ft up Ogilvie Fm., 2132.0 ft above base, 58.1 ft below top	Same section <i>Stromatopora</i> sp. cf. <i>S. adleri</i> Yavorsky (identified by C.W. Stearn) age: Devonian, possibly Givetian	54949
315NBw-264 Ogilvie Fm., 2173.1-2177.1 ft above base, 13-17 ft below top	Same section <i>Amphipora ramosa</i> (Phillips) <i>Stringocephalus</i> sp. cf. <i>S. obesus</i> Grabau age: Middle Devonian, Givetian	54250
315NBv-266, 10 ft up Ogilvie Fm., 2189.1 ft above base, 1 ft below top	Same section <i>Amphipora ramosa</i> (Phillips) ostracodes, not studied age: Devonian, but not Famennian	54950

Comments

Field description of this section, which is the type section of the Ogilvie Formation, is given in Norris, 1968a, p. 180-208. The original measurement is depicted graphically, also, in Norris, 1968a, Fig. 4, 5, and 1968b, Fig. 5, 6. The section was classified originally as follows:

MIDDLE DEVONIAN	2190.1 ft
Ogilvie Formation	
MIDDLE DEVONIAN AND OLDER	352.2 ft
Gossage Formation	
MIDDLE ORDOVICIAN AND OLDER?	3563.9 ft

Warren and Steelck (1962, Fig. 5.1, 3, 9) identified *Stringocephalus obesus* Grabau from the top of the Mount Burgess section, as well as *Stringocephalus sapiens* from 390 ft below the top and *Geranocephalus* n. sp. A from 980 ft below the top of the same section.

Norris (1968b, p. 773) reported the presence of various stringocephalids in the upper 1020 ft of the section and also of biaxial crinoid ossicles between 93 and 419 ft above the base of the Ogilvie Formation.

Perry, Klapper and Lenz (1974) identified *Stringocephalus* sp. cf. *S. obesus* and a species of *Geranocephalus* (*Stringomimus*) in the upper 865 ft of the Ogilvie Formation at Mount Burgess. They also identified conodont elements indicative of the Givetian *Polygnathus varous* Zone within the upper 50 ft of the formation at the same locality.

Stearn and Mehrotra (1971) monographed stromatoporoids collected by Norris from this section. However, the biostratigraphic data provided by these organisms is relatively unimportant.

Previously obtained biostratigraphic information on the Mount Burgess section may be summarized as: 1) biaxial crinoid ossicles between 93 and 419 ft above the base of the Ogilvie Formation indicate Zlichovian to early Eifelian age, 2) stringocephalids and *varous* Zone conodonts between 1170 and 2190 ft (the top) above the base of the formation indicate a Givetian age.

The present report, which is based on 230 thin sections, demonstrates the following stage assignments: 1) Zlichovian and/or Dalejan, 117.9 to 309.2 ft above base. 2) Dalejan or early Eifelian, 377.5 ft above base. 3) early or late Eifelian, 549.4 to 823.8 ft above base. 4) late Eifelian, that is Hume equivalent, 835.9 to 1132.5 ft above base. 5) late Eifelian or early Givetian, 1145.9 to 1157.9 ft above base. 6) early Givetian 1163.4 to 1539.9 ft above base. 7) Givetian (presumably late) 1761.9 to 2177.1 ft above base.

The faunas also suggest the following facies (footages given are from base of the Ogilvie Formation):

1145.9-2189.1 ft	shallow to very shallow platform
1097 - 1137.9 ft	moderately deep platform
1019.3-1081.4 ft	shallow platform
1011.8-1019.3 ft	moderately deep platform

913.5-1008.3 ft	mixture of moderately deep and shallow platform
811.8- 913.5 ft	moderately deep platform
616.7- 800 ft	shallow platform
600.1 ft	moderately deep platform
477.5- 578.1 ft	mixture of moderately deep and shallow platform with possible debris flow beds
464.2- 467 ft	moderately deep platform
409.7- 444.2 ft	shallow platform
377.5 ft	mixture of moderately deep and shallow platform, possible debris bed
364.2 ft	shallow platform
117.9- 309.2 ft	moderately deep platform

The collections include a number of new and interesting species and associations. For example, 54897 contains the first known western Canadian species of *Thecostegites*. Unlike the specimen referred to the genus from Seward Peninsula, Alaska (Oliver, Merriam and Churkin, 1975, pl. 20, Fig. 13, 14) the Mount Burgess form is entirely typical of the genus. Unfortunately, it is not particularly significant, since the genus has a total range of Upper Silurian to Frasnian, Upper Devonian (Stasińska and Nowiński, 1978, p. 210). The flattened and eccentric species of *Zonophyllum* in 54901 is highly unusual and worthy of note as it should be recognized easily if collected again. Several new data concerning the genus *Dendrostella* have emerged from this study. *Dendrostella trigemma* is known well as an index to shallow platform facies of Hume and equivalent formations, but the overlap of it with early stringocephalids, as in the interval represented by 54251 to 54928, was previously known, in western Canada, only in the McDame Group of northern British Columbia (Gabielse, 1963, p. 56). The association should be indicative of early Givetian time. Two new species of *Dendrostella* occur in the collection; both are distinctive, one (54902) because it is so small, the other (54939-54941) because of its highly modified septa.

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Comment to Author; June 7, 1979

I consider that the interval between 835.9 and 1132.5 ft above base is definitely Hume equivalent. The 1145.9 to 1157.9 ft interval may also be Hume, but the higher part of the section, that is from 1163.4 to 2177.1 ft (top is 2190.1 ft above base), contains species of *Stringocephalus* and *Geranocephalus* and no trace of any Hume index fossil. This part certainly seems to be post Hume in age.

Report by R.S. Tipnis on seven conodont samples from an Early Paleozoic core labelled Mobil-Gulf Peel YT H-71 (Loc. 66°20'29"N, 134°43'35"W) requested by Dr. Derek Pugh.

Each of the seven samples is given identical GSC number (C-73764) excepting the footages which are suffixed. Each footage identifies the depth of the collection with respect to the core.

Individual samples consist of small portions of rock chips taken from the core spread over a 'thickness' of about 90 ft (in most instances samples weighed between 250-350 gm). Each succeeding sample is separated by a difference of 10 ft.

<u>Field No. & Stratigraphy</u>	<u>Locality, Fauna & Age</u>	<u>GSC Loc. No.</u>
Spl. 1 (10410-10530 ft)	<i>Panderodus gracilis</i> (Branson and Mehl) drepanodiform element age: Middle to Late Ordovician or early Silurian)	73764/10410-10530
Spl. 2 (10540-10630 ft)	<i>Panderodus gracilis</i> (Branson and Mehl) <i>Loxodus?</i> sp.* broken indeterminate cones age: Middle to Late Ordovician (or early Silurian) * <i>Loxodus</i> is a Lower Ordovician (Tremadocian) taxon	73764/10540-10630
Spl. 3 (10640-10730 ft)	<i>Panderodus gracilis</i> (Branson and Mehl) <i>Oulodus</i> sp. <i>Acanthodus?</i> sp.* microfossils and broken cones age: Middle to Late Ordovician (or early Silurian) * <i>Acanthodus</i> is a Lower Ordovician (Tremadocian/?basal Arenigian) taxon	73764/10640-10730
Spl. 4 (10740-10830 ft)	<i>Panderodus gracilis</i> (Branson and Mehl) <i>Drepanoistodus suberectus</i> (Branson and Mehl) age: Middle to Late Ordovician (or early Silurian)	73764/10740-10830
Spl. 5 (10840-10930 ft)	<i>Panderodus gracilis</i> (Branson and Mehl) <i>Panderodus</i> spp. age: Middle to Late Ordovician	73764/10840-10930

<u>Field No. & Stratigraphy</u>	<u>Locality, Fauna & Age</u>	<u>GSC Loc. No.</u>
Spl. 6 (10940-11030 ft)	<i>Panderodus gracilis</i> (Branson and Mehl) <i>Panderodus</i> spp. <i>Osarkodina?</i> sp. Probable age: Middle Ordovician to early Silurian	73764/10940-11030
Spl. 7 (11040-11129 ft)	<i>Panderodus gracilis</i> * (Branson and Mehl) <i>Panderodus</i> spp. <i>Pleotodina?</i> sp. Probable age: Middle to uppermost Ordovician (or early Silurian) *3 clusters of <i>P. gracilis</i> were recovered	73764/11040-11129

Comments

Although every sample tested for conodonts proved positive, the combination of small quantity of sample permitted to be run, as well as the nature of conodonts themselves, makes reasonable biostratigraphic determinations quite impossible. A broad stratigraphic range of Middle Ordovician to early Silurian for most of the seven samples seems fairly reasonable based on the distribution of *Panderodus*. A Late Ordovician to possibly early Silurian age appears likely in two instances, namely Spl. No. 6 (10940-11030 ft) and Spl. No. 7 (11040-11129 ft). The elements of *Panderodus gracilis* (Branson and Mehl) in these samples tend to be more recurved and longer (Barnes, 1977). Yet caution must be exercised as far as definitive age determinations are concerned because of the possibility of 'stratigraphic mixing' due to contamination of conodonts during sampling. For example, Spl. 2 (10540-10630 ft) and Spl. 3 (10640-10730 ft) show some stratigraphic mixing (see list of taxa per sample). The colour of the conodonts also in core of Spl. 3 collection appears to vary (a few black conodonts along with several lighter ones). The lighter ones are mostly elements belonging to *Panderodus*.

No significant biogeographic or ecologic information could be deduced from the conodonts.

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Mineralogical Analysis by G.P. Michael

Two samples from the Horn River Fm. were analyzed by x-ray diffraction. Semi-quantitative results are approximated from diffraction peak heights, which may vary with the type of mineral, its degree of crystallinity, crystal size, and with any amorphous material present.

Sample #	Baryte	Quartz	Fluorite	Calcite
1	53	47		
2	5	6	40	48

1: Socony South Tuttle Y.T. N-05 Core 4711-4720

2: McD. Taylor Lake Y.T. K-15 Drill cutting 4440-4450
crystals in black shale, base of Horn River Fm.