NOTES ON THE DISCOVERY OF A NEW FOSSIL FRUIT FROM THE DEEP-LEAD TIN DRIFTS AT DERBY, TASMANIA.

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On my last visit to the Briseis Mine workings, at Derby, the mining manager, Mr. Lindesay Clark, kindly guided me over the various alluvial tin-bearing sections now being sluiced by powerful hydraulic force.

The formation in which the fine alluvial occurs at suc cessive levels consists of white clayey seuiments of an ancient lake-like river-course, generally overlaid by a thick layer of olivine-basalt.

Among the successive alluvial tin-bearing layers of the 60 to 70 feet of clays, underlying the basalt, lenticular patches of lignite frequently occur, where, as in the ligneous clays of the auriferous deep-leads of Beaconsfield, they are associated with fossil leaves, twigs, and fruits, now regarded by me as of Eocene age, and contemporaneous with the fossil vegetable remains found abundantly intermixed with the marine fossils of the Eocene age at Table Cape.

On the basis of the percentage proportion of extinct to living forms the marine beds at Table Cape are now generally assigned to the earliest Eocene period.

I have always been confident that if the lignites of the Briseis deep-leads were carefully examined after sluicing operations, that fossil fruits would be found. The discovery of such fruits would then enable us to determine, with confidence, the true relation of these older alluvial tin-drift deposits to similar lignitic clays of the same character, underlying the older olivine basalts, in areas occupied by the sediments of the numerous old Tertiary lake basins, as at Macquarie Harbour, Mount Bischoff, "old lake of the Derwent," Launceston Tertiary lake basin, and elsewhere.

The recent discovery, by Mr. Lindesay Clark, of a large lignified fossil fruit (closely resembling and possibly allied to Plesiocapparis prisca, F. von Mueller—occurring in probably the lowest layers of the oldest auriferous deep-

leads, at Haddon, Victoria), is most important, as it affords satisfactory evidence in determining the relationship and geological horizon of the deep layer of the stanniferous drift where the fruit was embedded.

The following description of the new species of fossil fruit, together with photographic views of various sections of the same, will be of much interest to palæontologists:—

CARPOLITHES (PLESIOCAPPARIS) CLARKII,

nov. sp.

Fruit lignified, roundly ovate, indehiscent, about $2\frac{1}{4}$ inches long, and 2 inches broad, when freshly removed from the moist lignitic clay.

The lignified pericarp is soft and plastic, and may be cleanly sliced with a sharp razor, when freshly removed from the moist lignitic clay in which it had been embedded; but after removal dries quickly, contracts and becomes hard, distorted, and brittle, exhibiting deep cracks or fractures. The pericarp is, relatively, very thick, measuring five-eighths of an inch, or nearly one-third of the total diameter of the fruit. The cavity is depressedly globular, measuring about 1 inch, in its vertical diameter, and $\frac{3}{4}$ of an inch, transversely. When the pericarp was opened, in the line of one of its principal fractures, the whole cavity appeared to be filled with a series of closely compressed, concavely laminated, wing-like seeds. These wing-like seeds filling the whole cavity are minutely striated longitudinally, and closely enfolded in curved shell-like layers. There were no distinct protuberant portions discernible on the winged seeds such as shown in figs. 11, Pl. VI. (F. von Mueller's Observations on New Vegetable Fossils of the Auriferous Drifts, Vol. I., Geol. Survey of Victoria), under the specified name of Plesiocapparis prisca, F. von M.

The external surface of the pericarp is microscopically verrucose and much less pronouncedly rugose as compared with the pericarp surface of P. prisca.

The specific name of the new species of fruit from the Briseis Mine is given in honour of its discoverer, Mr. Lindesay Clark, the mining manager.