

G.S.C. O.P. 1871 PALYNOLOGICAL BIOSTRATIGRAPHY OF THE INTERVAL
995-4450M, GOLCONDA C-64, GRAND BANKS

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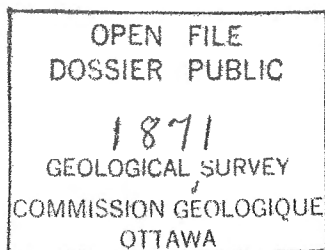
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BUJAK DAVIES GROUP

PALYNOLOGICAL BIOSTRATIGRAPHY
OF THE INTERVAL 995-4450M,
GOLCONDA C-64

REPORT NO. 87-0066
NOVEMBER, 1987

CALGARY, ALBERTA



BIOSTRATIGRAPHIC SUMMARY: GOLCONDA C-64

- | | |
|-------------|---|
| 995-1105m: | probable <u>Areosphaeridium arcuatum</u> Zone (probable early Oligocene) |
| 1025-1085m: | <u>Areosphaeridium arcuatum</u> Zone (early Oligocene) |
| 1115-1345m: | <u>Diphyes colligerum</u> Zone (late Eocene) |
| 1355-1765m: | <u>Adnatosphaeridium reticulense</u> Zone (middle Eocene) |
| 1775-1795m: | <u>Kiokansium polypes</u> Zone: Subzone 13A (early Cenomanian) |
| 1805-1825m: | <u>Pseudoceratium pelliferum</u> Zone: Subzones 7A-D (early to middle Valanginian) |
| 1835-1855m: | <u>Scriniodinium crystallinum</u> Zone: Subzone 1A (early Kimmeridgian) to Pilosisporites Sp. A Zone: Subzone 2A (early Kimmeridgian) |
| 1865-2035m: | <u>Gonyaulacysta jurassica</u> Zone: Subzone 0B (late Oxfordian) |
| 2045-2665m: | <u>Hystrichogonyaulax</u> #EA Zone: Subzone 0A (early Oxfordian) |
| 2675-3295m: | <u>Ctenidodinium sellwoodii</u> Zone (late Bathonian to early Callovian) |
| 3305-4255m: | probable Middle Jurassic (undifferentiated) |
| 4265-4450m: | probable Early Jurassic |

SELECTED PALYNOMORPHS995-1005m: probable Areosphaeridium arcuatum Zone (probable early Oligocene)

995-1005m: Corylus #LA
Deflandrea heterophlycta
Deflandrea phosphoritica
Quercoidites #LA
Systematophora ancyrea

1025-1105m: Areosphaeridium arcuatum Zone (early Oligocene)

1025-1045: Areosphaeridium arcuatum (large form)
Chiropteridium mespilanum
Glaphyrocysta intricata (large form)
Phthanoperidinium comatum
Quercoidites #LA
Tiliaepollenites vespipites

1055-1075: Cribroperidinium giuseppi
Heteraulacacysta campanula

1085-1105: Heteraulacacysta porosa
Membranophoridium aspinatum

1115-1345m: Diphyes colligerum Zone (late Eocene)

1115-1135m: Gochtodinium simplex
Hystrichokolpoma rigaudiae
Phthanoperidinium #LG

1145-1165m: Lentinia serrata
Systematophora placacantha

1175-1225m: Dapsilidinium pastielsii

1235-1285m: Thalassiphora pelagica

1295-1345m: Araneosphaera araneosa
Kisselovia coleothrypta

1355-1765m: Adnatosphaeridium reticulense Zone (middle Eocene)

1355-1375m: Deflandrea eocenica
Palaeocystodinium golzowense
Pentadinium laticinctum laticinctum
Systematophora placacantha

1385-1405m: Rouseisporites #LA
Selaginellaites selaginoides

1415-1435m: Areoligera senonensis (single occurrence)
Homotryblium floripes

1445-1495m: Achomosphaera #LF
Glaphyrocysta semitecta
Glaphyrocysta vicina
Micrhystridium fragile
Selenopemphix nephroides
Adnatosphaeridium multispinosum

1505-1525m: Cordosphaeridium gracile
Cordosphaeridium inodes inodes
Glaphyrocysta exuberans

Impletosphaeridium insolitum

Palaeocystodinium #LR

1535-1555m:

Ceratiopsis pannucea

Glaphyrocysta laciniiforme

Glaphyrocysta ordinata

1565-1585m:

Cerebrocysta bartonensis

Heteraulacacysta leptalea

Hystrichokolpoma unispinum

Hystrichosphaeridium patulum

Lentinia wetzelii

1595-1705m:

Areosphaeridium fenestratum

Camarozonosporites #LB

Ceratiopsis pannucea

Dinoptyergium cladoides

Phthanoperidinium alectrolophum

Phthanoperidinium multispinosum

Spiniferites monilis

1715-1765m:

Glaphyrocysta #LH

Glaphyrocysta exuberans

1775-1795m: Kiokansium polypes Zone: Subzone 13A (early Cenomanian)

1775-1795m:

Cyclonephelium distinctum

Epelidosphaeridia spinosa

1805-1825m: Pseudoceratium pelliiferum Zone: Subzones 7A-D (early to middle Valanginian)

1805-1825m: Callialasporites monoalaporus (Common)
Callialasporites turbatus (Rare)
Cedripites canadensis (Common)
Deltoidospora hallii
Leiotriletes meckelburgensis
Minerisporites #EA
Occisucysta #EX (Common)
Podocarpidites potomacensis
Systematophora schindewolfi

1835-1855m: Scriniodinium crystallinum Zone: Subzone 1A (early Kimmeridgian) to Pilosisporites Sp. A Zone: Subzone 2A (early Kimmeridgian)

1835-1855m: Amphorula spp.
Callialasporites infrapunctatus
Cerebropollenites macroverrucosus
Contignisporites triletes
Ctenidodinium chondrum
Ischyosporites amplireticosus
Pityosporites dividensis

1865-2035m: Gonyaulacysta jurassica Zone: Subzone OB (late Oxfordian)

1865-1885m: Cribopteridinium sp.F, Gimez and Sarjeant 1971
Epiplosphaera retispinosum
Glossodinium dimorphum
Gonyaulacysta jurassica
Hystriochodinium lanceatum

Meiourugonyaulax dicrypta

Tuberositriletes major

1895-1975m: Cerebropollenites #EC
Corollina chateauvii
Kraeuselisporites #EA
Meiourugonyaulax callomonii

1985-2035m: Compositosphaeridium polonicum
Ctenidodinium pachydermum
Alisporites #EG
Hystrichogonyaulax cladophora
Pareodinia sp. C
Exesipollenites scabratus

2045-2665m: Hystrichogonyaulax #EA Zone: Subzone OA (early Oxfordian)

2045-2065m: Hystrichogonyaulax #EA

2075-2095m: Ctenidodinium rotundatum

2105-2125m: Hystrichogonyaulax #EB
Perisseiasphaeridium pannosum
Systematophora #EA

2135-2185m: Ctenidodinium ornatum

2195-2305m: Adnatosphaeridium paucispinum

2315-2395m: Foraminisporis paucispinosus

2405-2425m: Sentusidinium erythrocomum

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2435-2515m: Cerebropollenites #EF
Systematophora #EE

2525-2545m: Ctenidodinium ornatum

2555-2665m: Compositosphaeridium #EA

2675-3295m: Ctenidodinium sellwoodii Zone (late Bathonian to early Callovian)

2675-2695m: Ctenidodinium pachydermum (common)
Ctenidodinium sellwoodii (rare)
Inaperturopollenites #EVL (common)

2705-2725m: Vastisporites spp.

2735-2845m: Crassitudisporites anagramensis
Ctenidodinium combazii (questionable identification)
Densoisporites #EB
Saxosporis #EC

2855-2935m: Gonyaulacysta dualis

2945-2995m: Wanaea digitata

3005-3145m: Systematophora #EE

3155-3265m: Ctenidodinium sellwoodii (base in cuttings)

3275-3295m: Ctenidodinium pachydermum (base in cuttings)

3305-4255m: probable Middle Jurassic (undifferentiated)

3305-3315m: Corollina vignoniensis

Remarks: Samples below 3305m have impoverished assemblages indicating a biostratigraphic break.

3875-4165m: Ellipsoidictyum cinctum (questionable identification)

4175-4225m: Ctenidodinium sp. indet.
Escharisphaeridia sp. indet.

4235-4255m: Uuaesprites sp. indet.

4265-4450m: probable Early Jurassic

4265-4430m: Corollina simplex (common)

4440-4450m: Porcellispora longdonensis

APPENDIX AAlphabetical Listing of Species Shown on Occurrence Chart:Marine Dinoflagellates

Index number	Taxon names		
32	Achomosphaera #LF	34	Glaphyrocysta vicina
4	Achomosphaera ramulifera	74	Glossodinium dimorphum
36	Adnatosphaeridium multispinosum	16	Gochtodinium simplex
96	Adnatosphaeridium paucispinum	112	Gonyaulacysta dualis
95	Amphorula #EA	75	Gonyaulacysta jurassica
70	Amphorula spp.	12	Heteraulacacysta campanula
61	Apectodinium homomorphum	47	Heteraulacacysta leptalea
105	Aptodinium nuciforme	13	Heteraulacacysta porosa
22	Araneosphaera araneosa	31	Homotryblium floripes
30	Areoligera senonensis	76	Hystrichodinium lanceatum
26	Areoligera undulata	90	Hystrichogonyaulax #EA
5	Areosphaeridium arcuatum (large form)	92	Hystrichogonyaulax #EB
56	Areosphaeridium arcuatum (small form)	84	Hystrichogonyaulax cladophora
51	Areosphaeridium fenestratum	17	Hystrichokolpoma rigaudiae
72	Breodoxiella #ER	48	Hystrichokolpoma unispinum
66	Canningia ringnesiorum	49	Hystrichosphaeridium patulum
108	Cedripites #EH	97	Hystrichosphaerina orbifera
42	Ceratiopsis pannucea	40	Impletosphaeridium insolitum
46	Cerobrocysta bartonensis	23	Kisselovia coleothrypta
6	Chiropteridium mespilanum	14	Lentinia serrata
103	Compositosphaeridium #EA	50	Lentinia wetzelii
82	Compositosphaeridium polonicum	29	Lingulodinium machaerophorum
37	Cordosphaeridium gracile	98	Lithodinia jurassica
38	Cordosphaeridium inodes inodes	79	Meiourogonyaulax callomonii
11	Cribroperidinium giuseppi	77	Meiourogonyaulax dicrypta
113	Cribroperidinium spp.	99	Meiourogonyaulax sp. indet.
71	Ctenidodinium chondrum	15	Membranophoridium aspinatum
109	Ctenidodinium combazii	111	Mendicodinium sp. indet.
83	Ctenidodinium pachydermum	67	Minerisporites #EA
91	Ctenidodinium rotundatum	81	Nannoceratopsis gracilis
106	Ctenidodinium sellwoodii	68	Occisucysta #EX
110	Ctenidodinium sp. indet.	8	Operculodinium centrocarpum
62	Cyclonephelium attadalicum	41	Palaeocystodinium #LR
63	Cyclonephelium distinctum	27	Palaeocystodinium golzowense
20	Dapsilidinium pastielsii	87	Pareodinia ceratophora
58	Dapsilidinium simplex	85	Pareodinia sp. C
24	Deflandrea eocenica	28	Pentadinium laticinctum laticinctum
1	Deflandrea heterophlycta	93	Perisseiasphaeridium pannosum
2	Deflandrea phosphoritica	94	Perisseiasphaeridium spp.
107	Dinoflagellate sp. indet.	18	Phthanoperidinium #LG
52	Dinopterygium cladoides	25	Phthanoperidinium alectrolophum
86	Ellipsoidictyum cinctum	9	Phthanoperidinium comatum
64	Epelidosphaeridia spinosa	53	Phthanoperidinium multispinosum
73	Epiplosphaera retispinosum	60	Polysphaeridium subtile
80	Escharisphaeridia rudis	33	Selenopemphix nephroides
104	Escharisphaeridium spp.	101	Sentusidinium erythrocomum
100	Escharisphaeridium verrucosum	65	Sentusidinium sp. indet.
59	Glaphyrocysta #LH	54	Spiniferites monilis
39	Glaphyrocysta exuberans	57	Spiniferites pseudofurcatus
7	Glaphyrocysta intricata (large form)	10	Spiniferites ramosus ramosus
43	Glaphyrocysta intricata (small form)	102	Systematophora #EE
44	Glaphyrocysta laciniiforme	55	Systematophora #LC
43	Glaphyrocysta ordinata	3	Systematophora ancyrea
33	Glaphyrocysta semitecta	88	Systematophora areolata
		78	Systematophora fasciculigera
		19	Systematophora placacantha
		69	Systematophora schindewolfi
		69	Systematophora sp. indet.
		21	Thalassiphora pelagica

APPENDIX A cont'dAlphabetical Listing of Species Shown on Occurrence Chart:Pollen and Spores

Index number	Taxon names	
49	Alisporites #EG	44 Pityosporites dividuus
18	Alisporites bilateralis	73 Platysaccus megasaccus
45	Alisporites thomasi	26 Podocarpidites patomacensis
1	Alnipollenites verus	13 Polypodiidites favus
50	Araucariacites punctatus	76 Porcellispora longdonensis
63	Callialasporites #EA	7 Quercoidites #LA
34	Callialasporites dampieri	48 Rotverrusporites #EC
27	Callialasporites infrapunctatus	14 Rouseisporites #LA
20	Callialasporites monoalasporus	69 Saxosporis #EC
53	Callialasporites obrutus	16 Selaginellaites selaginoides
67	Callialasporites trilobatus	8 Stereisporites antiquasporites
31	Callialasporites turbatus	54 Systematophora #EA
17	Camarozonosporites #LB	51 Taurocusporites reduncus
9	Caryapollenites simplex	11 Taxodiaceapollenites hiatus
22	Cedripites canadensis	12 Tiliaepollenites vespites
39	Cerebropollenites #EC	42 Todisporites major
59	Cerebropollenites #EF	38 Tuberositriletes major
28	Cerebropollenites macroverrucosus	75 Uvaesporites spp.
43	Cerebropollenites mesozoicus	52 Varirugosisporites spp.
29	Contignisporites triletes	66 Vastisporites sp. indet.
40	Corollina chateaunovii	72 Wanaea digitata
23	Corollina itunensis	
74	Corollina simplex	
71	Corollina torosa	
46	Corollina vignoniensis	
56	Coronatipora valdensis	
2	Corylus #LA	
68	Crassitudisporites anagramensis	
35	Cribroperidinium sp.F, G&S 1971	
55	Ctenidodinium ornatum	
19	Cyathidites australis	
3	Cyathidites spp.	
24	Deltoidospora hallii	
65	Densosporites #EB	
30	Densosporites microrugulatus	
36	Exesipollenites scabratus	
57	Foraminisporis paucispinosus	
64	Gleicheneidites minor	
62	Inaperturopollenites #EVL	
31	Ischyosporites amplireticosus	
70	Klukisporites foveolatus	
60	Klukisporites pseudoreticulatus	
41	Kraeuselisporites #EA	
61	Kraeuselisporites sp. indet.	
10	Laevigatosporites ovatus	
37	Leiotriletes equiexinus	
25	Leiotriletes meckelburgensis	
58	Leiotriletes spp.	
15	Lycopodiumsporites annotinioides	
47	Lycospora sp. indet.	
4	Osmundacidites claytonites	
32	Perinopollenites elatoides	
5	Piceapollenites spp.	
6	Pinuspollenites spp.	
33	Pityosporites #EA	

APPENDIX A cont'd

Alphabetical Listing of Species Shown on Occurrence Chart:

Algae and Foraminiferal liners

Index number	Taxon names
4	foraminiferal liners
1	Micrhystridium fragile
2	Paralecaniella indentata
3	Pediastrum boryanum

APPENDIX A cont'dAlphabetical Listing of Species Shown on Occurrence Chart:Reworked Palynomorphs

Index number	Taxon names
9	*Aquilapollenites spp.
7	*Cicatricosisporites spp.
6	*Cyclonephelium distinctum
3	*Densosporites spp.
2	*Impardecispora spp.
4	*Isabelidinium spp.
10	*Muderongia asymmetrica
1	*Oligosphaeridium spp.
8	*Palaeohystrichophora infusorioides
5	*Spinidinium spp.
11	*Surculosphaeridium longifurcatum

APPENDIX BExamined Samples: Golconda C-64

995.00 : cuttings	2675.00 : cuttings
1025.00 : cuttings	2705.00 : cuttings
1055.00 : cuttings	2735.00 : cuttings
1085.00 : cuttings	2765.00 : cuttings
1115.00 : cuttings	2795.00 : cuttings
1145.00 : cuttings	2825.00 : cuttings
1175.00 : cuttings	2855.00 : cuttings
1205.00 : cuttings	2885.00 : cuttings
1235.00 : cuttings	2915.00 : cuttings
1265.00 : cuttings	2945.00 : cuttings
1295.00 : cuttings	3005.00 : cuttings
1325.00 : cuttings	3035.00 : cuttings
1355.00 : cuttings	3065.00 : cuttings
1385.00 : cuttings	3095.00 : cuttings
1415.00 : cuttings	3125.00 : cuttings
1445.00 : cuttings	3155.00 : cuttings
1475.00 : cuttings	3185.00 : cuttings
1505.00 : cuttings	3215.00 : cuttings
1535.00 : cuttings	3275.00 : cuttings
1565.00 : cuttings	3305.00 : cuttings
1595.00 : cuttings	3335.00 : cuttings
1625.00 : cuttings	3365.00 : cuttings
1655.00 : cuttings	3395.00 : cuttings
1685.00 : cuttings	3425.00 : cuttings
1715.00 : cuttings	3455.00 : cuttings
1745.00 : cuttings	3485.00 : cuttings
1775.00 : cuttings	3515.00 : cuttings
1805.00 : cuttings	3545.00 : cuttings
1835.00 : cuttings	3575.00 : cuttings
1865.00 : cuttings	3605.00 : cuttings
1895.00 : cuttings	3635.00 : cuttings
1925.00 : cuttings	3665.00 : cuttings
1955.00 : cuttings	3695.00 : cuttings
1985.00 : cuttings	3725.00 : cuttings
2015.00 : cuttings	3815.00 : cuttings
2045.00 : cuttings	3845.00 : cuttings
2075.00 : cuttings	3875.00 : cuttings
2105.00 : cuttings	3905.00 : cuttings
2135.00 : cuttings	3935.00 : cuttings
2165.00 : cuttings	3965.00 : cuttings
2195.00 : cuttings	3995.00 : cuttings
2225.00 : cuttings	4025.00 : cuttings
2255.00 : cuttings	4055.00 : cuttings
2285.00 : cuttings	4085.00 : cuttings
2315.00 : cuttings	4115.00 : cuttings
2345.00 : cuttings	4145.00 : cuttings
2375.00 : cuttings	4175.00 : cuttings
2405.00 : cuttings	4205.00 : cuttings
2435.00 : cuttings	4235.00 : cuttings
2465.00 : cuttings	4265.00 : cuttings
2495.00 : cuttings	4295.00 : cuttings
2525.00 : cuttings	4320.00 : cuttings
2555.00 : cuttings	4345.00 : cuttings
2585.00 : cuttings	4375.00 : cuttings
2615.00 : cuttings	4405.00 : cuttings
2645.00 : cuttings	4440.00 : cuttings