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GASTROPOD FROM
SOUTH AUSTRALIA

by

N.H. Ludbrook & T.M. Steel

Rept. Bk. No. 51/39
G.S. No. 1802
D.N. 1109/60
Pub. Rep. 7/60

25th August, 1960.

This paper is intended for submission,
with the approval of the Director of Mines,
to the Malacological Society of London
for publication in its Proceedings.

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ABSTRACT

A new species of bivalve gastropod, Berthelinia burni, is described from sediments of probably early Pliocene age from the Adelaide Plains Basin.

INTRODUCTION

Early in 1960 the interest of malacologists was centred on the stimulating discovery by Kawaguti and Baba (1959) of a bivalve sacoglossan gastropod Tamanovalva living in Japan. Its occurrence in Australia under the name Edentellina, previously believed to be a pelecypod was confirmed by Burn (1960) and a further occurrence in the Gulf of California reported by Kean (1960). At this time one of us (T.M.S.) had the good fortune to recover two left valves of a fossil species from a bore at Elizabeth, 15 miles north of Adelaide.

Although the specimens are fragile and the amount of material only barely adequate for description, we feel that in view of the special interest in the existence of bivalve gastropods, and their range in geological time, the species should be named and described so far as possible. We are pleased to name it Berthelinia burni in recognition of Robert Burn's contribution to the knowledge of these unusual molluscs.

Both Edentellina and Tamanovalva are considered (Keen, 1960) to be synonyms of Berthelinia Crosse, 1875, which was originally described as a gastropod from the Eocene of the Paris Basin.

STRATIGRAPHICAL SETTING

The two valves were discovered while picking foraminifera from the washings of sludges from a water bore sunk to a depth of 1170 ft. on the sports oval at Elizabeth which is situated in the northern part of the

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Adelaide Plains Basin. The first valve (the holotype) was picked out from sample 392-397 ft. and the second valve (paratype) from 412-417 ft. Despite an assiduous search no more material has been sighted. The new species occurs in fossiliferous calcareous sands at the base of the Dry Creek Sands 32 ft. below the level at which the shelly sand with the molluscan fauna described by one of us (Ludbrook 1954-1958) occurs. There is a rich undescribed associated foraminiferal fauna with mainly Pliocene but some Miocene elements, most of the latter being sturdy forms like Operculina derived from the underlying Miocene.

SYSTEMATIC DESCRIPTION

Genus BERTHELINIA Crosse, 1875

Type species (monotypy) Berthelinia elegans Crosse

(Edenttellina Gatliff & Gabriel, 1911)

(Tamanovalva Kawaguti & Baba, 1959)

Berthelinia burni sp. nov.

(pl. 1. figs. 1-4)

Description (Left valve only). Shell minute, thin and fragile, translucent, smooth but for microscopic striae and occasional growth lines. Triangularly ovate, broadly rounded, anteriorly and obliquely angulate at the posterior ventral margin, dorsal margin arcuate, ventral margin straight. Gently convex, somewhat flattened in the middle ventral third. Protoconch large and conspicuous, erect, strongly coiled with two distinct whorls and in the plane of the left valve. Left valve with a single circular adductor impression a little to the anterior of the median line of the shell.

Anterior smooth but for microscopic irregular radial striae. Hinge line of moderate width, without teeth.

Dimensions: Holotype - Length 0.612 mm, height 0.558 mm;

Height of protoconch 0.18 mm

Paratype - Length 1.278 mm, height (without
protoconch) 0.9 mm.

Material: The holotype and paratype only, both left valves.

Location of Types: Adelaide University Geology Department. Holotype A.U.G.D. F 15478. Paratype A.U.G.D. F 15479.

Type Locality: Elizabeth Oval Bore, Hd. Munno Para, Section 3128, 15 miles north of Adelaide at 392 to 417 ft. depth.

Observations: We have not seen the Paris Basin material but B. burni appears to be comparable in shape and size with B. elegans (Crosse) as illustrated by Crosse & Fischer (1887). It differs in that the hinge line does not possess teeth and the coiled protoconch lies closer to the margin and the hinge line. The anterior margin is apparently more broadly rounded and the posterior margin more obliquely angulate.

The fossil is much smaller than living Australian and Japanese species. It differs from B. typica (Gatliff & Gabriel) in that the anterior margin is more broadly rounded, the posterior margin is straighter and not so obliquely angular, and the protoconch consists of two distinct vertical whorls; from B. limax (Kawaguti & Baba) it differs in the straighter, steeper posterior margin and the possession of two distinct whorls in the protoconch.

Verco's material cannot at present be traced, but from the figures given by Hedley (1921) B. burni appears to differ in its simpler hinge structure and in the posterior margin being shorter and more obliquely angulate.

ACKNOWLEDGMENTS

We are indebted to Dr. Myra Keen of Stanford University and Dr. L.R. Cox of the British Museum for drawing our attention to the Japanese discovery, and to Mr. Robert Burn of Geelong for discussions in Melbourne on his living material.

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79, pp. 1-45, pls. 1-2; 80, pp. 17-58, pls. 1-4; 81, pp. 43-111,
pls. 1-6.

EXPLANATION OF PLATE

- Figure 1. Berthelinia burni sp. nov. Holotype A.U.G.D. F 15478
internal view.
- Figure 2. Berthelinia burni sp. nov. Holotype A.U.G.D. F 15478
external view.
- Figure 3. Berthelinia burni sp. nov. Paratype A.U.G.D. F 15479
internal view.
- Figure 4. Berthelinia burni sp. nov. Paratype A.U.G.D. F 15479
external view.

All figures X 55, from wash drawings by N.H. Ludbrook.

N. H. Ludbrook
Palaeontologist

T. W. Steel



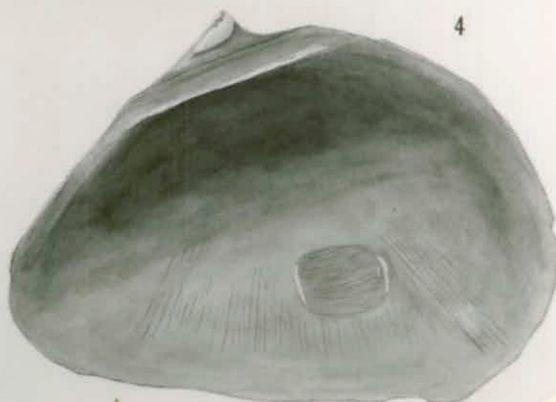
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