C3

COMMONWEALTH OF AUSTRALIA.

DEPARTMENT OF SUPPLY AND DEVELOPMENT.

BUREAU OF MINERAL RESOURCES GEOLOGY AND GEOPHYSICS.

~~REPORT No.~~

RECORDS No. 1951/3 [redacted]

MICROPALAEONTOLOGICAL EXAMINATION OF SAMPLES FROM BORES IN THE REGION OF MT. GAMBIER, SOUTH AUSTRALIA.

by

I. Crespin.

Canberra. January, 1951.

MICROPALAEONTOLOGICAL EXAMINATION OF SAMPLES FROM W.H. WYLIE'S BORE, KANGARINGA STATION VIA CANNAWIGARA, SECTION 1, HUNDRED OF SHAUGH, SOUTH AUSTRALIA.

Records No. 1951/3~

0-64 feet. Yellow, quartz sand.

64-176 feet. Yellowish quartz sand.

176-184 feet. Yellowish quartz sand with some muscovite.

184-201 feet 6 inches. Yellowish quartz sand.

201' 6" - 202 feet. Cream, calcareous sandstone with fragments of moderately hard yellow bryozoal limestone and foraminifera.

Foraminifera:

Amphistegina lessonii
Calcarina verriculata
Elphidium pseudonodosum

202-350 feet. Whitish limestone with foraminifera and poorly preserved bryozoa.

Foraminifera:

Amphistegina lessonii
Calcarina verriculata
Carpenteria proteiformis
Crespinella umbonifera (c)
Elphidium howchini (c)
Elphidium parri
Frondicularia lorifera
Globorotalia dehiscens
Guttulina regina
Guttulina (Sigmoidina) silvestrii
Gypsina howchini
Operculina victoriensis (c)
Sigmoidella elegantissima
Sigmomorphina subregularis

350-375 feet. Whitish bryozoal limestone with a few foraminifera.

Foraminifera:

Operculina victoriensis

375-424 feet. Grey bryozoal limestone with aggregates of calcite and foraminifera.

Foraminifera:

Amphistegina lessonii
Cassidulina subglobosa
Cibicides sorrentae
Dentalina subcostata
Discorbis bertheloti var papillata
Eponides repandus
Globigerinoides trilobus
Gyroidina soldanii
Sigmoidella elegantissima
Sigmomorphina subregularis
Siphonina australis
Sphaeroidina bulloides
Operculina victoriensis

424-473 feet. Whitish bryozoal limestone with foraminifera.

Foraminifera:

Discorbis bertheloti var. papillata
Eponides repandus
Operculina victoriensis
Sigmoidella elegantissima
Sigmomorphina subregularis
Textularia sagittula

473-506 feet. Grey bryozoal limestone with fragments of grey flint and a few foraminifera.

Foraminifera:

Carpenteria rotaliformis
Cassidulina subglobosa var. horizontalis
Dentalina soluta
Dorothia parri
Eponides rebandus
Eponides scabriculus
Lenticulina spp.
Liebusella antipodum
Sigmoidella elegantissima
Sigmomorphina cf. flintii
Sigmomorphina aff. jacksonensis
Victoriella plecta (c)

506-526 feet. Glauconitic limestone with quartz grains, numerous grains of green glauconite, numerous foraminifera and glauconitic replacement of foraminifera.

Foraminifera:

Anomalina ammonoides
Cassidulina subglobosa var. horizontalis
Cibicides sorrentae
Cornuspira striolata
Dentalina cf. obliqua
Elphidium crassatum
Eponides scabriculus
Globulina gibba
Guttulina irregularis
Guttulina problema
Gyroidina soldanii
Liebusella antipodum
Lagena orbignyana
Pyrgoella sphaera
Pyrulina fusiformis
Quinqueloculina Lamarckiana
Quinqueloculina schreiberiana
Quinqueloculina venusta
Sigmoilina schlumbergeri
Sigmoilina victoriensis
Sphaeroidina bulloides
Triloculina trigarinata

526-566 feet. Black to brown carbonaceous siltstone.

566-585 feet. Carbonaceous sandstone.

585-655 feet. Brown carbonaceous sandstone.

655-697 feet. ? Sideritic concretions in carbonaceous sandstone.

697-701 feet. Carbonate of iron replacement of foraminifera, bryozoa, and mollusca.

Foraminifera:

Anomalina sp.
Cibicides pseudoconvexus
Cibicides sorrentae
Cornuspira striolata
Eponides concentricus
Eponides scabriculus
Gaudryina (Pseudogaudryina) crespinae
Guttulina lactea
Lenticulina cf. gyroscalprum
Marsipella sp.
Pseudopolymorphina doanei
Sherbornina atkinsoni
Sigmoilina victoriensis
Spirillina decorata
Spiroloculina canaliculata

701-770 feet. Black carbonaceous sandstone with small fish spines

770-850 feet. Mica Schist.

Notes on the Samples.

The samples from Wylie's Bore at Cannawigara, Hundred of Shaugh, consist of sands, calcareous sandstone, bryozoal limestone, glauconite limestone and carbonaceous sandstone with basement rock of mica schist.

The following stratigraphic sequence is represented in the bore samples:-

Recent to Pleistocene	- Surface down to 201 feet 6 inches.
Middle Miocene (Balcombian Stage)	- 201' 6" to 473 feet.
Lower Miocene (Janjukian Stage)	- 473 feet to 701 feet.
? Eocene	- 701 feet to 770 feet.
? Pre Cambrian	- 770 feet to 850 feet.

Unconsolidated, unfossiliferous quartz sands occur from the surface down to 201 feet 6 inches and are Pleistocene to Recent in age.

From 201 feet 6 inches down to 473 feet, the beds are represented by calcareous sandstone, and bryozoal limestone containing an assemblage of foraminifera characteristic of the Balcombian Stage of the Victorian Tertiary stratigraphy, and similar to that found in bores south of Adelaide as in Bore No.36, Oaklands Railway Station and in the Kinnish Bores north of Adelaide. Typical species such as Calcarina verriculata (Howchin and Parr), Cresnigella umbonifera (Howchin and Parr), Frondicularia lorifera Chapman, Gypsina howchini Chapman, Sigmomorphina subregularis Howchin and Parr and Operculina victoriensis Chapman and Parr, are well represented.

From 473 feet down to 701 feet, bryozoal limestone, glauconitic limestone, carbonaceous sandstone and sideritic concretions are met with. These beds are Lower Miocene in age and the assemblage of foraminifera is typical of the Janjukian Stage. Victoriella pleata (Chapman), the zonal form for the Janjukian at the type locality at Bird Rock, Torquay, is common in the sample at the depth of 473-506 feet, and Sherbornina atkinsoni, a typical species of the assemblage west of the type locality, is present in the sample at 697-701 feet.

The carbonaceous sandstone from 526 feet down to 701 feet is included in the Janjukian because of the numerous species typical of the assemblage in that Stage that are present in the sample at 697-701 feet. Carbonaceous sandstones are found at the base of the Janjukian in some of the bores south of Adelaide as in Ivemey's Bore, and the sequence of Middle Miocene bryozoal limestones and Lower Miocene carbonaceous sandstones in Wylie's Bore, is similar to that found in bores near Adelaide.

It is most probable that the sample at 701-770 feet is similar in age to the beds in the Woods and Forest Department Bore No.1 at Mt. Gambier between 60 feet and 308 feet, which, because of the foraminifera, was placed in the Eocene. Fish remains occur in the samples from both bores.

The bore bottomed in mica schist.

Irene Crespin

MICROPALAEONTOLOGICAL EXAMINATION OF SAMPLES FROM WOODS AND FORESTS DEPARTMENT BORE NO1, MT. GAMBIER, SECTION 225, HUNDRED OF BLANCHE SOUTH AUSTRALIA.

Records No.1951/33

0-4 feet. Fine grained sandstone with angular quartz grains. No foraminifera.

4-10 feet. Brownish sandstone with poorly preserved foraminifera and bryozoa.

Foraminifera:

Anomalina glabrata
Carpenteria rotaliformis
Cibicides lobatulus
Cibicides sorrentae
Cibicides sp
Eponides concentricus
Eponides repandus
Gaudryina (Pseudogaudryina) crespinae
Globigerinoides trilobus
Lagena laevis

10-54 feet. Ochreous sandstone, with limonitic ovoid pellets, and limonitic replacement of bryozoa.

54-66 feet. Dark grey sandstone with fine angular quartz grains, carbonaceous fragments and pyrite, common.

66-70 feet. Coarse ochreous sandstone, with large quartz grains subangular polished, and ironstained and a little pyrite.

70-100 feet. Dark grey sandstone with fine angular quartz grains, carbonaceous fragments and a fish tooth.

Pisces:

cf. Pristiophorus lanceolatus

100-146 feet. Dark purplish grey, micaceous carbonaceous siltstone with numerous foraminifera, bryozoa, echinoid spines, bryozoa, poorly preserved mollusca and numerous ostracoda.

Foraminifera:

Bulimina ovata
Bulimina pupoides
Dentalina sp.
Globulina minuta
Guttulina irregularis
Guttulina problema
Gyroidina soldanii var. octocamerata (c)
Haplophragmoies cf. dibollensis
Lamarckina cf. oealana
Lenticulina cf. midwayensis
Nonion chapapotensa
Pyrulina cylindroides
Vaginulina robusta

146-148 feet. Quartz grit, with polished quartz grains, pyrite, carbonaceous fragments and an indeterminate fish tooth.

148-210 feet. Dark grey siltstone with pyrites and numerous small foraminifera and ostracoda.

Foraminifera:

Dentalina sp.
Eponides spp.
Guttulina irregularis
Gyroidina soldanii var. octocamerata
Lamarckina cf. oealana
Lenticulina inornata
Lenticulina midwayensis
Nonion chapapotensa
Sigmomorphina cf. jacksonensis
Sigmoidella sp.

210-212 feet. Quartz grit with pyrite, a few poorly preserved foraminifera and an indeterminate fish tooth.

Foraminifera:

Anomalina sp.
Globulina sp.
Nonion chapapotense

212-220 feet. Quartz grit, with a few fragments of siltstone and foraminifera scarce.

Foraminifera:

Nonion chapapotense

220-225 feet. Quartz grit with coarse to fine polished grains of clear quartz, small fragments of micaceous siltstone, a few foraminifera, thin shelled mollusca, and ostracoda.

Foraminifera:

Guttulina irregularis
Lenticulina sp.
Nonion cf. chapapotense

225-240 feet. Carbonaceous sandstone with numerous fragments of lignitic material, pyrite and a few foraminifera, with tests partially replaced with pyrite.

Foraminifera:

Lenticulina midwayensis
Marginulina cf. subrecta
Nonion chapapotense

240-300 feet. Grey, micaceous sandy siltstone with hard concretionary nodules of siltstone, and angular and polished grains of clear quartz.

300-308 feet. Quartz grit.

Notes on the Samples.

The samples from Woods and Forests Department Bore No.1, Mt. Gambier, consist of sandstone, micaceous carbonaceous siltstone and quartz grit. This bore is the most interesting of the series examined because of the discovery of Eocene foraminifera in the carbonaceous sandstone and siltstone.

The stratigraphic sequence of samples is as follows:-

Recent - 0 to 4 feet.
Middle Miocene (Balcombian Stage) - 4 feet to 54 feet.
? Lower Miocene (Janjukian Stage) - 10 feet to 54 feet.
Upper Eocene - 60 feet to 308 feet.

The samples from the surface down to 4 feet consists of unfossiliferous sand of Recent age.

From 4 feet down to 10 feet a sandstone containing poorly preserved foraminifera and bryozoa is present. The assemblage of species of foraminifera which includes Carpenteria rotaliformis, Cibicides sorrentae and Gaudryina (Pseudogaudryina) crespinae, is typically lower Middle Miocene (basal Balcombian) and is similar to that found in other bores in the Mt. Gambier region.

The sample from 10 feet down to 54 feet, with its limonitic ovoid pellets and limonitic replacement of bryozoa is most probably basal Lower Miocene (Janjukian).

The sandstones, carbonaceous siltstones and grit from 54 feet down to the base of the bore at 308 feet, contain numerous foraminifera which are referred to Eocene species and which have not been recorded previously from sediments in the Mt. Gambier area. Eocene foraminifera were previously recorded by the writer (28/5/50), from carbonaceous sandstone in Bore PP59, Moorlands Coalfield, South Australia, about 100 miles north of Mt. Gambier, but the present assemblage of small species is different. The present discovery of definite Eocene species in the subsurface beds in No.1 Bore, Woods and Forests Department, Mt. Gambier, is the first in the vicinity of Mt. Gambier where carbonaceous sandstones and siltstones are widespread in subsurface section. It would seem, therefore, that the lignitic deposits in the region should now be regarded as of Eocene age. Typical species of the Anglesean Stage (Oligocene), of south-western Victoria, are not present in any sample.

Amongst the Eocene species recognised are Gyroidina soldanii (d'Orb.) var. octocamerata (Cushman and Hanna) which is very common in sample at 100-146 feet, Lenticulina midwayensis (Plummer), Nonion chapapotense (Cole) very common in sample at 148-210 feet, and Vaginulina robusta (Plummer). These species are typical of Eocene deposits in America.

Also associated with the foraminifera are numerous valves of ostracoda which have not been determined in detail. But the assemblage is quite distinct from that found in the Middle and Lower Miocene beds of south eastern Australia.

Fish teeth are also present in the sandstones and one form is referred to Pristiophorus lanceolatus (Davis).

Irene Crespin

MICROPALAEONTOLOGICAL EXAMINATION OF SAMPLES FROM WOODS AND FORESTS DEPARTMENT, BORE NO.5, MYORA FOREST, MT. GAMBIER, SECTION 575, HUNDRED OF MT.GAMBIER, SOUTH AUSTRALIA.

Records No. 1951/9 C

0-30 feet. Yellowish, calcareous sandstone with small foraminifera.

Foraminifera:

Discorbis dimidiata
Elphidium crispum
Rotalia beccarii

30-49 feet. Dune Limestone with small foraminifera.

Foraminifera:

Discorbis dimidiata
Elphidium crispum

49-52 feet. Hard, yellowish sandstone with foraminifera:

Foraminifera:

Globulina gibba

52-53 feet. Fine angular quartz with foraminifera.

Foraminifera:

Discorbis sp.
Elphidium crispum

53-58 feet. Hard, cream calcareous sandstone with indeterminate foraminifera.

58-70 feet. Hard, sandy limestone with foraminifera, bryozoa and few shell fragments.

Foraminifera:

cf. Calcarina verriculata
Carpenteria rotaliformis
Globulina gibba
Guttulina problema
Operculina victoriensis
Sigmoidella elegantissima

70-120 feet. Whitish bryozoal limestone with numerous but poorly preserved foraminifera.

Foraminifera:

Anomalina ammonoides
Carpenteria rotaliformis (c)
Cassidulina subglobosa
Cibicides sp.
Dentalina soluta
Dentalina spp.
Dorothia parri
Clavulinoides szaboi var. victoriensis
Elphidium howchini
Eponides repandus
Globigerina bulloides
Globigerinoides trilobus
Globulina gibba
Guttulina problema
Operculina victoriensis
Sigmoidella elegantissima
Sigmomorphina subregularis
Textularia abbreviata

Notes on the Samples.

The samples in the Woods and Forests Department Bore No.5, Myora Forest, Mt. Gambier, consist of calcareous sandstone, dune limestone, sandy limestone and bryozoal limestone.

The stratigraphic sequence in the bore is as follows:-

Recent - Surface to 49 feet.
Pleistocene - 49 feet to 58 feet.
Middle Miocene (Balcombian Stage) - 58 feet to 120 feet.

The calcareous sandstone and dune limestone from the surface down to 49 feet are Recent in age. A few small foraminifera such as are found in the shore sands at the present time, are present.

The calcareous sandstone from 49 feet down to 58 feet are regarded as Pleistocene in age.

The sandy limestone and bryozoal limestone from 58 feet down to the base of the bore at 120 feet are Middle Miocene in age and are referable to the Balcombian Stage. Typical Balcombian species includes Carpenteria rotaliformis, which is common, Operculina victoriensis and Sigmomorphina subregularis. Clavulinoides szaboi var. victoriensis is common in the basal Balcombian, that is in the Londford Substage of Crespin

Irene Crespin

MICROPALAEONTOLOGICAL EXAMINATION OF SAMPLES FROM WOODS AND FORESTS DEPARTMENT BORE NO.6, CAROLINE FOREST, MT.GAMBIER, SECTION 206, HUNDRED OF CAROLINE, SOUTH AUSTRALIA.

Records No. 1951/153d

0-20 Feet. Fine angualr quartz sand.

20-22 feet. Quartz sand with a few small foraminifera and fragments of bryozoa.

Foraminifera:

Elphidium crispum
Sigmoidella kagaensis

22-26 feet. Hard, dune limestone.

26-30 feet. Bryozoal limestone with foraminifera.

Foraminifera:

Carpenteria proteiformis
Carpenteria rotaliformis
Dentalina obliqua
Eponides repandus
Lenticulina cf. *gyroscalprum*
Lenticulina spp.
Sigmoidella elegantissima
Operculin victoriensis

30-40 feet. Friable sandstone with small foraminifera (*Rotalia beccarii*).

40-47 feet. Hard cream, sandy limestone. No determinable foraminifera.

47-70 feet. Cream, bryozoal limestone with numerous foraminifera.

Foraminifera:

Amphistegina lessonii
Carpenteria rotaliformis
Cibicides refulgens
Discorbis cycloclypeus
Dyocibicides biserialis
Elphidium crespinae
Eponides concentricus
Frondicularia lorifera
Globigerina bulloides
Operculina victoriensis (c)
Pyrgo Bulloides
Pyrgo sarsi
Sigmoidella elegantissima
Sigmoidella kagaensis
Sigmomorphina subregularis
Textularia sagittula
Triloculina tricarinata

70-120 feet. White bryozoal limestone with fine angular quartz grains and numerous foraminifera and ostracoda.

Foraminifera:

Amphistegina lessonii
Anomalina subnonionoides
Cassidulina subglobosa
Cibicides sorrentae
Cibicides victoriensis
Crespinella umbonifera
Elphidium howchini
Eponides concentricus
Frondicularia lorifera
Globigerina bulloides
Globigerinoides trilobus
Globulina gibba
Guttulina (Sigmoidina) silvestrii
Lenticulina spp.
Operculina victoriensis
Sigmoidella elegantissima
Sigmomorphina subregularis

Ostracoda:

Bairdia amygdaloides
Cytheropteron batesfordense.

120-180 feet. Similar to 70-120 feet with foraminifera, echinoids and brachiopoda.

Foraminifera:

Amphistegina lessonii
Carpenteria rotaliformis
Acervulina inhaerens
Eponides repandus
Operculina victoriensis
Patellina corrugata
Sigmoidella elegantissima
Sigmomorphina subregularis

Echinodermata:

Scutellina patella

Brachiopoda:

Murravia flindersi

180-202 feet. Similar to 70-120 feet with foraminifera and brachiopoda.

Foraminifera:

Amphistegina lessonii
Carpenteria rotaliformis
Discorbis globularis
Eponides repandus
Globigerinoides trilobus
Gyroidina soldanii
Lenticulina gibba
Operculina victoriensis
Patellina corrugata
Sigmoidella elegantissima
Sigmoidella kagaensis

Brachiopoda:

Murravia catinuliformis.

Notes on the Samples.

The samples from the Woods and Forests Department Bore No.6, Caroline Forest, consist of sands, dune limestone and bryozoal limestone. It appears that the samples at 26-30 feet and 30-40 feet have been mislabelled, as the former is a bryozoal limestone containing Middle Miocene foraminifera and the latter a Recent deposit with the shallow water species, Rotalia beccarii, common. It seems advisable therefore, to ignore these samples when considering the stratigraphic sequence.

The following stratigraphic sequence is present in the bore samples:-

Recent to Pleistocene - 0 to 26 feet.
Middle Miocene (Balcombian Stage) - 40 to 202 feet.

The friable sandstone and dune limestones from the surface down to 26 feet are Recent to Pleistocene in age.

Below 40 feet down to the base of the bore at 202 feet, the beds are Middle Miocene in age and contain an assemblage of foraminiferal species characteristic of the Balcombian Stage. Operculina victoriensis is common and typical species such as Cibicides victoriensis, Crespinella umbonifera, Frondicularia lorifera and Sigmomorphina subregularis are represented. This assemblage is similar to that found in Wylie's Bore at Cannawigara between the depths of 201 feet 6 inches and 473 feet, and in Harvey's Bore at Bordertown from 94 feet to 152 feet.

Irene Crespin

MICROPALAEONTOLOGICAL EXAMINATION OF SAMPLES FROM SPACKMAN BROS' BORE, COOMBE, SECT. 103, HUNDRED OF COOMBE, SOUTH AUSTRALIA.

Records No.1951/8e

1-20 feet. Whitish sandstone.

21feet 6 inches - 65 feet. White calcareous sandstone.

65-75 feet. Whitish, calcareous sandstone and fawnish clay.

75-120 feet. Yellowish, calcareous sandstone with foraminifers common.

Foraminifera:

Rotalia beccarii

120-145 feet. Hard, pale yellowish, dune limestone.

145-175 feet. Dark cream calcareous sandstone, with foraminifers.

Foraminifera:

Discorbis cycloclypeus
Elphidium crispum
Rotalia beccarii

175-190 feet. Greenish, yellow limestone with poorly preserved bryozoa and grains of green glauconite.

190-240 feet. Brown calcareous sandstone with worn fossils including corals, bryozoa, molluscs and fish otoliths; also pyrite.

Anthozoa:

Flabellum distinctum

Bryozoa:

Otionella sunula var. spiralis

Molluscs:

Nucula (Nucunella) tenisoni
Propeleda Huttoni
Turritella aldingae

240-243 feet. Hard, black concretionary, calcareous sandstone with corals, molluscs and pyrite.

Anthozoa:

Flabellum distinctum

Molluscs:

Turritella aldingae

243-290 feet. Fine carbonaceous sandstone, with foraminifera, bryozoa, small molluscs and ostracoda.

Foraminifera:

Discorbis bertheloti var. nepillata
Gyroidina soldanii
Planulina cf. trigarinella
Sigmoilina victoriensis

Mollusca:

Cuna concentrica
Propeleda huttoni

Ostracoda:

Bairdia amygdaloides
Xestoleberis variegata

290-295 feet. Shelly carbonaceous siltstone with a few foraminifera, bryozoa, molluscs and pyrite.

Foraminifera:

Cibicides sorrentae
Eponides repandus

Bryozoa:

Otionella cupola var. spiralis

Mollusca:

Dentalium eratum
Turritella aldingae

295-310 feet. Brown, shelly sandstone with a few foraminifera.

Foraminifera:

Anomalina subnonionoides
Cibicides sorrentae
Cibicides sp.
Dorothia parri
Eponides repandus
Sigmoilina victoriensis

Pelecypoda:

Cuna concentricum
Limopsis morningtonensis
Myodora cf. australis
Nuculana praelonga
Pronemagnina atkinsoni
Propeleda huttoni

Gasteropoda:

Turritella aldingae
Xenelia stylagria

310-350 feet. Calcareous sandstone with a few foraminifera, poorly preserved corals and bryozoa, and molluscs.

Foraminifera:

Cibicides sorrentae
Eponides repandus
Pyrgo anomala

Mollusca:

Cuna concentricum
[illegible]
Nuculana chapmani
Turritella aldingae

350-407 feet. Unfossiliferous, carbonaceous sandstone.

Notes on the Samples.

The samples from Spackman's Bore consist of calcareous sandstone, bryozoal limestone, calcareous sandstone and carbonaceous sandstone.

The stratigraphic sequence of the samples is as follows:-

Recent to Pleistocene	-	1 foot to 175 feet.
Lower Miocene (Janjukian Stage)	-	175 feet down to 350 feet.
? Eocene	-	350 feet down to 407 feet.

The samples from the depth of one foot down to 175 feet consist of sandstone and calcareous sandstone. Those from 75 feet down to 175 feet contain small foraminifera which are common in the shore sands along the beaches of southern South Australia at the present time.

From 175 feet down to 350 feet the beds are comprised chiefly of calcareous sandstones containing a few foraminifera, some corals, bryozoa and small molluscs. They are regarded as Lower Miocene in age and belong to the Janjukian Stage.

The samples from 350 feet down to 407 feet, the base of the bore, consist of unfossiliferous, carbonaceous sandstone. There is no fossil evidence available to indicate that the sandstone is equivalent in age to the beds of similar lithology in the Woods and Forests Department Bore No.1, Mt. Gambier, between the depths of 60 feet and 308 feet, but it is most probable that the deposit can be correlated and it is suggested that the age is Eocene.

D. Rene Crespin

MICROPALAEONTOLOGICAL EXAMINATION OF SAMPLES FROM LANDS DEPARTMENT, SOLDIERS' SETTLEMENT BORE NO. 23B, WOORATTANBULLI, SECTION 420, HUNDRED OF JOANNA VIA, NARACOORTE, SOUTH AUSTRALIA.

Records No. 1951/8f

0-17 feet. Ochreous sandstone with limonitic pebbles.

17-20 feet. Hard, yellowish limestone with foraminifera.

Foraminifera:

Cassidulina subglobosa
Discorbis bertheloti var. papillata
Elphidium howchini
Eponides repandus
Eponides scabriculus
Globigerina bulloides

20-30 feet. Cream to pinkish bryozoal limestone with numerous small foraminifera.

Foraminifera:

Anomalina glabrata
Bolivina sealprata var. retiformis
Cassidulina subglobosa
Cibicides sorrentae
Dentalina soluta
Discorbis bertheloti var. papillata
Dorothia parri
Eponides repandus
Eponides scabriculus
Globigerina bulloides
Globigerinoides trilobus
Guttulina problema
Sphaeroidina bulloides
Sigmoidella elegantissima
Trifarina bradyi
Uvigerina hispida

30-35 feet. Moderately hard, bryozoal limestone, with small foraminifera.

Foraminifera:

Carpenteria rotaliformis
Cibicides sp. 2
Cibicides sorrentae
Discorbis bertheloti var. papillata
Dorothia parri
Eponides repandus
Globulina gibba
Textularia sagittula

35-76 feet. Whitish limestone with foraminifera and ostracoda.

Foraminifera:

Anomalina subnonoinoides
Anomalina ammonoides
Carpenteria rotaliformis
Cibicides sorrentae
Dentalina soluta
Discorbis bertheloti var. papillata.
Dorothia parri.
Elphidium howchini
Eponides scabriculus
Gaudryina rugosa
Gyroidina soldanii
Nodosaria sp.
Patellina corrugata
Sigmoidella elegantissima
Siphonina australis
Sphaeroidina bulloides
Spirillina inaequalis

Ostracoda:

Cytherelloidea intermedia.

The samples on Bore No. 23B, Woorattanbulli, consist of sandstone and limestone.

The stratigraphic sequence of the samples is as follows:-

Recent - 2 feet to 17 feet.
Middle Miocene (Balcombian Stage) - 17 feet to 76 feet.

The sandstone at 2-17 feet is regarded as Recent in age.

The limestones which are present from 17 feet down to 76 feet, the base of the bore, are Middle Miocene, and the assemblage of small species of foraminifera is similar to that found in the basal part of the Balcombian Stage, and referred to by Crespin in 1943 as the Longford Substage.

Irene Crespin

MICROPALAEONTOLOGICAL EXAMINATION OF SAMPLES FROM WOODS AND FORESTS DEPARTMENT BORE NO. 8, PENOLA FOREST, SECTION 196, HUNDRED OF NANGWARRY, SOUTH AUSTRALIA.

Records No. 1951/83

18-24 feet. Yellowish calcareous sandstone and limestone with foraminifera.

Foraminifera:

Discorbis cycloclypeus
Rotalia beccarii

24-37 feet. Unfossiliferous sandstone.

37-41 feet. Cream, calcareous, bryozoal sandstone with a few foraminifera.

Foraminifera:

Cibicides refulgens
Cibicides sp.
Elphidium crespinae
Elphidium howchini
Eponides scabriculus
Heronallenia wilsoni

41-62 feet. Whitish, bryozoal, chalky limestone with fragments of grey flint and foraminifera.

Foraminifera:

Anomalina subnonionoides
Cassidulina subglobosa
Cibicides lobatulus
Cibicides sp.2
Elphidium howchini
Eponides concentricus
Eponides scabriculus
Gaudryina (Pseudogaudryina) crespinae

Notes on the Samples.

The samples in Bore No.8, Penola Forest, consist of sandstones, calcareous sandstones and chalky limestones.

The stratigraphic sequence of the samples is as follows:-

Recent - 18 feet to 37 feet.
Middle Miocene (Balcombian Stage) - 37 feet to 62 feet.

The sandstone from 18 feet down to 27 feet is Recent in age and contains species of foraminifera which are found in the shore sands at the present time.

From 37 feet down to 62 feet, the base of the bore, the beds are of Middle Miocene age and the foraminiferal assemblage is equivalent of that found in the basal beds of the Balcombian Stage. Zonal species of the Balcombian in this area such as Crespinella umbonifera and Operculina victoriensis are not present.

Irene Crespin

MICROPALAEONTOLOGICAL EXAMINATION OF SAMPLES FROM LANDS DEPARTMENT, SOLDIERS' SETTLEMENT BORE NO. 7B, BINNUM VIA NARACOORTE, SECTION 542, HUNDRED OF BINNUM, SOUTH AUSTRALIA.

Records No. 1951/~~86~~. 32

0-44 feet. Fine, angular quartz sand.

44-54 feet. Coarse sandstone.

54-82 feet. Cream limestone with poorly preserved foraminifera.

Foraminifera:

Amphistegina lessonii
Crespinella umbonifera
Dorothia parri
Eponides repandus
Operculina victoriensis

82-102 feet. White limestone with foraminifera and ostracoda.

Foraminifera:

Carpenteria rotaliformis
Crespinella umbonifera
Elphidium howchini
Elphidium parri
Operculina victoriensis (c)

Ostracoda:

Cythere postdeclivis

Notes on the Samples.

The samples from Bore No. 7B, Binnum, consist of unconsolidated sandstone and limestone.

The stratigraphic sequence of beds in the bore is as follows:-

Recent - 0 to 54 feet.
Middle Miocene (Balcombian Stage) - 54 feet to 102 feet.

The sands of Recent age are unfossiliferous.

The samples from 54 feet down to 102 feet, the base of the bore, are Middle Miocene in age and the foraminiferal assemblage is characteristic of the Balcombian Stage. Such species as Crespinella umbonifera and Operculina victoriensis are common. The assemblage is equivalent of that found in Wylie's Bore, No. 6 Bore Caroline Forest, and Harvey's Bore, Bordertown.

Irene Crespin

MICROPALAEONTOLOGICAL EXAMINATION ON SAMPLES FROM L.M.HARVEY'S BORE, BORDERTOWN, SECTION 29, HUNDRED CANNAWIGARA, SOUTH AUSTRALIA.

Records No. 1951/E. 32

58-94 feet. Unconsolidated angular quartz sand.

94-139 feet. Cream, bryozoal limestone with poorly preserved foraminifera and ostracoda.

Foraminifera:

Calcarina verriculata
Carpenteria rotaliformis
Crespinella umbonifera
Cibicides sp.2
Dorothia parri
Elphidium bowehini
Elphidium parri
Eponides repandus
Frondicularia lorifera
Gypsina globulus
Operculina victoriensis (c)
Sigmoidella elegantissima
Sigmoidella kegaensis
Textularia agglutinata

Ostracoda:

Cythere postdeclivis
Cytheropteron batesfordense

139-152 feet. Similar to 94-139 feet but with foraminifera not so common.

Foraminifera:

Carpenteria rotaliformis
Crespinella umbonifera
Elphidium bowehini
Elphidium parri
Operculina victoriensis

Notes on the Samples.

The samples from Harvey's Bore consist of unconsolidated sands and bryozoal limestones.

The stratigraphic sequence represented in the bore samples is as follows:-

Recent to Pleistocene - 58 to 94 feet.
Middle Miocene (Balcombian Stage) - 94 to 152 feet.

The sands from 58 feet down to 94 feet are unfossiliferous, and are regarded as Recent to Pleistocene in age.

The bryozoal limestone from 94 feet down to 152 feet are Middle Miocene in age and equivalent to the Balcombian Stage. They contain characteristic foraminifera such as Crespinella umbonifera, Frondicularia lorifera and Operculina victoriensis which is common at 94-139 feet. The beds can be correlated with those in Wylie's Bore, Hundred of Shaugh, between the depths of 201 feet 6 inches and 473 feet.

Irene Crespin