Art. X.—*On Some Remains of Marsupials from Lake Colongulac, Victoria;*

By C. W. De VIS, M.A.

(Curator of the Queensland Museum);

With Introductory Remarks on the Locality

By T. S. HALL, M.A.

(Melbourne University).

[Read 8th June, 1899.]

Some fossil marsupial remains from the classic locality of Lake Colongulac having come into my hands, I sent the greater number of them to Mr. De Vis for examination, and recently received his report upon them.

The bones were gathered by my brother, Mr. W. A. Hall, and represent only a portion of those which I received from him, those held back not being of any great importance.

Lake Colongulac is one of the numerous shallow lakes which occur in depressions on the basalt lava plains of Western Victoria. It is otherwise known as Lake Timboon, and lies about a couple of miles north of the township of Camperdown. The lake, it may be mentioned, is not to be confused with the railway station, Timboon, which lies some 20 miles south of Camperdown. Camperdown itself is situated just within the southern borders of the great volcanic plain of Western Victoria. The volcanic rocks extend about six miles further to the southward, with a very irregular margin, while to the north they reach some 40 or 50 miles, up to the flanks of the Dividing Range.

Eocene rocks of marine origin occupy the coast line 30 miles south, and appear to underlie the whole of the intervening country from there almost as far north as the volcanic rocks extend, or at any rate as far as the base of the Dividing Range. To the south they are exposed in numerous creek sections along the Curdie and on the banks of the great crater lakes of Bullen-

merri and Gnotuk, close to Camperdown. A mile further north their existence has been proved by well sinkings at Brock's Hill.

The volcanic area is thickly studded with tuff cones, which rarely rise to more than 500ft. above the level of the plain, and the tuff beds are widely spread round the bases of the hills, some of which are of beautifully perfect form. The tuff or ash is locally known as sandstone, and is quarried for rough mason work, no clays suitable for brick-making occurring near Camperdown. The decomposition of tuffs yields the rich soil for which the district is famous.

Round the shores of Lake Colongulac the ash beds are well developed, and seem, judging by their steady dip, to be a part of the deposit which forms the depressed cone which shelters Lakes Bullenmerri and Gnotuk, some three or four miles to the south-west.

The bones, accompained by concretionary nodules of calcareous matter lie loose on the lake beach almost due north of the township, and appear to come from a clay bed which occurs about water level. As the banks of the lake are low it is not easy to say from the evidence there displayed whether the bone bed or the tuff is the older, though my impression has long been that the clay was the underlying deposit. I have recently been informed that in a well-sinking not far from the lake margin, bones were obtained in a clay bed which was reached after sinking through "sandstone." This evidently settles the point, since, as I previously remarked, the tuff is locally known as sandstone.

The tuffs forming the beautiful cone of Mount Leura, which overlooks the township of Camperdown, seem to represent the final efforts of the volcanic outburst, and to overlie those of Bullenmerri and Gnotuk, and it is under these latter tuffs, I believe, that the deposit containing the bones recorded from this locality occurs.

The following species have already been recorded from Lake Colongulac or Lake Timboon, which, it will be remembered, are the same place. The list is compiled from the late Sir F. M'Coy's Prodromus of the Palæontology of Victoria:—

Thylacoleo carnifex, Owen (type locality), Macropus titan, Procoptodon goliah, Phascolomys pliocenus, Phascolomys sp., and Canis dingo.

As Mr. De Vis' report deals with twenty-eight specimens in some detail I have somewhat condensed his remarks, since it seems unnecessary to publish brief cataloguing descriptions of known parts of known species. Mr. De Vis' remarks are enclosed by quotation marks, and a few of my own in square brackets [ ].

"The marsupial jaws which you were so kind as to send to me for examination include representatives of the following species :—

Extinct :— Sthenurus goliah, Owen; Macropus pan m.; Macropus magister m.; Macropus sp. inc.; Thylacinus rostralis m.

Recent :—Macropus giganteus, Shaw.

Of these remains the most prominent in interest are those of Macropus pan, inasmuch as they convey much needed information as to the species, and at the same time correct an error respecting it into which I had fallen. With permission I will take the relics seriatim."

Macropus pan, De Vis.

"Maxillaries, No. 1. Consisting of the palato-maxillary region, with the superposed structures of the base of an adult cranium. From the latter in their present condition we learn little as to any characteristic features the cranium in its entirety may have possessed, further than its total breadth of 121 mm. between the malars. The whole of the cheek teeth are present, and, with the exception of the right premolar, are well preserved. Their facies is partly obscured by adhering matrix; still, there is no difficulty in detecting the species differentiated by their means. The characteristic, more or less lobular offset from the middle of the outer side of the mid-link directed outwards and curving forwards, is well in evidence in those of the molars which are sufficiently exposed. The preservation of the premolar is a fortunate enhancement of our knowledge of the dental characters of the species. This is a bicuspidate tooth, having the anterior cusp short, and in the form of a compressed cone; the posterior a cuneiform, sharp-edged ridge with a shallow, vertical depression on the middle of its outer face; an interoposterior cusp, in the form of a triangular pyramid, is connected by a ridge from its apex with the outer posterior cusp. The dimensions of the tooth

are—length, 10·5 mm.; greatest (posterior) breadth, 6 mm. The entire length of the series of cheek teeth is 68 mm.; the breadth of m^3 is 7 mm."

[Here follow brief descriptions of three unimportant examples of the same species.]

"Mandibles. In the account given of M. pan,[1] it was said that the mandibulary molars are 'undistinguishable from those of M. magister,' but on p. 125 it had been noted that 'the types of the species are the maxillaries alone; there is at present no direct evidence showing that the mandibles are rightly associated with them.' All doubt on these points is set at rest by the examples which now come forward to claim co-specific relation with the maxillaries of M. pan. The mandibles referred to were not rightly associated with the latter, and the true mandibles of M. pan are not as a rule undistinguishable with those of M. magister.

No. 5. Portion of an adolescent, right mandible with m^2, m^3, m^4, remains of m^1, and with p^4 in place; its specific identity is established by the presence of accessory lobules on the inner side of the mid-links; that of m^2 is a sinuous fold of enamel, that of m^3 a vertical plate thickened and curving backwards at its free end. The premolar is bicuspidate, its cusps equal in length, with two or three faint vertical corrugations at their juncture on the outer face; an interoposterior cusp of small size is closely applied to the inner face of the outer posterior cusp, with which it is linked by faint ridge descending from its summit. Dimensions of the tooth, 8 x 5 mm. The length of the whole series of cheek teeth is the same as in the maxillary fossil No. 1.

No. 6. Portion of an adolescent left mandible, with m^2, m^3, m^4, and relics of p^4 and m^1; the accessory fold is wing shaped, that of m^3 a vertical plate as in the previous example. The length of the cheek teeth in this specimen was about 65 mm."

[Specimens 7 and 8 afford no further information.]

"*Macropus magister*, De Vis.

All the representatives of this species are, with one exception, portions of the horizontal rami of the mandibles, the molars are without accessory lobules."

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[1] Proc. Linn. Soc. N. S. Wales, vol. x. (1895), p. 127.

[Specimens Nos. 9–20 which are referred to this species are unimportant and merely catalogued by Mr. De Vis. Nos. 21–23 are indeterminate. Of No. 23 Mr. De Vis, says]

"From a young left mandible of a macropod of larger size than Halmaturus cooperi, Owen, but not attaining that of Macropus magister. It would appear to indicate the existence of an undescribed species, but in the absence of the premolar it would not well be differentiated unless, after the removal from the molars of the hard matrix now concealing them, distinctive characters should appear. Teeth apparently m^2, m^3, m^4, ready to emerge, cores of m^1 and p^4; length of the series in use about 40 mm."

[No. 24. Macropus giganteus. The specimen is not mineralized.]

Sthenurus goliah, Owen.

[Nos. 25 and 26 are horizontal rami of mandibles.]

Thylacinus rostralis, De Vis.

"No. 27. Portion of a right maxillary of a Thylacine identifiable with Thylacinus rostralis, but indicating a larger individual than does the type example; teeth preserved, p^3, m^1, m^2, m^3, m^4; length of the series, 66 mm."