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MT. WILLOUGHBY LIMESTONE:
PALAEONTOLOGICAL REPORT ON SAMPLES

by

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Palaeontology Section

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Mr. D. Nichol (Non-metallics section) submitted two outcrop samples collected from Mt. Willoughby H.S. (Appreetinna 1:63,360 map series) for identification of possible fossil structures and any significance that these might have. The samples (P377/71, P378/71) have been reported on petrographically by B.A. Steveson (AMDEL Rept. MP.5562/71) and the thin sections have been studied here also.

Both samples are massive, brown to cream limestones with numerous cavities (less than 1 mm diam.) which appear to represent stems and branching structures of plants in section. Found much less frequently were female charophyte fructifications (calcified oogonia) characteristic of the green algal group, Charales.

Beyond this, examination of the thin sections showed only that some cell structure was calcified and thus preserved. Characteristically, cells are arranged in an annular pattern with one to three annular rings about a central cavity. This supports the above evidence for charophyte origin. Only once was a random section of an oogonium observed.

Identification to a taxonomic level below Order (Charales) is not feasible because of preservation, but these fossils are referred to loosely as "Chara"; they may represent other genera, eg. Nitella.

"Chara" is a freshwater alga-particularly common in waters rich in calcium and magnesium salts. They are able to calcify, ie. precipitate carbonate (eg. H.J. Arnott and F.G. Pautard, in H. Schraer, Ed., Biological calcification: cellular and molecular aspects, North-Holland Publishing Co., 1970). They are not known from marine environments; nor were marine fossils observed in the

samples which consist almost entirely of the physiological products of "Chara".

Such rocks are widespread in South Australia, particularly in the more arid regions. They have no age significance, other than being "young", although isolated oogonia occur at least throughout the Tertiary (in this State).

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