DEPARTMENT OF MINES
SOUTH AUSTRALIA

ADMINISTRATION BRANCH AB47

Palaeontological Report 3/55

Report No. 41/102

TERTIARY OUTCROPS IN THE HUNDREDS OF ANNA AND BROWNLOW, TRURO MILITARY SHEET.

By

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C O N T E N T S

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TERTIARY OUTCROPS IN THE HUNDREDS OF ANNA AND BROWNLOW, TRURO MILITARY SHEET.

SUMMARY

Remnants of transgressive mid-Tertiary limestones occur at 413 feet above sea level (513 above datum level Port Adelaide, relative to bench mark 20/A, Truro R.S.) in and to the north of Levi's Creek, Section 229E, Hundred of Anna, and on Section 26, Hundred of Brownlow.

Levi's Creek is considered to be Mannum Formation and Hundred of Brownlow possibly Morgan Limestone.

INTRODUCTION

Two exposures of Tertiary limestones (fossiliferous calcarenite) on Section 229E, Hundred of Anna, were sampled by R. Coats and N.H. Ludbrook on 4th December, 1954.

In Levi's Creek, 1½ miles north-north-west of Stonefield, thirteen feet of limestone are exposed in the south bank of the creek overlain by (?) Pleistocene red clayey sands. Half a mile to the north a low scarp of yellow limonitic fossiliferous limestones lies on the northern side of a small gully with Pre-Cambrian sediments on the south (pl. 1 fig. 1). The actual contact has been obscured by erosion, but the absence of earlier Tertiary sediments in the area indicates the transgressive nature of the mid-Tertiary here as elsewhere in South Australia.

The Tertiary exposure, 5½ miles northerly from Stonefield on Section 26, Hundred Brownlow, was seen by the writer in company with R.C. Sprigg and I. Chebotarev in January, 1953. One sample was taken.

SECTION 229E, HUNDRED OF ANNA

1. Half a mile to the north of Levi's Creek a low scarp of yellow ferruginous limestone (calcarenite) crowded with casts and moulds of Turritella occurs. Most of the Turritellas are infilled with limonite and the casts have weathered out on the surface in great profusion. About 15 feet from the base, a pelecypod band with Ostrea, Chlamys murrayana (Tate) and Antigona (Proxichione) sp.

occurs. At the top the section becomes more sandy and relatively poorly fossiliferous, with a few Turritella. The section is covered by thin kunkar ("surface travertine").

Three samples were taken:

F105/55

From south side of ridge about 100 yards from the southern end.

A ferruginous limestone crowded with moulds and casts of Turritella, probably undescribed species, with a gemmulate medial band like T. aldingae.

Lovenia "forbesi T. Woods"

sp. Psammechinus sp.

Serripecten yahliensis (T. Woods)

F106/55

Southern end of ridge about 15 feet from base. Rubbly Turritella limestone, with

Bryozoa

Cellepora gambierensis T. Woods

Pelecypoda

Cucullaea corioensis McCoy

Glycymeris subtrigonalis (Tate)

Eotrigonia semiundulata (McCoy)

Spondylus pseudoradula McCoy

Serripecten yahliensis (McCoy)

Myadora sp.

Modiolus sp.

Pleuromeris (?) delicatula (Tate)

Antigona (Proxichione) indet. but probably dimorphophylla(Tate)

Venerid indet.

Tellina sp. indet cf. albinelloides Tate

Gastropoda

Turritella sp.

F107/55

Sandy limestone at top of section.

Fauna

Foraminifera

Quinqueloculina vulgaris d'Orbigny

Quinqueloculina sp.

Triloculina sp.

Sigmomorphina flintii (Cushman)

Sigmoidella elegantissima (Parker & Jones)

Nonion victoriense Cushman

Cibicides pseudoungerianus (Cushman)

Calcarina verriculata (Howchin & Parr)

Notorotalia howchini (Chapman, Parr & Collins)

Echinoidea

Monostychia australis (Laube)

Brachiopoda

Magellania divaricata (Tate)

Pelecypoda

Serripecten yahliensis (T. Woods)

Gastropoda

Turritella sp.

2. An exposure in Levi's Creek consists of yellow arenaceous limestones with sandy bands, showing some variability in fossil content and lithology. They carry abundant megafossils.

	Sample Number	Lithology	Thickness
Top	F113/55	Calcareous sandstone	1'6"
	F112/55	Yellow ferruginous limestone with abundant *Turritella*	2'
	F111/55	Sandy limestone	1'
	F110/55	Yellow ferruginous limestone with *Turritella*	2'
	F109/55	Yellow rubbly calcareous sandstone with echinoids	4'
Base	F108/55	Limestone with abundant large pelecypods, *Ostrea*, *Chlamys*, *Spondylus*	3'
			13'6"

Fauna

F108/55

Pelecypod bed, base of section, 3 feet thick, with numerous large casts of Spondylus pseudoradula McCoy.

Echinoidea

Lovenia "forbesi T. Woods"

Monostychia australis (Laube)

Brachiopoda

Magellania divaricata (Tate)

Pelecypoda

Chlamys foulcheri (T. Woods)

Spondylus pseudoradula McCoy

Ostrea sp.

Chlamys sp.

Gastropoda

Turritella sp.

Semicassis (Antephalium) sp. cf. radiata Tate

F109/55

Yellow rubbly calcareous sandstone 4 feet thick with echinoids.

Bryozoa

Cellepora sp.

Echinoidea

Lovenia "forbesi T. Woods"

Monostychia australis (Laube)

Eupatagus murrayensis Laube

Psammechinus woodsi Laube

Pelecypoda

Chlamys cf. sturtiana (Tate)

F110/55

Yellow ferruginous limestone - Turritella band - 2 feet thick.

Pelecypoda

Glycymeris sp.

Antigona (Proxichione) dimorphophylla (Tate)

Gastropoda

Turritella sp.

Turritella murrayana Tate

F111/55

Sandy band 1 foot thick.

Foraminifera

Quinqueloculina vulgaris d'Orbigny

Dorothia parri Cushman

Elphidium sp.

Operculina victoriensis Chapman & Parr

Cibicides cf. refulgens Montfort

Cibicides pseudoungerianus (Cushman)

Notorotalia howchini (Chapman, Parr & Collins)

Calcarina verriculata (Howchin & Parr)

Bryozoa

Cellepora sp.

Others, not determined.

Echinoidea

Psamnechinus woodsi Laube

Pelecypoda

Chlamys sp.

Gastropoda

Turritella murrayana Tate

F112/55

Yellow limestone with Turritella - 2 feet thick.

Chlamys murrayana (Tate)

Turritella murrayana Tate

F113/55

Calcareous sandstone 18" thick.

Relatively poorly fossiliferous, with Turritella sp.

CORRELATION

This is a littoral deposit with a fauna similar to that of the calcareous sandstone at the base of the section at Mannum, the Mannum Formation. It is likely that the upper member only of the Mannum Formation is represented.

The age is considered to be late Oligocene-early Miocene.

SECTION 26, HUNDRED OF BROWNLOW

Material from this outcrop consisted of a ferruginous sandy limestone, washings from which are angular calcite fragments with some limonite staining, rounded to subangular clear quartz grains and a little glauconite.

F264/53

Foraminifera	No. of Specimens
Quinqueloculina cf. linneana d'Orbigny	17
Q. vulgaris d'Orbigny	9
Q. lamarchiana d'Orbigny	6
Triloculina trigonula Lamarck	3
Sigmoilina flinti Cushman	6
Sigmoilina chapmani Cushman	1
Massilina planata Cushman	4
Massilina sp.	3
Textularia sp.	1
Dorothia parri Cushman	5
Nodosaria sp.	1
Guttulina problema d'Orbigny	3
Guttulina austriaca d'Orbigny	1
Guttulina irregularis d'Orbigny	3
Cassidulina subglobosa Brady	1
Nonion sp.	1
Elphidium sp.	1
Elphidium crespinae Cushman	4
Elphidium parri Cushman	2
Cibicides pseudoungerianus (Cushman)	2
Amphistegina lessoni d'Orbigny	numerous
Calcarina verriculata (Howchin & Parr)	numerous
Notorotalia howchini (Chapman, Parr & Collins)	1
Pelecypoda	
Ostrea sp.	
Pinna sp.	
venerid indet.	

Gastropoda

Turritella murrayana Tate

Turritella sp.

Cypraea sp.

CORRELATION

The foraminiferal assemblage suggests correlation rather with the Morgan limestone than with the Mannum Formation. It should be tentatively considered of Lower Miocene (? = Burdigalian age).

The deposit is littoral and very similar lithologically to those in Hundred of Anna.

PLATE I

Fig. 1. ½ mile north of Levi's Creek, Hundred of Anna, Section 229E. Tertiary ridge on left Pre-Cambrian in right foreground.

Fig. 2. Looking up Tertiary Ridge, Hundred of Anna, Section 229E.

PLATE II

Fig. 1. Tertiary outcrop, Levi's Creek, Hundred of Anna, Section 229E, view west.

Fig..2. Tertiary outcrop Levi's Creek, Hundred of Anna, Section 229E, view east.

Fig. 3. Tertiary limestone, Levi's Creek, Hundred of Anna, Section 229E.