BIOSTRATIGRAPHY AND MATURATION OF 17 LABRADOR AND BAFFIN SHELF WELLS

Volume 10:
Tyrk P-100

Report No. 86-0058
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EXPLANATION OF CONTENTS

This volume contains the following results of analyses on Tyrk P-100.

1. **General drilling information**

2. **Consensus Age**

   The consensus age based on micropaleontology (M) and palynology (P).

3. **Palynological Results**

   The palynological zones and assigned ages in order of increasing depth within each well. The more important taxa are listed alphabetically, with miospores and fungal spores being denoted by an asterisk (*). Marker species are highlighted in bold type. The degree of confidence is given for each zonal assignment as follows:

   "4" The highest degree of confidence regarding both the zonal assignment and the sample level to which the top of the zone is assigned.

   "3" A high degree of confidence regarding the zonal assignment, but including the possibility that the zonal assignment may be slightly too low.

   "2" Indicates that the zonal asignment is probably correct but that the sample level indicated for the top of the zone is probably too low due to a scarcity of marker species.

   "1" A highly tentative zonal assignment due to extreme scarcity of marker species.

4. Micropaleontological Results

The micropaleontological zones and assigned ages in order of increasing depth. Within each zone the more important taxa are listed alphabetically with planktonic foraminiferal species being denoted by an asterisk (*) and diatom species by a cross (+). Marker species are highlighted in bold type. The degree of confidence is given for each zonal assignment as follows:

"4" The highest degree of confidence regarding both the zonal assignment and the sample level to which the top of the zone is assigned. This degree of confidence indicates the presence of planktonic foraminifera together with the main benthonic foraminiferal markers.

"3" A high degree of confidence regarding the zonal assignment. Indicates the presence of the main benthonic foraminiferal markers.

"2" Indicates that the zonal assignment is most probably correct. The assignment is based only on taxa occurring commonly within the zone, due to the scarcity of marker species.

"1" A tentative zonal assignment. Based solely on stratigraphic position due to extreme scarcity of marker species.

5. Paleobathymetric Interpretations

The interpreted paleobathymetries are in order of increasing depth, together with the criteria upon which they are based. The interpreted environments and corresponding paleobathymetries reported are: Non-marine (above sea level), Transitional (approx. 0m), Inner Neritic (approx. 0-20m), Middle Neritic (approx. 20-100m), Outer Neritic (approx. 100-200m), Upper Bathyal (approx. 200-1000m), and Lower Bathyal (>1000m).

6. Kerogen, TAI and Vitrinite Reflectance

Data on kerogen types and TAI are listed in a table, and are then discussed relative to petroleum source rock potential and the consensus ages assigned in this report. Data on vitrinite reflectance are listed and are discussed relative to their degree of reliability and indicated maturation level.

All references are given in Volume 1 of the report.

The following charts are included for each well:

1. A Palynological Summary Chart showing the assigned palynological zones, inferred ages, lithology, formational assignments provided by P.N. Moir, studies in progress, important palynological events (mostly species tops).

2. Sawtooth diagrams showing the relative abundances of the following palynological categories: Apectodinium homomorphum, Areoligera senonensis, marine dinoflagellates, Azolla, Pediastrum, gymnosperm pollen, angiosperm pollen, miospores, Late Cretaceous reworking, Early Cretaceous reworking.

3. A Micropaleontological Summary Chart showing the assigned micropaleontological zones, inferred ages, lithology, important micropaleontological events (mostly species tops), paleobathymetry.

4. A Kerogen Summary Chart showing the consensus ages, levels of Thermal Alteration (TAI), relative abundances of kerogen types.

5. A Vitrinite Summary Chart showing the consensus ages, histograms of the vitrinite reflectance measurements which are divided into three categories: caved (blue), in situ (green) and reworked (red). The in situ category is further subdivided into poor readings (horizontal lines) and good to excellent reading (solid colour). The means of the three main categories are indicated by correspondingly coloured triangles.

Tyrk P-100:

BIOSTRATIGRAPHY AND MATURATION OF

TYRK P-100

TOTAL EASTCAN et al. TYRK P-100

GSC locality: 55° 29' 49.62"N, 58° 13' 50.71"W
KB elevation: 12m Water depth: 117m
Casing set at: 155m, 342m, 975m
Total depth: 1739m
Interval studied for palynology: 380-1735m
Interval studied for micropaleontology: 380-1500m

CONSENSUS AGE

380- 420m	early Miocene or older (P)
440-720m	early Oligocene (P)
740-960m	late Eocene (M,P)
980-990m	middle Eocene (M,P)
1010-1140m	early Eocene (P)
1160-1530m	early to middle Albian (P)
1550-1560m	?late Aptian (P)
1580-1735m	no age assignment

TYRK P-100

PALYNOLOGICAL ZONATION

380- 420m	*Operculodinium centrocarpum* Zone or older (early Miocene or older)
440- 720m	*Areosphaeridium arcuatum* Zone (early Oligocene)
740- 750m	*Deflandrea* #LR Zone (late Eocene)
770- 960m	*Areosphaeridium fenestratum* Zone (middle to late Eocene)
980- 990m	*Eocladopyxis* #LA Zone (middle Eocene)
1010-1050m	*Trinovantedinium* #LA Zone (early Eocene)
1070-1140m	*Dracodinium condylos* Zone (early Eocene)
Not observed	*Ceratiopsis speciosa* Zone (late Paleocene)
Not observed	*Alisocysta circumtabulata* Zone (late Paleocene)
Not observed	*Palaeoperidinium pyrophorum* Zone (early Paleocene)
Not observed	*Spongodinium* #LA Zone (early Paleocene)
Not observed	*Spongodinium delitiense* Zone (Maastrichtian)
Not observed	*Impagidinium* #LL Zone (Maastrichtian)

Not observed *Isabelidinium cooksoniae* Zone (Maastrichtian)

Not observed *Chatangiella tripartita* Zone (late Campanian)

Not observed *Hystrichosphaeridium difficile* Zone (Campanian)

Not observed *Palaeophystrichophora infusorioides* Zone (early Campanian)

Not observed *Senoniasphaera rotundata* Zone (Santonian)

Not observed *Cometodinium obscurum* Zone (Coniacian to Turonian)

Not observed *Kiokansium polypes* Zone (Cenomanian)

Not observed *Epelidosphaeridia spinosa* /*Trilobosporites crassus* Zone (late Albian to early Cenomanian)

Not observed *Trilobosporites humilis* Zone (middle Albian)

1160-1170m *Parvisaccites amplus* Zone (early to middle Albian)

1190-1530m *Muderongia asymmetrica* Zone (early to middle Albian)

1550-1560m *Oligosphaeridium asterigerum* Zone (?late Aptian)

Not observed *Pseudoceratium pelliferum* Zone (Barremian to early Aptian)

Not observed *Cicatricosisporites #EAL* Zone (Barremian to early Aptian)

1580-1735m No zonal assignment (no age assignment)

SELECTED PALYNOMORPHS

380-420m: Operculodinium centrocarpum Zone or older (early Miocene or older

380m
Osmundacidites claytonites *
Rouseisporites #LA *
Tsugaepollenite igniculus *

Degree of Confidence: 1

Remarks: The age assignment of early Miocene or older is highly tentative, being based on the possible stratigraphic range of Rouseisporites #LA extending into the early Miocene.

440-720m: Areosphaeridium arcuatum Zone (early Oligocene)

440m
Areosphaeridium arcuatum
Achomosphaera ramulifera
Chiropteridium mespilanum
Operculodinium centrocarpum
Spiniferites pseudofurcatus

500m
Lingulodinium machaerophorum
Retitricolpites #LL *

530m
Alnipollenites verus *
Caryapollenites simplex *
Corylus #LA *
Fagus #LA *
Quercoidites #LA *

560m	Deflandrea phosphoritica Paralecaniella indentata (common) **Quercoidites #LG *** Thalassiphora patula
615m	Ilexpollenites margaritus *
650m	**Glaphyrocysta sp. indet.**
680m	**Jusseaia sp., Piel 1971 ***

Degree of Confidence: 3

Remarks: The presence of C. mespilanum at 440-460m indicates penetration of Oligocene strata, and the occurrence of A. arcuatum in the same sample indicates the presence of lower Oligocene strata. This is supported by the occurrence of several pollen species highlighted, above although the stratigraphic ranges of these taxa on the Labrador Shelf are uncertain.

740-750m: Deflandrea #LR Zone (late Eocene)

740m	Chiropteridium #LS (reworked) **Deflandrea #LR** Cordosphaeridium cantharellum Lentinia serrata

Degree of Confidence: 3

770-960m: Areosphaeridium fenestratum Zone (middle to late Eocene)

770m	**Glaphyrocysta vicina** **Micrhystridium fragile** (abundant)
800m	Araneosphaera araneosa Cicatricosisporites paradorogensis * Wetzeliella articulata
890m	**Phthanoperidinium geminatum**
920m	Apectodinium homomorphum (singleton)
950m	Retitricolpites #LF * Ulmipollenites undulosus *

Degree of Confidence: 3

Remarks: Penetration of the A. fenestratum Zone is indicated primarily by the presence of abundant specimens of the acritarch M. fragile, which marks the top of this zone when it occurs in abundance in several of the wells examined during the present study. The age-assignment is supported by the occurrence of the dinoflagellate G. vicina in the same sample at 770-790m.

980-990m: Eocladopyxis #LA Zone (middle Eocene)

980m	Nyssa kruzschii * Systematophora placacantha **Wetzeliella meckelfeldensis**

Degree of Confidence: 2

Remarks: Penetration of the Eocladopyxis #LA Zone is tentatively indicated by the occurrence of a single specimen of the dinoflagellate W. meckelfeldensis at 980-1000m.

1010-1050m: Trinovantedinium #LA Zone (early Eocene)

1010m
- Cupaneiidites sp., Frederiksen 1980
- **Kisselovia edwardsii**
- Momipites coryloides * (common)
- Systematophora #LC
- **Trinovantedinium #LL**

1040m
- **Apectodinium homomorphum** (common)
- Apectodinium hyperacanthum
- Areoligera senonensis
- **Areosphaeridium** sp. A, Williams & Brideaux 1977
- Cribroperidinium giuseppei
- Dinopterygium cladoides
- Dapsilidinium pastielsii
- **Lentinia wetzelii**

Degree of Confidence: 4

1070-1140m: Dracodinium condylos Zone (early Eocene)

1070m
- **Apectodinium augustum**
- **Apectodinium homomorphum** (abundant)
- **Isabelidinium #LP**

1100m
- **Areoligera senonensis** (common)
- Caligodinium aceras (?reworked)

Cordosphaeridium gracile
Deflandrea oebisfeldensis
Hystrichokolpoma salacium
Trinovantedinium #LA
Trinovantedinium #LS

1130m Hystrichokolpoma #LP

Degree of Confidence: 2

Remarks: The highest occurrences observed in the well of Trinovantedinium #LA and Trinovantedinium #LS at 1100-1120m represent depressed tops because these taxa usually have their highest occurrence in the overlying Trinovantedinium #LA Zone.

1160-1170m: Parvisaccites amplus Zone (early to middle Albian)

1160m **Parvisaccites rugulatus** *
Leptolepidites bossus *

Degree of Confidence: 2

Remarks: A marked hiatus is indicated between 1140m and 1160m representing the late Albian to late Eocene. The presence of P. rugulatus suggests penetration of the Parvisaccites amplus Zone at 11601180m. A strong palynological assemblage, however, is not present and therefore the zonal assignment is tentative.

1190-1530m: Muderongia asymmetrica Zone (early to middle Albian)

1190m **Muderongia asymmetrica**
Lecaniella dictyota

Parvisaccites amplus * (depressed top)
Distaltriangulisporites maximus *
Cicatricosisporites hughesii *
Parvisaccites radiatus *
Rugubivesiculites reductus *

1220m Cicatricosisporites delicatus *
Parvisaccites hortonensis *
Costatoperforosporites #ET *
Platysaccus megasaccus *
Plicatella cristata *

1250m Callialasporites dampieri *
Cerebropollenites mesozoicus *
Contignisporites glebulentus *
Cicatricosisporites #EU *
Kraeuselisporites linearis *
Aptea eisenackii

1280m **Ctenidodinium #ES**
Cedripites canadensis *
Densoisporites triradiatus *

1310m Nodosisporites dentimarginatus *
Rugubivesiculites minutus *

1370m Clavatipollenites rotundus *

1400 Muderongia asymmetrica (abundance)

1520m **Cicatricosisporites minor ***

Degree of Confidence: 4

Remarks: An abundant and diverse assemblage of spores and pollen occurs within this zone, with the consistent presence of Muderongia asymmetrica which reaches a peak in abundance at 1400m. Other species which are particularly distinctive for this zone are D. maximus at 1190-1210m, P. cristata at 1220-1240m, and Ctenidodinium #ES at 1280-1300m.

1550-1560m: Oligosphaeridium asterigerum Zone (?late Aptian)

1550m Muderongia digitata

Degree of Confidence: 2

Remarks: This zone may occur as high as 1250-1270m based on the presence of Contignisporites glebulentus and Callialasporites dampieri in that sample.

1580-1735m: No zonal assignment (no age assignment)

1580m Muderongia #EM

Remarks: The Aptian-Albian palynomorphs present at 1580-1600m and below are considered to be caved from overlying sediments. They may, however, have been derived from shales intercalated between the basalt flows of the Alexis Formation.

MICROPALEONTOLOGICAL ZONATION

Not observed Cassidulina Teretis Zone (late Miocene or younger)

Not observed Asterigerina guerichi Zone (early Miocene or older)

Not observed Asterigerina bartoniana Zone (late Oligocene)

380- 720m Ceratobulimina contraria Zone (early Oligocene)

740- 960m Spiroplectammina adamsi Zone (late Eocene)

Not observed Cyclammina amplectens Zone (late Eocene)

980-1140m Haplophragmoides acutidorsatum Zone (middle Eocene)

Not observed Bulimina ovata Zone (early Eocene)

1160-1200m Karreriella apicularis Zone (early Eocene)

1220-1500m No zonal assignment (No age assignment)

Not observed Spiroplectammina grzybowski Zone (early Eocene)

Not observed Glomospira charoides Zone (late Paleocene)

Not observed Glomospira corona Zone (early Paleocene)

Not observed Praecystammina globigerinaeformis Zone (early Paleocene)

Not observed Rzehakina epigona Zone (Maastrichtian)

Not observed Arenobulimina dorbigny Zone (Campanian?)

SELECTED FORAMINIFERA

330-720m: Ceratobulimina contraria Zone (early Oligocene)

380m	**Cibicidoides propius**
	Cibicidoides praecinctus
	Cassidulina subglobosa
	Fursenkoina schreibersiana
	Melonis affinis
410m	Triloculina trigonula
440m	**Baggina subconica**
	Lenticulina #H 2
470m	**Ceratobulimina contraria**
	Coscinodiscus #H 1 +
530m	**Textularia smithvillensis**
	Pullenia quinqueloba
620m	Textularia agglutinans
	Heterolepa lobatula
	Alabamina wilcoxensis
	Globulina gibba
	Guttulina problema
710m	Gyroidinoides girardana
	Gyroidinoides angustiumbilicata
	Dentalina inornata

Degree of Confidence: 3

740-960m: Spiroplectammina adamsi Zone (late Eocene)

740m	**Coscinodiscus** #H 2 +
	Heterolepa dutemplei
	Glandulina laevigata
	Lenticulina #H 1
770m	Lenticulina midwayensis
830m	**Spiroplectamina cf. adamsi**
860m	**Haplophragmoides walteri**
	Turrulina alsatica
	Nodosaria minor
	Epistominella oveyi
	Spiroplectamina adamsi (common)
890m	Alveolophragmium #H 1
	Trochammina inflata
	Marginulina glabra
920m	**Cribrostomoides subglobosus**
950m	Cyclammina placenta
	Haplophragmoides eggeri
	Trochammina collyra

Degree of Confidence: 3

980-1140m: Haplophragmoides acutidorsatum Zone (middle Eocene)

980m	**Haplophragmoides acutidorsatum**
	Globigerina higginsi *

Globigerina linaperta *
Cibicidoides blanpiedi
Uvigerina batjesi (?reworked)

1010m Ammodiscus peruvianus
Nodosaria latejugata
Osangularia expansa
Lenticulina pseudocostata
Anomalinoides acuta
Pyrgo bulloides

1040m Cyclammina cancellata
Heterolepa grimsdalei
Hoeglundina eocenica

1070m Recurvoides walteri
Trochammina deformis
Trochammina globigeriniformis
Bulimina kugleri

Degree of Confidence: 4

1160-1200m: Karreriella apicularis Zone (early Eocene)

1160m **Karreriella apicularis**

Degree of Confidence: 3

1220-1500m: No Zonal assignment (No age assignment)

PALEOBATHYMETRY

380- 450m	Inner Neritic
Criteria:	Melonis affinis, Cibicidoides spp., quartz grains
470- 690m	Inner Neritic to Middle Neritic
Criteria:	Coscinodiscus #H 1, Pullenia quinqueloba, common scaphopods
710- 870m	Middle Neritic
Criteria:	Gyroidinoides spp., Coscinodiscus #H 2, Haplophragmoides walteri
890- 975m	Middle Neritic to Outer Neritic
Criteria:	Cibrostomoides subglobosus, Cyclammina placenta, Trochammina inflata, Haplophragmoides eggeri
980-1020m	Outer Neritic
Criteria:	Haplophragmoides acutidorsatum, Ammodiscus peruvianus planktonic foraminifera
1040-1170m	Outer Neritic to Upper Bathyal
Criteria:	Cyclammina cancellata, Recurvoides walteri, Trochammina globigeriniformis, Kareriella apicularis
1190-1200m	Middle Neritic to Outer Neritic
Criteria:	Pyrite, marine dinoflagellates
1220-1260m	Inner Neritic to Middle Neritic
Criteria:	Pyrite, marine dinoflagellates, increase in spores

1280-1380m Transitional to Inner Neritic
Criteria: Wood?, quartz grains

1400-1500m Non-marine to Transitional
Criteria: No foraminifera, quartz grains

KEROGEN & TAI

Depth	AM	AT	AG	SA	M	BT	ST	I	R	TAI
500.0	25	20	0	0	5	10	30	10	0	2-
615.0	35	25	0	0	5	5	20	10	0	2-
740.0	35	20	0	0	5	5	20	10	0	2-
830.0	35	25	0	0	5	10	15	5	0	2-2
920.0	35	20	0	0	10	5	20	5	0	2-2
1010.0	35	25	0	0	10	5	20	5	0	2-2
1130.0	35	25	0	0	10	5	15	10	0	2-2
1160.0	30	20	0	0	10	10	20	10	0	2
1220.0	15	10	0	0	10	10	30	25	0	2+
1310.0	10	5	0	0	15	10	30	30	0	2+3-
1400.0	5	5	0	0	15	15	35	25	0	2+3-
1490.0	5	5	0	0	10	10	35	30	0	2+3-
1580.0	0	0	0	0	15	15	45	30	0	2+3-
1670.0	0	0	0	0	10	15	50	30	0	2+3-
1700.0	5	5	0	0	10	10	45	30	0	2+3-
1725.0	5	5	0	0	15	10	45	30	0	2+3-
1735.0	5	5	0	0	15	10	45	30	0	

KEROGEN, TAI AND VITRINITE REFLECTANCE

The interval from 500-1150m of early Eocene to early Miocene or older age contains high relative abundances of amorphous kerogen, mostly comprising 35% marine amorphous material and 20% to 25% degraded terrestrial material. Herbaceous kerogen comprises 10% to 15%, woody kerogen mostly comprises 15% to 20%, and coaly inertinitic kerogen comprises 5% to 10% of the total kerogen. The upper part of the lower to middle Albian interval from 1160-1240m contains similar kerogen types to those in the overlying section, but the high relative abundances of amorphous kerogen may be caved. The remainder of the Lower Cretaceous section of ?late Aptian and early-middle Albian age from 1310-1560m, plus the underlying section from 1580-1719m which was not assigned an age contain little amorphous kerogen (mostly less than 10%), high relative abundances of coaly inertinitic material (mostly 30%) and woody kerogen (mostly 35% to 45%), plus 20% to 30% herbaceous kerogen.

The level of Thermal Alteration increases from a value of 2⁻ at 500m, to a value of 2⁻ to 2 from 830-1130m in lower Eocene to upper Eocene strata. The TAI increases in the Lower Cretaceous section from a value of 2 at 1160m, to a value of 2+ at 1220m, to a value of 2+ to 3⁻ at 1310m. The level of Thermal Alteration and the observed kerogen types indicate some source rock potential from the marine amorphous material for thermogenic liquid hydrocarbons in the interval from 830m to approximately 1140m within the Cenozoic, and from 1160m to approximately 1240m in the Lower Cretaceous section, providing the amorphous kerogen is in place. Some source rock potential for predominantly gaseous hydrocarbons from the herbaceous and woody kerogen is also indicated in the Lower Cretaceous section below approximately 1220m.

The following levels of thermal maturity are indicated by vitrinite reflectance analysis.

400- 590m: Immature (Ro% = 0.348% to 0.433%)
790m: Onset of maturation (Ro% = 0.481%)
1180-1725m: Mature (Ro% = 0.715% to 0.791%)

The highest sample at 400m contains prominent amounts of reworking so the selected mean at 0.433% may represent a reworked population. All of the vitrinite values from the poor sample at 980m are considered to be caved. Several populations of vitrinite are evident within the lower portions of the well between 1180m and 1725m which may reflect the presence of volcanic activity.

VITRINITE REFLECTANCE

Key to Measurement Qualifying Labels

E = Excellent
= Good
P = Poor
C = Caved
R = Reworked

Sample Depth : 400.0

0.162	C	0.377		0.382	P	0.402		0.446	P	0.448	P	0.467	P
0.468	P	0.470	P	0.536	R	0.539	R	0.540	R	0.545	R	0.545	R
0.557	R	0.559	R	0.590	R	0.658	R	0.687	R	0.730	R	0.775	R
0.780	R	0.846	R	0.976	R	1.526	R						

Actual Mean = 0.600 Actual Standard Deviation = 0.258

Edited Mean = 0.433 Edited Standard Deviation = 0.039

Sample Depth : 590.0

0.298	P	0.310		0.311		0.316		0.323	P	0.380	P	0.415	P
0.429	P	0.488	R	0.494	R	0.500	R	0.525	R	0.530	R	0.560	R
0.562	R	0.608	R	0.629	R	0.636	R	0.659	R	0.675	R	0.712	R
0.759	R	0.778	R	0.799	R	0.843	R	0.848	R	0.848	R	0.978	R
0.997	R	1.483	R	1.517	R								

Actual Mean = 0.652 Actual Standard Deviation = 0.301

Edited Mean = 0.348 Edited Standard Deviation = 0.052

Sample Depth : 790.0

0.294	C	0.400	P	0.423	P	0.481	P	0.510	P	0.531	P	0.542	P
0.560	R	0.580	R	0.603	R	0.604	R	0.605	R	0.607	R	0.692	R
0.728	R	0.740	R	0.889	R	0.968	R	1.022	R	1.022	R	1.044	R
1.084	R												

Actual Mean = 0.679 Actual Standard Deviation = 0.230

Edited Mean = 0.481 Edited Standard Deviation = 0.058

Sample Depth : 980.0

0.178	C	0.206	C	0.212	C	0.266	C	0.285	C	0.316	C

Actual Mean = 0.244 Actual Standard Deviation = 0.053

Sample Depth : 1180.0

0.270	C	0.353	C	0.400	C	0.526	P	0.570	P	0.667	P	0.703	
0.747	P	0.812	P	0.876	P	0.886		0.962	R	0.978	R	1.048	R
1.356	R												

Actual Mean = 0.744 Actual Standard Deviation = 0.292

Edited Mean = 0.723 Edited Standard Deviation = 0.133

Sample Depth : 1370.0

0.300	C	0.314	C	0.447	C	0.528	P	0.552	P	0.594	P	0.648	
0.754		0.758	P	0.846	P	0.870		0.890	P	0.893		0.920	P
0.922	P	0.949	P	0.949		1.036	R	1.072	R	1.103	R	1.120	R
1.124	R	1.127	R	1.159	R	1.170	R	1.179	R	1.276	R	1.570	R
1.591	R	1.686	R	1.839	R								

Actual Mean = 0.974 Actual Standard Deviation = 0.376

Edited Mean = 0.791 Edited Standard Deviation = 0.152

Sample Depth : 1490.0

0.386	C	0.437	C	0.447	C	0.465	C	0.519	C	0.599	P	0.636	P
0.642	P	0.657	P	0.662	P	0.665	P	0.690		693	P	0.694	P
0.710		0.740		0.740		0.743	P	0.749	P	0.762		0.780	P
0.801	P	0.812	P	0.813	P	0.840	R	0.849	R	0.875	R	0.904	R
0.915	R	0.918	R	0.923	R	0.937	R	0.945	R	0.982	R	1.040	R
1.065	R	1.066	R	1.075	R	1.087	R	1.090	R	1.096	R	1.133	R
1.315	R	1.323	R										

Actual Mean = 0.823 Actual Standard Deviation = 0.222

Edited Mean = 0.715 Edited Standard Deviation = 0.063

Sample Depth : 1610.0

0.305	C	0.362	C	0.402	C	0.626	P	0.631	P	0.840	P	0.976

Actual Mean = 0.592 Actual Standard Deviation = 0.253

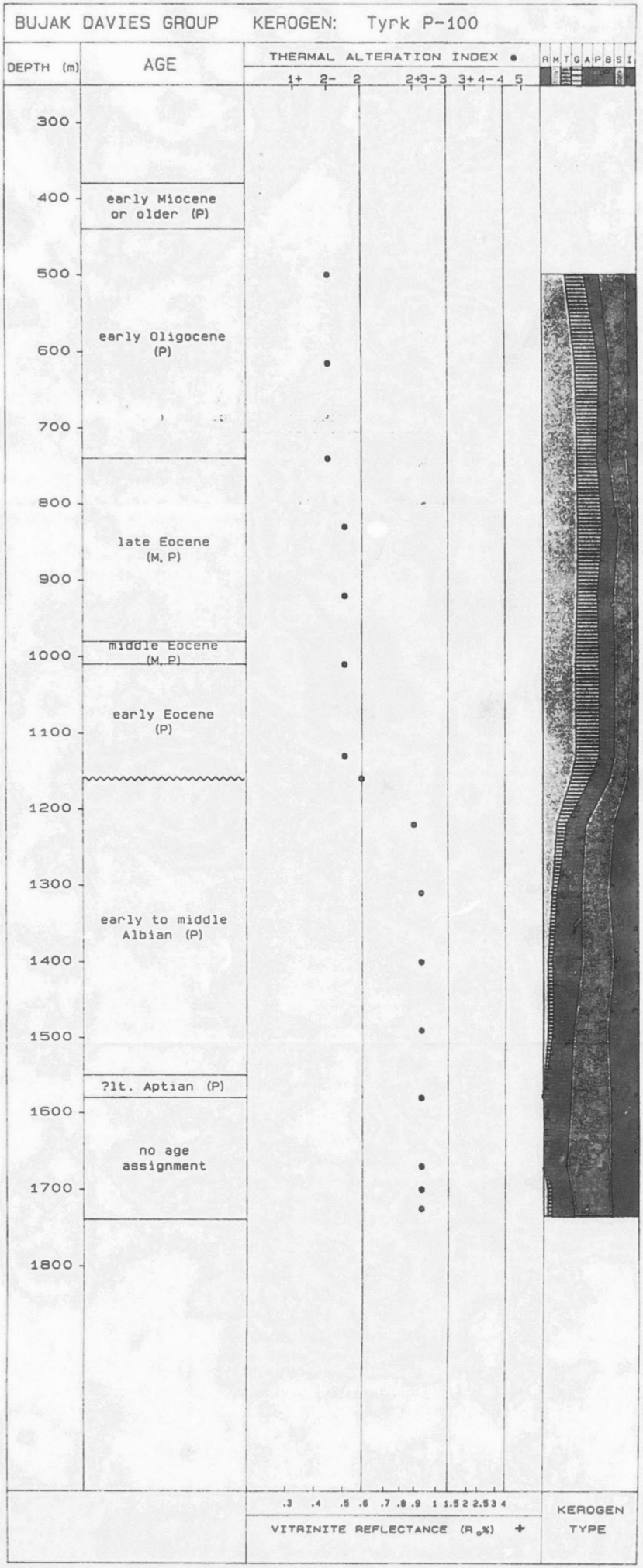
Edited Mean = 0.768 Edited Standard Deviation = 0.171

Sample Depth : 1725.0

0.317	C	0.563	P	0.687	P	0.725	P	0.758		0.940	R	1.012	R
1.028	R	1.343	R										

Actual Mean = 0.819 Actual Standard Deviation = 0.300

Edited Mean = 0.683 Edited Standard Deviation = 0.085

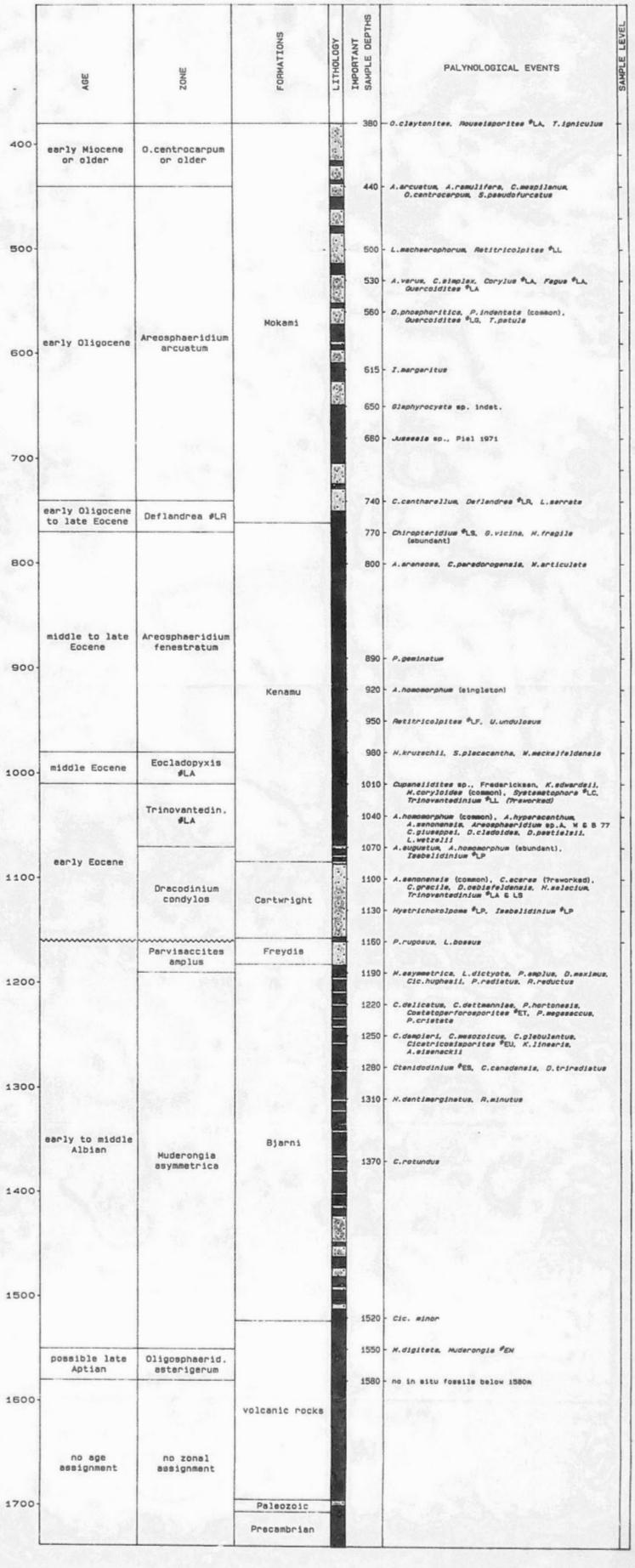

BUJAK DAVIES GROUP
KEROGEN: Tyrk P-100
DEPTH (m)
AGE
THERMAL ALTERATION INDEX
1+ 2- 2 2+ 3- 3 3+ 4- 4 5
R M T G A P B S I
300
400
early Miocene or older (P)
500
early Oligocene (P)
600
700
late Eocene (M, P)
800
900
middle Eocene (M, P)
1000
early Eocene (P)
1100
1200
1300
early to middle Albian (P)
1400
1500
?lt. Aptian (P)
1600
no age assignment
1700
1800
.3 .4 .5 .6 .7 .8 .9 1 1.5 2 2.5 3 4
VITRINITE REFLECTANCE (R o %)
KEROGEN TYPE

PALYNOLOGICAL ANALYSIS CHART

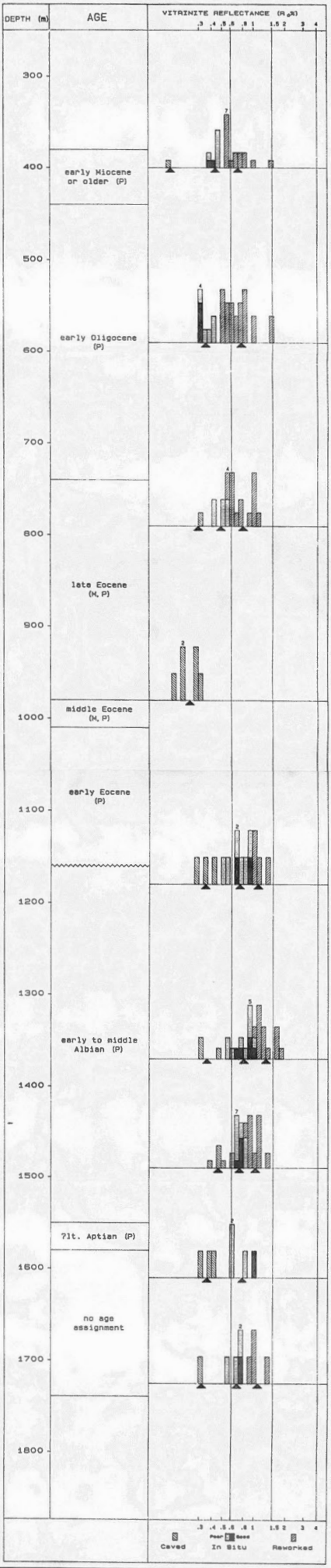
BUJAK DAVIES GROUP

CLIENT: G.S.C.
WELL: Tyrk P-100
AREA: Labrador Shelf

SCIENTIST: Bujak Davies Group
DATE: April 1987
SCALE: 1 cm = 25 metres



BUJAK DAVIES GROUP VITRINITE: Tyrk P-100

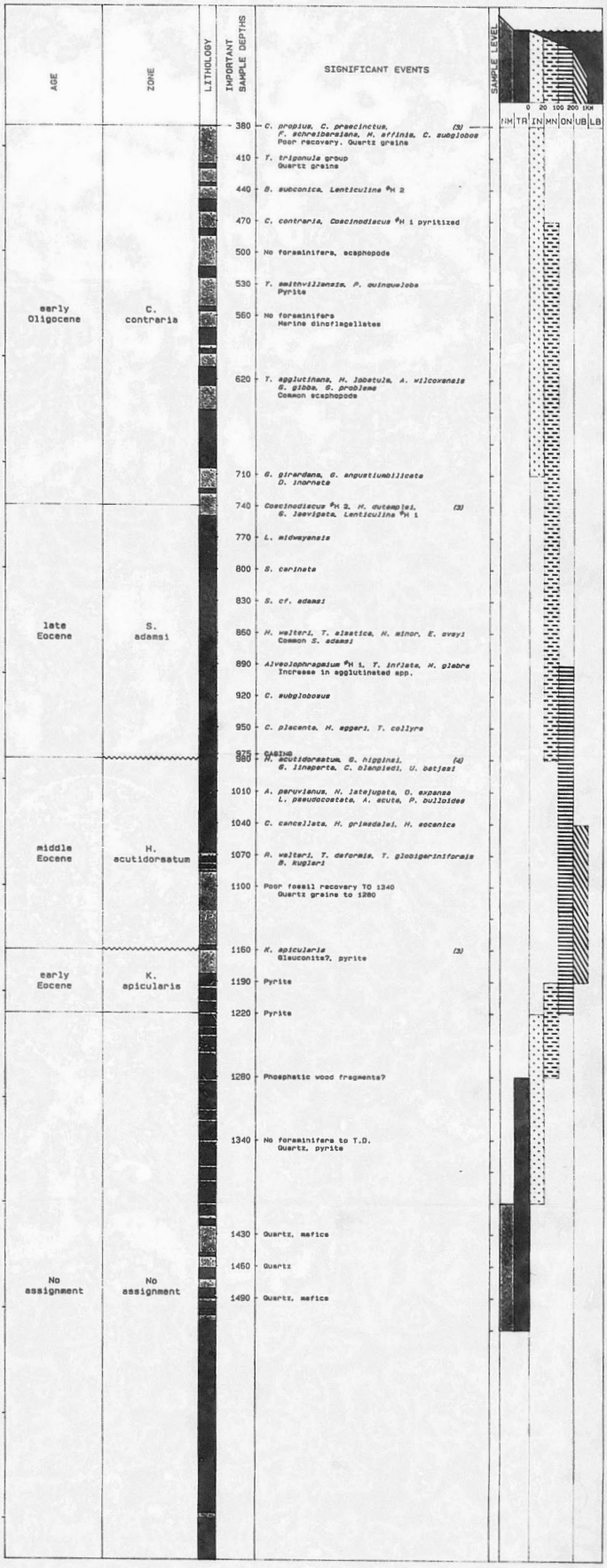


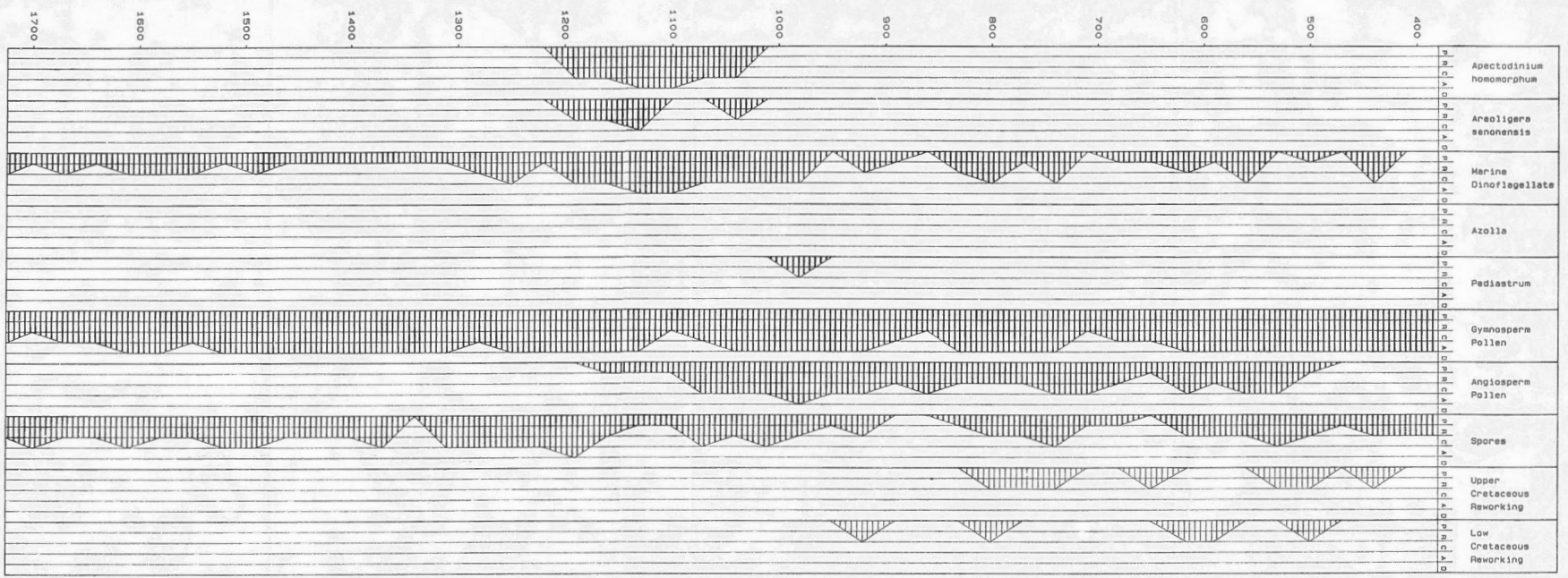
MICROPALEONTOLOGICAL ANALYSIS CHART

BUJAK DAVIES GROUP

CLIENT: G.S.C.
WELL: Tyrk P-100
AREA: Labrador Shelf

SCIENTIST: Bujak Davies Group
DATE: April 1987
SCALE: 1 cm = 25 metres




1700
1600
1500
1400
1300
1200
1100
1000
900
800
700
600
500
400
PRODUCED
Apectodinium homomorphum
Areoligera senonensis
Marine Dinoflagellate
Azolla
Pediastrum
Gymnosperm Pollen
Angiosperm Pollen
Spores
Upper Cretaceous Reworking
Low Cretaceous Reworking