

WESTERN AUSTRALIAN MUSEUM
SPECIAL PUBLICATION No. 6

INDEX TO THE GENERA AND SPECIES
OF FOSSIL MAMMALIA DESCRIBED
FROM AUSTRALIA AND NEW
GUINEA BETWEEN
1838 AND 1968.

BY

J. A. MAHONEY and W. D. L. RIDE

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**INDEX TO THE GENERA AND SPECIES OF FOSSIL
MAMMALIA DESCRIBED FROM AUSTRALIA AND NEW
GUINEA BETWEEN 1838 AND 1968 (INCLUDING
CITATIONS OF TYPE SPECIES AND PRIMARY TYPE
SPECIMENS)**

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World List Abbreviation:

Spec. Publs West. Aust. Mus.

Edited by
W. D. L. Ride
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Printed for the Trustees of the Western Australian Museum by the Government
Printer, Perth, Western Australia

1975

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INTRODUCTION

Purpose.

This work includes all the genus group and species group names proposed for fossil mammals from Australia and New Guinea up to December 31st, 1968 and which, by our interpretation, satisfy the provisions of the *International Code of Zoological Nomenclature* (1964). The list is presented as a bibliographic and nomenclatural tool only; it does not pretend to contain comments on, or revisions of, the taxonomic status (in rank or synonymy) given to genera (and subgenera) and species (and subspecies) by the original authors except where a decision has had to be made by us in order to allocate the name to a family within the arrangement of this *Index*.

The *Index* lists names from the year 1838 because that is the year of publication of the earliest work found by us in which a name based on fossil mammal material from Australia and New Guinea is made available.

Forgotten names.

Because of the lack of thorough revisionary work in this field since the work of the great describers of the 19th century, and because of the obscurity of some of the sources of publication most easily available to the early workers in Australia, numbers of names included in the *Index* have not appeared in the literature during the immediately preceeding fifty years; this makes them unused names in the sense of Article 79 (b) of the *International Code of Zoological Nomenclature*. Our purpose in bringing them forward now is not with a will to upset current usage (if there can indeed be said to be "current usage" when the present widening of interest in this field only commenced about twenty years ago and there is, as yet, virtually no literature beyond the studies of a few specialist workers). Accordingly, this *Index* should be treated as a "nomenclator or other index or list of names" in the sense of Article 79 (b) (i). Any subsequent worker faced with the problem of whether to introduce such names into usage should apply the judgement required of him by Article 23 (a-b) of the *Code* which sets out the purpose of the Law of Priority¹.

Interpretation of descriptions.

The quality of description which accompanies many of the early names listed by us is often very poor; in fact a number of descriptions accepted here barely qualify as such in the meaning of the *Code*. In addition, the nature of some of the publications, and in particular the newspapers, in which they occur must leave some doubt in the minds of modern workers as to whether they were indeed issued "for the purpose of scientific, public, permanent record"; however, it is our experience

¹Pending the publication of a new edition of the *International Code of Zoological Nomenclature*, the amendments to Articles 23, 79 and 80 (relevant here) are published in 1972, *Bull. zool. Nóm.* **29**: 185-8.

that, during the early history of the Australian Colonies, local newspapers played a most important part in the dissemination of scientific knowledge through their detailed reporting of scientific meetings, in much the same role as that played by *Nature* in London and *Zoologischer Anzeiger* in Leipzig—in fact many of the new names published in newspapers in Australia are in abstracts of papers published in accounts of scientific meetings, and are identical with abstracts published later in scientific serials such as *Abstracts and Proceedings of the Linnean Society of N.S.W.* and *Zoologischer Anzeiger*. Accordingly, wherever it has been possible for us to interpret a description as being adequate, or a name as published, we have accepted it. If subsequent workers judge that such names are questionably available and would upset established priorities, or, by giving priority to less complete descriptions, remove from type series specimens which would, through their inclusion in later and fuller descriptions, be available for selection as more desirable lectotypes, they should take steps to have such names formally set aside by the International Commission on Zoological Nomenclature rather than introduce instability by merely dismissing them on a subjective basis.

Arrangement of names.

The names given here are grouped into families within orders (see p. 16 and also p. 158). The basis of arrangement within families is alphabetical but the families themselves are arranged in a conventional order. Within each family, the genus group names are all listed as being of generic rank and are given first; they are followed by the species group names all listed as being of specific rank in the alphabetical order of the name which is being cited; thus in the Macropodidae, [*Portorotous tridactylus*] *antiquus* Broom precedes [*Macropus*] *atlas* Owen. Varietal names have all been treated as species group names. Where a genus group name was unequivocally proposed at less than genus rank, or a species group name was unequivocally proposed at less than species rank, this is indicated by the manner in which the name is cited or within the entry under that name.

Genus group names are only listed in the *Index* where the type species is based upon fossil material. Others will be found in nomenclators or checklists of modern mammals.

Type localities.

Type localities given in the *Index*, unless otherwise indicated, are those given in the original publications. They are stated with as much precision as it is possible to get at the present time, but no attempt is made here to assign (subjectively) ages to the various type horizons or formations. Where the type locality is obscure, and nothing is known of it beyond the phrase used by the original describer, that phrase is repeated here despite the lack of any interpretation. The names of stratigraphic units are only included where the original authors apply them or where the descriptions of locality, or information available for the specimen, enable them to be assigned to such units without any doubt.

Type specimens.

In order to achieve as great an objectivity as possible in nomenclature, primary¹ type specimens or type species are listed with each name. In each case an attempt has been made to ascertain the present whereabouts of type specimens, and identifying museum numbers are given where they have been located. All type specimens have been examined by at least one of us unless we state otherwise, or remark, that they are missing, are lost, have been destroyed, cannot be found, or their (present) whereabouts is unknown.

Brief descriptive notes are provided on each type specimen. In these the terminology of the molar and premolar teeth is based upon the system proposed by Oldfield Thomas for the Marsupialia, and discussed in pp. 10-15 of this *Index*, except where otherwise stated. A comparative table of numbers of different notations which have been used in molar and premolar nomenclature of fossil Marsupialia is given on p. 11.

Where syntypes occur, the preparation of this *Index* has revealed that, in some cases, these may represent more than one species, may come from more than one locality, and may be from more than one geological horizon. It is clear that in all such cases, lectotypes should be selected to destroy ambiguity; but a bibliographic list is not the place for such selection and it can only be hoped that the authors to whom this task will fall will exercise extreme care in selecting the most useful locality and horizon in each case. It should be remembered that in some cases poor data of locality and horizon (or the subsequent destruction of that locality) may make a morphologically perfect specimen less desirable as a lectotype than a less well-preserved specimen from a better locality. Comparison between our description and original illustrations sometimes shows that the latter are mirror images. Such reversals are frequent in lithographic or engraved plates and we have noted them wherever we are satisfied that reversal has occurred. We have attempted to discover whether illustrations and descriptions are based upon casts or the original specimens and have noted any based upon casts whenever we are satisfied they are used.

References.

This *Index* is designed to provide bibliographic information on particular published names and we have judged it most convenient to make it unnecessary for the reader to refer each statement beyond that section of text which concerns any particular name. Accordingly the first reference to a work, within a section of text which qualifies a name, is given in easily recognizable form (e.g. authorship, date, name of publication in full or abbreviated, volume and page reference); thereafter,

¹The category "primary types" comprises Holotypes, Syntypes, Lectotypes and Neotypes only (these categories are defined in the *International Code of Zoological Nomenclature*, Articles 73, 74, 75). We have applied the definition of syntype particularly strictly; this has caused us to list syntypes in numbers of cases where previous authors have recognized a "type specimen". The category "referred specimen" has been used by us to describe all specimens, other than a holotype, allocated in the original description by an author of a new species to his new species where there is a holotype; or for any specimens allocated in the original description by an author, with any indication of doubt, to his new species where the description is based upon syntypes.

within that section of the text the author's name (and date, where it is necessary to avoid ambiguity), with appropriate page references, are cited. For the citation of the pagination of complete papers or books, beyond those sections which refer to particular names, see the Bibliography; there the titles of papers, and books, and their complete page numbers are given as well as comments or published extracts where these are desirable.

So that the *Index* may be used as a reference work to other sources of original data, including other descriptions of type specimens, in addition to giving the original sources of names and data relating to the type specimens, we have provided references to subsequent republication of original figures and original descriptions of types, to subsequent illustrations and descriptions of types, to subsequent examinations of provenance, and to subsequent reports on type localities. Republished text may not exactly duplicate that from which it was copied and we draw attention to this where it is noteworthy. We have also drawn attention to conflict in the literature in respect of types and type localities. Each reference has been studied by both authors.

The literature of fossil mammals also contains much ambiguity involving names of collectors and donors of specimens. Since these may often provide important clues to collecting data we have, throughout, attempted to avoid such ambiguity and to distinguish whether a collector or finder is known or whether the person named in connection with the specimens is a donor or transmitter who was neither collector nor finder.

Acknowledgments.

The preparation of this *Index* would not have been possible if our colleagues in the various museums in which we have worked had not so willingly allowed us free access to their collections and archival material. In particular we thank here J. T. Woods and A. Bartholomai of the Queensland Museum, H. O. Fletcher of the Australian Museum, E. D. Gill, T. A. Darragh and E. Wilkinson of the National Museum of Victoria, W. Bryden of the Tasmanian Museum, W. F. Ellis of the Queen Victoria Museum, Launceston, D. Corbett of the South Australian Museum, A. J. Sutcliffe of the British Museum (Natural History), Miss J. Dobson, Mr E. H. Cornelius and Mr W. R. Le Fanu of the Royal College of Surgeons of England, and the Librarian of the Mitchell Library, Sydney. We are particularly grateful to Dr Sutcliffe, and to Mr J. J. Hooker, Dr Sutcliffe's assistant, who spent many hours working with us in the collections of the British Museum; but for their assistance, the locating of a number of Owen's type specimens would have proved a much more difficult task than it was.

Miss Dobson gave us considerable help in attempting to locate information on the specimens which were formerly in the Hunterian Collections and provided us with a manuscript list by W. H. Flower which lists the specimens that he was unable to locate, in 1868, when he was compiling his catalogue. She also listed for us those specimens which she believes to have been destroyed when the Hunterian

Collection was bombed in 1941. This list is published here, on pp. 190,1, by kind permission of the President and Council of the Royal College of Surgeons of England.

The Librarian and the Trustees of the Mitchell Library, Sydney, have kindly given permission for the reproduction here of manuscripts held by the Mitchell Library, and similar permission was given for publication of manuscripts held in the Library of the British Museum (Natural History) by the Librarian and the Trustees.

The authors are grateful for the financial assistance, from a number of sources, which made the work possible and especially that part of it during which the authors visited and worked in British institutions in 1965-66, and again in 1972. In particular, we acknowledge financial assistance from the University of Sydney and the Western Australian Museum, the Senate of the University of Western Australia, the British Council, the Australian Research Grants Committee, and the Trustees of the British Museum (Natural History).

A work of this nature owes much to the authors of its predecessors, and we acknowledge here the debt which we owe to them for having provided starting points for our own researches. In particular, these authors and their works are R. Etheridge, 1878, *A catalogue of Australian fossils (including Tasmania and the island of Timor) stratigraphically and zoologically arranged*. Cambridge, Cambridge University Press; R. Lydekker, 1887, *Catalogue of the fossil Mammalia in the British Museum (Natural History)*. Part 5. *Containing the Group Tillodontia, the Orders Sirenia, Cetacea, Edentata, Marsupialia, Monotremata, and supplement*. London, The Trustees of the British Museum (Natural History); R. Etheridge, Chapter 37 in R. L. Jack and R. Etheridge, 1892, *The geology and palaeontology of Queensland and New Guinea, with sixty-eight plates and a geological map of Queensland*. Brisbane, Govt. Printer; and G. G. Simpson, 1930, *Post-Mesozoic Marsupialia*. Fossilium catalogus 1: Animalia. Pars 47. Editor J. F. Pompeckj. Berlin, W. Junk. The task of checking their conclusions and following the subject through the literature, as it developed beyond them, has been complex and we can only hope that we have left few false trails, erroneous conclusions, and misstatements of fact to mislead and confuse those who will use this work as a basis for their own.

London

10 October, 1972.

NOTATION FOR THE CHEEK-TEETH OF FOSSIL MARSUPIALS

Five ordinal (symbolic) systems of notation which have been used to describe the cheek-teeth of Australian fossil marsupials are illustrated in the table opposite for the Macropodidae in order to facilitate comparison between the system used for the Marsupialia in this *Index* and the principal alternatives.

The columns of the table are headed by the system adopted in the *Index*, that of Thomas, 1888. Beneath it, in successive order of origin, are three systems adopted by Owen at stages of his long period of work with marsupials, and finally a system long used in connection with American fossil marsupials and nowadays in fairly frequent use in Australia as well.

The earliest of the systems is that used by Owen in 1845, Part 3 of *Odontography; or, a treatise on the comparative anatomy of the teeth; their physiological relations, mode of development, and microscopic structure, in the vertebrate animals*. There Owen departed from the earlier systems of Cuvier and de Blainville and employed a symbolic system which allocates names to the four kinds of teeth of the mammalian toothrow (incisors, canines, premolars, molars), depending upon their position, form, and mode of succession (1845, p. 298); and ordinals which commence from the front of each series of the same kind (e.g. first premolar, second premolar, third premolar).

In a later system, exemplified in 1849 by Owen in Anon., *18th Rep. Br. Ass. Advmt Sci.* : 91-3, and Owen, ?1852, Article *Teeth*, pp. 898-935 in 1849-1852, *The cyclopaedia of anatomy and physiology* 4 (part 2), Owen incorporated a concept of homology which he had developed for mammalian teeth. Noting that the most constant teeth in the Mammalia are the fourth premolar and the first true molar, he determined the homologies of the remaining molars and premolars by counting the molars from before backwards, and the premolars from behind forwards (Owen, Article *Teeth*, p. 903). Noting, too, that the typical number of premolars in Placentalia was four, and of molars three, he stated (in Anon., 1849, p. 92) that the last premolar in the kangaroo was the homologue of the last premolar (P4) in man and, since kangaroos had four molars posterior to this, the fourth molar in the kangaroo is a supernumerary tooth. Owen's figure illustrating the homologies of the dentition of the kangaroo is illustrated in fig. 1.

In the third (and the most-used) of Owen's systems that we illustrate here (as exemplified by Owen, 1858, Article *Odontology* in *The Encyclopaedia Britannica, or dictionary of arts, sciences, and general literature* (8th ed.) 16 : 438-84, and 1868, *On the anatomy of vertebrates* 3 *Mammals* : 265-382) Owen decided (1858, p. 483) that the tooth he had previously called M1 in the placental mammals was only "permanent" in nature because its permanent successor had been suppressed. Owen likewise regarded the tooth in the marsupial, which he had designated M1

TABLE

| NOTATIONAL SYSTEMS | CHEEK-TEETH OF MACROPODIDAE | | | | | | |
|--|-----------------------------|----------|------------------------------|----------------|-----------------|----------------|-----------------|
| Terminology of this <i>Index</i> (Thomas, 1888) | P3 | P4 | dP4 | M1 | M2 | M3 | M4 |
| Owen's first system | first deciduous molar | premolar | second deciduous molar | first molar | second molar | third molar | fourth molar |
| Owen's second system | d3 | P4 | d4 | M1 | M2 | M3 | M4 |
| Owen's third system | d2 | P3* | d3 | d4 | M1 | M2 | M3 |
| Current alternative to Thomas, 1888 | P2 | P3 | dP3 | M1 | M2 | M3 | M4 |

* d3 in Vombatidae and Diprotodontidae.

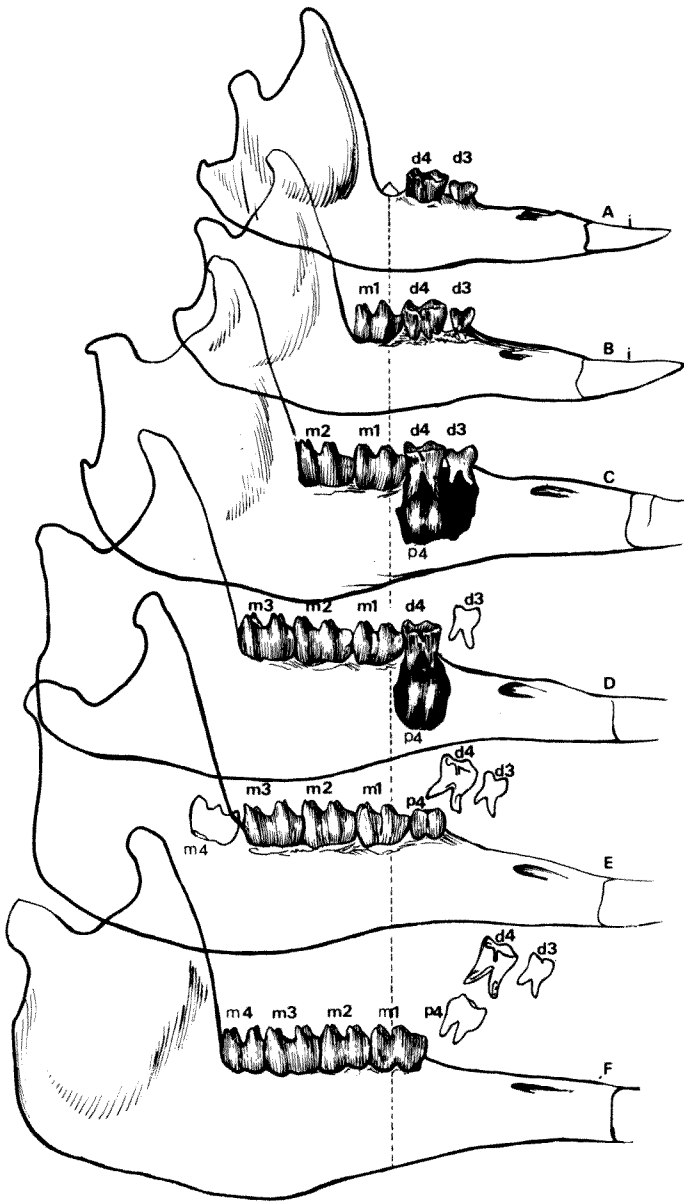


Fig. 1—The homologies of the dentition of the kangaroo according to Owen's (1849) second system. Redrawn from Owen, ?1852, Article *Teeth*, in *The cyclopaedia of anatomy and physiology*, vol. 4, pt 2.

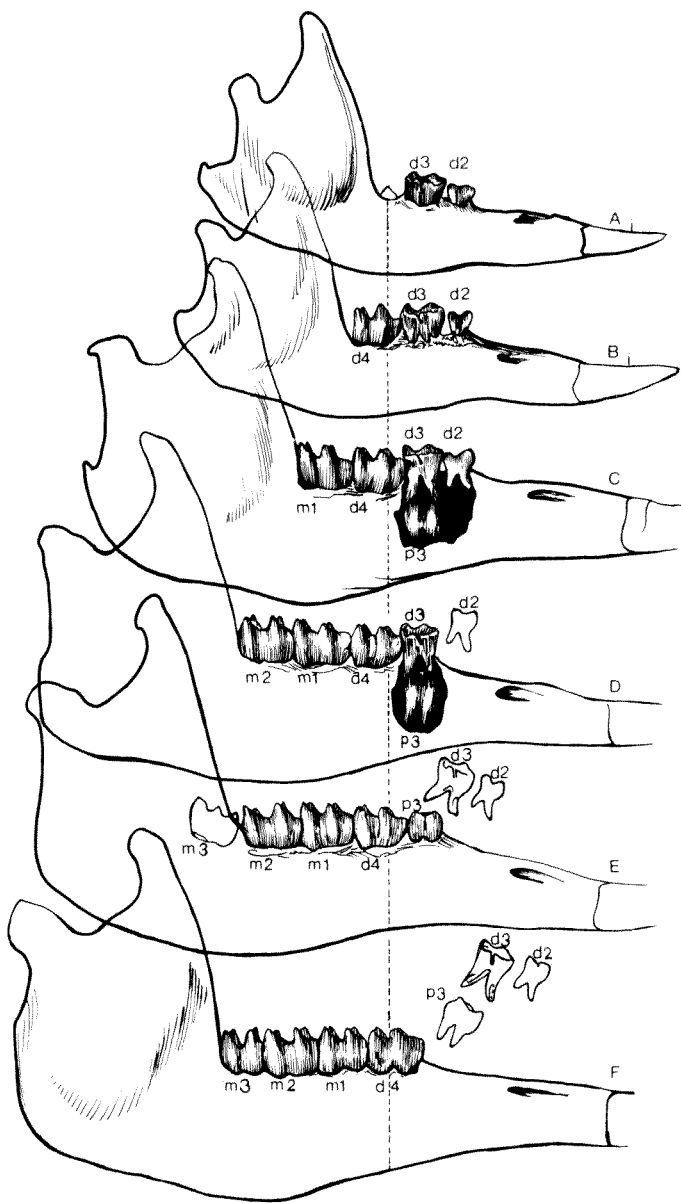


Fig. 2—The homologies of the dentition of the kangaroo according to Owen's (1858) third system. Redrawn from Owen, 1868, *On the anatomy of vertebrates*, vol. 3, Mammals.

in his former system, as an antecedent tooth of the deciduous series rendered permanent by the suppression of the P4. Accordingly he designated it d4 and renumbered the teeth anterior and posterior to it (fig. 2).

In describing fossil marsupials Owen experienced difficulty in identifying the last premolar (i.e. replacing tooth) due to his imperfect knowledge of ontogenetic succession in teeth and hence he experienced difficulty in allocating the numerical symbols of his homologous systems consistently from family to family. In his works on Australian fossil mammals Owen described fossils of Macropodidae, Diprotodontidae, and Vombatidae in the notation of his third system¹ (fig. 2); in addition, he used this notation for fossils of Dasyuridae (1877, *Researches on the fossil remains of the extinct mammals of Australia* . . . 2, pl. 5 in part; but misidentified the teeth in figs 4, 8). In the case of the Thylacoleonidae, Owen was unsure of the position of the upper canine and although he used the terminology of his second system consistently for the sectorial P4 and the molars, he used various names for the canine and anterior premolars (cf. 1866, *Phil. Trans. R. Soc.* 156 : 73-82, pls 2-4, 1871, *Phil. Trans. R. Soc.* 161 : 213-66, pls 11-14 and 1883, *Phil. Trans. R. Soc.* 174 : 575-82, pls 39-41). McCoy, 1876, *Prodromus of the palaeontology of Victoria* . . . Decade 3 : 7-12, pl. 21, clarified the homologies of the anterior upper dentition of the Thylacoleonidae and agreed with Owen's interpretation of them in 1866, pl. 3 and with Owen's identification of a P4 in that family.

The system used by Thomas in 1888, *Catalogue of the Marsupialia and Monotremata in the collection of the British Museum (Natural History)* : vii (see also Thomas, 1887, *Phil. Trans. R. Soc. (B)* 178 : 443-62, pls 27,8), employs a different concept of serial homologues of the marsupial premolars from that used by Owen. It arises out of Flower, 1867, *Phil. Trans. R. Soc.* 157 : 631-41, pls 29,30, but differs from this in postulating that in most marsupials the first premolar to be lost is the second of the ancestral set of four. Because of its almost general employment in connection with modern Australian marsupials (but not necessarily because its concept of homology is accepted) Thomas' 1888 system of notation for the marsupial dentition has been adopted by many Australian workers on fossil marsupials. It is used throughout this *Index*.

The current alternative system in general use is one in which the premolars are numbered 1 to 3 but it differs from the system used by Owen, 1845, in *Odontography* . . . , in that premolars may be lost at any point of the series (see Stirton, 1955, *Rec. S. Aust. Mus.* 11 : 247-68; and Tedford, 1966, *Univ. Calif. Publ. geol. Sci.* 57 : 3, 4).

No system in which premolars and molars are numbered can avoid implying homologies, and until the palaeontological and embryological data can be unequivocally interpreted we will fail to achieve uniformity. Some workers on modern

¹ In Diprotodontidae and Vombatidae Owen (1870, *Phil. Trans. R. Soc.* 160 : 538,9; 1872, *Phil. Trans. R. Soc.* 162 : 65) thought that the permanent premolar, which he called P3 in this system, was suppressed, accordingly he called the tooth (now known to be the permanent premolar) d3.

marsupials, recognizing this, have come to avoid numerical symbols altogether (see Thomas, 1895, *Novit. zool.* 2 : 165 footnote; Thomas, 1905, *Ann. Mag. nat. Hist.* (7) 16 : 425 footnote and 1906, *Proc. zool. Soc. Lond.* 1906 : 540 footnote; Bensley, 1903, *Trans. Linn. Soc. Lond.* (2) 9 : 89), employing the terms *anterior*, *middle* or *median* and *posterior* for the premolars, and *deciduous premolar*, or *milk molar*, for the deciduous tooth; but such usages are clumsy¹ and may be ambiguous.

In the modern situation of uncertainty which surrounds the embryological relations of the cheek-teeth², the worker can only adopt one of the systems in use, state what he is doing, and apply it consistently.

¹Thomas, 1905, *Proc. biol. Soc. Wash.* 18 : 194-6, also proposed a system of nomenclature for the cheek-teeth of mammals in which he avoided the use of the words premolars and molars altogether through the use of separate names for each cheek-tooth. The system has not been adopted.

²In a recent study and review of palaeontological, embryological and ontogenetic data from Eutheria, Metatheria and Pantotheria, Ziegler, 1971, *Q. Rev. Biol.* 46 : 226-49, concludes that the typical unreduced dental formula in Marsupialia is $I_{1-4}^{1-2} C_1^1 P_{2-4}^{2-4} M_{1-4}^{1-4}$; the cheek-teeth of Macropodidae shown in the Table would, accordingly, be designated P3 P4 dP4 M1 M2 M3 M4.

CLASSIFIED LIST OF NAMES BASED UPON FOSSILS

Generic and
subgeneric
names

Specific and
subspecific
names

Original combinations

Subclass¹ Prototheria Order Monotremata Family Ornithorhynchidae

None

agilis *Ornithorhynchus agilis* De Vis, 1885

Family Tachyglossidae

None

| | |
|-------------------|---|
| <i>gigantea</i> | <i>Echidna gigantea</i> Roger, 1887 |
| <i>hacketti</i> | <i>Zaglossus hacketti</i> Glauert, 1914 |
| <i>harrissoni</i> | <i>Zaglossus harrissoni</i> Scott and Lord, 1921 |
| <i>maximus</i> | <i>Ornithorhynchus maximus</i> Dun, 1895 |
| <i>owenii</i> | <i>Echidna owenii</i> Krefft, 1868 |
| <i>ramsayi</i> | <i>Echidna ramsayi</i> Owen, 1884 |
| <i>robusta</i> | <i>Echidna (Proechidna) robusta</i> Dun, 1895 |

? Subclass Prototheria Family Ektopodontidae

Ektopodon Stirton,
Tedford and
Woodburne, 1967

serratus *Ektopodon serratus* Stirton, Tedford and
Woodburne, 1967

¹The classification above the level of families adopted here is from 1967, *The Fossil Record. A symposium with documentation jointly sponsored by the Geological Society of London and the Palaeontological Association*. Ed. W. B. Harland *et al.* London, Geological Society of London. xi, 827 pp.; the classification into families for marsupials follows Kirsch, 1968, *Nature, Lond.* **217** : 418-20, and for other mammals Simpson, 1945, *Bull. Am. Mus. nat. Hist.* **85** : v-xvi, 1-350. Genera based upon fossil material are allocated to families decided upon by their original describers unless published statements allocating them to other families are accepted by us as being more appropriate.

Generic and
subgeneric
names

Specific and
subspecific
names

Original combinations

Subclass Theria
Infraclass Metatheria
Superorder Marsupialia
Order Marsupicarnivora
Family Dasyuridae

Glaucodon Stirton, 1957

| | |
|----------------------|--|
| <i>affinis</i> | <i>Dasyurus affinis</i> McCoy, 1865 |
| <i>ballaratensis</i> | <i>Glaucodon ballaratensis</i> Stirton, 1957 |
| <i>bowlingi</i> | <i>Dasyurus bowlingi</i> Spencer and Kershaw, 1910 |
| <i>lanarius</i> | <i>Dasyurus lanarius</i> Owen, 1838 |
| <i>mordax</i> | <i>Dasyurus mordax</i> Owen, 1877 |
| <i>prior</i> | <i>Sarcophilus prior</i> De Vis, 1883 |

Family Thylacinidae

None

| | |
|------------------|--|
| <i>major</i> | <i>Thylacinus major</i> Owen, 1877 |
| <i>potens</i> | <i>Thylacinus potens</i> Woodburne, 1967 |
| <i>rostralis</i> | <i>Thylacinus rostralis</i> De Vis, 1893 |
| <i>spelaeus</i> | <i>Thylacinus spelaeus</i> Owen, 1845 |

Order Peramelina
Family Peramelidae

Ischnodon Stirton, 1955

| | |
|---------------------|--|
| <i>australis</i> | <i>Ischnodon australis</i> Stirton, 1955 |
| <i>tenuirostris</i> | <i>Perameles tenuirostris</i> Owen, 1877 |
| <i>wombeyensis</i> | <i>Perameles wombeyensis</i> Broom, 1896 |

Order Diprotodonta
Family Phalangeridae

None

| | |
|--------------|-------------------------------------|
| <i>sicca</i> | <i>Phalangista sicca</i> Owen, 1877 |
|--------------|-------------------------------------|

Family Burramyidae

Burramys Broom, 1895

| | |
|---------------|------------------------------------|
| <i>parvus</i> | <i>Burramys parvus</i> Broom, 1895 |
|---------------|------------------------------------|

Generic and
subgeneric
names

Specific and
subspecific
names

Original combinations

Family Petauridae

Palaeopetaurus Broom,
1895

antiquus
elegans
notabilis

Pseudocheirus antiquus Broom, 1896
Palaeopetaurus elegans Broom, 1895
Pseudocheirus notabilis De Vis, 1889

Family Wynyardiidae

Wynyardia Spencer,
1901

bassiana

Wynyardia bassiana Spencer, 1901

Family Thylacoleonidae

Plectodon Krefft, 1870

Schizodon Stutchbury,
1853

Thylacoleo Gervais,
1852

Thylacopardus Owen,
1888

australis
australis
carnifex
crassidentatus

Mylodon australis Krefft, 1870
Thylacopardus australis Owen, 1888
Thylacoleo carnifex Owen, 1858
Thylacoleo crassidentatus Bartholomai
1962

oweni
robustus

Thylacoleo oweni McCoy, 1876
Thylacoleo robustus Krefft, 1872

Family Vombatidae

Phascolonus Owen, 1872

Ramsayia Tate, 1951

Rhizophascolonus

Stirton, Tedford
and Woodburne, 1967

Sceparnodon Ramsay,
1880

angustidens
crowcrofti

Phascolomys angustidens De Vis, 1891
Rhizophascolonus crowcrofti
Stirton, Tedford and Woodburne, 1967

curvirostris
gigas
hacketti

Phascolomys curvirostris Owen, 1885
Phascolomys gigas Owen, 1858
Phascolomys hacketti Glauert, 1910

Generic and
subgeneric
names

Specific and
subspecific
names

Original combinations

Family Vombatidae—continued

| | |
|--------------------|--|
| <i>krefftii</i> | <i>Phascolomys krefftii</i> Owen, 1872 |
| <i>magnus</i> | <i>Phascolomys magnus</i> Murie, 1866 |
| <i>magnus</i> | <i>Phascolomys magnus</i> Owen, 1872 |
| <i>medius</i> | <i>Phascolomys medius</i> Owen, 1872 |
| <i>mittchellii</i> | <i>Phascolomys mittchellii</i> Owen, 1838 |
| <i>parvus</i> | <i>Phascolomys parvus</i> Owen, 1871 |
| <i>pliocenus</i> | <i>Phascolomys pliocenus</i> McCoy, 1866 |
| <i>ramsayi</i> | <i>Sceparnodon ramsayi</i> Owen, 1883 |
| <i>stephensii</i> | <i>Sceparnodon stephensii</i> Ramsay, 1880 |
| <i>thomsoni</i> | <i>Phascolomys thomsoni</i> Owen, 1872 |

Family Phascolarctidae

Litokoala Stirton,
Tedford and
Woodburne, 1967

Perikoala Stirton,
1957

| | |
|-----------------------|--|
| <i>kutjampensis</i> | <i>Litokoala kutjampensis</i> Stirton, Tedford and Woodburne, 1967 |
| <i>palankarinnica</i> | <i>Perikoala palankarinnica</i> Stirton, 1957 |
| <i>stirtoni</i> | <i>Phascolarctos stirtoni</i> Bartholomai, 1968 |

Family Diprotodontidae

Bematherium Tedford,
1967

Diarcodon Stephenson,
1963

Diprotodon Owen, 1838

Euowenia De Vis, 1891

Euryzygoma Longman, 1921

Koalemus De Vis, 1889

Kolopsis Woodburne, 1967

Kolopsoides Plane, 1967

Meniscolophus Stirton, 1955

Neohelos Stirton, 1967

Ngapakaldia Stirton, 1967

Nototherium Owen, 1845

Owenia De Vis, 1887

| Generic and subgeneric names | Specific and subspecific names | Original combinations |
|------------------------------------|--------------------------------------|-----------------------|
|------------------------------------|--------------------------------------|-----------------------|

Family Diprotodontidae—continued

Palorchestes Owen,
1873

Pitikantia Stirton,
1967

Plaisiodon Woodburne,
1967

Prochaerus De Vis,
1886

Pyramios Woodburne,
1967

Simoprosopus De Vis,
1907

Sthenomerus De Vis,
1883

Zygomaturus Macleay,
1857

alcootense
angulum
annextans
*australe*¹
australis
azael
bennettii
bennettii
bonythoni
celer
centralis
charon
crassus
creedii
cultridens
dailyi
dunense
gilli
grata
inermis
ingens
keanei

Pyramios alcootense Woodburne, 1967
Bematherium angulum Tedford, 1967
Diprotodon annextans McCoy, 1861
Dinotherium australe Owen, 1843
Diprotodon australis Owen, 1844
Palorchestes azael Owen, 1873
Diprotodon bennettii Krefft, 1873
Diprotodon bennettii Owen, 1877
Ngapakaldia bonythoni Stirton, 1967
Prochaerus celer De Vis, 1886
Plaisiodon centralis Woodburne, 1967
Sthenomerus charon De Vis, 1883
Palorchestes crassus Owen, 1880
Zygomaturus creedii Krefft, 1873
Kolopsoides cultridens Plane, 1967
Pitikantia dailyi Stirton, 1967
Nototherium dunense De Vis, 1888
Zygomaturus gilli Stirton, 1967
Owenia grata De Vis, 1887
Nototherium inermis Owen, 1845
Koalemus ingens De Vis, 1889
Zygomaturus keanei Stirton, 1967

¹Should possibly be included among Proboscidea.

Generic and
subgeneric
names

Specific and
subspecific
names

Original combinations

Family Diprotodontidae—continued

| | |
|--------------------|---|
| <i>loderi</i> | <i>Diprotodon loderi</i> Krefft, 1873 |
| <i>longiceps</i> | <i>Diprotodon longiceps</i> McCoy, 1865 |
| <i>macleayi</i> | <i>Zygomaturus macleayi</i> Krefft, 1921 |
| <i>mawsoni</i> | <i>Meniscolophus mawsoni</i> Stirton, 1955 |
| <i>minor</i> | <i>Diprotodon minor</i> Huxley, 1862 |
| <i>mitchelli</i> | <i>Nototherium mitchelli</i> Owen, 1845 |
| <i>optatum</i> | <i>Diprotodon optatum</i> Owen, 1838 |
| <i>painei</i> | <i>Palorchestes painei</i> Woodburne, 1967 |
| <i>parvus</i> | <i>Diarcodon parvus</i> Stephenson, 1963 |
| <i>parvus</i> | <i>Palorchestes parvus</i> De Vis, 1895 |
| <i>rephaim</i> | <i>Palorchestes rephaim</i> Ramsay, 1885 |
| <i>robusta</i> | <i>Euowenia robusta</i> De Vis, 1891 |
| <i>rotundus</i> | <i>Kolopsis rotundus</i> Plane, 1967 |
| <i>tasmanicum</i> | <i>Nototherium tasmanicum</i> Scott, 1911 |
| <i>tasmaniense</i> | <i>Nototherium tasmaniense</i> Noetling, 1912 |
| <i>tedfordi</i> | <i>Ngapakaldia tedfordi</i> Stirton, 1967 |
| <i>tirarensis</i> | <i>Neohelos tirarensis</i> Stirton, 1967 |
| <i>torus</i> | <i>Kolopsis torus</i> Woodburne, 1967 |
| <i>trilobus</i> | <i>Zygomaturus trilobus</i> Macleay, 1858 |
| <i>victoriae</i> | <i>Nototherium victoriae</i> Owen, 1872 |
| <i>watutense</i> | <i>Nototherium watutense</i> Anderson, 1937 |

Family Macropodidae

*Brachalletes*¹ De Vis,
1883
Dorcopsoides
Woodburne, 1967
Hadronomas Woodburne,
1967
Halmaturotherium
Krefft, 1872
Halmatutherium
Krefft, 1873
Leptosiagon Owen, 1874
Pachygnathus Krefft,
1872
Pachysiagon Owen, 1874
Pachysiagon Owen, 1877
Phascolagus Owen, 1874

¹Should possibly be included among Diprotodontidae.

Generic and
subgeneric
names

Specific and
subspecific
names

Original combinations

Family Macropodidae—continued

Prionotemnus Stirton,
1955

Procoptodon Owen, 1874

Propleopus Longman,
1924

Protemnodon Owen, 1874

Simosthenurus Tedford,
1966

Sthenurus Owen, 1873

Synaptodon De Vis,
1888

Triclis De Vis, 1888

Troposodon
Bartholomai, 1967

aevorum

Synaptodon aevorum De Vis, 1888

affinis

Macropus affinis Owen, 1845

altus

Phascolagus altus Owen, 1874

anak

Protemnodon anak Owen, 1874

andersoni

Sthenurus andersoni Marcus, 1962

antaeus

Protemnodon antaeus Owen, 1877

antiquus

Sthenurus antiquus Bartholomai,
1963

antiquus

Potorous tridactylus antiquus
Broom, 1896

atlas

Macropus atlas Owen, 1838

birdselli

Macropus (Macropus) birdselli Tedford,
1967

brehus

Sthenurus brehus Owen, 1874

brownei

Sthenurus brownei Merrilees, 1968

buloloensis

Protemnodon buloloensis Plane,
1967

cooperi

Osphranter cooperi Owen, 1874

cuneata

Bettongia cuneata Owen, 1877

cuniculoides

Bettongia cuniculoides McCoy, 1868

dryas

Halmaturus dryas De Vis, 1895

faunus

Macropus faunus De Vis, 1895

ferragus

Macropus ferragus Owen, 1874

fossilis

Dorcopsoides fossilis Woodburne,
1967

gilli

Sthenurus gilli Merrilees, 1965

goliah

Macropus goliah Owen, 1845

| Generic and subgeneric names | Specific and subspecific names | Original combinations |
|--------------------------------------|--------------------------------------|--|
| Family Macropodidae—continued | | |
| | <i>gouldii</i> | <i>Osphranter gouldii</i> Owen, 1874 |
| | <i>gracilis</i> | <i>Leptosiagon gracilis</i> Owen, 1874 |
| | <i>hacketti</i> | <i>Sthenurus atlas hacketti</i> Le Souef, 1910 |
| | <i>indra</i> | <i>Halmaturus indra</i> De Vis, 1895 |
| | <i>magister</i> | <i>Macropus magister</i> De Vis, 1895 |
| | <i>mimas</i> | <i>Protemnodon mimas</i> Owen, 1874 |
| | <i>minor</i> | <i>Sthenurus minor</i> Owen, 1877 |
| | <i>morgani</i> | <i>Potorous morgani</i> Finlayson, 1938 |
| | <i>notabilis</i> | <i>Sthenurus notabilis</i> Bartholomai, 1963 |
| | <i>occidentalis</i> | <i>Sthenurus occidentalis</i> Glauert, 1910 |
| | <i>odin</i> | <i>Halmaturus odin</i> De Vis, 1895 |
| | <i>og</i> | <i>Protemnodon og</i> Owen, 1874 |
| | <i>oreas</i> | <i>Sthenurus oreas</i> De Vis, 1895 |
| | <i>orientalis</i> | <i>Sthenurus (Simosphenurus) orientalis</i> Tedford, 1966 |
| | <i>oscillans</i> | <i>Triclis oscillans</i> De Vis, 1888 |
| | <i>otibandus</i> | <i>Protemnodon otibandus</i> Plane, 1967 |
| | <i>otuel</i> | <i>Pachysiagon otuel</i> Owen, 1874 |
| | <i>palankarinnicus</i> | <i>Prionotemnus palankarinnicus</i> Stirton, 1955 |
| | <i>pales</i> | <i>Sthenurus pales</i> De Vis, 1895 |
| | <i>palmeri</i> ¹ | <i>Brachalletes palmeri</i> De Vis, 1883 |
| | <i>pan</i> | <i>Macropus pan</i> De Vis, 1895 |
| | <i>puckridgi</i> | <i>Hadronomas puckridgi</i> Woodburne, 1967 |
| | <i>pusio</i> | <i>Procoptodon pusio</i> Owen, 1874 |
| | <i>rapha</i> | <i>Procoptodon rapha</i> Owen, 1874 |
| | <i>roechus</i> | <i>Protemnodon roechus</i> Owen, 1874 |
| | <i>scottii</i> | <i>Halmaturus scottii</i> Krefft, 1870 |
| | <i>siva</i> | <i>Halmaturus siva</i> De Vis, 1895 |
| | <i>spelaeus</i> | <i>Hypsiprymnus spelaeus</i> Waterhouse, 1845 |
| | <i>thomsonii</i> | <i>Halmaturus thomsonii</i> Krefft, 1870 |
| | <i>thor</i> | <i>Halmaturus thor</i> De Vis, 1895 |
| | <i>tindalei</i> | <i>Sthenurus (Sthenurus) tindalei</i> Tedford, 1966 |
| | <i>titan</i> | <i>Macropus titan</i> Owen, 1838 |

¹Should possibly be included among Diprotodontidae.

| Generic and subgeneric names | Specific and subspecific names | Original combinations |
|---|--------------------------------------|--|
| Family Macropodidae—continued | | |
| | <i>trisulcatus</i> | <i>Hypsiprymnus trisulcatus</i> McCoy, 1865 |
| | <i>vinceus</i> | <i>Halmaturus vinceus</i> De Vis, 1895 |
| | <i>vishnu</i> | <i>Halmaturus vishnu</i> De Vis, 1895 |
| | <i>wombeyensis</i> | <i>Macropus (Halmaturus) wombeyensis</i> Broom, 1896 |
| Marsupialia incertae sedis | | |
| <i>Archizonurus</i> De Vis, 1889 | <i>procusculus</i> | <i>Cuscus procusculus</i> De Vis, 1889 |
| | <i>securus</i> | <i>Archizonurus securus</i> De Vis, 1889 |
| ? Marsupialia | | |
| <i>Chronozoon</i> ¹ De Vis, 1883 | <i>australe</i> ¹ | <i>Chronozoon australe</i> De Vis, 1883 |
| Infraclass Eutheria | | |
| Order Proboscidea | | |
| <i>Notelephas</i> Owen, 1882 | <i>australis</i> | <i>Mastodon australis</i> Owen, 1844 |
| | <i>australis</i> | <i>Notelephas australis</i> Owen, 1882 |
| Order Rodentia | | |
| Family Muridae | | |
| None | <i>mordicus</i> | <i>Mastacomys mordicus</i> Thomas, 1922 |
| | <i>wombeyensis</i> | <i>Mastacomys wombeyensis</i> Ride, 1956 |
| Order Carnivora | | |
| Family Otariidae | | |
| None | <i>williamsi</i> | <i>Arctocephalus williamsi</i> McCoy, 1877 |
| Order Sirenia | | |
| Family Dugongidae | | |
| None | <i>brevirostris</i> | <i>Halicore brevirostris</i> De Vis, 1905 |

¹ Should possibly be included among Vombatidae.

Generic and
subgeneric
names

Specific and
subspecific
names

Original combinations

Order Cetacea

Cetotolites McCoy,
1879

Mammalodon Pritchard,
1939

Metasqualodon Hall,
1911

Parasqualodon Hall,
1911

Physetodon McCoy, 1879

Scaptodon Chapman,
1918

baileyi
colliveri

Physetodon baileyi McCoy, 1879
Mammalodon colliveri Pritchard,
1939

cudmorei
dauidi
dauidis
gambierense

Steno cudmorei Chapman, 1917
Prosqualodon dauidi Dart, 1923
Prosqualodon dauidis Flynn, 1923
Squalodon gambierense Glaessner,
1955

geelongensis

Ziphius (Dolichodon) geelongensis
McCoy, 1882

harwoodii
leggei
lodderi
lodgei
macgeei
nelsoni
pricei
rugosa

Zeuglodon harwoodii Sanger, 1881
Cetotolites leggei McCoy, 1879
Scaptodon lodderi Chapman, 1918
Scaldicetus lodgei Chapman, 1917
Scaldicetus macgeei Chapman, 1912
Cetotolites nelsoni McCoy, 1879
Cetotolites pricei McCoy, 1879
Cetotolites nelsoni rugosa McCoy,
1879

wilkinsoni

Phocodon wilkinsoni McCoy, 1866

PROTOTHERIA
Order MONOTREMATA

Family **Ornithorhynchidae**

Generic names—none based upon fossils.

Specific names

1. **agilis**

Ornithorhynchus agilis De Vis, 1885. In Anon., *The Daily Observer* [Brisbane], no. 549, vol. 2, April 11th, 1885, p. 2, col. 6.

Syntypes a right tibia, no. F.706, and the posterior portion of a right mandibular ramus, no. F.707, in the Queensland Museum. Procured by Mr K. Broadbent.

Type locality King Creek in the vicinity of Pilton, Darling Downs, Queensland (De Vis, 1885, *Proc. R. Soc. Qd* 2 : 36,8).

The original description is an abstract of De Vis' later published 1885, *Proc. R. Soc. Qd* 2 : 35-8, pl. 4, figs 1,2 (F.706), 3 (F.707) which was published after May 8th, 1885, since part 1, in which pp. 35-8 are included, contains papers read on that date. De Vis, p. 38, describes the mandibular fragment as a distal half, but this is an inadvertent error since a proximal half is illustrated.

The abstract was republished as De Vis in Anon., *The Brisbane Courier*, no. 8504, vol. 39, April 13th, 1885, p. 6, col. 6.

Family **Tachyglossidae**

Generic names—none based upon fossils.

Specific names¹

1. **gigantea**

Echidna gigantea Roger, 1887. *Ber. naturw. Ver. Schwaben* 29 : 4.

Holotype the holotype of *Echidna owenii* Krefft, i.e. a disto-external fragment of a right humerus, no. F. 11017, in the Australian Museum.

Type locality Darling Downs, Queensland.

For further details about the holotype see p. 28, under *Echidna owenii*.

¹An additional name, "*E[chidna] amplor* De Vis" is noted by Weber, 1904, *Die Säugetiere* : 331, in a remark on the presence of monotreme fossils in the Pleistocene of Australia. An extensive search through the literature has failed to produce additional information and it seems to be either a manuscript name or one introduced in error by Weber. Anderson, 1933, *Proc. Linn. Soc. N.S.W.* 58 : xx, refers the name to the 1928 edition of Weber but was similarly unable to trace the original description.

The name *Echidna gigantea* is ascribed by Roger to Krefft, referring to a bibliographic reference to Krefft, 1868, *Ann. Mag. nat. Hist.* (4) 1 : 113, where Krefft described *Echidna owenii*, but we are unable to find any use of the name *Echidna gigantea* by Krefft; accordingly we treat it here as a name proposed by Roger for the material described by Krefft. Roger later recognized *Echidna owenii* Krefft as a separate name from "*Echidna gigantea*, Krefft" by including the latter and "*Proechidna Oweni*, Krefft" in synonymy under *E. gigantea* (Roger, 1894, *Ber. naturw. Ver. Schwaben* 31:5, and 1896, *Ber. naturw. Ver. Schwaben* 32:3).

2. **hacketti** *Zaglossus hacketti* Glauert, 1914. *Rec. West. Aust. Mus.* 1 : 244-8, pl. 36, fig. 1; pl. 37.

Holotype (or syntypes) skeletal remains comprising an atlas vertebra, interclavicle and clavicles, right radius and incomplete pelvic girdle, right (pl. 36, fig. 1) and left femora, and right tibia (pl. 37); no. 60.10.1, in the Western Australian Museum.

Type locality Mammoth Cave, near Margaret River, Western Australia ("in the older portion of the deposit first examined in 1909").

Glauert, 1948, *West. Aust. Nat.* 1 : 100-4, and Merrilees, 1968, *J. Proc. R. Soc. West. Aust.* 50 : 66, published further remarks on the type locality. Glauert's 1948, pp. 100,1, statement that the first material of *Z. hacketti* was collected by T. Connelly in 1904 (and which presumably would have been included by Glauert in the original description) although not supported by his earlier statements (in particular 1910, *Rec. West. Aust. Mus.* 1: 13, and 1914, p. 244, or by Woodward, 1910, *Rec. West. Aust. Mus.* 1 : 9, 10), seems without doubt to refer to the two femora listed as part of the type material above (see the anonymous account of a lecture by Glauert in *The West Australian* [Perth], no. 3892, vol. 30, October 1st, 1914, p. 9, cols 5,6).

3. **harrissoni** *Zaglossus harrissoni* Scott and Lord, 1921. *Pap. Proc. R. Soc. Tasm.* 1921 : 13-15, pl. 5 (in part).

Holotype a nearly perfect right femur, no. 1965:39:5 (also numbered Q.V.M. 13), in the Queen Victoria Museum, Launceston. Collected by Mr K. M. Harrisson.

Type locality a swamp, King Island, Bass Strait.

A very small portion of the proximal end of a humerus is also mentioned in the original description but no part of the description or illustration is based upon this specimen and it cannot now be found.

Separates¹ of the original description carry the printed date July 16th, 1921, on the covers. The paper containing the original description was read on June 13th, 1921.

4. **maximus** *Ornithorhynchus maximus* Dun, 1895. *Rec. geol. Surv. N.S.W.* 4 : 123-5, pl. 11, figs 1-4.

Holotype a right humerus, no. F.51453, in the Australian Museum. Collected by Mr William Thew.

Type locality the gold-bearing wash in a buried limestone cavern at a depth of 130 feet, Canadian Lead, Gulgong Gold Field, New South Wales.

E. D. Gill and J. A. Mahoney have recognized that this specimen is tachyglossid and possibly belongs to the same individual as the type material of *Echidna (Proechidna) robusta* Dun (unpublished research). For a note on the original discovery see Wilkinson, 1887, *A. Rep. Dep. Mines N.S.W.* 1886 : 138. The Canadian Lead is discussed by Jones, 1940, *Mineral Resour. N.S.W.* no. 38 : 85-91.

We are satisfied that the humerus, skull, and atlas vertebra of a "gigantic Echidna belonging to quite a new form" noted by Anon., 1887, *Proc. Linn. Soc. N.S.W.* (2) 1 : 1122, and the humerus, large portion of a skull, and atlas vertebra of "*Echidna Ramsayi*" noted by Owen in Anon., 1887, *Proc. R. Soc.* 42 : 390, are the specimens which subsequently became the types of *Ornithorhynchus maximus* and *Echidna (Proechidna) robusta*.

5. **owenii** *Echidna owenii* Krefft, 1868. *Ann. Mag. nat. Hist.* (4) 1 : 113, 14, text figs 1-3.

Holotype a disto-external fragment of a right humerus, no. F.11017, in the Australian Museum.

Type locality Darling Downs, Queensland (Krefft, 1870, *Guide to the Australian fossil remains* . . . : 8; no locality is given in the original description).

The holotype is refigured by Krefft, 1882, *Exploration of the caves and rivers of New South Wales* . . . : Australian fossil remains, pl. 11, figs 15, 16 (both figures reversed). Lydekker, 1887, *Catalogue of the fossil Mammalia in the British Museum (Natural History)* 5 : 296, when listing a cast of the holotype, cast no. M.1908, erroneously records the original specimen as having come from the caves of the Wellington Valley, New South Wales.

The holotype is also the holotype of *Echidna gigantea* Roger, see p. 26.

¹See footnote on p. 47, under *Wynyardia bassiana*, for a note on the relationship between publication date and volume in the *Papers and Proceedings of the Royal Society of Tasmania* and the dates of issue of separates of articles published in that journal.

6. *ramsayi*

Echidna ramsayi Owen, 1884. *Phil. Trans. R. Soc.* 175 : 273-5, pl. 14, figs 1-3 or in Anon., *Proc. R. Soc.* 36 : 4. (The chronological order of publication of these two journals is unknown to us; the Royal Society of London is also ignorant of it. Also, we do not know if the year of publication of *Proc. R. Soc.* 36, no. 228, which contains p. 4, is 1883 or 1884.)

Holotype a broken left humerus, no. F.10948, in the Australian Museum. Obtained by Dr E. P. Ramsay.

Type locality Wellington Breccia Cave, Wellington Caves, New South Wales.

Ramsay, 1882, *Exploration of the caves and rivers of New South Wales . . .* : 34, 44, 5, photograph no. 516, reports on the exploration of the Wellington Caves and describes and defines what he means by the "Breccia Cave" (cave no. 3); see also p. 37, under *Thylacinus major*.

It is possible to infer from Lydekker's statement, 1887, *Catalogue of the fossil Mammalia in the British Museum (Natural History)* 5 : 296, that Owen's figures were based on the cast of the holotype, cast no. M.1909, in the British Museum (Natural History). Lydekker's statement is ambiguous and it is not impossible that Owen was shown the original specimen by Dr E. P. Ramsay during his visit to England to attend the International Fisheries Exhibition in 1883; Ramsay is known to have examined Australian fossils in the British Museum (Natural History) while he was in England (Ramsay, 1885, *Australian Museum. (Report of the Trustees for 1884.)* : 29). Owen mentions no cast in his description and the cast was not presented to the British Museum (Natural History) by the Trustees of the Australian Museum until 1884 (Lydekker, p. 296); Owen's paper was read on November 15th, 1883. Another cast of the holotype, cast no. M.1530, was presented to the British Museum (Natural History) by the Trustees of the Australian Museum in 1883 (British Museum (Natural History) Register).

7. *robusta*

Ēchidna (Proechidna) robusta Dun, 1895. *Rec. geol. Surv. N.S.W.* 4: 121-3, pl. 11, figs 5, 6; pl. 12,

Holotype (or syntypes) a fragmentary skull, no. F.51451 (pl. 12), and an almost perfect atlas vertebra, no. F.51452 (pl. 11, figs 5, 6), in the Australian Museum. Collected by Mr William Thew.

Type locality the gold-bearing wash in a buried limestone cavern at a depth of 130 feet, Canadian Lead, Gulgong Gold Field, New South Wales.

For a note on the original discovery see Wilkinson, 1887, *A. Rep. Dep. Mines N.S.W.* 1886: 138. The Canadian Lead is discussed by Jones, 1940, *Mineral Resources. N.S.W.* no. 38: 85-91. The fragmentary skull now lacks an occipital portion present in the original illustration; the missing portion is represented in an Australian Museum cast, no. L 1379, of the type skull. See p. 28, under *Ornithorhynchus maximus*, for further notes on the type material.

? PROTOTHERIA

Family **Ektopodontidae**

Generic names

1. *Ektopodon* Stirton, Tedford and Woodburne, 1967.
Rec. S. Aust. Mus. **15**: 438,9.
Type species by original designation *Ektopodon serratus*
Stirton, Tedford and Woodburne, 1967.

Specific names

1. **serratus** *Ektopodon serratus* Stirton, Tedford and Woodburne, 1967.
Rec. S. Aust. Mus. **15**: 439-45, text fig. 6.

Holotype an isolated tooth (?left upper molar), no. P13847, in the South Australian Museum. Collected by Dr R. H. Tedford, July 28th, 1962 (*pers. comm.*, R. H. Tedford), on South Australian Museum and University of California Museum of Paleontology expedition.

Type locality on east shore of Lake Ngapakaldi, between Birdsville Track and the shore of Lake Eyre, and between Cooper Creek and the Warburton River, South Australia (University of California Museum of Paleontology locality V6213, 1835 feet N. 1° E. of University of California Museum of Paleontology locality V5858). Approximate grid co-ordinate 642488, grid zone 5, Marree sheet, 1:506,880; Australian Army H.Q., Cartographic Co., 1942. In pebble conglomerate. Wipajiri Formation.

For a note on, and a photograph of, the type locality see Stirton, 1963, *Aust. nat. Hist.* **14**: 183,4, 182 text figure. Details of the geology of the type locality are given in the paper which contains the original description.

THERIA
METATHERIA
MARSUPIALIA
Order MARSUPICARNIVORA

Family **Dasyuridae**

Generic names

1. *Glaucodon* Stirton, 1957. *Mem. natn. Mus. Vict.* no. 21:129.
Type species by original designation *Glaucodon ballaratensis*
Stirton, 1957.

Specific names

1. **affinis** *Dasyurus affinis* McCoy, 1865. *Geological Survey of Victoria Quarter Sheet 7 N.W. (Mount Aitken)*: Note.

Syntypes comprise or include two left mandibular rami, nos P7425, P7426, in the National Museum of Victoria.

Type locality Bone Cave, in Bone Cave Ravine at the head of Toolam Toolern Creek, 5 miles S. by E. from Gisborne, Victoria.

A panoramic sketch of the type locality, together with an account of its discovery, and a quotation of the original description is published anonymously in *The Illustrated Sydney News*, no. 52, vol. 5, September 4th, 1868, p. 37, cols 1-3. See also Selwyn, 1858, *Q. Jl geol. Soc. Lond.* 14: 536,7, and 1860, *Q. Jl geol. Soc. Lond.* 16: 148,9, for notes on the discovery of the Bone Cave and its fauna. The original description is republished and the syntypes are figured by Mahoney, 1964, *Proc. R. Soc. Vict.* 77: 525-33, pl. 77, figs 1, 2, 9 (P7425), 3, 4, 10 (P7426). The syntypes are also figured by Gill, 1953, *Mem. natn. Mus. Vict.* no. 18, pl. 1, figs 1-3 (P7425), figs 4-9 (P7426). *Quarter Sheet 7 N.W. (Mount Aitken)* is undated, but see Mahoney, p. 525, where the date 1865 is given.

The date of collection is unknown but a memorandum forwarding specimens addressed to Professor McCoy, University of Melbourne, and Public Museum, dated March 31st, 1857, copies information from a letter written from the Geological Survey Camp, Gisborne, signed by C.D.H. Aplin, Assistant Geological Surveyor, and dated March 28th, 1857. This memorandum lists a consignment from Aplin including dry powdery earth and bones from a cave at the head of Toolam Toolern Creek; we think that this could include McCoy's mammalian type material from the Bone Cave. A copy of the memorandum is in the archives of the National Museum of Victoria. *Quarter Sheet 7 N.W.* notes that C.D.H. Aplin explored Bone Cave Ravine in 1857.

2. **ballaratensis** *Glaucodon ballaratensis* Stirton, 1957. *Mem. natn. Mus. Vict.* no. 21 : 129-33, text fig. 6.

Holotype a right mandibular ramus incomplete posteriorly, with M₁ M₄ and the alveoli of the other teeth, no. P16136, in the National Museum of Victoria. Presented by Mr J. Marshall, 1914.

Type locality Section 42, Parish of Smeaton, near Ballarat, Victoria. In a well at a depth of 50 feet.

The location of the well in Section 42 is shown by Gill, 1957, *Mem. natn. Mus. Vict.* no. 21 : 190 text fig. 18.

Stereo-photographs of the holotype are published by Ride, 1964, *J. Proc. R. Soc. West. Aust.* 47 : 109 text fig. 8.

3. *bowlingi*

Dasyurus bowlingi Spencer and Kershaw, 1910. *Mem. natn. Mus., Melb.* no. 3 : 29-33, ? text fig. A, ? pl. 8, fig. 1.

Holotype a cranium, not definitely identified (see below), in the National Museum of Victoria.

Type locality King Island, Bass Strait.

Gill, 1953, *Mem. natn. Mus. Vict.* no. 18 : 163, 4, states that the species was described from syntypes but Spencer and Kershaw, p. 33, nominate a type "skull" without specifying its number. Of all the crania assigned to this species by Spencer and Kershaw only two are said by them to demonstrate the principal character distinguishing the species, i.e. the bulla (p. 32 text fig. A). These two specimens, one of which must be the subject of p. 32 text fig. A, are still in the Museum (no. P25940, original no. 4; and no. P15101, original no. 8 and pl. 8, fig. 1). We think it inconceivable that Spencer and Kershaw would have selected a type which did not illustrate the bulla and think it probable that they would have chosen the specimen figured in pl. 8. We therefore believe that it should be taken as the holotype.

For a note on the bone deposits of King Island see Anderson, 1914, *Rec. Aust. Mus.* 10 : 275-83.

4. *lanarius*

Dasyurus lanarius Owen, 1838. In Mitchell, *Three expeditions into the interior of eastern Australia, with descriptions of the recently explored region of Australia Felix, and of the present colony of New South Wales* 2 : 363, pl. 31, figs 3-6.

Syntypes two broken left maxillae, nos M.10798 (Mitchell no XI; Geol. Soc. Lond. no. 13348) (figs 3, 4), and M.10799 (Mitchell no. XI.a; Geol. Soc. Lond. no. 13349) (fig. 5), and a left mandibular fragment with M₄ and a small part of M₃, no. M.10800 (Mitchell no. XI.b; Geol. Soc. Lond. no. 13350) (fig. 6), in the British Museum (Natural History). Sir Thomas Mitchell Collection.

Type locality "Wellington Valley", New South Wales.

The syntypes, and other fossil mammal remains described by Owen in a letter dated May 8th, 1838 and published by Mitchell, 1838, 2 : 359-63, pls 29-31 (2nd ed., 1839, 2 : 365-9, pls 47-9), were obtained by Major T. L. Mitchell and deposited by him in the Museum of the Geological Society of London. These specimens are called by us the Sir Thomas Mitchell Collection. In June, 1911, the

Geological Society of London collection of foreign and colonial fossils was removed to the British Museum (Natural History) (see. Anon., 1911, *Q. Jl geol. Soc. Lond.* 67 : cii, ciii, and Fletcher, 1913, *Q. Jl geol. Soc. Lond.* 69 : viii).

The mandibular syntype with M_4 is undoubtedly no. M.10800. This specimen was formerly no. 13350 in the collections of the Geological Society of London and no. XI.b of Mitchell's specimens since it bears these labels. It is not a specimen of *Dasyurus laniarius* as that species is now understood (i.e. *Sarcophilus laniarius*), in fact it is one of Mitchell's original specimens of *Thylacinus spelaeus* (although it is not a syntype of *Thylacinus spelaeus* as was stated and illustrated by Ride, 1964, *J. Proc. R. Soc. West. Aust.* 47: 104, text fig. 5(a) (in part)).

Owen's text and the figures are republished in Mitchell's 2nd ed., 1839, 2 : 369, pl. 49, figs 3-6. The text is also republished (in part, and with typographical errors) by Woods, 1862, *Geological observations in South Australia* . . . : 382.

The locality "Wellington Valley" is used in an imprecise manner by us in this *Index* because we cannot exclude the possibility that Owen did likewise. In the sense in which we employ it, it may include fossils found at some distance from the settlement Wellington Valley (Wellington) or the Wellington Caves in the Bell River valley near Wellington. Thus "Wellington Valley" in this text is wider than Wellington Caves. Mitchell used the term "the caves of Wellington Valley" in the restricted sense (that is for Wellington Caves alone—see Mitchell, 1838, 2 : 353; 2nd ed., 1839, 2 : 360) and his concept of caves and Valley is illustrated by him in 1838, 2, pl. 22 (2nd ed., 1839, 2, pl. 42); although Mitchell's other locality "On the north bank of the Macquarie, 8 miles east from the Wellington caves" (1838, 2 : 358; 2nd ed., 1839, 2 : 364) is close to Wellington, it is outside the area called Wellington Valley by him in that plate.

The problem of the several localities involved in the issue is as follows: Mitchell, 1838, 1 : xix (2nd ed., 1839, 1 : xix), says that the fossil mammals identified by Owen were "discovered in the caves of Wellington Valley and Boree" despite the fact that Owen in Mitchell, 1838, 2 : 359 (2nd ed., 1839, 2 : 365), specifies only Wellington Valley for the specimens upon which his identifications are based. Subsequent to his 1838 publication, Mitchell does not publish any locality (or localities) for the specimens described there by Owen (but see p. 106, under *Diprotodon optatum*); while Owen and others continue to ignore Boree (= Boree) and mention only Wellington Valley (or Wellington Caves) for them. For example Owen, 1872, *Phil. Trans. R. Soc.* 162 : 255, lists *Phascolomys mitchellii* as having been found by Sir Thomas Mitchell only in the Breccia-cavern, Wellington Valley (and specifies the date 1836; but see p. 73, under *Phascolomys thomsoni*, for a comment on the dates listed by Owen, 1872, p. 255). Again, Owen, 1874, *Phil. Trans. R. Soc.* 164 : 256, 62, 68, states that Mitchell's specimens of *Macropus titan*, *Phascolagus altus* (= *Macropus titan* no. II* of Owen's 1838 letter to Mitchell), and *Macropus atlas* came from Wellington Valley. Also, Owen, 1845, *Descriptive and illustrated catalogue of the fossil organic remains of Mammalia* . . . : 335, specified Wellington Valley for Mitchell's specimen of *Thylacinus spelaeus*. Further, Broderip *et al.*, 1832, *Proc. geol. Soc. Lond.* 1 : 348, record the collection of fossil bones, accompanying a report submitted by Mitchell (published in abstract—see below), as having come from Wellington Valley. This collection is also noted among Donations to the Cabinet of Minerals in Anon., 1835, *Trans. geol. Soc. Lond.* (2) 3, where it is recorded, on p. 29, as "A collection of bones from the caves and fissures of Wellington Valley, New South Wales"; the date of the donation is given there as April 11th, 1831. There is additional support for the statement in Mitchell, 1838, 1 : xix, that Boree is involved. Only an abstract, Mitchell in Anon., 1831, *Proc.*

geol. Soc. Lond. 1 : 321,2, was published of the report which Mitchell wrote on some limestone caves visited by him in 1830 and which was read to the Geological Society of London on April 13th, 1831. The report cannot be found now (the Geological Society of London does not know of its whereabouts); however, there is a draft of it (*Mitchell Library manuscripts* A295⁻³—Papers of Sir T. L. Mitchell, vol. 8, Miscellaneous, folio nos 193-221), dated Sydney, October 14th, 1830, which shows on folio no. 210, that it was Mitchell's intention to include specimens from Boree in a collection to accompany the report. The abstract recorded a bone breccia at yet another locality, Molong, but says there that no bones from Molong had been sent to Europe; it does not say that no bones were sent from Boree. Further, British Museum (Natural History) specimen no. M.10784 (Mitchell no. III; *Geol. Soc. Lond.* no. 13365) has attached to it a label on which is written the locality "From Top of Buree Cave". This specimen belongs to the Sir Thomas Mitchell Collection and is identified by Owen as a sacrum of *Macropus* (Mitchell, 1838, 2 : 360; 2nd ed., 1839, 2 : 366).

Before 1838, Mitchell made a further donation (October 21st, 1837) to the Cabinet of Minerals of the Geological Society of London of "A collection of specimens from Australia" (Anon., 1840, *Trans. geol. Soc. Lond.* (2) 5 : page unnumbered). It is not known if any of the fossil bones now in the Sir Thomas Mitchell Collection (or any bones at all) were included in this donation.

While it is possible that the reference to Boree in Mitchell, 1838, 1 : xix, is only a statement of opinion by Mitchell that Owen's new species occur at that locality as well, we are unable to dismiss the possibility that some type specimens of the Sir Thomas Mitchell Collection may not have come from Wellington Valley itself except the holotype of *Diprotodon optatum* (which Mitchell in Anon., 1831, p. 322, indicates was found in Rankin's fissure i.e. in the Breccia Cavern of Mitchell, 1838, 2, pl. 23 (2nd ed., 1839, 2, pl. 44)—see also p. 106, under *Diprotodon optatum*) and the holotype of *Macropus titani* (a drawing of which in a MS. page of drawings (Owen, 1838, British Museum (Natural History) *Owen Collection—Drawings*, folio 452, "plate" b) has written beside it the locality data large Cave at F; this locality is believed by us to be locality F in the Large Cavern where a few fragments of bone apparently kangaroo were found (*Mitchell Library manuscripts* A295⁻³—papers of Sir T. L. Mitchell, vol. 8, Miscellaneous, folio no. 198). The drawing of the holotype was later published by Owen, 1845, *Odontography* . . . 2, pl. 101, fig. 1; no locality is given there for the specimen).

For these reasons, the locality "Wellington Valley" which we use in connection with specimens of the Sir Thomas Mitchell Collection, may include both Wellington Valley and Boree.

At Wellington Valley, Mitchell found bones in the Large Cavern (= Cathedral Cave = cave no. 4) and Breccia Cavern (= Breccia Cave = cave no. 3) as well as on the surface adjacent to the entrances of those caverns. The cave at Boree, containing bone breccia, can be recognized from Mitchell's description of it (1838, 2 : 358; 2nd ed., 1839, 2 : 364,5) as what is now called the Little Cave (= Tunnel Cave); this is one of the Boreenore Caves. Under the locality name Boree, we are including, in addition to the Tunnel Cave, the cave containing bones, at Oakey (Bourimbla) Creek, examined by Mitchell on March 18th, 1836; this is a procedure which Mitchell seems to have adopted (see Mitchell, 1838, 2 : 5-7; 2nd ed., 1839, 2 : 6,7). The location of this cave is unknown to us although it is possible that it is in the Spring Creek limestone belt. See Carne and Jones, 1919,

Mineral Resour. N.S.W. no. 25 : 148,9, 51, 342,3, for reports on this belt of limestone and on Borenore and Wellington Caves. For the Breccia Cavern see p. 37, under *Thylacinus major*; and for cave no. 4 see Ramsay, 1882, *Exploration of the caves and rivers of New South Wales* . . . : 34,44,5, photographs nos 517, 520-3.

For a review of information on Wellington Caves and on early collections from there see Lane and Richards, 1963, *Helictite* 2 : 1-55, pls 1-8. Further comments on Wellington Caves are made by Tedford, 1966, *Univ. Calif. Publs geol. Sci.* 57 : 12.

5. *mordax*

Dasyurus mordax Owen, 1877. *Researches on the fossil remains of the extinct mammals of Australia; with a notice of the extinct marsupials of England* 1 : 107; 2, pl. 5, fig. 10.

Holotype a part of a left mandibular ramus with P₄-M₃; present whereabouts unknown.

Type locality an unspecified cave.

Owen does not give a locality for the holotype mentioning only that it is a cave fossil (pl. 5 entitled "cave fossils").

The holotype is not in the collection of the British Museum (Natural History); Lydekker, 1887, *Catalogue of the fossil Mammalia in the British Museum (Natural History)* 5 : 255, stated that it agrees precisely with no. 42670 but Lydekker's statement is "agrees precisely with the fossil ramus from the Wellington Caves, figured by Owen in the 'Extinct Mammals of Australia,' pl. v. figs. 10,11 . . .". However, these figures are of two distinct specimens, the holotypes of *D. mordax* and *Perameles tenuirostris*. We believe that the inclusion of *D. mordax* in this statement, through the inclusion of fig. 10, is an error in Lydekker's text (see also p. 42, under *Perameles tenuirostris*).

The original figure is republished by Johnston, 1888, *Systematic account of the geology of Tasmania* : pl. 55, fig. 5.

6. *prior*

Sarcophilus prior De Vis, 1883. *Proc. Linn. Soc. N.S.W.* 8 : 189,90.

Holotype a fragment of a right tibia comprising the head and a little of the shaft, no. F.743, in the Queensland Museum.

Type locality Chinchilla, Darling Downs, Queensland (Queensland Museum Register). Stated to be "Northern Australia" by De Vis.

Family Thylacinidae

Generic names—none based upon fossils.

Specific names

1. *major*

Thylacinus major Owen, 1877. *Researches on the fossil remains of the extinct mammals of Australia; with a notice of the extinct marsupials of England* 1 : 106,7; 2 : 6, pl. 5, figs 7-9.

Syntypes include the broken tip of an upper canine, no. 42549 (figs 7, 7¹) and the posterior part of a left mandibular ramus, no. 42548 (fig. 8 in part; M₂₋₄ restored in figure); and the anterior part of a right mandibular ramus with I₁—P₄ (fig. 9; ? composite). Syntypes nos 42548, 42549 are in the British Museum (Natural History). Krefft Collection.

Type locality Wellington Caves, New South Wales.

Owen gives no localities for the syntypes mentioning only that they are "cave fossils" (title of pl. 5). Owen's description and discussion of *T. major* (1 : 106) is ambiguous but it should probably be interpreted to mean that Owen was adopting the name *Thylacinus major* for the thylacine of "Mitchell's Breccia Cavern" which he had earlier called *Thylacinus spelaeus*. Unfortunately, he does not say so, nor does he mention the name *Thylacinus spelaeus* in connection with the specimens which he figures under the new name *Thylacinus major*. If one or more of these specimens could be identified with those described as *Thylacinus spelaeus* by Owen, 1845, *Descriptive and illustrated catalogue of the fossil organic remains of Mammalia* . . . : 335,6, *Thylacinus major* could be objectively assigned to *Thylacinus spelaeus*, but there is no possibility of doing this. One might suspect that pl. 5, fig. 9 is a restored version of one of the syntypes, no. M.10801, of *Thylacinus spelaeus*; in fact, this is very unlikely (see below).

Examination of the specimens of *Thylacinus* and *Sarcophilus* in the British Museum (Natural History) reveals that some of the figures in pl. 5 of Owen, 1877, 2, are much restored drawings of specimens at present in the collection and some are even composites. Thus, fig. 1 is a heavily restored impression of specimen no. 42555 (as identified through the asymmetry of the posterior palatal foramina and the palatal sutures) with additions probably from no. 42543. Fig. 2 is a faithful reproduction of premaxillo-maxillary fragment no. M.26040. Fig. 3 is a reproduction of maxillary fragment no. 42559 (M⁴ is either restored or has been broken away since it was figured). Fig. 4 is a heavily restored impression of mandibular ramus no. 42564 with the empty alveoli of the first premolar, the canine, and the incisors filled, and the tips of the molars restored and an M₄ and ascending ramus added. Figs 5,6 are faithful reproductions of mandibular fragment no. 42582 and figs 7, 7¹ faithful reproductions of canine no. 42549. Fig. 8 is primarily based upon mandibular fragment no. 42548 with three molars added. Unfortunately, no specimen agrees with all teeth illustrated, but a number of specimens of *Sarcophilus* are missing from the collection; otherwise the drawing could be based upon a composite restoration of specimens such as nos 42565, 42566, 42567, 42572 and 42579. It seems very probable that fig. 9 represents a number of separate teeth which have been drawn in place in an outline of a portion of mandible and it is unlikely to be a restored version of one of the syntypes, no. M.10801, of *Thylacinus spelaeus*.

The only syntypes of *Thylacinus major* certainly recognizable today are mandibular fragment no. 42548 and canine no. 42549; both are undoubted specimens of *Thylacinus* but there can be no doubt that the last two molars which have been added to fig. 8 of no. 42548 are specimens of *Sarcophilus*.

Lydekker, 1887, *Catalogue of the fossil Mammalia in the British Museum (Natural History)* 5 : 267, states that specimen no. 48425, *Sarcophilus* from Queensland presented by Dr G. Bennett, 1877, is labelled by Owen "*Thylacinus major*". Dr A. T. Hopwood (*pers. comm.*) comments "Not Owens writing on present label. Probably Wm Davies."; and the specimen is not that from which the teeth are restored to fig. 8 since the teeth in the fossil are considerably more perfect than those of the restoration.

Owen's figs 8, 9 are republished by Johnston, 1888, *Systematic account of the geology of Tasmania*, pl. 55, figs 7,8. Owen's fig. 8 is also republished by Ride, 1964, *J. Proc. R. Soc. West. Aust.* 47 : 104 text fig. 5(b).

In view of the uncertainty which surrounds Owen's intentions, it seems wisest to regard *Thylacinus major* as an available name, separate from *Thylacinus spelaeus*, to be interpreted by reference to syntypes nos 42548 and 42549 in the British Museum (Natural History).

All specimens mentioned by number above, with the exception of nos M.10801 and 48425, were presented to the British Museum in 1870 by the Trustees of the Australian Museum, Sydney, and are from "Wellington Caves", and "Wellington Valley" (British Museum (Natural History) Register and specimen labels). Specimens with these data form part of the Wellington Caves collections, made by Mr J. L. G. Krefft and his associates and are noted by Krefft, 1870, in *Wellington Caves. (Correspondence relative to exploration of.)* : 1-12 and *Australian Museum. (Report from Trustees, for 1869.)* : 6,7. These collections, which include that made during Krefft's visit to the Wellington Caves in 1866, and that obtained by Krefft and Thomson in 1869, are called by us the Krefft Collection. Many of the specimens in the Krefft Collection come from the "Breccia Cave" of Krefft, 1870, *Wellington Caves. (Correspondence relative to exploration of.)* : 4 and Thomson, 1870, *Wellington Caves. (Correspondence relative to exploration of.)* : 10-12, called the "Breccia Cavern" by Mitchell, 1838, *Three expeditions into the interior of Eastern Australia . . .* 2, pl. 23 (2nd ed., 1839, 2, pl. 44) (see Krefft, *The Illustrated Sydney News*, no. 38, vol. 4, July 16th, 1867, p. 204, col. 2, and Krefft, 1867, *Catalogue of the natural and industrial products of New South Wales . . .* : 111), and designated cave "no. 3" by Ramsay, 1882, *Exploration of the caves and rivers of New South Wales . . .* : 34, 44,5, photograph no. 516.

2. *potens*

Thylacinus potens Woodburne, 1967. *Bull. Bur. Miner. Resour. Geol. Geophys. Aust.* no. 87 : 20-39, text fig. 6.

Holotype a palatal fragment with right P^3-M^2 and left M^{2-4} and with the other teeth represented by roots and alveoli, no. CPC6746, in the Commonwealth Palaeontological Collection, Bureau of Mineral Resources, Canberra. Collected by Dr M. O. Woodburne and party between late June and early August, 1964 (*pers. comm.*, M. O. Woodburne).

Type locality Paine Quarry (University of California Museum of Paleontology locality V6345), 4 miles south-west of Alcoota Station Homestead, 2.1 miles south-west of the junction of Waite and Ongeva Creeks, Northern Territory. Waite Formation.

The teeth of the holotype are described as "RM²-M⁴ and LP²-M²" on p. 20 of the original publication—this is an error.

Details of the geology of the type locality are given in the paper which contains the original description.

3. *rostralis*

Thylacinus rostralis De Vis, 1893. In Anon., *Abstr. Proc. Linn. Soc. N.S.W.* for November 29th, 1893 : v.

Holotype the major part of the left side of a cranium lacking only P³, a complete left mandibular ramus, and the first four cervical vertebrae, no. F.730, in the Queensland Museum. Collected by Mr A. B. Briggs (De Vis, 1894, *Proc. Linn. Soc. N.S.W.* (2) 8 : 444).

Type locality Ellangowan, near Cambooya, Darling Downs, Queensland (De Vis, 1894, p. 444).

The original description is an abstract of De Vis' later published *Proc. Linn. Soc. N.S.W.* (2) 8 : 443-7, the date for which is June 5th, 1894. The original description is republished as De Vis in Anon., *Zool. Anz.* 17 : 47, on February 5th, 1894.

We have accepted publication in the *Abstract of Proceedings of the Linnean Society of New South Wales* as satisfying the criteria for publication specified in Article 8 of the *International Code of Zoological Nomenclature* despite the implication that it was a restricted publication made by Walkom, 1925, *The Linnean Society of New South Wales* . . . : 24, 7, where he states "*Abstract of Proceedings*. In June, 1882, was commenced the practice of issuing to members and to some Kindred Scientific Societies, an abstract of the proceedings of each meeting. This abstract contained a short summary of each paper read at the meeting and an account of any notes or exhibits brought before the meeting and was issued to members without delay. It has been issued regularly ever since, with the exception of the period August, 1916, to September, 1919, during which, on account of the shortage of paper, the publication was suspended . . .".

The publication of the identical text in *Zool. Anz.* 17 : 47, satisfies us that it was made available in a wider circulation than is implied by Walkom. No questions of synonymy are involved in the matter of priority between these two publications and for those who do not accept the publication in the *Abstract* the name should be taken as having been published in February 5th, 1894, *Zool. Anz.* 17. The statement contained in the abstracted paper in both publications is barely a description i.e. "larger than the existing species"; for those who do not accept its adequacy, the next available use of the name is by De Vis, 1894, *Proc. Linn. Soc. N.S.W.* (2) 8 : 443-7.

The dates of publication are not given for *Abstr. Proc. Linn. Soc. N.S.W.* for meetings held between March 28th, 1883 and November 27th, 1895 (the period with which we are concerned with this periodical in the *Index*) and an example of the method we have adopted to establish the dates of publication of those issues relevant to fossil mammals is as follows:

At the head of *Abstr. Proc. Linn. Soc. N.S.W.* for November 29th, 1893 (following a practice which commenced with the *Abstract* for March 28th, 1888) is printed an anonymous note which states—

"Members are reminded that the Annual General and next Ordinary Monthly Meetings will be held on March 28th, 1894 (the last Wednesday in the month), at 8 o'clock p.m."

Any exceptions to this practice after March, 1888 are for issues which do not concern the names of newly described fossil mammals. The practice was announced by the president of the Society, Professor Stephens, and reported in the *Abstract* for March 28th, 1888, p. i. Accordingly, we have accepted that, after that date, the date of publication of each *Abstract* should, in the absence of external evidence, be taken as the last date on which this notice could have been served, i.e. the date of the meeting which it announces. In the case of the *Abstract* for November 29th, 1893 (i.e. the case of *Thylacinus rostralis*) this is March 28th, 1894. But the identical text was published in *Zool. Anz.* 17 : 47 on February 5th, 1894. We consider it improbable that the editor of the latter publication would have been issued with a duplicate of the manuscript of the *Abstract* before its publication by the Society. Accordingly, we accept the date of publication as being before February 5th, 1894 (*International Code of Zoological Nomenclature*, Article 21 (f)) which is substantiated by a copy in the Library of the Australian Museum, Sydney, which has a library registration stamp, dated December 2nd, 1893. On these grounds we accept the year of publication of the name *Thylacinus rostralis* as 1893. Assuming that the Leipzig (*Zool. Anz.*) printing is based upon the published *Abstract*, additional support for the year of publication being 1893 is provided by the information that the Sydney mail to be delivered in Europe immediately before February 5th, 1894, arrived at Brindisi, Italy, in the P. and O. Company's steamer *Victoria*, via Suez at 10 a.m. on February 2nd, 1894 (Anon., *The Times* [London], no. 34178, February 3rd, 1894, p. 11, col. 5). The mail dispatched by the *Victoria* closed in Sydney on January 1st, 1894 (Anon., *The Sydney Morning Herald*, no. 17405, January 1st, 1894, p. 4, col. 4). Even in the unlikely event that the *Abstract* was published on New Year's Day (a Public Holiday), we do not consider it probable that matter landed in Brindisi on Friday, February 2nd, would be published in Leipzig on Monday, February 5th.

A photograph of the holotype is published by Ride, 1964, *J. Proc. R. Soc. West. Aust.* 47 : 104 text fig. 5(c).

4. *spelaeus*

Thylacinus spelaeus Owen, 1845. *Descriptive and illustrated catalogue of the fossil organic remains of Mammalia and Aves contained in the Museum of the Royal College of Surgeons of England* : 335,6.

Syntypes : (1). The anterior part of a right mandibular ramus with I₂-P₄ (p. 335 footnote), no. M. 10801 (Mitchell no. XI.c; Geol. Soc. Lond. no. 13351), in the British Museum (Natural History) (transferred from the Geological Society of London,

June, 1911). Sir Thomas Mitchell Collection (see p. 32, under *Dasyurus lanarius*). From "Wellington Valley", New South Wales—Owen, 1845, p. 335, says from "the bone-caves in Wellington Valley". (2) and (3). A portion of a left mandibular ramus with P₁ P₃, no. 1548 (p. 335), and a right M₃, no. 1549 (p. 336), formerly in the Royal College of Surgeons of England (nos 3934, 3935, of Flower, 1884, *Catalogue of the specimens illustrating the osteology and dentition of vertebrated animals* . . . 2 : 747; Flower says "Two molars" for no. 3934). Presented by Count De Strzelecki. From "one of the caves in Wellington Valley", New South Wales.

Type locality "Wellington Valley", New South Wales.

The two Royal College of Surgeons of England syntypes are not among the collection of Australian fossil mammals which survived the partial destruction of the collection of the Royal College of Surgeons during the 1939-45 war (see Cave, 1941, *Rep. R. Coll. Surg. 1940-1941* : 3-15, and Webb-Johnson, 1947, *Ann. R. Coll. Surg. 1* : 3-7, for an account of the damage sustained) and which were presented to the British Museum (Natural History) by the President and Council in October, 1946 (British Museum (Natural History) Palaeontological Register; the transfer is recorded by Wood Jones, 1946, *Scient. Rep. R. Coll. Surg. Engl. 1945-1946* : 4). These specimens are registered under the British Museum (Natural History) numbers M.16556-M.16592, M.16615-M.16620. The missing syntypes are regarded by the Curator of the Hunterian Collections as having been destroyed—see p. 190. The locality from which these syntypes were collected is probably Wellington Caves—see De Strzelecki, 1845, *Physical description of New South Wales and Van Diemen's Land* . . . 144,5, for his note on osseous breccia in Wellington Valley.

Syntype no. M.10801 was originally ascribed, with doubt, to *Dasyurus lanarius* by Owen, 1838, in Mitchell, *Three expeditions into the interior of eastern Australia* . . . 2 : 363 (2nd ed., 1839, 2 : 369); it is illustrated by Mitchell, 1838, 2, pl. 31, fig. 7 (2nd. ed., 1839, 2, pl. 49, fig. 7). A photograph of it is published by Ride, 1964, *J. Proc. R. Soc. West. Aust.* 47 : 104 text fig. 5(a) (in part).

Owen's original description of no. M.10801 is republished (in part) under the name *Dasyurus lancarius* [sic] by Woods, 1862, *Geological observations in South Australia* . . . : 382. For a further note on the history and locality of this syntype see pp. 32-5, under *Dasyurus lanarius*. See also pp. 36,7, under *Thylacinus major*, concerning this specimen.

British Museum (Natural History) specimen no. M.10800 is not a syntype of *Thylacinus spelaeus*—see the note to this specimen on p. 33, under *Dasyurus lanarius*.

Order PERAMELINA

Family Peramelidae

Generic names

1. *Ischnodon* Stirton, 1955. *Rec. S. Aust. Mus.* **11** : 249, 50. Type species by original designation *Ischnodon australis* Stirton, 1955.

Specific names

1. *australis*¹ *Ischnodon australis* Stirton, 1955. *Rec. S. Aust. Mus.* **11** : 250-2, text fig. 2.

Holotype most of the anterior half of a right mandibular ramus with P_1 P_3 M_{1-2} and the alveolus of P_4 , no. P13645, in the South Australian Museum (formerly University of California no. 44380). Collected by Dr R. H. Tedford, July 30th, 1953 (*pers. comm.*, R. H. Tedford), on University of Adelaide Department of Geology, South Australian Museum, and University of California Museum of Paleontology expedition.

Type locality Palankarinna quarry (i.e. Woodard Quarry or locality), west side of Lake Palankarinna, 18 miles south 75° west of Etadunna Station Homestead, South Australia.

Military grid reference 656431, ordnance sheet Marree, South Australia, H54/1.2.5.6, zones 5 and 6, first edition, 1942, scale 1:506,880. University of California Museum of Paleontology locality V5367. Mampuwordu Sands.

Stirton, Tedford and Miller, 1961, *Rec. S. Aust. Mus.* **14** : 19-61, report on the stratigraphy and fauna of the Mampuwordu Sands and show the position of University of California Museum of Paleontology locality V5367 in a locality map (text fig. 2). Stirton, p. 267, referred the stratigraphic unit, from whence the holotype came, to the Etadunna Formation. Later Stirton, Tedford and Miller, 1961, p. 31, defined the Etadunna Formation and proposed the name Mampuwordu Sands for the overlying channel sands which contain the Palankarinna fauna of Woodard locality.

The original figure is reproduced by Ride, 1964, *J. Proc. R. Soc. West. Aust.* **47** : 113 text fig. 9 (in part).

2. *tenuirostris* *Perameles tenuirostris* Owen, 1877. *Researches on the fossil remains of the extinct mammals of Australia; with a notice of the extinct marsupials of England* **1** : 107; **2**, pl. 5, fig. 11.

Holotype a broken right mandibular ramus with P_3 - M_4 ; present whereabouts unknown.

¹The holotype has not been seen by either author.

Type locality an unspecified cave.

Owen does not give a locality for the holotype mentioning only that it is a cave fossil (pl. 5 entitled "cave fossils").

The holotype is said by Lydekker, 1887, *Catalogue of the fossil Mammalia in the British Museum (Natural History)* 5 : 255, to agree precisely with no. 42670 in the British Museum (Natural History), but the material registered under this number comprises more than one specimen and that at present in the Museum collection does not include the holotype. Examination of data accompanying the specimens figured in plate 5 reveals that all the specimens which can be positively identified were presented by the Trustees of the Australian Museum, Sydney, in 1870, and are from "Wellington Caves", and "Wellington Valley" (see pp. 36,7, under *Thylacinus major*). Several mandibular rami of *Perameles* with these data are in the British Museum (Natural History), but none agrees with the figure. The original figure is republished by Johnston, 1888, *Systematic account of the geology of Tasmania*, pl. 55, fig. 6. See also p. 35, under *Dasyurus mordax*, for a note on no. 42670.

3. *wombeyensis* *Perameles wombeyensis* Broom, 1896. *Proc. Linn. Soc. N.S.W.* 21 : 56,7, pl. 8, figs 1-8.

Syntypes include the specimens figured with the original description. These include a fragmentary right mandibular ramus with one molar, no. F.4198 (figs 1,8); a fragmentary left mandibular ramus with C P₃ and P₄ (in crypt), no. F.51879 (fig. 3); a fragment of a right mandibular ramus with teeth missing, no. F.51878 (fig. 4); and a fragmentary right maxilla with C P¹ and P³, no. M.5956 (fig. 2). The first three specimens, still partly embedded in breccia, are in the Australian Museum. Specimen no. M.5956 is in the British Museum (Natural History). The teeth illustrated in figs 5-7 cannot be found although it is possible that specimen B.23 of the Broom Collection in the Anatomical Museum, University of Edinburgh, may represent fig. 7. Collected by Dr R. Broom.

Type locality Broom Cave, Wombeyan Caves, near Taralga, New South Wales.

In his publications on this deposit Broom made no designation of individual types beyond saying that the types of *Burramys parvus* "have been placed in the Australian Museum, Sydney" (1896, *Proc. Linn. Soc. N.S.W.* (2) 10 : 566). The only specimens which can be positively identified as types are those which he figured, and Ride, 1956, *Proc. zool. Soc. Lond.* 127 : 413, concluded that the types of all Broom's Wombeyan Caves new species must be figured specimens in the Australian Museum. While this is true of *Burramys parvus*, there must be some doubt about the general applicability of this conclusion to the other species and it seems wisest to accept all of Broom's figured specimens as syntypes pending revisionary work and formal selection of lectotypes. See Ride, 1960, *J. Proc. R. Soc. West. Aust.* 43 : 80, for notes on the type locality.

Order DIPROTODONTA

Family **Phalangeridae**

Generic names—none based upon fossils.

Specific names

1. **sicca** *Phalangista sicca* Owen, 1877. *Researches on the fossil remains of the extinct mammals of Australia; with a notice of the extinct marsupials of England* **1** : 107; **2**, pl. 5, fig. 12.

Holotype the anterior portion of a left mandibular ramus with I_1 (broken) and $P_4 M_1$; present whereabouts unknown.

Type locality an unspecified cave.

Owen does not give a locality for the holotype mentioning only that it is a cave fossil (pl. 5 entitled "cave fossils"). For a note on Owen's pl. 5, see pp. 36,7, under *Thylacinus major*. There is no specimen in the palaeontological collection of the British Museum (Natural History) and, in particular, among the material presented by the Trustees of the Australian Museum in 1870 which agrees with the figure, although specimen no. M.26039 bears some resemblance to it. The holotype is probably also that called *Phalangista planifrons* by Owen, 1877, **2** : 5, but this name cannot be assigned unequivocally to the specimen of fig. 12.

Family Burramyidae

Generic names

1. *Burramys* Broom, 1895. In Anon., *Abstr. Proc. Linn. Soc. N.S.W.* for June 26th, 1895 : ii.
Type species by original indication *Burramys parvus* Broom, 1895.

Specific names

1. *parvus* *Burramys parvus* Broom, 1895. In Anon., *Abstr. Proc. Linn. Soc. N.S.W.* for June 26th, 1895 : ii.

Syntypes include a left maxillary fragment, still partly embedded in breccia, with P⁴, no. F.45777; a right maxillary fragment with M¹⁻²; a fragment of a left mandibular ramus with P₄, M₁ and broken M₂₋₃, no. F.45778; and an incomplete mandibular ramus. The numbered specimens listed above are in the Australian Museum. The whereabouts of the unnumbered specimens is unknown. Collected by Dr R. Broom.

Type locality Broom Cave, Wombeyan Caves, near Taralga, New South Wales.

The name *Burramys parvus* was first published with adequate description in *Abstr. Proc. Linn. Soc. N.S.W.* in an abstract of a paper submitted for, but withdrawn from, publication in the *Proc. Linn. Soc. N.S.W.* Plate 25 which was to have illustrated this paper (see Broom, 1895, *Proc. Linn. Soc. N.S.W.* (2) 10 : 373 footnote) was held over from part 2 of volume 10, which was published in 1895, and was issued with the resubmitted paper in April, 1896 (as Broom, 1896, *Proc. Linn. Soc. N.S.W.* (2) 10 : 563-7, pls 25, 45). The only identifiable syntypes of the unpublished paper (and hence of the abstract) are the specimens illustrated in that plate. Of these syntypes, F.45777 represents pl. 25, fig. 2; F.45778 represents pl. 25, fig. 1 (in part); while the mandibular fragment of the other part of pl. 25, fig. 1 and the maxillary fragment of pl. 25, fig. 3 cannot be found.

Publication of *Abstr. Proc. Linn. Soc. N.S.W.* for June 26th, 1895, is accepted by us as having taken place by July 12th, 1895 (the date of a library registration stamp in the Australian Museum copy); from evidence in the publication itself the work was issued no later than July 31st, 1895 (i.e. the date of the succeeding Linnean Society meeting—see p. 39, under *Thylacinus rostralis*). The abstract is republished as Broom in Anon., *Zool. Anz.* 18 : 371, on September 16th, 1895.

See p. 42, under *Perameles wombeyensis*, for a discussion of Broom's Wombeyan types; see also Ride, 1960, *J. Proc. R. Soc. West. Aust.* 43 : 80, for notes on the type locality.

Family Petauridae

Generic names

1. *Palaeopetaurus* Broom, 1895. In Anon., *Abstr. Proc. Linn. Soc. N.S.W.* for November 27th, 1895 : ii.

Type species by original indication *Palaeopetaurus elegans* Broom, 1895.

Specific names

1. *antiquus* *Pseudocheirus antiquus* Broom, 1896 [as *Pseudochirus antiquus*]. *Proc. Linn. Soc. N.S.W.* 21 : 55, 6, pl. 7, figs 4-6.

Syntypes include the specimens figured with the original description. These include a left maxillary fragment with P^{3-4} , M^1 (broken) M^2 , and with the alveolus of P^1 no longer preserved, no. F.4196 (fig. 4) in the Australian Museum; and a fragment of a left mandibular ramus still partly embedded in breccia and with the molar now missing, no. F.51881 (fig. 6), in the Australian Museum. The molar ("Lower M^3 ") of fig. 5 cannot be found. Collected by Dr R. Broom.

Type locality Broom Cave, Wombeyan Caves, near Taralga, New South Wales.

See p. 42, under *Perameles wombeyensis*, for a discussion of Broom's Wombeyan types; see also Ride, 1960, *J. Proc. R. Soc. West. Aust.* 43 : 80, for notes on the type locality.

2. *elegans* *Palaeopetaurus elegans* Broom, 1895. In Anon., *Abstr. Proc. Linn. Soc. N.S.W.* for November 27th, 1895 : ii.

Syntypes include the specimens figured by Broom, 1896, *Proc. Linn. Soc. N.S.W.* (2) 10, pl. 46, i.e. palatal fragments and incomplete right maxillary tooth row (fig. 1); a broken right mandibular ramus, still partly embedded in breccia, with I_1 P_4 M_1 , no. F.17501 (fig. 2), in the Australian Museum; and an incomplete mandibular tooth row with M_{1-2} , no. F.54191 (Broom Collection no. B.46) (fig. 3), in the Australian Museum.

The specimen illustrated in fig. 1 cannot now be located (Mr H. O. Fletcher, then Curator of Fossils at the Australian Museum, reports it as being present in the Australian Museum Collection at the end of 1952—*pers. comm.*, Dr A. B. Walkom to Dr L. H. Wells, Australian Museum letter no. 2/53, January 20th, 1953). Collected by Dr R. Broom.

Type locality Broom Cave, Wombeyan Caves, near Taralga, New South Wales.

The original description is an abstract of Broom, *Proc. Linn. Soc. N.S.W.* (2) 10 : 568-70, pl. 46, the date for which is April 29th, 1896. The abstract containing the original description is republished as Broom in Anon., *Zool. Anz.* 19 : 47, on January 30th, 1896.

Publication of *Abstr. Proc. Linn. Soc. N.S.W.* for November 27th, 1895, is accepted by us as having taken place by November 29th, 1895 (from the date of a library registration stamp in the Australian Museum copy—the date is slightly smudged and could possibly be 28 instead of 29); from evidence in the publication itself the work could have been issued no later than March 25th, 1896 (i.e. the date of the succeeding Linnean Society meeting—see p. 39, under *Thylacinus rostralis*).

See p. 42, under *Perameles wombeyensis*, for a discussion of Broom's Wombeyan types; see also Ride, 1960, *J. Proc. R. Soc. West. Aust.* 43 : 80, for notes on the type locality.

3. *notabilis*

Pseudocheirus notabilis De Vis, 1889 [as *Pseudochirus ? notabilis*]. *Proc. R. Soc. Qd* 6 : 113-14, pl. 5 (in part).

Holotype a left maxilla with P⁴-M³, no. F.691, in the Queensland Museum.

Type locality "post-tertiary", Queensland at "a gathering place enriched by agencies of unusual [sic] range and efficacy" (De Vis, p. 105) (probably Chinchilla, by preservation—*pers. comm.*, A. Bartholomai).

Family Wynyardiidae

Generic names

1. *Wynyardia* Spencer, 1901. *Proc. zool. Soc. Lond.* 1900 : 776-94.

Type species by original indication *Wynyardia bassiana* Spencer, 1901.

Specific names

1. *bassiana* *Wynyardia bassiana* Spencer, 1901. *Proc. zool. Soc. Lond.* 1900 : 776-94, text figs 1-4; pls 49,50.

Holotype a mutilated skull and incomplete post-cranial skeleton, no. Z237, in the Tasmanian Museum. Collected prior to 1877.

Type locality a bluff close to Table Cape, Tasmania (given by Spencer, p. 777). Fossil Bluff Sandstone.

The holotype has been refigured and redescribed by Wood Jones, 1930¹, *Pap. Proc. R. Soc. Tasm.* 1930 : 96-115, text figs 1, 3, 5,6,7(A), 8 (in part), 9(A), 10(A); pl. 5, fig. (A), and by Ride, 1964, *J. Proc. R. Soc. West. Aust.* 47 : 114-17, text figs 10(a), 10(b) (text figures stereo-pairs). David, 1950, *The geology of the Commonwealth of Australia* 1, pl. 50, fig. (a), published a photograph of the skeleton as it was before removal from the matrix. Gill, 1957, *Mem. natn. Mus. Vict.* no.21 : 135-43, pl. 1, re-examined the provenance and type locality and re-published pl. 49 of Spencer; he gives the type locality as Fossil Bluff, Wynyard, Tasmania. See Banks, 1962, *J. geol. Soc. Aust.* 9 : 233-5, and Quilty, 1966, *Aust. J. Sci.* 29 : 143,4, for a discussion of the geology at Fossil Bluff.

The date of collection of this specimen can only be inferred from the publications which first referred to it. An early reference to the holotype is Woods, 1877, *Pap. Proc. R. Soc. Tasm.* 1876 : 100. The paper which contains this reference was also published in a set of separate papers, the title page of which bears the printed date 1876. In this publication the reference to the holotype is on p. 28. The paper was read on July 11th, 1876. We have little doubt that an even earlier reference to the holotype is the remark by Anon., 1862, *Rep. R. Soc. Tasm.* 1861 : 24, that a "Fossil Quadruped about the size of a Wallaby, discovered at Freestone Cove, near Table Cape" was presented to the Museum by the Hon. W. Archer, F.L.S. during 1861.

¹The year of issue of any volume of *Papers and Proceedings of the Royal Society of Tasmania* may be inferred from the Annual Report, 1952, of the Society (Anon., 1953, *Pap. Proc. R. Soc. Tasm.* 87 : vi) where it is stated that each volume was published in the year following that of which it is a record. But separates of papers may be issued before the volumes of which they form part. Mr W. F. Ellis, Director of the Queen Victoria Museum and Art Gallery, Launceston, informs us that "At present, as in the past, the volume of the Papers and Proceedings is compiled toward the end of the year to which it refers and generally is not available for issue until March or April of the following year. However, reprints are prepared at the time of printing and appear to have been supplied to authors immediately. Consequently, reprints are frequently circulated several months before the volume itself". Separates of the Wood Jones paper referred to here carry the printed statement that they were "Issued separately 31st December, 1930".

For general information on the publications of the Society see Noetting, 1911, *Pap. Proc. R. Soc. Tasm.* 1910 : 223-30.

Family Thylacoleonidae

Generic names

1. *Plectodon* Krefft, 1870. *Wellington Caves. (Correspondence relative to exploration of.)* [Parliamentary Paper, N.S.W.] : 8. *Nec Plectodon* Carpenter, 1864 (Mollusca).

The original publication includes the name *Plectodon* in more than one place but without included species. The name is used on pp. 5, 6 in the list of "Photographs of Australian Fossils" for transmission to Professor Owen (for a note on this list see p. 103, under *Zygomaturus macleayi*); "several species" are included in *Plectodon*, but not by name, on p. 6, and the generic character is given on p. 8. Whitley, 1969, *Proc. R. zool. Soc. N.S.W.* 1967-8 : 40 footnote, refers the name only to pp. 5, 6.

The original description is republished by Krefft, 1882, *Exploration of the caves and rivers of New South Wales* . . . : 10.

Plectodon is redescribed by Krefft, 1870, *Guide to the Australian fossil remains* . . . : 6 (see p. 50, under *Myiodon australis*, for a note on the publication dates of the 1870 Parliamentary Paper and Guide). This description is republished by Krefft, 1871, *The industrial progress of New South Wales* . . . : 717.

A specimen of *Plectodon* (no. 846) was sent by Krefft to Owen—see Krefft, 1870, *Australian Museum. (Report from Trustees, for 1869.)* : 6, 7, and *The Sydney Mail and New South Wales Advertiser*, no. 620, vol. 13, May 18th, 1872, p. 626, col. 4 (republished by Krefft, 1872, *Ann. Mag. nat. Hist.* (4) 10 : 179); but no named species has ever been allocated to *Plectodon* Krefft. Specimen no. 846 is now no. 42638 in the British Museum (Natural History), and is figured by Krefft, 1882, *Exploration of the caves and rivers of New South Wales* . . . : Australian fossil remains, pl. 3, figs 2,2a.

Krefft gives no locality at which *Plectodon* has been found, in his original description, but see p. 145, under *Halmaturus scottii*, concerning it.

2. *Schizodon* Stutchbury, 1853. *New South Wales. Geological and Mineralogical Surveys*. Eleventh tri-monthly report upon the geological and mineralogical structure of New South Wales : 9-11, or *New South Wales. Votes and Proceedings of the Legislative Council, during the session of the year 1853. With the various documents connected therewith* 2 : 693-5 (also numbered 9-11) [descriptions identical]. No species formally included (but the generic name referred to a fragment of a lower jaw, Australian Museum no. F.16457, which later became a syntype of both *Thylacoleo carnifex* Owen, and *Thylacoleo oweni* McCoy). *Nec Schizodon* Agassiz, 1829 (Pisces). *Nec Schizodon* Waterhouse, 1842 (Mammalia).

The dates when the two 1853 publications, one of which is a separate containing Stutchbury's report, were issued have not been determined by us; thus, in accordance with *International Code of Zoological Nomenclature* Article 21 (b), both

are taken here as having been published on the last day of 1853. They cannot have been published before October because the report itself is dated October 1st, 1853 (but see p. 51, under *Thylacoleo carnifex*, for a later date for the finding of specimen no. F.16457), and a letter from Stutchbury giving the title of the report and published with it (p. 1; p. 685—also numbered p. 1) is dated October 18th, 1853.

The letter and original description are republished by Stutchbury, 1855, *Further papers relative to the discovery of gold in Australia* . . . 45, 52-4.

3. *Thylacoleo*¹ Gervais, 1852. *Zoologie et paléontologie françaises (animaux vertébrés) ou nouvelles recherches sur les animaux vivants et fossiles de la France* 1 : 192, or 2 : 7 [of text for pl. 36].

Type species by subsequent indication *Thylacoleo carnifex* Owen, 1858 (by Owen, 1858, Article *Odontology* in *The Encyclopaedia Britannica* . . . (8th ed.) 16 : 447).

Either statement in Gervais is barely a description; for those who do not accept their adequacy, the next available use of the name is by Owen, 1858, pp. 447, 50.

The ascription of authorship to Gervais follows from the fact that, although he ascribes the name to Owen, he does not state that Owen is responsible for the other conditions which are needed to make it available.

The dates of issue of 1 : 192 and 2 : 7 of Gervais are not known to us; the work was issued in parts during 1848-1852 and the Bibliothèque Centrale du Muséum National d'Histoire Naturelle, Paris, was unable to provide us with any more precise information than is recorded by Sherborn, 1922, *Index animalium* . . . 1 : lviii. In accordance with *International Code of Zoological Nomenclature* Article 21 the date of publication is accepted here as 1852.

Gervais' statement in 1 : 192 is quoted by Owen, 1858, p. 447, and 1859, *Phil. Trans. R. Soc.* 149 : 320.

4. *Thylacopardus* Owen, 1888. In Anon., *Nature, Lond.* 39 : 215.
Type species by original indication *Thylacopardus australis* Owen, 1888.

Specific names

1. *australis* *Myiodon australis* Krefft, 1870 [as *Myiodon* (?) *australis*]. *Wellington Caves. (Correspondence relative to exploration of.)* [Parliamentary Paper, N.S.W.] : 7.

¹The similar generic name *Thylacodes* has been listed among fossil marsupials in error. It belongs to a mollusc. For an account of this erroneous usage see Anderson, 1929, *Rec. Aust. Mus.* 17 : 41; but it originates from Roger, 1894, *Ber. naturw. Ver. Schwaben* 31 : 20 (republished Roger, 1896, *Ber. naturw. Ver. Schwaben* 32 : 9). The reference given by Roger to Carus, 1888, *Zool. Anz.* 11 : 147, is an error for Anon., p. 460 of that volume.

Holotype a broken hooded terminal phalanx, no. F.7232, in the Australian Museum. Krefft Collection (see p. 37, under *Thylacinus major*. Owen, 1871, *Phil. Trans. R. Soc.* **161** : 262, gives the collectors as Professor Thomson and Mr Krefft).

Type locality Wellington Caves, New South Wales (Krefft does not include the locality in his description, but see p. 145, under *Halmaturus scottii*, concerning it. Owen, 1871, p. 262, records the locality as breccia-caves of Wellington Valley).

The original description is republished by Krefft, 1882, *Exploration of the caves and rivers of New South Wales* . . . : 8.

Mylodon australis is also described [as *Mylodon ? australis*] by Krefft, 1870, *Guide to the Australian fossil remains* . . . : 4. The date of the publication in 1870 of this Guide is unknown to us so it is taken here as having been published on December 31st of that year (*International Code of Zoological Nomenclature* Article 21(b)). The 1870 Parliamentary Paper was published between November 8th and November 14th (Anon., *The Sydney Morning Herald*, no. 10131, vol. 62, November 9th, 1870, p. 2, col. 1, and no. 10136, vol. 62, November 15th, 1870, p. 2, cols 3-5).

The descriptions in the Guide and the Parliamentary Paper are not identical. That of the Guide is republished by Krefft, 1871, *The industrial progress of New South Wales* . . . : 715. The holotype is first figured by Owen, 1871, pl. 13, figs 11, 12. These figures are republished by Owen, 1877, *Researches on the fossil remains of the extinct mammals of Australia* . . . 2, pl. 9, figs 11,12. It was redescribed and refigured by Owen, 1883, *Phil. Trans. R. Soc.* **174** : 579,80, pl. 40, figs 7, 8. The holotype is also illustrated by Krefft, 1882, *Exploration of the caves and rivers of New South Wales* . . . : Australian fossil remains, pl. 14, figs 7-9 (all figures reversed). The original description (with later amplifications by Krefft), is republished and the holotype refigured, by Etheridge, 1918, *Ann. Mag. nat. Hist.* (9)**2**:308-11, pl. 18, fig. 1.

2. *australis*

Thylacopardus australis Owen, 1888. In Anon., *Nature*, *Lond.* **39** : 215.

Holotype a nearly complete cranium, no. MF.9, in the Australian Museum. Formerly in the Geological and Mining Museum, Sydney.

Type locality Wellington Caves Reserve, New South Wales (Australian Museum Register); in one of several small caverns at a depth of 80 feet from the surface (Owen in Anon., p. 215).

Anderson, 1929, *Rec. Aust. Mus.* **17** : 47, in quoting from Owen's unpublished MS. gives further locality data in Owen's words as follows:

"a small cave near Mitchell's 'Breccia Cavern', 100 feet below the surface in Wellington Valley. A shaft had been sunk which led to the discovery of a series of small caverns, which were reached at a depth of 83 feet below its present surface".

For a note on Mitchell's Breccia Cavern see p. 37, under *Thylacinus major*.

The original description is an abstract of an unpublished paper read by Owen to the Royal Society on December 6th, 1888; the title of the paper is given by Owen, 1889 (or 1888), *Proc. R. Soc.* 45 : 99. Anderson, pp. 39-48, pls 19-22, discusses Owen's paper and publishes four plates that had been prepared to illustrate it. A printed proof copy of Owen's paper on *Thylacopardus australis* is in the British Museum (Natural History) Palaeontology Library ; this copy lacks the plates.

3. *carnifex*

Thylacoleo carnifex Owen, 1858. Article *Odontology* in *The Encyclopaedia Britannica, or dictionary of arts, sciences, and general literature* (8th ed.) 16 : 447, 50, text fig. 72.

Syntypes : (1). A mutilated cranium comprising much of the brain case and a right maxilla with P⁴ M¹, no. M.16591, in the British Museum (Natural History). Formerly no. 3853 in the Royal College of Surgeons of England (Flower, 1884, *Catalogue of the specimens illustrating the osteology and dentition of vertebrated animals* . . . 2 : 734). Transferred from the Royal College of Surgeons of England, October, 1946 (see p. 40, under *Thylacinus spelaeus*). Collected by Mr W. Adeney prior to January 25th, 1846 at Lake Colongulac (= Lake Timboon), near Camperdown, Victoria (see below). (2). A portion of a right mandibular ramus with P₄ M₁, no. F.16457 (P₄ only is figured (? from a cast) in text fig. 72), in the Australian Museum. Found by Mr S. Stutchbury, October 4th, 1853 at King Creek between the house on Clifton Station and a point about 8 miles upstream, Darling Downs, Queensland (*Mitchell Library manuscripts* A2639—Diary of a geological and mineralogical survey . . . by Samuel Stutchbury : 827, 8, 30).

Type localities Lake Colongulac, near Camperdown, Victoria, and King Creek between the house on Clifton Station and a point about 8 miles upstream, Darling Downs, Queensland.

No syntypes are specified by Owen in the original description which was published towards the end of June, 1858 (see below) but it contains information that both upper and lower "carnassials", i.e. P₄, were among the material upon which the description is based and, in addition, that there was sufficient of the cranium to demonstrate the foramen caroticum and the foramen lacrymale. From Owen in Anon., *The Leeds Mercury*, no. 6854, vol. 95, September 30th, 1858, p. 4, col. 3, we know that, more than ten years before publication, Owen was already in possession of specimen no. M. 16591. Further, from the date of receipt by the Royal Society of the manuscript and plates of *Phil. Trans. R. Soc.* 149 : 309-22, pls 11-15, we know that prior to September 19th, 1858, Owen was in possession of specimen no. M.16591 and a cast of specimen no. F.16457. Specimen no. F. 16457 agrees well with text fig. 72 of the original description. Accordingly these two specimens are recognized by us as the basis for the original description of *T. carnifex* Owen.

Syntype no. M.16591 was subsequently described and figured by Owen, 1859, Article *Palaeontology* in *The Encyclopaedia Britannica* . . . (8th ed.) 17 : 175, text fig. 115 (in part); and *Phil. Trans. R. Soc.* 149 : 310-17, pl. 11, figs 1,2; pl. 13, fig. 1; pl. 14, fig. 1; pl. 15, fig. 1; the latter description and figures were republished by Owen, 1877, *Researches on the fossil remains of the extinct mammals of Australia* . . . 1 : 110-17; 2, pl. 11, figs 1,2; pl. 13, fig. 1; pl. 14, fig. 1; pl. 15, fig. 1. The description and text fig. 115 from *The Encyclopaedia Britannica* . . . Article *Palaeontology* were republished by Owen, 1860, *Palaeontology* . . . : 396,7, text fig. 141 (2nd ed., 1861 : 431,2, text fig. 173).

The dates of collection and of acquisition by Owen of no. M.16591 are established from two sources. Firstly Owen in Anon., *The Leeds Mercury*, no. 6854, vol. 95, September 30th, 1858, p. 4, col. 3, said he received the specimen in 1846; and secondly Owen, 1859, *Phil. Trans. R. Soc.* 149 : 310, published a letter from Dr H.*Hobson, dated January 25th, 1846, concerning advice of the dispatch of the syntype to Owen. Later Owen, 1877, 1 : 184, lists the species as having been found by William Adeney only at Lake Colongulac and gives the date 1845 (for a note on the table wherein this information is listed see p. 73, under *Phascolomys thomsoni*).

The first published accounts known to us of the find of the syntypical cranium, and its locality, are in anonymous newspaper reports of an address by Owen to the British Association for the Advancement of Science at Leeds in 1858; these are *The Leeds Mercury*, no. 6852, vol. 95, September 28th, 1858, p. 4, col. 5 and no. 6854, vol. 95, September 30th, 1858, p. 4, col. 3; there the find is said to have been made at Lake Timboon.

Owen later, 1859, *Phil. Trans. R. Soc.* 149 : 309,10, gives the locality as a calcareous conglomerate stratum, eighty miles S.W. of Melbourne, Victoria and (quoting Dr Hobson) as Lake "Colungoolac". Bonwick, 1858, *Western Victoria; its geography, geology, and social condition* . . . : 26, notes that the fossil skull of a gigantic marsupial lion was found on the eastern side of Lake Colongulac, but gives no further details. Gill, 1953, *Mem. natn. Mus. Vict.* no. 18 : 37, believes that this note refers to the "holotype", i.e. to syntype no. M.16591.

The mutilated cranium has been widely accepted as the holotype of *Thylacoleo carnifex* (e.g. Flower, 1884, p. 734; Lydekker, 1887, *Catalogue of the fossil Mammalia in the British Museum (Natural History)* 5 : 190; Anderson, 1929, *Rec. Aust. Mus.* 17 : 40; Woods, 1956, *Mem. Qd Mus.* 13 : 125) and Recommendation 74A of the *International Code of Zoological Nomenclature* should be noted when lectotype selection is undertaken for this species.

The rostral portion of this skull is no. P1902 in the National Museum of Victoria and is described and figured by McCoy, 1876, *Prodromus of the palaeontology of Victoria* . . . Decade 3 : 7-12, text figs 1,2; pl. 21, figs 1-1b (all figures reversed). McCoy quotes Adeney's opinion that it might have belonged to the syntype he collected earlier; this was later confirmed by Gill, 1965, *Victorian Year Book 1965* : 7. For a letter by Mr W. Adeney, dated August 16th, 1855, giving details of the locality from whence his specimens came, see Owen, 1877, 1 : 184, 5. The provenance of the fossil mammal remains of Lake Colongulac is discussed by Gill, 1951, *Aust. J. Sci.* 14 : 69-73, and 1953, pp. 25-62; *Thylacoleo* is assigned by him, 1953, p. 37, to the Choccolyn Silts.

* The Henry Hobson of this published letter is likely to be E. C. Hobson.

The mandibular syntype, no. F.16457, is also a syntype of *Thylacoleo oweni* McCoy and was first described and figured, as *Schizodon*, by Stutchbury, 1853, *New South Wales. Geological and Mineralogical Surveys*. Eleventh tri-monthly report upon the geological and mineralogical structure of New South Wales : 9-11, 2 text figs (unnumbered) p. 11; this description and the figures are published also by Stutchbury, 1853, *New South Wales. Votes and Proceedings of the Legislative Council, during the session of the year 1853. With the various documents connected therewith* 2 : 693-5 (also numbered 9-11), 2 text figs (unnumbered) p. 695 (p. 11). The 1853 description and figures are republished by Stutchbury, 1855, *Further papers relative to the discovery of gold in Australia* . . . 52-4, 2 text figs (unnumbered) p. 54. For a note on the date of the eleventh tri-monthly report and dates of issue of the 1853 publications containing it, see pp. 48, 9, under *Schizodon*.

Owen, 1859, *Phil. Trans. R. Soc.* 149 : 317, records the mandibular syntype as having been obtained by Mr S. Stutchbury at Hodgson Creek, Darling Downs, 1853.

Syntype no. F.16457 was subsequently described and figured (?from a cast) by Owen, 1859, Article *Palaeontology* in *The Encyclopaedia Britannica* . . . (8th ed.) 17 : 175, text fig. 115 (in part; M₂ restored); and, from a cast, in *Phil. Trans. R. Soc.* 149 : 317-19, pl. 11, fig. 3; pl. 13, figs 4,5; the latter description and figures were republished by Owen, 1877, 1 : 117-19; 2, pl. 11, fig. 3; pl. 13, figs 4,5. The description and text fig. 115 of *The Encyclopaedia Britannica* . . . (8th ed.) 17 were republished by Owen, 1860, *Palaeontology* . . . : 396,7, text fig. 141 (2nd ed., 1861 : 432,3, text fig. 173). This syntype is also illustrated by Krefft, 1882, *Exploration of the caves and rivers of New South Wales* . . . Australian fossil remains, pl. 1, figs 10,10a.

The date of issue of volume 16 of *The Encyclopaedia Britannica* . . . (8th ed.) is indicated in an anonymous notice of publication in *The Athenaeum*, no. 1600, June 26th, 1858, p. 803, col. 3, which says that it was "Just published".

4. **crassidentatus** *Thylacoleo crassidentatus* Bartholomai, 1962. *Mem. Qd Mus.* 14 : 33-7, text fig. 1.

Holotype a portion of a right mandibular ramus with P₄-M₂ and the root of I₁, no. F.3565, in the Queensland Museum. Collected by Mr A. Bartholomai, January 25th, 1961 (Queensland Museum Register).

Type locality Chinchilla Rifle Range (Rifle Range no. 78), Parish of Chinchilla, Darling Downs, Queensland. Military grid reference 363677, Chinchilla 4 mile military map. Chinchilla Sand.

5. **oweni** *Thylacoleo oweni* McCoy, 1876. *Prodromus of the palaeontology of Victoria; or, figures and descriptions of Victorian organic remains* Decade 3 : 9-12.

Syntypes the specimens from localities in "New South Wales" (i.e. New South Wales and Queensland) described and identified by Owen as *Thylacoleo* in his three monographs on this genus, i.e. in *Phil. Trans. R. Soc.* for the years 1859, 1866, and 1871, and including:

- (1). A portion of a right mandibular ramus with $P_4 M_1$, no. F.16457, in the Australian Museum. Found by Mr S. Stutchbury, October 4th, 1853 at King Creek between the house on Clifton Station and a point about 8 miles upstream, Darling Downs, Queensland (*Mitchell Library manuscripts* A2639—Diary of a geological and mineralogical survey . . . by Samuel Stutchbury : 827,8, 30).
- (2). A slightly imperfect cranium, no. 39271, in the British Museum (Natural History). Presented by Mr E. Hill through Sir Daniel Cooper, Bart. From the freshwater deposits of Darling Downs, Queensland, through which the River Condamine has cut its bed.
- (3). A portion of a right mandibular ramus with $P_4 M_1$, no. F.16456, in the Australian Museum (also number T.2 (?) and T.1) on specimen). From the Condamine River, Darling Downs, Queensland (Australian Museum specimen label).
- (4). A fragmentary right premaxilla and maxilla with $I^1 C P^{1-4}$ (crowns of I^1 and C broken), no. 39994, in the British Museum (Natural History). Obtained by M. St Jean and presented through Sir Daniel Cooper, Bart. From freshwater deposits, Gowrie, Darling Downs, Queensland.
- (5). A portion of a left mandibular ramus with P_4 and stump of I_1 , no. 39995, in the British Museum (Natural History). Obtained by M. St Jean and presented through Sir Daniel Cooper, Bart. From freshwater deposits, Gowrie, Darling Downs, Queensland.
- (6). A left I^1 , no. 42526, in the British Museum (Natural History). Krefft Collection (see p. 37, under *Thylacinus major*). From Limestone Caves in Wellington Valley [Wellington Caves], New South Wales.
- (7), (8), (9). An upper canine, no. 42522; I^3 , no. 42519; and I^3 , no. 42518; in the British Museum (Natural History). Krefft Collection. Collected by Mr J. L. G. Krefft from the Breccia Cave of Wellington Valley [Wellington Caves], New South Wales (Krefft, *The Sydney Mail and New South Wales Advertiser*, no. 620, vol. 13, May 18th, 1872, p. 626, col. 2; republished by Krefft, 1872, *Ann. Mag. nat. Hist.* (4) 10 : 172).
- (10). A portion of a right mandibular ramus with $I_1 P_4 M_1$, no. F.16458, in the Australian Museum. Krefft Collection. From the Breccia-cave of Wellington Valley [Wellington Caves], New South Wales.
- (11). A portion of a right mandibular ramus with $I_1 P_4 M_1$, no. F.16454, in the Australian Museum. Krefft Collection. From the Breccia-cave of Wellington Valley [Wellington Caves], New South Wales.
- (12). A right P_4 , no. 42516, in the British Museum

(Natural History). Krefft Collection. From the Wellington Caves, New South Wales (the locality is given as the Limestone Caves of the Wellington Valley Sydney [sic], Australia in the British Museum (Natural History) Register). (13). A left I₁ lacking its tip and the proximal portion of the root and with a proximal part of the enamel crown exposed by removal of the cementum, no. 42536, in the British Museum (Natural History). Krefft Collection. From the Wellington Caves (British Museum (Natural History) Register).

Type localities King Creek between the house on Clifton Station and a point about 8 miles upstream, Darling Downs, Queensland; freshwater deposits, Darling Downs, Queensland, through which the Condamine River has cut its bed; Condamine River, Darling Downs, Queensland; freshwater deposits, Gowrie, Darling Downs, Queensland; Wellington Caves, New South Wales; Breccia Cave, Wellington Caves, New South Wales.

The whereabouts of the specimens (? all from New South Wales and Queensland) described and unequivocally identified by Owen, 1871, *Phil. Trans. R. Soc.* 161 : 213-66, pls 11-14, as *Thylacoleo*, additional to those listed above, is unknown. Since McCoy particularly included in *Thylacoleo oweni* only specimens from "New South Wales", specimens of unknown or unestablished locality cannot be regarded as syntypes.

There could be some doubt from the wording of McCoy's original proposal of the name *T. oweni* as to whether we should include the Stutchbury specimen within the syntypes of *T. oweni* on the grounds that, although it is a member of the "New South Wales species", it is not a "subsequently illustrated" specimen. Accordingly, to avoid controversy, the future selector of the lectotype should avoid that specimen.

Syntype (1), the right mandibular ramus no. F.16457, is described and figured from a cast by Owen, 1859, *Phil. Trans. R. Soc.* 149 : 317-19, pl. 11, fig. 3; pl. 13, figs 4,5. This description and the figures are republished by Owen, 1877, *Researches on the fossil remains of the extinct mammals of Australia* . . . 1 : 117-19; 2, pl. 11, fig. 3; pl. 13, figs 4, 5.

This specimen is also a syntype of *Thylacoleo carnifex* Owen and was named *Schizodon* by Stutchbury. For further details concerning it see p. 53, under *Thylacoleo carnifex*.

Syntype (2), cranium no. 39271, is described and figured by Owen, 1866, *Phil. Trans. R. Soc.* 156 : 73-82, pls 2; 3; 4, figs 1-4. This description and the figures are republished by Owen, 1877, 1 : 123-32; 2, pls 16; 17; 18, figs 1-4. More precise information which could relate to the date of collection (or receipt) and the locality is given by Owen, 1877, 1 : 184, who lists *Thylacoleo* as having been found by Edward S. Hill only at the one locality, Eton Vale, Darling Downs, and gives the date 1863. The British Museum (Natural History) Register says of this specimen that it was presented by Edward Hill, May 19th, 1865 and gives the locality as Condamine River, Queensland. For a note on Owen's 1877, 1 : 184, table wherein information is listed for *Thylacoleo* see p. 73, under *Phascolomys thomsoni*.

Syntype (3), the mandibular ramus no. F.16456, is described and figured (from illustrations) by Owen, 1866, pp. 80,1, pl. 4, figs 5,6. This description and the figures are republished by Owen, 1877, 1 : 130,1; 2, pl. 18, figs 5,6. It is illustrated also by Krefft, 1866, *Ann. Mag. nat. Hist.* (3) 18, pl. 11, fig. 1 (in part). This figure is republished by Owen, 1871, p. 245 text fig. 13 and 1877, 1 : 165 text fig. 13. It is further illustrated by Krefft, 1882, *Exploration of the caves and rivers of New South Wales* . . . : Australian fossil remains, pl. 2, fig. 7.

Syntype (4), the fragmentary premaxilla and maxilla no. 39994, is described and figured by Owen, 1871, pp. 214-19, pl. 11, figs 1-5; pl. 14 (in part). This description and the figures are republished by Owen, 1877, 1 : 134-9; 2, pl. 7, figs 1-5; pl. 10 (in part).

More precise information which could relate to the date of collection (or receipt) and locality is given by Owen, 1877, 1 : 184, who lists *Thylacoleo* as having been found by M. Satche St Jean only at one locality, St Jean Station, Darling Downs, and gives the date 1865. The British Museum (Natural History) Register says of this specimen that it was presented by Sir Daniel Cooper, Bart, July, 1866 (see also p. 65, under *Phascolomys magnus* Murie).

Syntype (5), the mandibular ramus no. 39995, is described and figured by Owen, 1871, pp. 214,15, 219-21, 233 text fig. 8 (figure reversed), 248 text fig. 14 (figure reversed); pl. 12, figs 1-5; pl. 14 (in part, i.e. reversed outline of ramus). This description and the figures are republished by Owen, 1877, 1 : 134,5, 139-41, 153, text fig. 8, 168 text fig. 14; 2, pl. 8, figs 1-5; pl. 10 (in part). It is further illustrated by Owen, 1877, 1 : 93 text fig. 15 (figure reversed); 2, pl. 6, fig. 12.

More precise information relating to the material of this species which was collected by M. Satche St Jean is given by Owen (see above). The British Museum (Natural History) Register says of this specimen that it was presented by Sir Daniel Cooper, Bart, July, 1866.

Syntype (6), the left I¹ no. 42526, is described and figured by Owen, 1871, pp. 221,2, pl. 11, figs 6,7. This description and the figures are republished by Owen, 1877, 1 : 141,2; 2, pl. 7, figs 6,7.

It is not clear whether Owen described this specimen only from photographs. In the original description, which was received by the Royal Society on September 27th, 1870, Owen refers to photographs (nos 28,28b) of no. 42526 which he had received from the Museum of Natural History [Australian Museum], Sydney but makes no precise statement that he had not seen the specimen as well. However, Lydekker, 1887, *Catalogue of the fossil Mammalia in the British Museum (Natural History)* 5 : 191, records that the specimen was not presented by the Trustees of the Australian Museum until 1871. Yet it is known that some material of *Thylacoleo* reached the British Museum (Natural History) by September 27th, 1870 (Krefft, 1870, in *Wellington Caves. (Correspondence relative to exploration of.)* : 7-12, and Owen, 1870, *Wellington Caves. (Further letter from Professor Owen, relative to exploration of.)* : 1. The British Museum (Natural History) Register records the specimen as being presented by the Trustees of the Australian Museum, Sydney, 1870.

Syntypes (7), the upper canine no. 42522, (8), the I³ no. 42519, and (9) the I³ no. 42518, are described and figured by Owen, 1871, p. 222, pl. 11, fig. 9 (no. 42522); fig. 10 (figure reversed) (no. 42519); pp. 222,3, pl. 11, figs 12a,b (no. 42518).

These descriptions and the figures are republished by Owen, 1877, 1 : 142; 2, pl. 7, fig. 9 (no. 42522); 1 : 142,3; 2, pl. 7, fig. 10 (no. 42519); 1 : 142,3; 2, pl. 7, figs 12a,b (no. 42518).

The locality of these specimens is given by Owen, 1871, p. 221, as Limestone Caves in Wellington Valley. We do not know whether Owen's description of these specimens is based solely upon photographs of them. For syntype (7), no. 42522, he refers to a photograph (no.28c) and for (8), no. 42519, to a photograph also (no.28c'), and gives the same information as he did in the case of syntype (6) above. Here too, Lydekker, p. 191, asserts that the specimens were not presented until 1871. In the case of syntype (9) no photograph is mentioned but again the specimen was not presented according to Lydekker, p. 191, until 1871 whereas the paper was received by the Royal Society on September 27th, 1870. As in the case of syntype (6) above, the British Museum (Natural History) Register does not support Lydekker's statement. The Register states that the specimens nos 42518, 42519 and 42522 were presented by the Trustees of the Australian Museum, Sydney, 1870.

Syntype (10), the portion of mandibular ramus no. F.16458, is described and figured from illustrations (photograph no. 10) by Owen, 1871, pp. 224,6, pl. 13, figs 1,4. This description and the figures are republished by Owen, 1877, 1 : 144-6; 2, pl. 9, figs 1,4.

Syntype (11), the portion of mandibular ramus no. F.16454, is described and figured from a photograph (no. 29) by Owen, 1871, pp. 224,5, pl. 13, fig. 2. This description and the figure are republished by Owen, 1877, 1 : 145; 2, pl. 9, fig. 2. It is also illustrated by Krefft, 1882, pl. 1, fig. 7 (in part).

Syntype (12), the right P₄ no. 42516, is noted and figured by Owen, 1871, p.225, pl. 12, fig. 6 (figure reversed). The notation and the figure are republished by Owen, 1877, 1 : 145,6; 2, pl. 8, fig. 6. Presented by the Trustees of the Australian Museum, Sydney, 1870 (British Museum (Natural History) Register).

Syntype (13), the left I₁ no. 42536, is described and figured by Owen, 1871, pp. 226,7, pl. 13, figs 5-7 (in part; figures reversed), 8 (figure reversed), 9. The description and the figures are republished by Owen, 1877, 1 : 146,7; 2, pl. 9, figs 5-9. Owen, 1883, *Phil. Trans. R. Soc.* 174 : 577, notes that a cast is involved in pl. 13, figs 5-7 and says of the cast that it was transmitted to him in 1870 and is of a tooth in the Museum of Natural History, Sydney, which was obtained by Mr Krefft from "a breccia cavern, Wellington Valley". Figs 5-7 appear to be drawn from British Museum (Natural History) cast no. M.29478 and with some surface details added from the syntype specimen no. 42536. Cast no. M.29478 is without accompanying data but might be the cast noted by Owen, 1871, p. 226, as having come from Mr Krefft and being of the entire inferior incisor of *Thylacoleo*, from the breccia-cave in Wellington Valley. Cast no. M.29478 is of a right I₁ and is the pair to Krefft's model of a left I₁ noted by Anon., 1870, *Q. Jl geol. Soc. Lond.* 26 : 415. Both the model of the left I₁ (formerly Geol. Soc. Lond. no. 13531), and the cast of the distal half of a left I₁ (formerly Geol. Soc. Lond. no. 13532) which enabled the model to be made (Anon., p. 415), are now casts no. M.10808 in the British Museum (Natural History) (transferred from the Geological Society of London, June, 1911). We do not know whether fig. 9 of the original plate represents an imagined section through syntype no. 42536 or whether it is a drawing of another specimen. Lydekker, p. 194, says of the syntype that it was presented by the Trustees of the Australian Museum in 1870.

6. **robustus**

Thylacoleo robustus Krefft, 1872. *The Sydney Mail and New South Wales Advertiser*, no. 621, vol. 13, May 25th, 1872, p. 649, col. 4, fig. 3.

Holotype a right upper canine, no. F.16479, in the Australian Museum.

Type locality Wellington Caves, New South Wales (Australian Museum Register).

The holotype is refigured (as a "new species of *Thylacoleo*") by Krefft, 1872, *Ann. Mag. nat. Hist.* (4) **10**, pl. 12, fig. 11. It is further refigured by Krefft, 1882, *Exploration of the caves and rivers of New South Wales* . . . : Australian fossil remains, pl. 1, fig. 8.

Family Vombatidae

Generic names¹

1. *Phascolonus* Owen, 1872. *Phil. Trans. R. Soc.* **162** : 251 footnote, 257. [Proposed conditionally with both generic and subgeneric rank as alternatives.]

Type species by original indication *Phascolomys gigas* Owen, 1858 (and as *Phascolomys* (*Phascolonus*) *gigas*).

2. *Ramsayia* Tate, 1951. *Am. Mus. Novit.* no. 1525 : 13.

Type species by original designation *Phascolomys curvirostris* Owen, 1885.

3. *Rhizophascolonus* Stirton, Tedford and Woodburne, 1967. *Rec. S. Aust. Mus.* **15** : 454.

Type species by original designation *Rhizophascolonus crowcrofti* Stirton, Tedford and Woodburne, 1967.

4. *Sceparnodon* Ramsay, 1880. In Anon., *The Sydney Morning Herald*, no. 13286, October 30th, 1880, p. 5, col. 4.

Type species by original indication *Sceparnodon stephensii* Ramsay, 1880.

Specific names²

1. *angustidens* *Phascolomys angustidens* De Vis, 1891. *Proc. Linn. Soc. N.S.W.* (2) **6** : 243-6.

Syntypes: (1). An imperfect mandible comprising a broken left mandibular ramus with the alveolus of I₁ and with P₄-M₄, and a fragment of the right ramus with M₁₋₄, no. F.2921 (formerly nos 12239, 12240), in the Queensland Museum. From Pilton, Darling Downs, Queensland (Queensland Museum Register). (2). An incomplete right mandibular ramus with I₁ broken and with M₁₋₃, no. F.6168 (formerly no. 12241), in the Queensland Museum. Collected by K. Broadbent from Gowrie, Darling Downs, Queensland (Queensland Museum Register). (3). An incomplete mandibular ramus with M₁₋₃ and portion of M₄; present whereabouts unknown.

¹*Chronozoon* De Vis, 1883, should possibly be included here, see p. 152.

²*Chronozoon australe* De Vis, 1883, should possibly be included here, see p. 152.

Type localities Pilton and Gowrie, Darling Downs, Queensland. De Vis only mentions Darling Downs.

2. *crowcrofti* *Rhizophascolonus crowcrofti* Stirton, Tedford and Woodburne, 1967. *Rec. S. Aust. Mus.* 15 : 454-6, text fig. 11.

Holotype a left P⁴, no. P13846, in the South Australian Museum. Collected by Dr R. H. Tedford, August 11th, 1962 (*pers. comm.*, R. H. Tedford) on South Australian Museum and University of California Museum of Paleontology expedition.

Type locality on east shore of Lake Ngapakaldi, between Birdsville Track and the shore of Lake Eyre, and between Cooper Creek and the Warburton River, South Australia (University of California Museum of Paleontology locality V6213, 1835 feet north of University of California Museum of Paleontology locality V5858). Approximate grid co-ordinate 642488, grid zone 5, Marree sheet, 1:506,880; Australian Army H.Q., Cartographic Co., 1942. In pebble conglomerate. Wipajiri Formation.

For a note on, and a photograph of, the type locality, see Stirton, 1963, *Aust. nat. Hist.* 14 : 183,4, 182 text figure. Details of the geology of the type locality are given in the paper which contains the original description.

3. *curvirostris* *Phascolomys curvirostris* Owen, 1885. In Anon., *Abstr. Proc. geol. Soc. Lond.* no. 476 : 1,2.

Holotype a left and a right premaxilla each with I¹, no. B.6148 (also numbered F.5342), in the Australian Museum. Collected by Mr H. Barnes, 1885 (Australian Museum Register).

Type locality Wellington Caves, New South Wales (Australian Museum Register). Owen gives the locality as "Wellington bone-caves".

The original description is an abstract of Owen, 1886, *Q. Jl geol. Soc. Lond.* 42 : 1,2, pl. 1. The date of publication of Owen's abstract in *Abstr. Proc. geol. Soc. Lond.* is not known precisely. The *Abstract* is for the meeting of November 4th, 1885; it is undated but notes on p. 5 (last page of no. 476) that "The next Meeting of the Society will be held on Wednesday, November 18, 1885". We accept that it was issued no later than that date. The date of Ramsay's usage in Anon., *Abstr. Proc. Linn. Soc. N.S.W.* for November 25th, 1885 : vii, is unknown to us but is before the end of 1885 (see pp. 108, 9, under *Palorchestes rephaim*).

The original description is republished as Owen in Anon., 1885, *Nature, Lond.* 33 : 94, and in Anon., 1886, *Ann. Mag. nat. Hist.* (5) 17 : 289,90. The date of publication of *Nature, Lond.* 33 : 94 is November 26th, 1885.

The holotype was known to Owen from a cast. Lydekker, 1887, *Catalogue of the fossil Mammalia in the British Museum (Natural History)* 5 : 152, notes that a cast of the type, cast no. M.2576, was presented to the British Museum (Natural History) by Sir R. Owen, K.C.B., 1886. The British Museum (Natural History) Register records that this cast was presented to the Museum through Sir Richard Owen by Prof. [sic] Ramsay.

4. *gigas*

Phascolomys gigas Owen, 1858. Article *Odontology* in *The Encyclopaedia Britannica, or dictionary of arts, sciences, and general literature* (8th ed.) 16 : 447, 50, text fig. 80.

Holotype or syntypes: A lower molar; and the anterior part of a mandible with P_4 - M_2 of each side and the roots of the incisors; present whereabouts unknown. There may be other syntypical material but it is unknown to us and, in addition, we do not know if there is more than the one donor and one locality involved. Mandibular specimen transmitted to Owen by Dr E. C. Hobson.

Type locality (mandibular specimen) a salt lake, nearly 100 miles W. of Melbourne, Victoria (letter from Dr Hobson, dated March 3rd, 1844, quoted by Owen, 1872, *Phil. Trans. R. Soc.* 162 : 252).

In 1872, Owen, p. 255, gave the date 1845 in connection with this species and said that it was found by Dr Hobson only in "Lacustrine deposits, Victoria"; other dates are also given on p. 255 for *P. gigas* but are later than 1858. If 1845 is the date of collection of the type mandible, it is inconsistent with the date, March 3rd, 1844, given for Hobson's letter on p. 252 of the same work. For a comment on the information included by Owen in 1872, p. 255, "Table of Localities . . ." see p. 73, under *Phascolomys thomsoni*.

The extent of the type material of *P. gigas* is obscure. In the original description, on p. 450, Owen figures a single molar tooth and elsewhere, in footnote 2 to p. 447, describes a fossil wombat by its size in a manner which makes it clear that he is referring to this species. Moreover, he gives a bibliographic reference there to Owen, 1846, *Trans. zool. Soc. Lond.* 3 : 306, which gives the origin of the material. The figure of the single tooth does not agree in detail with the teeth in the mandible subsequently figured by Owen, and said to be that sent to him by Hobson, and we are unable to decide whether it is a poor figure of a tooth from that mandible or whether it is a different specimen. Accordingly, we record both possibilities here. Of the material transmitted by Hobson to Owen only the type mandible can be recognized by us (from the data given for it by Owen, 1872, p. 252).

Shortly after publication of the original description (for a discussion of the date of publication see p. 53, under *Thylacoleo carnifex*), an anonymous newspaper report of an address, given by Owen, in *The Leeds Mercury*, no. 6854, vol. 95, September 30th, 1858, p. 4, cols 2,3, stated that "These fossils had been noticed by the Professor, and referred to *Phascolomys gigas*, in the Transactions of the Zoological Society as early as 1842". We can find no trace of this earlier usage

of the name. Without doubt, this reference is that given by Owen in 1858, Article *Odontology* in *The Encyclopaedia Britannica* . . . 16 : 447 footnote 2, i.e. where there is an almost identical description to that given in the report of the address. There, 1846, p. 306, Owen refers to "evidence . . . of an extinct Wombat, a true *Phascolomys*, at least four times as large as either of the known existing species" but mentions no specific name. A brief anonymous account of Owen's address is also included in *The Leeds Mercury*, no. 6852, vol. 95, September 28th, 1858, p. 4, col. 5, but without the new name.

The type mandible is described and figured by Owen, 1872, pp. 251,2, pl. 39, figs 1-3; this description and the figures are republished by Owen, 1877, *Researches on the fossil remains of the extinct mammals of Australia* . . . 1 : 349,50; 2, pl. 64, figs 1-3. The original text figure is republished by Owen, 1859, Article *Palaeontology* in *The Encyclopaedia Britannica* . . . (8th ed.) 17 : 175 text fig. 114; and also 1860, *Palaeontology* . . . : 395 text fig. 140 (2nd ed., 1861 : 431 text fig. 172).

5. *hacketti*

Phascolomys hacketti Glauert, 1910. *Rec. West. Aust. Mus.* 1 : 15-29, pls 2,3.

Holotype an incomplete skeleton which includes a cranium and mandible, no. 60.10.3, in the Western Australian Museum.

Type locality Mammoth Cave, near Margaret River, Western Australia ("From a 'blow hole' . . . evidently of more recent age than the material which contained the bones of *Diprotodon* and *Nototherium*").

Glauert, 1948, *West. Aust. Nat.* 1 : 100-4, and Merrilees, 1968, *J. Proc. R. Soc. West. Aust.* 50 : 66, published further remarks on the type locality. For an anonymous note on the discovery of the holotype see *The West Australian* [Perth], no. 7442, vol. 26, February 2nd, 1910, p. 4, col. 1.

6. *krefftii*

Phascolomys krefftii Owen, 1872. *Phil. Trans. R. Soc.* 162 : 178, pl. 17, figs 2,6.

Holotype a rostrum with broken incisors, broken premaxillae, broken maxillae and nearly complete nasals, no. 42601, in the British Museum (Natural History). Krefft Collection (see p. 37, under *Thylacinus major*).

Type locality Breccia Cave, Wellington Caves, New South Wales.

Owen, p. 178, says that the holotype was discovered by Gerard Krefft; and Lydekker, 1887, *Catalogue of the fossil Mammalia in the British Museum (Natural History)* 5 : 151, notes that it was presented by the Trustees of the Australian Museum, 1870. Owen, 1872, *Phil. Trans. R. Soc.* 162 : 255, only lists the species as having been found by Prof. Thomson and Gerard Krefft and, by them, only in the Breccia-cavern, Wellington Valley, and gives the date 1867.

This date for Thomson and Krefft is incorrect as they carried out their investigations at the Wellington Caves, and collected from the bone deposits, in 1869. Previously, Krefft had collected there in 1866 (see Krefft, *The Illustrated Sydney News*, no. 38, vol. 4, July 16th, 1867, p. 204, cols 1-3, p. 205, col. 1). For a comment on the information included by Owen in 1872, p. 255, "Table of Localities . . ." see p. 73, under *Phascolomys thomsoni*.

Owen, p. 178, says that the type came from the same "bone-cave" as the types of *Phascolomys mitchellii*, but the fact that the type locality of *Phascolomys mitchellii* is in some doubt need not confuse that of *Phascolomys krefftii* because Wellington Caves alone comprises Krefft's collecting locality (see also pp. 68,9, under *Phascolomys mitchellii*, and pp.32-5, under *Dasyurus lanarius*). The original description and figures are republished by Owen, 1877, *Researches on the fossil remains of the extinct mammals of Australia* . . . 1 : 319,20; 2, pl. 50, figs 2,6.

7. *magnus*

Phascolomys magnus Murie, 1866. *Proc. zool. Soc. Lond.* 1865 : 851-4. *Nec Phascolomys magnus* Owen, 1872.

Syntypes include: (1). An imperfect mandible; probably a specimen consisting of broken left and right rami with left P_4-M_3 , and right M_{1-4} , nos 43043, 43044, in the British Museum (Natural History). Obtained by Mr E. S. Hill from a freshwater deposit, Eton Vale, Darling Downs, Queensland, in 1863 and presented by Sir Daniel Cooper, Bart (Owen, 1872, *Phil. Trans. R. Soc.* 162 : 249). Presentation date "About 1871" (Lydekker, 1887, *Catalogue of the fossil Mammalia in the British Museum (Natural History)* 5 : 158). (2). Portion(s) of an ulna. (3). Portion(s) of a radius. (4). A tibia. (5). Several vertebrae and various fragments of different bones.

Type locality ? Eton Vale, Darling Downs, Queensland.

Murie introduced the name *Phascolomys magnus* in a conditional manner for the Darling Downs specimens, saying that the remains were similar to those from Victoria mentioned earlier by Owen, but Murie was not aware that Owen had already given a name (*Phascolomys gigas* Owen, 1858) to the species. Later, although Owen discussed Murie's paper in his synthesis of the fossil wombats (1872, *Phil. Trans. R. Soc.* 162 : 173-96, pls 17-23; 241-58, pls 32-40), he made no mention of *Phascolomys magnus* Murie and allocated the specimen which is probably Murie's mandibular syntype, nos 43043, 43044, to *Phascolomys gigas*.

The probable mandibular syntype, nos 43043, 43044, is described and figured by Owen, pp. 248-51, pl. 36, figs 1-3; pl. 37; pl. 38, fig. 1 (some figures partly restored). This description and the figures are republished by Owen, 1877, *Researches on the fossil remains of the extinct mammals of Australia* . . . 1 : 346-9; 2, pl. 61, figs 1-3; pl. 62; pl. 63, fig. 1. Stephenson, 1964, *Proc. zool. Soc. Lond.* 142 : pl. 1, fig. A, also figured this specimen.

We have attempted to identify syntypes in the collection of the British Museum (Natural History) by locating all specimens identified by Lydekker, pp. 158-60, as being specimens of fossil wombats from Darling Downs and which were not

specified by him as having been presented or purchased after December 12th, 1865 (the date on which Murie's paper was read). We have concluded that, whilst it is possible to identify specimens by these means, which agree reasonably well with what is known of Murie's material, there is no certainty that all specimens available to Murie are still in the collection and, moreover, that Lydekker's identification of material of wombats would coincide with Murie's. Accordingly we have rejected the specimens thus located as being certainly syntypes because we are not satisfied that the procedures employed are adequate for positive identification. However we list the specimens so identified, here, and the conclusions we have reached, in case additional information comes to hand which will allow the conclusions to be carried further.

Of the specimens currently in the collection only nos 38606, 38782, 38790, 38793, 38793a, 39992 and 43044 agree with Murie's statements that the specimens upon which the species was founded are firstly specimens (specimens not said by Murie to include casts) in the British Museum, secondly are from the Darling Downs, thirdly were presented by Sir Daniel Cooper, Bart, and by "T. W. Isaacs" [i.e. F.N. Isaac], and finally are bones "several times as large¹ as those of either *P. wombat* or *P. platyrhinus*". Specimens numbered 38782, 38790, 38793 and 38793a are recorded in the British Museum (Natural History) Register as having been presented by F. N. Isaac, 1861; no locality is given there for them. Lydekker, p. 160, gives the locality as Darling Downs. The donation date is not included in the entry for no. 39992 in the British Museum (Natural History) Register. Lydekker, p. 160, gives it as 1865 but no. 39992 was presented by Sir Daniel Cooper and the Donations Book for the Department of Geology mentions only the years 1864 and 1866 for his donations (see below). The British Museum (Natural History) Register says of no. 39992 that it was collected by M. St Jean, at Gowrie, near Drayton, Darling Downs, Queensland.

Specimen no. 43044 (and no. 43043—its other ramus), is the only specimen which agrees with Murie's description of a mandibular specimen, i.e. "Portions of a lower jaw containing teeth" and its date of accession is not known. Since we know that Cooper presented material from Eton Vale before 1865, which included this species, we regard Lydekker's statement concerning no. 43044 (i.e. that it was presented "About 1871") as not debarring it from having been presented as early as 1864. The fact that the material presented by Cooper in 1866 is known to be from Gowrie near Drayton (see below) suggests as well that no. 43044, which is from Eton Vale, is part of the 1864 collection.

The originals of the two plaster casts of mandibles listed by Murie, p. 851, cannot be syntypes because he says that they "evidently" belong to the same species, i.e. he allocates them to the species—but in a qualified manner.

Specimen, no. 38606, should probably also be listed among possible syntypes although Murie only lists one mandible ("Portions of a lower jaw"). However, he mentions that the specimens he listed were "among others" and it is scarcely likely, if he had seen the collection in the British Museum (Natural History), that no. 38606 was not one of the specimens included by him in his general statement and description. Specimen no. 38606 is recorded in the British Museum (Natural History) Register as having been presented by Sir Daniel Cooper, Bart, October, 1864; the locality given there for it is fluviatile deposits, Eton

¹We have interpreted this in a general sense. While some dimensions may be less than twice as large, the general bulk of the specimens is much larger than that represented by modern *Vombatus*.

Vale, Darling Downs, Queensland. The specimen is described and figured as *Phascolomys gigas* by Owen, 1872, p. 252, pl. 40, fig. 6. This description and the figure are republished by Owen, 1877, 1 : 350; 2, pl. 65, fig. 6.

The Donations Book for the Department of Geology, British Museum (Natural History) records that on October 15th, 1864 Sir Daniel Cooper, Bart, presented "Parts of the Jaws, teeth, pelvis, & other bones of a *Diprotodon australis*. Parts of the jaws & teeth of *Phascolomys magnus* & of a smaller fossil Wombat. Parts of the skeleton & dentition of *Macropus*. From Fluvial deposits, Eton Vale, (middle of), Darling Downs, Queensland, Australia". The only other entry for Sir Daniel Cooper in the Donations Book records that on July 23rd, 1866, he presented "Fossil Mammalian and Reptilian remains consisting of bones of *Thylacoleo*, *Diprotodon*, *Nototherium*, *Phascolomys*, *Macropus*, *Megalanina*, &c. collected by M. St Jean at Gowrie, near Drayton Darling Downs Queensland, Australia". However, an earlier donation by Sir Daniel Cooper in 1861 of "various portions of the Skeleton of *Diprotodon*, *Nototherium*, and other Marsupial quadrupeds; and a vertebra of *Megalanina prisca*, from Gourie [sic], Queensland" is recorded by Waterhouse, 1862, *British Museum. Return to . . . The House of Commons, dated 29 April 1862 . . .* : 22. We have followed Owen in giving the date 1863 as the date upon which the probable syntypical mandible was obtained by Mr E. S. Hill. Data from other sources which confuse the issue are, firstly, specimen numbered 43043, 43044 is recorded in the British Museum (Natural History) Register as having been presented by Sir Daniel Cooper, Bart; the locality given there for it is Eton Vale, Darling Downs, Queensland. The date of presentation is not mentioned in the Register. The date of registration is unknown. Secondly, Owen, 1872, p. 255, lists *Phascolomys gigas* (in which he placed this mandible) as being found at Eton Vale only by Mr E. S. Hill, and gives the date 1865. This date is inconsistent with the date 1863 given by Owen for specimen nos 43043, 43044 if 1865 is to be interpreted as the date on which the specimen was collected. For a comment on the information included by Owen in 1872, p. 255, "Table of Localities . . ." see p. 73, under *Phascolomys thomsoni*.

8. *magnus*

Phascolomys magnus Owen, 1872. In Anon., *Nature, Lond.* 5 : 503. *Nec Phascolomys magnus* Murie, 1866.

Syntypes two cranial specimens more fully described, and figured, by Owen, 1872, *Phil. Trans. R. Soc.* 162 : 246-8, pl. 35, figs 1-5. These are a palatal fragment with left and right P⁴-M⁴, no. 39989 (pl. 35, figs 1-5) (figure 3 reversed), and a portion of a right maxilla with M¹⁻³, no. 38607, in the British Museum (Natural History). Presented by Sir Daniel Cooper, Bart, October, 1864 (no. 38607) and collected by M. St Jean and presented by Sir Daniel Cooper, Bart, July, 1866 (no. 39989) (British Museum (Natural History) Register). From fluvial deposits, Eton Vale (no. 38607) and Gowrie (no. 39989), Darling Downs, Queensland (see below).

Type localities Eton Vale (fluvial deposits) and Gowrie, Darling Downs, Queensland.

Syntype no. 38607 is recorded in the British Museum (Natural History) Register as having been presented by Sir Daniel Cooper, Bart, October, 1864; the locality given there for it is fluviatile deposits, Eton Vale, Darling Downs, Queensland.

Syntype no. 39989 is recorded in the British Museum (Natural History) Register as having been collected by M. St Jean, at Gowrie, near Drayton, Darling Downs, Queensland and presented by Sir Daniel Cooper, Bart, July, 1866. See p. 65, under *Phascolomys magnus* Murie, for notes on specimens presented to the British Museum (Natural History) by Sir Daniel Cooper.

Published data do not agree with the Register. Owen, p. 246, says that the syntypes are from freshwater deposits of Queensland and for no. 39989 adds Darling Downs (p. 248). Lydekker, 1887, *Catalogue of the fossil Mammalia in the British Museum (Natural History)* 5 : 148, gives the locality of syntype no. 38607 as Eton Vale and that of no. 39989 as Gowrie, Drayton, Queensland; but Gowrie and Drayton are two distinct, but nearby, localities of which Owen, 1872, pp. 255, 503, gives only Drayton for the species, and records only Sir Daniel Cooper, Bart, as having found it there, giving the date as 1864, on p. 255, and as 1865, on p. 503. We are satisfied that the locality given by Lydekker should be treated as Gowrie near Drayton in accordance with the Register. Owen, p. 255, lists the species as having been found at Eton Vale only by Mr E. S. Hill, and gives the date 1865. If this date is the date of collection it is inconsistent with the date of presentation given in the British Museum (Natural History) Register for syntype no. 38607, i.e. 1864. For a comment on the information included by Owen in p. 255, "Tables of Localities . . ." see p. 73, under *Phascolomys thomsoni*.

Lydekker, p. 148, says that specimen no. 39989 is the type; Recommendation 74A of the *International Code of Zoological Nomenclature* should be noted, when lectotype selection is undertaken for the species.

The original description is in an abstract of a paper read on April 18th, 1872, by Owen to the Royal Society of London and containing descriptions of two new species of wombats. The full text is published as Owen, 1872, *Phil. Trans. R. Soc.* 162 : 241-58, pls 32-40. There *Phascolomys magnus* is described on pp. 246-8, pl. 35, figs 1-6. The date of publication of the abstract is April 25th, 1872 and, since the date of publication in 1872 of the *Phil. Trans. R. Soc.* paper is unknown to us (the Royal Society of London is also ignorant of it), it must be taken as December 31st of that year (*International Code of Zoological Nomenclature* Article 21(b)) and the abstract given priority.

The paper was also abstracted as Owen in Anon., 1872, *Proc. R. Soc.* 20 : 306, which was published after the abstract in *Nature, Lond.* The part, no. 134, containing p. 306, was published between May 9th and May 30th, 1872 because p. 312 of no. 134 contains a postscript dated as received on May 9th, 1872, while the front cover of no. 134 carries a notice requesting applications to the Government-Grant Committee to be forwarded to the Secretary of the Royal Society before the 31st of May.

The description of *P. magnus* in the abstract in *Nature, Lond.* consists of a comparison in size of several species of which two were undescribed. Of the species considered, *P. parvus*, *P. platyrhinus* and *P. gigas*, had been described previously. One of the undescribed species, *P. medius*, was described as "intermediate in bulk" between *P. gigas* and *P. parvus* and markedly larger than *P. platyrhinus*. The remaining undescribed species, *Phascolomys magnus*, "Next

followed" before *P. gigas*. It might be held that the term "Next followed" is ambiguous and does not refer to the character of the wombat but to the order of description. However, the abstract in *Proc. R. Soc.* **20** makes it clear that both are coincident since "The extinct species so reconstructed are described in the order in which they progressively predominate in bulk over the existing Wombats". Accordingly, the description is accepted by us as a statement which characterizes the species and is adequate to make the name available.

The description and figures of the syntypes in *Phil. Trans. R. Soc.* **162** are republished by Owen, 1877, *Researches on the fossil remains of the extinct mammals of Australia* . . . **1** : 344-6; **2**, pl. 60, figs 1-5. Syntype no. 39989 is also figured by Stephenson, 1964, *Proc. zool. Soc. Lond.* **142** : pl. 2, fig. A.

9. *medius*

Phascolomys medius Owen, 1872. In Anon., *Nature, Lond.* **5** : 503.

Syntypes three cranial specimens more fully described, and figured, by Owen, 1872, *Phil. Trans. R. Soc.* **162** : 241-6, pl. 32, figs 2-7; pl. 33, figs 2-6; pl. 35, fig. 7.

Syntypes: (1) and (2). Anterior portions of the crania of two individuals, nos 39991 (pp. 241-4, pl. 32, figs 2-7) and 32904 (p. 244, pl. 33, figs 2-6), in the British Museum (Natural History). No. 39991 collected by M. St Jean at Gowrie, near Drayton, Darling Downs, Queensland and presented by Sir Daniel Cooper, Bart, July, 1866 (British Museum (Natural History) Register). No. 32904 purchased at Stevens' auction rooms (British Museum (Natural History) Register). (3). A palate, no. F.5301 (p. 243, pl. 35, fig. 7), in the Australian Museum. Described by Owen from a photograph. From "the breccia-cave of Wellington Valley [Wellington Caves], New South Wales" [but its preservation suggests Darling Downs, Queensland as a more likely locality for it].

Type localities Gowrie, Darling Downs, Queensland and "the breccia-cave of Wellington Valley [Wellington Caves], New South Wales".

Owen did not give a locality for his syntypes nos 39991, 32904 in an unambiguous manner on p. 241 and it is possible to interpret his statement there to mean that two maxillary specimens and a mandibular specimen submitted to him in 1865 were obtained by Edward S. Hill from freshwater deposits exposed in the bed of a tributary of the Condamine River, at Eton Vale, Queensland, and presented by Sir Daniel Cooper, Bart; and Eton Vale is given by him on p. 243 as the locality for no. 39991. However, the British Museum (Natural History) Register specifies other data for the two maxillae (see above) except that Sir Daniel Cooper is the presenter of one of them (see also p. 65, under *Phascolomys magnus* Murie concerning Sir Daniel Cooper and the locality Eton Vale and see p. 73, under *Phascolomys thomsoni*, concerning ambiguous information given by Owen for fossil wombats.

Lydekker, 1887, *Catalogue of the fossil Mammalia in the British Museum (Natural History)* 5 : 150, gives the localities "Gowrie, Drayton" (no. 39991) and "Pleistocene of the Condamine River" (no. 32904) (see p. 66, under *Phascolomys magnus* Owen, for a comment on the locality Gowrie, Drayton as used by Lydekker).

Syntype no. 32904 is recorded in the British Museum (Natural History) Register as having been purchased at Stevens' auction rooms and could belong to the Boydian Collection; see pp. 69,70, under *Phascolomys parvus* for notes on this Collection. Lydekker, p. 150, states that it was purchased about 1854.

The original description is in an abstract of the paper later published by Owen, 1872, *Phil. Trans. R. Soc.* 162 : 241-58, pls 32-40. There *Phascolomys medius* is described on pp. 241-6, pl. 32, figs 2-7; pl. 33, figs 2-6; pl. 34; pl. 35, fig. 7. The paper was also abstracted as Owen in Anon., 1872, *Proc. R. Soc.* 20 : 306. For the dates of publication of these works and their priority, and a note on the original description, see p. 66, under *Phascolomys magnus* Owen.

The *Phil. Trans. R. Soc.* 162 description and figures of syntypes nos 39991, 32904 are republished by Owen, 1877, *Researches on the fossil remains of the extinct mammals of Australia* . . . 1 : 339-41; 2, pl. 57, figs 2-7 (no. 39991); 1 : 341,2; 2, pl. 58, figs 2-6 (no. 32904); and syntype no. F.5301 by Owen, 1877, 1 : 341; 2, pl. 60, fig. 7. Owen's pl. 33, fig. 2 of syntype no. 32904 is republished by Ride, 1967, *Rec. S. Aust. Mus.* 15 : 423 text fig. 2A. Syntype no. F.5301 is also figured by Krefft, 1882, *Exploration of the caves and rivers of New South Wales* . . . : Australian fossil remains, pl. 5; fig. 3.

Owen also mentions two mandibular specimens, nos 39990 and M.10807, in the British Museum (Natural History), in his *Phil. Trans. R. Soc.* 162 paper. However, he is definite in his statement in 1872, p. 244, that he merely referred the mandibular characters to the species on the grounds of their compatibility (i.e. the size of teeth and jaw) with those which he described from the syntypical maxillae. We therefore regard these as referred specimens and not as syntypes.

10. *mitchellii*

Phascolomys mitchellii Owen, 1838. In Mitchell, *Three expeditions into the interior of eastern Australia, with descriptions of the recently explored region of Australia Felix, and of the present colony of New South Wales* 2 : 362,3, pl. 30, figs 4-7. Syntypes a mutilated cranium, no. M.10791 (Mitchell no. VIII; Geol. Soc. Lond. no. 13343) (fig. 4), a right mandibular ramus with attached anterior portion of the left ramus, no. M.10792 (Mitchell no. VIII.a; Geol. Soc. Lond. no. 13344) (fig. 5), a right maxillary tooth row, no. M.10793 (Mitchell no. VIII.b; Geol. Soc. Lond. no. 13345) (fig. 6), and an incomplete right mandibular ramus with I₁ (broken), P₁-M₁, no. M.10794 (Mitchell no. VIII.c; Geol. Soc. Lond. no. 13373), in the British Museum (Natural History) (transferred from the Geological Society of London, June, 1911). Sir Thomas Mitchell Collection.

Type locality "Wellington Valley", New South Wales.

For notes on the Sir Thomas Mitchell Collection and the locality "Wellington Valley" see pp. 32-5, under *Dasyurus lanianus*.

Owen, 1872, *Phil. Trans. R. Soc.* 162 : 255, lists the species as having been found in the Breccia-cavern, Wellington Valley by Sir Thomas Mitchell and gives the date 1836. For a comment on the information included by Owen in 1872, p. 255, "Table of Localities . . ." see p. 73, under *Phascolomys thomsoni*.

The original description and figures are republished in Mitchell's 2nd ed., 1839, 2 : 368,9, pl. 48, figs 4-7, while the former is republished in part by Woods, 1862, *Geological observations in South Australia* . . . : 381. Owen, 1872, p. 178 footnote, says that the types are illustrated in Mitchell's pl. 48, figs 4-7. Figure 7 (section of upper and lower incisors) is referred to by Owen, in Mitchell, 1838, 2 : 363 (2nd ed., 1839, 2 : 369), only as "the wombat's teeth", but in the list of illustrations in Mitchell, 1838, 1 : xv, reference to pl. 30 (2nd ed., 1839, 1 : xv, reference to pl. 48), is given "figure 7 being a section of the teeth of the same fossil species of wombat". We take this to mean that the sections are through syntypes but we are unable to specify which syntypes they illustrate.

11. *parvus*

Phascolomys parvus Owen, 1871. In Anon, *Nature, Lond.* 5 : 133.

Lectotype a damaged left mandibular ramus formerly in the Boydian Collection and now no. 32893 in the British Museum (Natural History). Purchased, 1857 (Lydekker, 1887, *Catalogue of the fossil Mammalia in the British Museum (Natural History)* 5 : 156).

Type locality King Creek, Darling Downs, Queensland (Owen, 1872, *Phil. Trans. R. Soc.* 162 : 194, adds "Lacustrine deposits"),

The lectotype was selected by Merrilees, 1967, *Rec. S. Aust. Mus.* 15 : 415, from syntypes nos 32893, 32899, 32911x in the British Museum (Natural History).

Owen in Anon., 1872, *Nature, Lond.* 5 : 503, and Owen, 1872, *Phil. Trans. R. Soc.* 162 : 255, lists the species as having been found only at King Creek, Darling Downs, and there only by Mr Turner; he gives the date as 1847. For a comment on the information included by Owen in 1872, p. 255, "Table of Localities . . ." see p. 73, under *Phascolomys thomsoni*.

The history of Mr Turner's collection is well documented; in 1847 he brought a collection of fossil bones to Sydney and exhibited them (Anon., *The Sydney Morning Herald*, no. 3290, vol. 22, December 6th, 1847, p. 3, col. 2). This collection came chiefly from King Creek and was purchased from Mr Turner by Mr Boyd; subsequently the Boydian Collection was purchased in 1857 by the British Museum (Natural History)—see Clarke, 1853, *New South Wales. Geological Surveys*, Report no. X: 1-17, and Woodward, 1904, *The history of the collections contained in the Natural History Departments of the British Museum* 1 : 213,14; also see the anonymous report of an address given by Owen at the 1858 meeting of the British Association for the Advancement of Science, at Leeds, England, in *The Leeds Mercury*, no. 6854, vol. 95, September 30th, 1858, p. 4, cols 2,3, Hochstetter, 1859, *Sber. K. Akad. Wiss. Wien* 35 : 350,1, and Owen, 1872, *Phil. Trans. R. Soc.* 162 : 79 footnote (but date "1845 or 1846" incorrect).

The Boydian Collection was purchased at Stevens' auction rooms; specimens purchased then (and possibly others as well) were registered between, and including, the numbers 32842 and 32911x in the British Museum (Natural History) but it is not known whether all specimens with numbers in this series belong to the Boydian Collection. We are also unable to say if the Boydian Collection contained fossil specimens in addition to those which Boyd obtained from Turner.

The selection by Merrilees of no. 32893 as lectotype is consistent with Recommendation 74A of the *International Code of Zoological Nomenclature* in that Lydekker, p. 156, incorrectly took that specimen to be the type.

The original description is in an abstract of Owen, 1872, *Phil. Trans. R. Soc.* **162** : 173-96, pls 17-23. There the description of *Phascolomys parvus* is on pp. 193,4, pl. 19, figs 6,7; pl. 20, figs 6-8 (no. 32893); pl. 23, figs 6,7 (no. 32893).

The abstract containing the original description is republished as Owen in Anon., 1872, *Proc. R. Soc.* **20** : 67; and the 1872, *Phil. Trans. R. Soc.* **162** description and figures of the lectotype are republished by Owen, 1877, *Researches on the fossil remains of the extinct mammals of Australia* . . . **1** : 334,5; **2**, pl. 54, figs 6-8; pl. 56, figs 6,7.

12. *pliocenus* *Phascolomys pliocenus* McCoy, 1866. *Notes sur la zoologie et la palaeontologie [sic] de Victoria; par Frederick M'Coy* : 21,2.

Holotype a mandible, no. P7422, in the National Museum of Victoria.

Type locality the gold-cement of Dunolly, near Bendigo, Victoria.

The holotype is probably that specimen from Dunolly whose discovery is anonymously noted in *The Courier of the Mines and Bendigo Daily Mail*, no. 253, September 30th, 1856, p. 2, col. 6, and no. 260, October 8th, 1856, p. 3, col. 1; in the earlier note the specimen is said to have come from a depth of 30 feet and in the October 8th note, from a depth of 50 feet. Both notes associate the specimen with Mr Ferguson..

Walcott, 1920, *Rec. geol. Surv. N.S.W.* **9** : 69, records the original label as giving the depth as fifty feet.

Gill, 1964, *Proc. R. Soc. Vict.* **77** : 345, notes his opinion that the type came from a depth of 50 feet in a mass of secondary carbonate at the bottom of a channel filled with auriferous sands and gravels; his conclusion was based upon local tradition and inspection of the spoil heaps around the collapsed shaft which he identified as a shaft on Slaughteryard Hill, Dunolly (*pers. comm.*, E. D. Gill).

The original description is republished in English by McCoy, 1867, *Intercolonial Exhibition of Australasia, Melbourne, 1866-67* . . . : 321 (also numbered 15), and *Ann. Mag. nat. Hist.* (3) **20** : 190,1.

The date of the name is given as 1861 by Simpson, 1930, *Post-Mesozoic Marsupialia* : 67, but without a corresponding bibliographic reference. This earlier date probably refers to McCoy, 1861, *Catalogue of the Victorian*

Exhibition, 1861 . . . : 168 (republished McCoy, 1862, *Ann. Mag. nat. Hist.* (3) 9 : 145), where the *Phascolomys* of the Dunolly gold drift is mentioned, but without specific name. Barkly, 1865, *Trans. Proc. R. Soc. Vict.* 6 : xxv, also mentions it, but without name also; in the Anniversary address delivered to the Royal Society of Victoria on April 8th, 1861.

Gill, 1953, *Mem. natn. Mus. Vict.* no. 18 : 166, lists as syntypes specimens from Lake Bullenmerri, but these are not mentioned until a later description by McCoy, 1874, *Prodromus of the palaeontology of Victoria* . . . Decade 1 : 21,2, when the holotype is figured (pls 3,4) and noted as "one of the important specimens we owe . . . to Mr. J. A. Panton, Warden of Bendigo at the time of its discovery".

13. **ramsayi**

Sceparnodon ramsayi Owen, 1883. In Anon., *Nature, Lond.* 29 : 165.

Holotype an I¹, no. F.9923, in the Australian Museum.

Type locality unknown.

The holotype was known to Owen from a cast which was redescribed and figured by him, 1884, *Phil. Trans. R. Soc.* 175 : 247, pl. 11 (numbered 12 in error), figs 6,7,7¹,8. The holotype is also the probable holotype of *Sceparnodon stephensii* Ramsay.

The original description is an abstract of Owen, 1884, pp. 245-8, pl. 11 (numbered 12 in error), which contains descriptions of three specimens; a cast of Australian Museum specimen no. F.9923; no. M.1917, in the British Museum (Natural History); and a cast of South Australian Museum specimen no. P5018. Ride, 1967, *Rec. S. Aust. Mus.* 15 : 422, selected the latter specimen to be the lectotype of *S. ramsayi* being unaware of Owen's earlier published abstract which only contains a description of a cast of no. F.9923; the name is based upon a holotype and, hence, the lectotype selection must be disregarded.

Of the three specimens described by Owen, 1884, the holotype is identified by means of the statement in the abstract, "the most entire specimen being 5½ inches in length . . .". This applies to Owen's, 1884, description and figures of the cast of F.9923 and not to the others.

The holotype appears to be the specimen mentioned by Krefft, 1873, *The Sydney Mail and New South Wales Advertiser*, no. 688, vol. 16, September 6th, 1873, p. 302, col. 2 (see Ride, p. 419). For further comment on the holotype see below, under *Sceparnodon stephensii*.

14. **stephensii**

Sceparnodon stephensii Ramsay, 1880. In Anon., *The Sydney Morning Herald*, no. 13286, October 30th, 1880, p. 5, col. 4.

Holotype an I¹, probably no. F.9923 in the Australian Museum.

Type locality unknown.

The original description comprises an account of "a tooth" which was exhibited at the monthly meeting of the Linnean Society of New South Wales held on October 27th, 1880 and for which Ramsay proposed the name *Sceparnodon stephensii*. Our identification of the holotype with no. F.9923, for which the dates of

collection and acquisition by the Australian Museum are unknown, lies in the knowledge that Krefft, Ramsay's predecessor at the Australian Museum, had in *The Sydney Mail and New South Wales Advertiser*, no. 688, vol. 16, September 6th, 1873, p. 302, col. 2, mentioned finding such a tooth and the measurements which he gave (see Ride, 1967, *Rec. S. Aust. Mus.* 15 : 419) agree well with those of F.9923 except for thickness. However, we know from a letter from Ramsay to Owen, dated October 27th, 1881, and quoted in 1882, *Exploration of the caves and rivers of New South Wales* . . . : 37,8, that about this time Ramsay had seen another specimen, South Australian Museum no. P5018, and had it cast. He saw that specimen among fossils he was asked to determine at a Melbourne International Exhibition. The Exhibition ran from October 1st, 1880 to April 30th, 1881 (Anon., 1882, *Melbourne International Exhibition, 1880-1881* . . . : li, lxiv). The possibility arises, therefore, that the tooth exhibited by Ramsay was a cast of no. P5018; but we do not consider this likely since *Proc. Linn. Soc. N.S.W.* mentions both specimens and casts of specimens in accounts of exhibitions at meetings of the Society and in this case a specimen (a tooth) is specified.

The locality from which F.9923 came is unknown (letter from Ramsay to Owen cited above). Owen, 1884, *Phil. Trans. R. Soc.* 175 : 247, refers to this specimen as having come from Lake Eyre; and the locality near Lake Eyre is allocated to it in the British Museum (Natural History) Register entry for cast no. M.1919 of the probable holotype.

A version of the original description is published by Ramsay in Anon., 1881, *Proc. Linn. Soc. N.S.W.* 5 : 495, but here it lacks the specific name.

A cast of the probable holotype is described and figured as *Sceparnodon ramsayi* by Owen, p. 247, pl. 11 (numbered 12 in error), figs 6, 7, 7', 8. Lydekker, 1887, *Catalogue of the fossil Mammalia in the British Museum (Natural History)* 5 : 158, notes that a cast of the probable holotype, cast no. M.1919, was presented to the British Museum (Natural History) by the Trustees of the Australian Museum, 1881. This cast is figured by Stephenson, 1964, *Proc. zool. Soc. Lond.* 142 : pl. 4, fig. A (in part).

The probable holotype is also the holotype of *Sceparnodon ramsayi* Owen, see p. 71.

15. thomsoni

Phascolomys thomsoni Owen, 1872. *Phil. Trans. R. Soc.* 162 : 192,3, pl. 18, figs 8,9; pl. 21, fig. 7.

Holotype a right mandibular ramus broken at both ends and lacking the incisor, no. 38608, in the British Museum (Natural History). Presented by Sir Daniel Cooper, Bart, October, 1864 (British Museum (Natural History) Register).

Type locality ? fluviatile deposits, Eton Vale, (middle of), Darling Downs, Queensland.

The data given above are not those given by Owen. The holotype is recorded in the British Museum (Natural History) Register as having been presented by Sir Daniel Cooper, Bart, October, 1864; no locality is given there for it but we refer

it, with doubt, to Eton Vale, the locality from which the 1864 collection comes; see p. 65, under *Phascolomys magnus* Murie, for notes on specimens presented to the British Museum (Natural History) by Sir Daniel Cooper. Owen gives the locality as Gowrie, Darling Downs, Queensland (and adds "lacustrine deposit") and says that it was presented by Sir William McArthur, Bart.

In the same year as the original publication, Owen in Anon., 1872, *Nature, Lond.* 5 : 503, and also 1872, *Phil. Trans. R. Soc.* 162 : 255, contradicted his earlier statement of locality by listing *Phascolomys thomsoni* as having been found only at Drayton, Darling Downs, and there only by Sir Daniel Cooper, Bart; he gives two dates, 1865 (in *Nature, Lond.*) and 1864 (in *Phil. Trans. R. Soc.*). When these lists are compared it is clear that dates referring to Drayton and St Jean Station are transposed. Lydekker, 1887, *Catalogue of the fossil Mammalia in the British Museum (Natural History)* 5 : 156, says that specimen no. 38608 was presented by Sir Daniel Cooper, Bart, 1864, and gives its locality as Pleistocene of Darling Downs, Queensland. Woodward, 1904, *The history of the collections contained in the Natural History Departments of the British Museum* 1 : 197-340, does not refer to Sir William McArthur while he notes, on p. 279, that Sir Daniel Cooper presented marsupial remains (from the "river deposits of Queensland") in 1861, 1864 and 1866.

We have often found Owen's apparently-useful lists of wombats to be a source of confusion. These lists (that in 1872, *Phil. Trans. R. Soc.* 162 : 255, is entitled "Table of Localities of Fossils of *Phascolomys*, showing:—" and in 1872, *Nature, Lond.* 5 : 503, is presented in a statement that Owen "exhibited in a tabular view the localities of the known existing and extinct Australian wombats as follows:— . . .") are virtually identical except for the transposition of dates mentioned above and the addition of *Phascolomys medius*, to the species listed from Wellington Valley, in the *Phil. Trans. R. Soc.* version. This version was republished by Owen, 1877, *Researches on the fossil remains of the extinct mammals of Australia* . . . 1 : 353.

The categories under which information is given in the tables appear to be unambiguous but, from our experience, the dates given, which seem to be those upon which specimens of the various species were found, are probably a mixture of not always correct collection, acquisition, and examination dates (for examples of errors see above and the date 1867 for the material collected by Thomson and Krefft at Wellington Valley—see p. 37, under *Thylacinus major* and pp. 62,3, under *Phascolomys krefftii*). While that column of the table headed "By whom found", in the *Nature, Lond.* version, and "By whom", in *Phil. Trans. R. Soc.* 162, may contain names of donors in some cases instead of those of the finders; for example Dr G. Bennett, in Queensland, in 1861 who, from his remarks in 1872, *Ann. Mag. nat. Hist.* (4) 9 : 314-21, seems unlikely to have collected there prior to November, 1871 (and for whom Coxen, 1894, *Proc. R. Soc. Qd* 10 : 38, specifies only 1871 as a year in which he visited the Darling Downs); and Sir Daniel Cooper, in Queensland, in 1864 or 1865, who is known to have returned to England in 1861 (Anon., *The Sydney Morning Herald*, no. 20044, June 7th, 1902, p. 9, col. 4) where he resided until his death in 1902 (Anon., 1958; Article, Sir Daniel Cooper in *The Australian Encyclopaedia* 3 : 50).

This confusion is not confined to Owen's tables of wombats but occurs again in similar tables by him for *Thylacoleo* (1877, 1 : 184), *Diprotodon*¹ (1870, *Phil. Trans. R. Soc.* 160 : 570; republished 1877, 1 : 240) and *Nototherium*¹ (1872, *Phil. Trans. R. Soc.* 162 : 79; republished 1877, 1 : 287).

¹Proven examples of confusion of donor with finder occur in the *Diprotodon* and *Nototherium* tables. Sir Thomas Mitchell is listed as the finder of *Diprotodon* and *Nototherium* in the Darling Downs in 1842 but see p. 98, under *Nototherium inerme*.

Many of the localities noted in Owen's tables are on the Darling Downs, Queensland; for the location of the classic fossil marsupial deposits on the Darling Downs and comments on some collections from there see Bennett, 1872, pp. 314-21, and Bennett, 1876, *Trans. phil. Soc. Qd* 2 : 1-10. For a list of persons occupying Crown Lands in the Darling Downs during its early settlement and the names of their Stations see the copy of a letter, dated May 26th, 1845, from C. Rolleston to the Colonial Treasurer, *Mitchell Library manuscript A1764*⁻²—Commissioner of Crown Lands Darling Downs Letter Book 1843-48:58.

The original description and figures are republished by Owen, 1877, 1 : 333,4; 2, pl. 51, figs 8,9; pl. 55, fig. 7.

Family Phascolarctidae

Generic names¹

1. *Litokoala* Stirton, Tedford and Woodburne, 1967. *Rec. S. Aust. Mus.* **15** : 446, 7.

Type species by original designation *Litokoala kutjampensis* Stirton, Tedford and Woodburne, 1967.

2. *Perikoala* Stirton, 1957. *Rec. S. Aust. Mus.* **13** : 72.

Type species by original designation *Perikoala palankarinnica* Stirton, 1957.

Specific names

1. *kutjampensis* *Litokoala kutjampensis* Stirton, Tedford and Woodburne, 1967. *Rec. S. Aust. Mus.* **15** : 447-54, text fig. 8.

Holotype an isolated tooth (? right M¹), no. P13845, in the South Australian Museum. Collected by Dr M. O. Woodburne, July 31st, 1962 (*pers. comm.*, R. H. Tedford), on South Australian Museum and University of California Museum of Paleontology expedition.

Type locality on east shore of Lake Ngapakaldi, between Birdsville Track and the shore of Lake Eyre, and between Cooper Creek and the Warburton River, South Australia (University of California Museum of Paleontology locality V6213, 1835 feet N. 1° E. of University of California Museum of Paleontology locality V5858). Approximate grid co-ordinate 642488, grid zone 5, Marree sheet, 1:506,880; Australian Army H.Q., Cartographic Co., 1942. In pebble conglomerate. Wipajiri Formation.

For a note on, and a photograph of, the type locality see Stirton, 1963, *Aust. nat. Hist.* **14** : 183, 4, 182 text figure. Details of the geology of the type locality are given in the paper which contains the original description.

¹*Koalemus* De Vis, 1889, was referred here by its original describer but is included in this *Index* within the Diprotodontidae following Bartholomai, 1968, *Mem. Qd Mus.* **15** : 69-71.

2. **palankarinnica**¹ *Perikoala palankarinnica* Stirton, 1957. *Rec. S. Aust. Mus.* **13** : 71-81, text figs 1D, 2 (in part).

Holotype a part of a left mandibular ramus with broken P_4 - M_2 , no. P10893, in the South Australian Museum. Discovered by Mr P. F. Lawson, 1954, on South Australian Museum and University of California Museum of Paleontology expedition.

Type locality about 500 yards south of Palankarinna quarry (i.e. Woodard Quarry or locality, or University of California Museum of Paleontology locality V5367), west side of Lake Palankarinna, 18 miles south 75° west of Etadunna Station Homestead, South Australia (University of California Museum of Paleontology locality V5375). (Military grid reference to Woodard locality is 656431, ordnance sheet Marree, South Australia, H54/1.2.5.6, zones 5 and 6, first edition, 1942, scale 1:506,880). In greenish blue, fine-grained, sandy gypsiferous clays, 35 feet above basal conglomerate. Etadunna Formation.

Stirton, Tedford and Miller, 1961, *Rec. S. Aust. Mus.* **14** : 19-61, report on the stratigraphy and fauna of the Etadunna Formation and show the position of University of California Museum of Paleontology locality V5375 in a locality map (text fig. 2).

3. **stirtoni** *Phascolarctos stirtoni* Bartholomai, 1968. *Mem. Qd Mus.* **15** : 66-9, pl. 9, figs 1-3.

Holotype a partial right maxilla with P^4 - M^2 , no. F.5707 in the Queensland Museum. Collected by Mr J. T. Woods on July 31st, 1957 (*pers. comm.*, A. Bartholomai).

Type locality Cement Mills, near Gore, Queensland.

¹The holotype has not been seen by either author.

Family Diprotodontidae

Generic names¹

1. *Bematherium* Tedford, 1967. *Bull. Bur. Miner. Resour. Geol. Geophys. Aust.* no. 92 : 232-5.

Type species by original designation *Bematherium angulum* Tedford, 1967.

2. *Diarcodon* Stephenson, 1963. *Palaeontology* 6 : 622.

Type species by original designation *Diarcodon parvus* Stephenson, 1963.

3. *Diprotodon* Owen, 1838. In Mitchell, *Three expeditions into the interior of eastern Australia, with descriptions of the recently explored region of Australia Felix, and of the present colony of New South Wales* 2 : 362,3.

Type species by original indication *Diprotodon optatum* Owen, 1838.

Described without species in pp. 362,3 but the listing of the only species of *Diprotodon*, *Diprotodon optatum* Owen, on p. xix of vol. 1 as having been discovered in the caves of Wellington Valley and Buree, can only make that species the type species of *Diprotodon* by original indication.

4. *Euowenia* De Vis, 1891. In Anon., *The Sydney Morning Herald*, no. 16568, April 30th, 1891, p. 6, col. 8.

Replacement name for *Owenia* De Vis, 1887.

The original publication is an abstract of De Vis, 1891, *Proc. Linn. Soc. N.S.W.* (2) 6 : 159-65, pl. 13, the date of publication for which is December 22nd, 1891. The abstract is republished (with changes in tense) as De Vis in Anon., 1891, *Abstr. Proc. Linn. Soc. N.S.W.* for April 29th, 1891 : v, and as De Vis in Anon., 1891, *Zool. Anz.* 14 : 219, of June 22nd, 1891.

Publication of *Abstr. Proc. Linn. Soc. N.S.W.* for April 29th, 1891 is accepted by us as having taken place by May 1st, 1891 which is the date of a library registration stamp in the Australian Museum copy; from evidence in the publication itself the work was issued no later than May 27th, 1891 (i.e. the date of the succeeding Linnean Society meeting—see p. 39, under *Thylacinus rostralis*).

5. *Euryzygoma* Longman, 1921. *Mem. Qd Mus.* 7 : 65,6.

Type species by original indication *Nototherium dunense* De Vis, 1888.

¹It is possible that the name *Brachalletes* De Vis, 1883, should be included here and not on p. 116.

6. *Koalemus* De Vis, 1889 [as *Koallmus*]. In Anon., *Evening Observer* [Brisbane], no. 1786, vol. 6, April 13th, 1889, p. 4, col. 5.

Type species by subsequent indication *Koalemus ingens* De Vis, 1889 (by De Vis, 1889, *Proc. R. Soc. Qd* 6 : 106). *Koalemus* is included here among the Diprotodontidae following Bartholomai, 1968, *Mem. Qd Mus.* 15 : 69-71.

The original description is republished as De Vis in Anon., *The Brisbane Courier*, no. 9750, vol. 45, April 15th, 1889, p. 6, col. 5, both articles being an abstract of De Vis, 1889, *Proc. R. Soc. Qd* 6 : 106-9, pl. 5 (in part). The original spelling *Koallmus* was emended by De Vis to *Koalemus*. That the original spelling is a printer's or copyist's error is shown by the nature of the error (l for e) and by its stated derivation (also misspelt in the newspaper article with l for e) from the Greek *Kodlemos*—a booby or stupid fellow. We accept that it is improbable that De Vis would have been able to have examined a proof of the newspaper article and that, accordingly, correction would have waited until publication of the complete paper.

The publication date in 1889 of parts 2 and 3 of *Proc. R. Soc. Qd* 6, which contain pp. 106-9, and report on meetings of the Society held on March 15th and April 12th, 1889, is unknown to us but is unlikely to have been as early as April 13th, 1889. In accordance with *International Code of Zoological Nomenclature* Article 21(b) it is taken here as being the last day of 1889.

7. *Kolopsis* Woodburne, 1967. *Bull. Bur. Miner. Resour. Geol. Geophys. Aust.* no. 85¹ : 71,2.

Type species by original designation *Kolopsis torus* Woodburne, 1967.

¹This Bulletin, and two others (*Bull. Bur. Miner. Resour. Geol. Geophys. Aust.* nos 86 and 87) were intended to have the same date of publication (May 15th, 1967—the date of issue printed in the front of each work). These works contain papers on fossil mammals by the authors R. A. Stirton, M. O. Woodburne and M. D. Plane. Bulletin no. 85 contains papers by all three, Bulletin no. 86 is a single paper by Plane, and Bulletin no. 87 is a single paper by Woodburne.

Even granted that the three works were published simultaneously, we find that the names contained within them provide problems which, if they are to be approached within the provisions of the *International Code of Zoological Nomenclature*, must transgress the stated intentions of the authors as to both authorship and to the citation of references to original descriptions for taxa. This can only confuse subsequent workers.

The papers in the Bulletins contain numerous descriptions of genera and species of Diprotodontidae which are new in them. Of the twelve new species all but three (*Ngapakaldia bonyithoni* Stirton, *Pitikantia dailyi* Stirton and *Palorchestes painei* Woodburne) are described in more than one place and by more than one author.

In the preparation of this *Index* it is our object to provide stable and precise bibliographic references to original descriptions of taxa, and to attribute authorship to names through making all decisions in accordance with the *Code*. But in the case of the names in these Bulletins there are no provisions which would enable us to select between the simultaneously published descriptions, and to select from among the authors. The *Code* only provides for the allocation of authorship to another author, from he (or she) whose name appears on a work, when it is clear from the contents of the description that another author is solely responsible for the name and the conditions that make it available (Article 50); and it only gives the first reviser the right to select between names where different names are simultaneously published for a single taxon, or identical names are simultaneously published for different taxa (Article 24 (a)). The situations we are faced with here are not of these kinds. Accordingly, we

8. *Kolopsoides* Plane, 1967. *Bull. Bur. Miner. Resour. Geol. Geophys. Aust.* no. 85 : 118,19.

Type species by original designation *Kolopsoides cultridens* Plane, 1967.

See footnote on pp. 78, 9, under *Kolopsis*.

9. *Meniscolophus* Stirton, 1955. *Rec. S. Aust. Mus.* 11 : 258,9.

Type species by original designation *Meniscolophus mawsoni* Stirton, 1955.

10. *Neohelos* Stirton, 1967. *Bull. Bur. Miner. Resour. Geol. Geophys. Aust.* no. 85:48.

Type species by original designation *Neohelos tirarensis* Stirton, 1967.

See footnote on pp. 78, 9, under *Kolopsis*.

11. *Ngapakaldia* Stirton, 1967. *Bull. Bur. Miner. Resour. Geol. Geophys. Aust.* no. 85 : 4.

find no alternative to the conclusion (assuming that the dates of publication are as printed) that new names contained in these Bulletins are described over a span of a number of papers and works, and moreover, that they have a wider authorship than that intended by Stirton, Woodburne and Plane and published by them (and all workers since) in their ascriptions. For three specific names only (of twelve new specific names of Diprotodontidae) would the situation be as intended by the three authors.

The situation is further complicated in that Bulletin no. 85 was actually issued after Bulletins nos 86 and 87 (Bulletin no. 85 did not leave its printer (the Government Printer of Western Australia) until after Bulletins nos 86 and 87 were already in libraries—*pers. comm.*, Govt Printer, Western Australia, and copies of Bulletins nos 86 and 87 in the library of the Western Australian Museum).

Since the provisions of the *Code*, if followed in this case, would produce a situation in the literature which would be very confusing to all workers, without benefit to any, we have applied to the International Commission for Zoological Nomenclature to set aside the normal provisions of the *Code* in order to validate the ascription of authorship and places of original description, of the names described in these Bulletins, to those intended by the authors of the three Bulletins.

The papers in the Bulletins are published in an order which (with one exception) if Bulletin number and page number were adopted as an order of priority, would result in each new taxon being formally described by its intended author before any use of the same name by another author occurs in a manner which would make it available. The exception is a paper by M. D. Plane (pp. 105-28 of Bulletin no. 85) which contains the new names *Zygomaturus keanei* and *Zygomaturus gilli* (both of which he attributes to Stirton as author) together with descriptions and comparisons which would make the names available in his name in that work since he states that these comparisons are his own. Stirton describes them as new in the paper on pp. 129-47 in the same Bulletin. A solution does not lie in reversing the order of priority of these two papers because Stirton's paper contains a description of *Kolopsis rotundus* in a manner which would make the name available in that place; whereas Plane describes it as new in his paper. Accordingly, we have rejected simple page priority as a solution and have requested the Commission to give an Opinion through the use of the Plenary Powers that *Bull. Bur. Miner. Resour. Geol. Geophys. Aust.* nos 85, 86 and 87 are to have nomenclatural priority in that order with the date of publication of May 15th, 1967 (that printed in the works) and that each generic or specific name first made available in these works shall have the authorship attributed to it in them and its original description be taken as occurring at that place in which the author qualifies it with one of the phrases *Genus . . . nov.*, or *sp. nov.* This decision will also resolve a similar problem of authorship in the case of *Protemnodon otibandus*, see pp. 138, 9.

Pending a decision by the Commission we have followed the intentions of the three authors in this *Index*.

Type species by original designation *Ngapakaldia tedfordi* Stirton, 1967.

See footnote on pp. 78, 9, under *Kolopsis*.

12. *Nototherium* Owen, 1845. *Descriptive and illustrated catalogue of the fossil organic remains of Mammalia and Aves contained in the Museum of the Royal College of Surgeons of England* : 314-19.

Type species by subsequent designation *Nototherium mitchelli* Owen, 1845 (by Owen, 1877, *Researches on the fossil remains of the extinct mammals of Australia* . . . 1 : 275, from *N. mitchelli* and *N. inerme*).

There has been much confusion in the literature over the designation of the type species of *Nototherium*. Fortunately, however confused workers have become, most have so far concluded that *N. mitchelli* is the type. In the original publication, Owen described the two species *N. inerme* and *N. mitchelli* in that order and without designating a type species. Soon after, he converted this text (pp. 314-19) into part of a paper, *14th Rep. Br. Ass. Advmt Sci.* (1845) : 231-3, which he largely accomplished by omitting some description (in particular that of the paralectotype of *N. inerme* (no. 1507) from pp. 318,19) and by adding some general discussion. In the paragraph, on p. 232, which follows the description of the lectotype of *N. inerme* (no. 1505), he added "On these grounds I propose to indicate the genus of the fossil Mammal to which the above-described lower jaw belonged by the name of *Nototherium*, and the species as *inerme*, from the absence of the incisive tusks". Out of context, this paragraph could be held to demonstrate Owen's intention that *N. inerme* should be regarded as the type, but in context it can equally well be regarded as an informal means of explaining his choice of name. Whichever it is, it is certainly not an unequivocal subsequent designation of a type species within the meaning of Article 67 (c) of the *International Code of Zoological Nomenclature*. Subsequently, Owen, 1859, *Q. Jl geol. Soc. Lond.* 15 : 173,4, states that the genus was "founded, under the name *Nototherium*, upon a mutilated lower jaw, with double cross-ridged molars, similar in number to those in *Diprotodon*" and this could be interpreted as a reference to the lectotype of *N. inerme* since it is the only specimen of *Nototherium*, among the original three named by Owen, in which evidence of at least four cheek-teeth can be seen (see Owen, 1859, p. 175, for his opinion concerning the number of cheek-teeth found in *Diprotodon*). However, in a second paper read three months later but published at the same time as that just noted Owen, 1859, *Q. Jl geol. Soc. Lond.* 15 : 180, says that specimens nos 1505, 1506 and 1507 (i.e. the types of both *N. inerme* and *N. mitchelli*) are those "on which the genus was founded". Thus, it is not clear that Owen is accepting *N. inerme* as the type species. Later, Owen, 1877, 1 : 275, slightly modified the text of his previously published monographic discussion of *Nototherium* (1872, *Phil. Trans. R. Soc.* 162 : 67) to state that *N. mitchelli* is the type species; thus: "Of *Nototherium inerme* I have the entire molar series of both sides of the upper jaw; with sufficient of that part of the skull to demonstrate its generic concordance with the more complete specimen of the skull of the type-species in the Museum at Sydney" (his reference to the Sydney skull [i.e. cranium] is to Australian Museum no F.4635, holotype of *Zygomaturus trilobus* Macleay, which he states in the same work (pp. 275, 287 legend to pl. 36, fig. 1) to be an entire skull of *N. mitchelli*). This statement satisfies the provision of Article 69 (a) (iii) of the *International Code of Zoological Nomenclature* as the subsequent designation of a type species.

Subsequent authors, excepting Woods, 1968, *Mem. Qd Mus.* 15 : 112, have made no particular reference to this designation but, fortunately, most have followed its conclusion. For example Flower, 1884, *Catalogue of the specimens illustrating the osteology and dentition of vertebrated animals* . . . 2 : 732, and Lydekker, 1887, *Catalogue of the fossil Mammalia in the British Museum (Natural History)* 5 : 162, regarded the two as synonymous and placed *N. inerme* within *N. mitchelli*. Similarly, Scott, 1912, *Victoria Museum (Launceston) Brochures* no. 4 : 2nd page (pages unnumbered); refers to *Nototherium mitchelli* as "Owen's type" and later, 1915, *Rec. geol. Surv. Tasm.* no. 4 : 4,5, calls *N. mitchelli* the type.

Subsequently, Longman, 1921, *Mem. Qd Mus.* 7 : 75, formally selected *N. mitchelli* as the type species so as to confirm Lydekker's action "in taking *N. mitchelli* as the typical species". Finally, Stirton, 1955, *Rec. S. Aust. Mus.* 11 : 261, refers to *N. mitchelli* as the "genotypic species" and discusses its status in greater detail in 1967, *Bull. Bur. Miner. Resour. Geol. Geophys. Aust.* no. 85 : 133, 4.

Woods, p. 112, has argued that the actions of all authors, including Owen, who have accepted *N. mitchelli* as the type species, are invalid. His argument is that *N. mitchelli* is not available for subsequent designation within the provisions of *International Code of Zoological Nomenclature* Article 69 because it should be excluded under Article 67 (h) as a *species inquirenda*. A *species inquirenda* is defined in the *Code* on, p. 152, as "A doubtfully identified species needing further investigation" and Woods bases his argument upon Owen's statement that "This difference in the shape, as well as the size of the jaw, bespeaks at least a specific distinction from [the lectotype of *N. inerme*] No. 1505"; Woods holds that this is to be interpreted to mean that Owen was doubtful that *N. mitchelli* belonged in *Nototherium* and hence is a *species inquirenda*. From our acquaintance with Owen's work we do not read into Owen's statement any expression of doubt on his part that the two species are congeneric. Accordingly, we follow, without reservation, Owen's own statement that *N. mitchelli* is the type. Only an application to the International Commission can set this matter of interpretation completely beyond doubt and any who hold that Woods is correct should make such an application to conserve existing and long established usage.

13. *Owenia* De Vis, 1887. In Anon., *The Brisbane Courier*, no. 9224, vol. 44, August 8th, 1887, p. 6, cols 1, 2.

Type species by original indication *Owenia grata* De Vis, 1887.
Nec Owenia Chiaje, 1844 (Annelida).

14. *Palorchestes* Owen, 1873. In Anon., *Proc. R. Soc.* 21 : 387.

Type species by original indication *Palorchestes azael* Owen, 1873.

The statement by Owen that *Palorchestes azael* is "the largest form of kangaroo hitherto found" is accepted by us here as a definition. It is not a description or an indication (see Articles 12 and 16 (a) and the words *definition* and *description* in the Glossary of the *International Code of Zoological Nomenclature*).

For those who do not accept Owen's, 1873, statement as adequate to make the name available, the next available use of the name is by Owen, 1874, *Phil. Trans. R. Soc.* 164 : 797-800, pls 81-3 (in part) of which the 1873 text is an abstract.

15. *Pitikantia* Stirton, 1967. *Bull. Bur. Miner. Resour. Geol. Geophys. Aust.* no. 85 : 30,1.

Type species by original designation *Pitikantia dailyi* Stirton, 1967.

See footnote on pp. 78, 9, under *Kolopsis*.

16. *Plaisiodon* Woodburne, 1967. *Bull. Bur. Miner. Resour. Geol. Geophys. Aust.* no. 85 : 88,9.

Type species by original designation *Plaisiodon centralis* Woodburne, 1967.

See footnote on pp. 78, 9, under *Kolopsis*.

17. *Prochaerus*¹ De Vis, 1886. In Anon., *The Brisbane Courier*, no. 8837, vol. 41, May 12th, 1886, p. 6, cols 4,5; and in Anon., *The Daily Observer* [Brisbane], no. 879, vol. 3, May 12th, 1886, p. 2, cols 5,6.

Type species by original indication *Prochaerus celer* De Vis, 1886.

The original publications are similar abstracts of De Vis, 1887, *Proc. R. Soc. Qd* 3 : 42-7, pl. 1. In both abstracts the name is spelt *Prochaerus*. Both this spelling and *Prochoerus* would be acceptable transliterations of χοῖρος (a hog) which is the derivation attributed to De Vis in the abstracts. In De Vis, 1887, the name is spelt in both ways, *Prochaerus* (on p. iv in the legend to pl. 1 in the list which describes the plates for the whole volume) and *Prochoerus* (on p. 47 in the text of the paper describing the species and in pl. 1). The latter spelling is thus uniformly adopted in those parts of the publication in which the author might be expected to have had opportunity to correct errors in proof but, despite the fact that *Prochoerus* has been generally adopted in the literature, the original spelling must be maintained under the normal provisions of the *International Code of Zoological Nomenclature* because there is nothing in the original publication itself, without recourse to any external source of information, which reveals that the spelling *Prochoerus* was that intended by the author. This conclusion is different from that which can be arrived at in the case of the associated species-group name *ceter* (emended by De Vis to *celer*). There, the original spelling is clearly contrary to the derivation given with it and the original spelling need not be retained in preference to the emendation (see Articles 32(a) (ii) and 33(a) of the *International Code of Zoological Nomenclature*).

There are no provisions in the *International Code of Zoological Nomenclature* which would enable a first reviser to select one of the two 1886 publications as being the original description. The *Code* (Article 24(a)) provides for selection in the cases where more than one name is published for a single taxon, or identical names are published for different taxa, but the situation we are faced with here is not one of these kinds.

¹*Prochaerus* is included here on the grounds that the only certainly identifiable syntype of *Prochaerus celer* is a "quinque-tuberculate tooth" of diprotodontid form, see pp. 91, 2.

18. *Pyramios* Woodburne, 1967. *Bull. Bur. Miner. Resour. Geol. Geophys. Aust.* no. 85 : 57.

Type species by original designation *Pyramios alcootense* Woodburne, 1967.

See footnote on pp. 78, 9, under *Kolopsis*.

19. *Simoprosopus* De Vis, 1907. *Ann. Qd Mus.* no. 7 : 4.

Replacement name for *Zygomaturus* Macleay, 1857 in the belief that *Zygomaturus* was not validly published.

The name was also spelt *Simoprosobus* in the original publication but *Simos* and *prosoyon* (flat-nosed or snub-nosed and mask) are an almost direct translation of the author's "flat-faced, snub-nosed creature" and of the two spellings *Simoprosobus* is obviously an inadvertent error and is to be corrected (*International Code of Zoological Nomenclature* Article 32(c)). Longman, 1921, *Mem. Qd Mus.* 7 : 75, adopts *Simoprosobus* while Simpson, 1930, *Post-Mesozoic Marsupialia* : 69, employs *Simoprosopus*.

20. *Sthenomerus* De Vis, 1883. *Proc. Linn. Soc. N.S.W.* 8 : 11-15.

Type species by original indication *Sthenomerus charon* De Vis, 1883.

21. *Zygomaturus* Anon [W. S. McLeay], 1857. *The Sydney Morning Herald*, no. 6009, vol. 38, September 9th, 1857, p. 2, col. 6.

Type species by subsequent indication *Zygomaturus trilobus* Macleay, 1858 (by Macleay in Owen in Anon., 1858, *Abstr. Proc. geol. Soc. Lond.* no. 12 : 49,50).

The name *Zygomaturus* was published on a number of occasions in 1857 and 1858. The first of these, that cited above, was anonymous but is undoubtedly by Macleay (see extract of letter from Macleay to Owen published by the latter, 1872, *Phil. Trans. R. Soc.* 162 : 43) and contains a full description of the specimen which later became the holotype of *Z. trilobus*. This description is republished in a second anonymous article in *The Sydney Morning Herald*, no. 6196, vol. 39, April 15th, 1858, p. 4, col. 4. No specific name is mentioned in these two articles.

Two other publications are identical; these are 1858, *Report of the Trustees of the Australian Museum, for the year ending 31 December, 1857* : 1,2, and *The Sydney Morning Herald*, no. 6230, vol. 39, May 25th, 1858, p. 3, col. 1. Their authorship is attributed to W. Macleay who publishes the binomen *Zygomaturus trilobus* in them thus "A skull and other bones of a new fossil marsupial animal called *Zygomaturus trilobus*, which were discovered at the Darling Downs, and presented to the Museum by F. N. Isaacs [sic], Esq., of Gowrie". While there is no doubt that this refers to the same animal described in detail in the earlier reports, the statement is not an "indication" within the meaning of Articles 12 and 16 of the *International Code of Zoological Nomenclature* and the name is a

nomen nudum there. The name of the type species dates therefore from the March, 1858 abstract of Owen's 1859 publication (see p. 113, under *Zygomaturus trilobus*).

In respect of the generic name, it could be argued (as Stirton, 1967, *Bull. Bur. Miner. Resour. Geol. Geophys. Aust.* no. 85 : 133, has done) on the basis of a letter from Macleay to Owen, quoted in Owen and cited above, that the publication of the name in this newspaper article does not satisfy the provisions of Article 8 (2) of the *International Code of Zoological Nomenclature*. But it is our view that Macleay's explanation (Owen, 1872, p. 43) that "... I lately wrote on this '*Zygomaturus*' a few words which you appear to have seen. They are, however, principally intended to please the donor, and to induce him to send us more specimens. The name ... was given on the principle we adopted of cataloguing every thing, were it only for the purposes of correspondence and exchange", does not prevent him from having also had the intention of providing a "scientific, public, permanent record" as required by the *Code*, and does not render the name *Zygomaturus* nomenclaturally unavailable in Macleay's 1857 newspaper article.

The original description is further republished by Owen, 1859, *Q. Jl geol. Soc. Lond.* 15 : 168,9; and by Whitley, 1966, *Aust. Zool.* 13 : 228,9, who gives notes, on pp. 228-30, to subsequent references.

Specific names¹

1. **alcootense** *Pyramios alcootense* Woodburne, 1967. *Bull. Bur. Miner. Resour. Geol. Geophys. Aust.* no. 85 : 57-71, text fig. 1g.

Holotype a nearly complete cranium with left I¹, right I³, and left and right P⁴-M⁴, no. CPC6749, in the Commonwealth Palaeontological Collection, Bureau of Mineral Resources, Canberra. Collected by Dr M. O. Woodburne and party between late June and early August, 1964 (*pers. comm.*, M. O. Woodburne).

Type locality Paine Quarry (University of California Museum of Paleontology locality V6345), 4 miles south-west of Alcoota Station Homestead, 2.1 miles south-west of the junction of Waite and Ongeva Creeks, Northern Territory. Waite Formation.

Woodburne, 1967, *Bull. Bur. Miner. Resour. Geol. Geophys. Aust.* no. 87 : 1-187, pls 1-7, further describes and figures the holotype (pp. 125-38, text figs 25-7) and provides details of the geology of the type locality. Comparative description which involves *Pyramios alcootense* is provided by Plane, 1967, *Bull. Bur. Miner. Resour. Geol. Geophys. Aust.* no. 85 : 110,11; and by Stirton, Woodburne and Plane, *Bull. Bur. Miner. Resour. Geol. Geophys. Aust.* no. 85 : 154, 7, who also illustrated the species (fig. 2 in part). See footnote on pp. 78, 9, under *Kolopsis*.

2. **angulum** *Bematherium angulum* Tedford, 1967. *Bull. Bur. Miner. Resour. Geol. Geophys. Aust.* no. 92 : 232-5, text fig. 6.

¹It is possible that the name *Brachalletes palmeri* De Vis, 1883, should be included here and not on pp. 140, 1.

Holotype an incomplete right mandibular ramus comprising portion of the horizontal ramus with P_4 - M_3 (part only of M_3 present), and fragments of the ascending ramus, no. CPC7339, in the Commonwealth Palaeontological Collection, Bureau of Mineral Resources, Canberra. Collected by Dr R. H. Tedford, July 11th, 1963 (*pers. comm.*, R. H. Tedford).

Type locality northern tip of Carl Creek Limestone exposures capping a narrow ridge standing 100 yards east of the Cambrian limestone escarpment, 1½ miles south of Verdon Creek; from hill shown at east end of section entitled C in p. 220 text fig. 1 and p. 222 text fig. 2, between the Gregory River and Verdon Creek near the Riversleigh Station-Lawn Hill Station track, Queensland. In cream and yellow mottled, vuggy clastic limestone in the middle of the upper member of the Carl Creek Limestone.

Details of the geology of the type locality are given in the paper which contains the original description.

3. *annextans*

Diprotodon annextans McCoy, 1861. In Anon., *The Argus* [Melbourne], no. 4783, October 1st, 1861, p. 5, cols 1,2.

Syntypes include an imperfect mandible with left and right I_1 M_{1-4} , no. P12109, in the National Museum of Victoria. Presented by Mr Edward Bage who found it on the farm of Mr W. Wallace and saved it from destruction (undated MS. note cited below). From near Colac, Victoria. Other syntypes some bones of the extremities, and some upper incisors, from Back Creek, and the distal end of a humerus "from Mount Macedon", deposited by Dr Greeves; the whereabouts of these other syntypes is not known to us.

Type localities a well, Allotment 74, Parish of Ondit near Colac, 6½ miles N.E. of Lake Colac "at a depth of forty five feet from the surface, being about the level of the adjoining swamp", Victoria (locality and acquisition data from McCoy, 1865, *Trans. Proc. R. Soc. Vict.* 6 : 25, and MS. note in the National Museum of Victoria; note written in McCoy's hand, *pers. comm.*, T. Darragh); Talbot (determined as Back Creek by Keble, 1945, *Proc. R. Soc. Vict.* 57 : 37-9), Victoria; and "Mount Macedon", Victoria.

The original description is an anonymous newspaper report of a paper entitled "On the bones of a gigantic marsupial found near Colac, with observations on the genera *Diprotodon* and *Nototherium*" presented by McCoy to the September 30th, 1861 meeting of the Royal Society of Victoria (see Barkly, 1865, *Trans. Proc. R. Soc. Vict.* 6 : ix). A note on the paper is included by Barkly, 1865, *Trans. Proc. R. Soc. Vict.* 6 : xxxix, in the Anniversary address delivered to the Royal

Society of Victoria on April 28th, 1862. Authorship of the name should, undoubtedly, be attributed to McCoy since he alone is credited by the anonymous author of the newspaper article both with the scientific name and the description which accompanies it.

The name *annextans* is probably an error for *annectens* (linking, joining) since this species is described in the original publication as combining the characters of *Diprotodon* and *Nototherium*. While it is probable that this is a printer's or copyist's error, there is no clear evidence of this (for example, through subsequent emendation by McCoy) and we do not emend it ourselves (*International Code of Zoological Nomenclature* Article 32 (a) (ii)).

For further details about syntypical material of *D. annextans* and the relationship between the names *Diprotodon longiceps* and *Diprotodon annextans* and for a note on the locality "Mount Macedon" see pp. 101, 2, under *Diprotodon longiceps*.

4. *australe*¹

Dinotherium australe Owen, 1843. *Ann. Mag. nat. Hist.* **11** : 329-32, text figs 1,2.

Holotype a mandibular fragment with two molars; present whereabouts unknown.

Type locality "Darling Downs [Queensland]".

The holotype is described from two drawings sent to Owen by Sir Thomas Mitchell in 1842. Subsequently, Mitchell sent a cast of the holotype to Owen and informed him that the original had been sent to Robt Clark Esq., surgeon, Farnham, Surrey or to Chas M. Burnett Esq., surgeon, Alton, Hampshire "by some friend or relative here—to whom it belonged" (draft dated December 20th, 1842, of letter from Mitchell to Owen, *Mitchell Library manuscripts* A293—Papers of Sir T. L. Mitchell, vol. 4, 1840-1849 : 285,6). Owen suspected that the holotype ("with a high degree of probability") belonged to the same species ("animal") as a molar fragment, no. 1487 of the Royal College of Surgeons of England, which he later identified as *Diprotodon australis* (Owen, 1845, *Descriptive and illustrated catalogue of the fossil organic remains of Mammalia* . . . : 306), and an incomplete femur both of which had been sent to him earlier (advice of dispatch contained in a letter from T. L. Mitchell to Owen, dated April 6th, 1842, in the British Museum (Natural History) *Owen Correspondence*, vol. 19, folio nos 250,1) and which he had previously described and figured (1843, *Ann. Mag. nat. Hist.* **11** : 7-12, text figs 1-3) as belonging to a "Mastodontoid Pachyderm". Owen, 1843, pp. 330,1, notes that these three specimens, i.e. the holotype and molar fragment no. 1487, and the femur, were "associated together on the Darling Downs". Mitchell, December 20th, 1842, p. 285, gives the locality of the holotype and of a "collection of fragments of bones" forwarded to Owen "Some months ago" as "Condamine River, Darling Downs Westward of Moreton Bay in Lat 28S. & Long. 151°". However, this cannot be the precise locality as the Condamine does not pass through that point—see also p. 98, under *Nototherium inerme*.

Owen, 1844, *Ann. Mag. nat. Hist.* **14** : 268, and 1845, *14th Rep. Br. Ass. Advmt Sci.* : 224, 7, refers to a *Diprotodon* tooth which he previously placed in *Dinotherium australe* but is speaking here about specimen no. 1487 referred to above

¹It is possible that this name should be included on p. 153.

and not to the holotype of *Dinotherium australe*. We have been unable to find a published re-identification of the latter specimen by Owen although his 1877, *Researches on the fossil remains of the extinct mammals of Australia* . . . 1 : viii, reference to *Diprotodon* material misidentified by him as *Dinotherium australe* might be intended to involve the holotype. However, an undated MS. page of drawings (? by T. L. Mitchell) (British Museum (Natural History) *Owen Collection—Drawings*, folio 443, "plate" b), comprising larger versions of the two figures published of the holotype, in the original description, has on it an undated inscription "*Diprotodon*" in Owen's writing. We have been unable to establish that Owen received the cast of the holotype mentioned in the draft of Mitchell's letter, dated December 20th, 1842, or the present whereabouts of specimen or cast.

5. *australis*

Diprotodon australis Owen, 1844. *Ann. Mag. nat. Hist.* 14 : 268.
Replacement name for *Diprotodon optatum* Owen, 1838.

Holotype the holotype of *Diprotodon optatum* Owen, i.e. the anterior extremity of a right mandibular ramus with an incomplete incisor, no. M.10796 (Mitchell no. IX; Geol. Soc. Lond. nos 13346, 13347), in the British Museum (Natural History) (transferred from the Geological Society of London, June, 1911). Sir Thomas Mitchell Collection (see p. 32, under *Dasyurus lanarius*).

Type locality Wellington Caves, New South Wales.

See pp. 106, 7, under *Diprotodon optatum*, for further notes on the history of the holotype.

The status of the name *Diprotodon australis* has always been a matter for different opinions. Some workers, e.g. Owen, McCoy, Flower, Lydekker, Glauert, Stirling and Zietz, accepted the name as available and valid, and used it, while others regarded it as a replacement name for *Diprotodon optatum* and its use erroneous (see Simpson, 1930, *Post-Mesozoic Marsupialia* : 68). However, Owen, in the original description, leaves no room for doubt that it is a replacement name and that he was under the misapprehension that he had earlier given the name *australis* and not *optatum* to the holotype (in fact Owen never uses *optatum* beyond its original use in Mitchell—see our comment on p. 106, under *Diprotodon optatum*). He says, on p. 268, "the tusk from one of the bone-caves of Wellington Valley, described by me in Sir T. Mitchell's 'Expeditions into the Interior of Australia,' vol. ii, 1838, p. 362. pl. 31. figs. 1 and 2, as indicative of a new genus and species of gigantic marsupial animal, to which I gave the name of *Diprotodon australis*".

6. *azael*

Palorchestes azael Owen, 1873. In Anon., *Proc. R. Soc.* 21 : 387.

Holotype an anterior portion of the cranium including the rostrum (lacking incisors) and damaged molar rows, no. 46316, in the British Museum (Natural History). Discovered by Dr Ludwig Becker, 1851 (Owen, 1874, *Phil. Trans. R. Soc.* 164 : 797). Presented by Professor Owen, March, 1875 (British Museum (Natural History) Register).

Type locality Victoria (Owen, 1874, p. 797, gives "in a bed of yellowish sand and clay mixed with very small shells"; Owen, 1880, *Trans. zool. Soc. Lond.* **11** : 9, adds "freshwater deposit").

Palorchestes azael is qualified in Owen, 1873, p. 387, as "the largest form of kangaroo hitherto found". For those who do not accept this statement as being a definition (see p. 81, under *Palorchestes*), the next available use of the name is by Owen, 1874, *Phil. Trans. R. Soc.* **164** : 797-800, pl. 81, figs 1,2; pl. 82, figs 1,2 (restored); pl. 83, fig. 1: this is the full text of which Owen, 1873, is an abstract. The holotype is described there and its data of collection are given.

The exact locality at which the holotype was collected is not known with certainty but we have little doubt that the information in Anon., 1852, *Pap. Proc. R. Soc. Van Diemen's Land* **2** : 158, concerns the specimen which later became the holotype. There it is stated "The Secretary exhibited a series of drawings, carefully executed, by Mr. Becker, of a Cranium procured at the River Tambo, in Gipps's Land, and sent over for inspection by Mr. R. C. Gunn, of Launceston. Mr. Gunn has forwarded the original to Professor Owen, of London, for examination." Owen, 1874, p. 797, remarks that the holotype was in the first instance transmitted to Dr Kaup, of Darmstadt; and Lydekker, 1887, *Catalogue of the fossil Mammalia in the British Museum (Natural History)* **5** : 238, says that it was sent to Dr Kaup by Dr L. Becker.

The holotype is further figured by Owen, 1876, *Phil. Trans. R. Soc.* **166**, pl. 20. The 1874 description and figures and 1876, pl. 20 are republished by Owen, 1877, *Researches on the fossil remains of the extinct mammals of Australia* . . . **1** : 465-70; **2**, pl. 96, figs 1,2; pl. 97, figs 1,2; pl. 105, fig. 1; pl. 107.

Owen, 1880, p. 7, notes that the species was founded on portion of a cranium and a small portion of a mandible, but this is incorrect.

Discussion which involves the holotype is provided by Woods, 1958, *Mem. Qd Mus.* **13** : 177-84.

7. *bennettii*

Diprotodon bennettii Krefft, 1873. *The Sydney Mail and New South Wales Advertiser*, no. 697, vol. 16, November 8th, 1873, p. 594, col. 4, p. 595, col. 1, and supplement, Australian fossil remains, pl. 1, figs 1,2, 4. *Nec Diprotodon bennettii* Owen, 1877.

Holotype a nearly complete mandible with I_1 , the posterior lophid of M_2 , and M_{3-4} in both rami, no. 47855, in the British Museum (Natural History). Found by Messrs King and Bennett; and collected by them in July, 1873 (see below).

Type locality Gowrie, Darling Downs, Queensland. About three miles below the station in a bank on Gowrie Creek (letters from Dr Bennett to Owen, dated August 8th, 1873 and November 1st, 1873—see below).

The holotype was assembled by Krefft from a number of fragments which Dr G. Bennett allowed him to cast before sending the specimen, partly broken up again before despatch, to Professor Owen (see an account of the specimen in

Krefft's undated manuscript entitled Class Mammalia (*Mitchell Library manuscripts A264*—Krefft Papers MSS, folio nos 9-13); also, see Bennett, pp. 48-50, and Krefft, pp. 99, 101,2, in 1874, *Report from the Select Committee on the Sydney Museum . . .*, and Barnes, H., pp. 21,2, Barnes, R., pp. 25,6, and Bennett, pp. 54,5, in 1875, *Australian Museum. (Report from Trustees for 1874.)*).

The original newspaper article is the text of a paper presented by Krefft to the November 5th, 1873 meeting of the Royal Society of New South Wales (see Anon., *The Sydney Mail and New South Wales Advertiser*, no. 697, vol. 16, November 8th, 1873, p. 595, col. 2) and published in the Society's journal as Krefft, 1874, *Trans. R. Soc. N.S.W.* 7 : 135-47, but, unlike the Society's published version, which contains no description which makes the name available, it is accompanied by two plates and an explanation of the figures. The two plates are not among the figures also entitled "Australian fossil remains" which were published by Krefft, 1882, in *Exploration of the caves and rivers of New South Wales . . .* or among the plates of "Photographs of Australian fossil remains" and "Photographs of Australian Fossils" (see p. 103, under *Zygomaturus macleayi*).

Comparison of folio nos 9-13 of Krefft's undated manuscript entitled Class Mammalia (*Mitchell Library manuscripts A264*—Krefft Papers MSS) with letters from Bennett to Owen (dated August 8th, 1873; September 5th, 1873; and November 1st, 1873) in the British Museum (Natural History) *Owen Correspondence*, vol. 3, folio nos 347-56, with the Krefft newspaper articles in *The Sydney Morning Herald*, no. 11000, vol. 68, August 19th, 1873, p. 5, col. 5, and *The Sydney Mail and New South Wales Advertiser*, no. 688, vol. 16, September 6th, 1873, p. 302, cols 1,2, and with the original publication, leaves no doubt that the holotype was part of a large collection of fossils made from a bank on Gowrie Creek about three miles below the station, by G. F. Bennett and G. B. King in July, 1873. Also included in the collection made at that locality were the leg bones which Krefft said, in the article containing the original description, "represent the four legs of the marsupial giant named in honor of Dr George Bennett . . .". The description owes no part to this postcranial material and it cannot be regarded as syntypical. The letter from Bennett to Owen, dated August 8th, 1873, is published by Copleson, 1955, *Bull. Post Grad. Comm. Med. Univ. Sydney* 11 : 250-2; see also Bennett, G. F., 1876, *Trans. phil. Soc. Qd* 2 : 5, for his note on the discovery by Mr G. B. King and himself of the jaw and foot bones of *Diprotodon*.

Lydekker, 1887, *Catalogue of the fossil Mammalia in the British Museum (Natural History)* 5 : 175, says presented by Dr G. Bennett, 1875, but see Bennett, 1875, p. 54, concerning the date of receipt of the specimen by Owen.

8. bennettii

Diprotodon bennettii Owen, 1877. *Researches on the fossil remains of the extinct mammals of Australia; with a notice of the extinct marsupials of England* 1 : 510, 11. *Nec Diprotodon bennettii* Krefft, 1873.

Holotype a considerable portion of a right mandibular ramus, with the posterior half of M_3 and broken M_4 , no. 46056, in the British Museum (Natural History). Discovered by Mr W. Gipps and forwarded by Dr Bennett.

Type locality the vicinity of Mendooran, New South Wales (see below). From a straight bank eighteen feet below the surface (letter dated Kirban, Mendooran, April 24th, with year not stated, but probably 1874, from W. L. R. Gipps to G. Krefft in *Mitchell Library manuscripts* A890—Sir Henry Parkes Correspondence, vol. 20 : 306).

Owen gives the locality as "a place called Mandoona, near Wallarawang, New South Wales".

Lydekker, 1887, *Catalogue of the fossil Mammalia in the British Museum (Natural History)* 5 : 176, says presented by W. L. R. Gipps, Esq., 1874 and gives the locality as Mundoman, New South Wales. The locality is given as Mundonan and the presentation date as August, 1874 in the British Museum (Natural History) Register.

The specimen sketched by Gipps on the fourth page (p. 305) of his letter of April 24th to Krefft agrees with the posterior portion of the holotype and Gipps gives details of finding it; a second, incomplete letter from Gipps to Krefft, dated Kirban, June 4th, 1874, in *Mitchell Library manuscripts* A262—Krefft Papers MSS, provides details which probably also involve the type locality. Anon., ?1872, *Greville's official post office directory of New South Wales* . . . 1872 : xxxii, 363, records that mail for Mendooran (now spelt Mendooran) was sent by rail to Wallarawang and that William Gipps, a shepherd, resided at the former locality.

Two MS. pages with writing in Owen's hand (British Museum (Natural History) *Owen Collection—Drawings*, folio 446, "plates" a,b; "plate" a dated "4.3.75") provide information about, and illustrate, a broken incisor, no. 46057a presented by Gipps to the British Museum (Natural History) in 1875; the locality for it is given in "plate" a as being 16 miles S.S.E. of Vernon Peak, Mendooran, New South Wales. This is the specimen referred to by Gipps in his letter to Owen, dated December 3rd, 1874, in the British Museum (Natural History) *Owen Correspondence*, vol. 13, folio nos 147-52, where he writes "I rode over the place where I found the specimens sent home I always try and spend a short time there if I happen to be in the vicinity and while looking about me this time I found the lower half of the incisor belonging to the jaw sent home". We have little doubt that the jaw Gipps is referring to there is the specimen that became the holotype of *Diprotodon bennettii* Owen. Lydekker, 164, incorrectly gives the locality of no. 46057a as Queensland.

We do not doubt that Mandoona is an incorrect transcription of Gipps' indistinctly handwritten Mendooran and that Mundoman and Mundonan are further incorrect spellings of that name. A copy of a letter, dated June 11th, 1874, from Dr George Bennett to Owen in the British Museum (Natural History) *Owen Correspondence*, vol. 3, folio nos 293,4, specifies that a right lower jaw of a *Diprotodon* in two parts and a radius all from a place called "Mandoona, near Wallarawang" were being transmitted to Owen at the request of Gipps.

9. *bonythoni*¹

Ngapakaldia bonythoni Stirton, 1967. *Bull. Bur. Miner. Resour. Geol. Geophys. Aust.* no. 85 : 26-30, text fig. 6; pl. 4.

¹The holotype has not been seen by either author.

Holotype a mutilated skull and incomplete postcranial skeleton, no. P13863, in the South Australian Museum. Collected by Dr R. A. Stirton, July 24th, 1958 (*pers. comm.*, R. H. Tedford) on South Australian Museum and University of California Museum of Paleontology expedition.

Type locality eastern shore of Lake Ngapakaldi, 1165 feet north and 8° west of Ngapakaldi Quarry; about 3 miles north-east of the south-west end of lake and about 4 miles north of Lake Pitikanta, about 22 miles west of Birdsville Track and an equal distance north of Cooper Creek in Tirari Desert east of Lake Eyre, South Australia. Approximate grid co-ordinate 642488, grid zone 5, Marree sheet, 1 : 506,880; Australian Army H.Q., Cartographic Co., 1942. Type locality is University of California Museum of Paleontology locality V5879, Ngapakaldi Quarry is University of California Museum of Paleontology locality V5858. In weathered surface of upper part of grey-green claystone. Etadunna Formation.

Stirton, Tedford and Miller, 1961, *Rec. S. Aust. Mus.* **14** : 19-61, report on the stratigraphy and fauna of the Etadunna Formation and show the position of Ngapakaldi Quarry in a locality map (text fig. 2). A measured section at 1165 feet N. 8° W. of the Ngapakaldi Quarry is described by Stirton, Tedford and Woodburne, 1967, *Rec. S. Aust. Mus.* **15** : 459, 430 text fig. 2.

10. *celer*¹

Prochaerus celer De Vis, 1886 [as *Prochaerus ceter*]. In Anon., *The Brisbane Courier*, no. 8837, vol. 41, May 12th, 1886, p. 6, cols 4,5; and in Anon., *The Daily Observer* [Brisbane], no. 879, vol. 3, May 12th, 1886, p. 2, cols 5,6.

Syntypes a "hindmost grinder" (called also a "quinque-tuberculate tooth of bunodont type" by De Vis, 1887, *Proc. R. Soc. Qd* **3** : 43), no. F.757, in the Queensland Museum; and four upper front teeth, one lower front tooth, and a portion of a "tusk", the identity of which cannot be established unequivocally at present (see below).

Type locality "Sharrow" (the quinque-tuberculate tooth) and "other localities on the Darling Downs", Queensland (Editor's footnote to De Vis, 1887, p. 47). Sharrow is not a known place; it appears to be an error for Harrow, Cambooya, Darling Downs (see Bartholomai, 1967, *Mem. Qd Mus.* **15** : 23).²

¹*Prochaerus celer* is included here on the basis of the quinque-tuberculate tooth.

²Since Bartholomai, 1967, a property named "Sharow" has been located in the Darling Downs. It is a cattle property about 16 miles southeast of Jandowae. From topographic considerations Bartholomai (*pers. comm.*) considers that it appears to be at the same stratigraphic level as the fossiliferous deposits at Jimbour; he does not know whether there are fossiliferous deposits at Sharow which would suggest that Sharow = the Sharrow of De Vis.

The identity of the syntypes of this species is uncertain because, of all the specimens mentioned in the abstract (one "grinder", two lower front teeth, four upper front teeth, and a "tusk"), only some provide the characters of the species as given in the original description, i.e. the syntypes listed above. The full text of the paper notes two additional upper front teeth and also illustrates the grinder (pl. 1, fig. 1), a lower incisor (pl. 1, fig. 2), and three "Upper incisors" (pl. 1, figs 3-5) and these can be recognized in the collection of the Queensland Museum as no. F.757 (fig. 1), no. F.756 (fig. 2), and no. F.758 (figs 3-5). We do not know whether the lower front tooth used in the original description is that illustrated in pl. 1, fig. 2, or the other; and we do not know which three of the six upper front teeth (only four of which are syntypes) were illustrated, so that it is possible that only one of the three illustrated is a syntype—and we do not know which.

The original descriptions are two newspaper abstracts of De Vis, 1887, *Proc. R. Soc. Qd* 3 : 42-7, pl. 1. The name *celer* (swift) is misspelled *ceter* in the original abstracts and emended in the full paper. De Vis gives a derivation for the generic and specific names which would be in harmony with the name translatable as swift pro-pig but not with a name without meaning. Of the alternative actions open to us we accept that De Vis would not have had control over the spelling of the abstracting columnist or printer and that his subsequent emendation is justified in the sense of Article 33 (a) of the *International Code of Zoological Nomenclature*. That the emendation is intentional is shown by his use of it in the text and in the legend printed on plate 1.

There are no provisions in the *International Code of Zoological Nomenclature* which would enable a first reviser to select one of the two 1886 publications as being the original description. The *Code* (Article 24 (a)) provides for selection in the cases where more than one name is published for a single taxon, or identical names are published for different taxa, but the situation we are faced with here is not one of these kinds.

De Vis believed *Prochaerus* to be related to the peccaries; but see Longman, 1916, *Proc. R. Soc. Qd* 28 : 83-7, who concluded that the incisors are those of marsupials and that the bunodont tooth does not present sufficient evidence to warrant its designation as non-marsupial. He identified no. F.756 as a left lower incisor of *Thylacoleo carnifex* Owen.

11. *centralis*

Plaisiodon centralis Woodburne, 1967. *Bull. Bur. Miner. Resour. Geol. Geophys. Aust.* no. 85 : 89-103, text fig. 7f.

Holotype an incomplete cranium with right P⁴-M³ and less complete left dentition, no. CPC6748, in the Commonwealth Palaeontological Collection, Bureau of Mineral Resources, Canberra. Collected by Dr M. O. Woodburne and party between late June and early August, 1964 (*pers. comm.*, M. O. Woodburne).

Type locality Paine Quarry (University of California Museum of Paleontology locality V6345), 4 miles south-west of Alcoota Station Homestead, 2.1 miles south-west of the junction of Waite and Ongeva Creeks, Northern Territory. Waite Formation.

Woodburne, 1967, *Bull. Bur. Miner. Resour. Geol. Geophys. Aust.* no. 87 : 1-187, pls 1-7, further describes and figures the holotype (pp. 149-59, text figs 31-3) and provides details of the geology of the type locality. Comparative description which involves *Plaisiodon centralis* is provided by Plane, 1967, *Bull. Bur. Miner. Resour. Geol. Geophys. Aust.* no. 85 : 121; and by Stirton, Woodburne and Plane, *Bull. Bur. Miner. Resour. Geol. Geophys. Aust.* no. 85 : 154,5, who also illustrate the species (fig. 2 in part). See footnote on pp. 78,9, under *Kolopsis*.

12. **charon** *Sthenomerus charon* De Vis, 1883. *Proc. Linn. Soc. N.S.W.* 8 : 11-15.

Syntypes a deciduous premolar, five incisors, the broken shaft of a femur and portions of a radius and ulna, no. F.5470, in the Queensland Museum. Obtained by Mr Henry Tryon.

Type locality Gowrie Creek, Darling Downs, Queensland.

Two ribs, portions of two dorsal vertebrae, part of a pelvis and of a scapula and portions of a tibia and fibula are also mentioned in the original description but no part of the description is based upon them. These specimens and the syntypes, were obtained together in Gowrie Creek and were regarded by De Vis as "evidently belonging to the same individual". We are unable to confirm this and list syntypes, rather than a holotype.

13. **crassus** *Palorchestes crassus* Owen, 1880. *Trans. zool. Soc. Lond.* 11 : 7-10, pl. 2.

Holotype the symphyseal portion of a mandible and right ramus with M₂₋₄ (formerly no. 50050) and left ramus with M₁₋₄, no. M.34, in the British Museum (Natural History). Presented by G. F. Bennett, April, 1879 (no. 50050) and September 6th, 1880 (no. M.34) (British Museum (Natural History) Register). Owen says specimen no. 50050 was supplied by G. F. Bennett.

Type locality Gowrie, Darling Downs, Queensland (Owen adds "fluviatile deposits in the bed of a "creek" ").

The original description was of the symphyseal portion and right ramus. The left ramus was found separately at Gowrie (see letters from Dr G. Bennett to Owen, dated June 7th, 1880 and July 3rd, 1880, in the British Museum (Natural History) *Owen Correspondence*, vol. 4, folio nos 9-12. This fragment (and now specimen formerly no. 50050) is numbered M.34 (see Lydekker, 1887, *Catalogue of the fossil Mammalia in the British Museum (Natural History)* 5 : 238, who also says presented by Dr George Bennett, 1879).

The holotype is discussed by Tate, 1948, *Bull. Am. Mus. nat. Hist.* 91 : 339,40, and by Woods, 1958, *Mem. Qd Mus.* 13 : 177-84.

14. **creedii** *Zygomaturus creedii* Krefft, 1873. *The Sydney Mail and New South Wales Advertiser*, no. 697, vol. 16, November 8th, 1873, p. 594, col. 3, p. 595, col. 1, and supplement, Australian fossil remains, pl. 2, figs 7-7c.

Holotype a fractured right premaxilla with I¹ broken, "the broken off second, and the alveolus of the third" incisor. Of this specimen only the broken I¹, no. F.5042 in the Australian Museum, has been found. Discovered by Dr Mildred Creed.

Type locality near Scone, New South Wales.

Figures 7-7c are all of the isolated right I¹ (incorrectly called a left I¹ in Krefft's explanation of these figures). Subsequently, the holotype was figured with the incisor in position by Krefft, 1882, *Exploration of the caves and rivers of New South Wales* . . . : Australian fossil remains, pl. 14, fig. 5, while a cast of the alveolar cavity of an I³, figured by Krefft, 1882, pl. 12, fig. 6, may also be of the type (see Krefft's undated manuscript Description of the Plates, folio nos 34 (legend for pl. 12, fig. 6), 37 (legend for pl. 14, fig. 5) in *Mitchell Library manuscripts* A264—Krefft Papers MSS). Krefft's fig. 5 in *The Sydney Mail and New South Wales Advertiser*, no. 623, vol. 13, June 8th, 1872, p. 713, is also possibly of the holotype. The name is first published (as a *nomen nudum*) by Krefft, *The Sydney Mail and New South Wales Advertiser*, no. 616, vol. 13, April 20th, 1872, p. 488, col. 2, while the species is apparently that noted under *Zygomaturus* by Krefft, 1870, *Guide to the Australian fossil remains* . . . : 5, as being a "still undescribed one, lately discovered by Dr. Mildred Creed, near Scone"; see also extracts from minutes of the Trustees of the Australian Museum, dated November, 1869 and December 2nd, 1869, published as Thomson, p. 6, and Krefft, p. 7, in Anon., 1882, *Exploration of the caves and rivers of New South Wales* . . . for references to Dr Creed having obtained fossil remains in the Scone district.

See p. 89, under *Diprotodon bennettii* Krefft, for the history of publication of the article which contains the figures which make *Z. creedii* available.

15. *cultridens* *Kolopsoides cultridens* Plane, 1967. *Bull. Bur. Miner. Resour. Geol. Geophys. Aust.* no. 85 : 119-28, text figs 6-8.

Holotype a right I¹ P⁴-M² M⁴; left premaxillary fragment and I¹; left P⁴; mandible with right I₁ P₄-M₄ and left P₄-M₄; ascending rami and inflected angles broken; no. CPC13860 in the Commonwealth Palaeontological Collection, Bureau of Mineral Resources, Canberra; formerly no. 67601 in the University of California Museum of Paleontology. Obtained by Dr R. A. Stirton, 1962 (*pers. comm.*, M. Plane).

Type locality at Sunshine alluvial gold sluicing workings, western bank of Watut River, approximately 9 miles north of Bulolo township, Morobe District, Territory of Papua and New Guinea (University of California Museum of Paleontology locality V5564). In claystone. Otibanda Formation.

Plane, p. 119, attributes a left I¹ P⁴-M² M⁴, right premaxillary fragment and I¹ and right P⁴ to the holotype.

Plane, 1967, *Bull. Bur. Miner. Resour. Geol. Geophys. Aust.* no. 86 : 1-64, pls 1-6, provides further descriptive details of the species (pp. 56-9) and details of the geology of the type locality; for details of the collecting localities at Sunshine, see, in particular, pp. 63,4, p. 14 text fig. 3 and p. 62 text fig. 15 of that work. Comparative description which involves *Kolopsoides cultridens* is provided by Stirton, Woodburne and Plane, 1967, *Bull. Bur. Miner. Resour. Geol. Geophys. Aust.* no. 85 : 156, who also illustrate the species (fig. 2 in part). See footnote on pp. 78,9, under *Kolopsis*.

16. *dailyi*¹

Pitikantia dailyi Stirton, 1967. *Bull. Bur. Miner. Resour. Geol. Geophys. Aust.* no. 85 : 30-4, text fig. 7.

Holotype a right I¹⁻³; left I¹ I³ P⁴, P₄; broken right mandibular ramus with I₁ P₄-M₂, anterior portion of M₃ ; six incomplete tarsals; metatarsals 1, 3-5; six phalanges; no. P13862 in the South Australian Museum. Collected by Dr B. Daily, July 13th, 1957 (*pers. comm.*, R. H. Tedford), on South Australian Museum and University of California Museum of Paleontology expedition.

Type locality Discovery Basin (University of California Museum of Paleontology locality V5774), west side of Lake Pitikanta, about ¼ mile south of north end of lake in little blowout basin, at mouth and extending about 40 yards north of mouth of wide wash that runs back to west through escarpment; Lake Pitikanta is about 22 miles west of Birdsville Track and 19 miles north of Cooper Creek in Tirari Desert east of Lake Eyre, South Australia. Approximate grid co-ordinate 645481, grid zone 5, Marree sheet, 1:506,880; Australian Army H.Q., Cartographic Co., 1942.

In top of grey-green claystone with boxes [sic] extending into lower part of upper white calcareous mudstone. Etadunna Formation.

Stirton, Tedford and Miller, 1961, *Rec. S. Aust. Mus.* 14 : 19-61, report on the stratigraphy and fauna of the Etadunna Formation and show the position of the type locality in a map (text fig. 2). The holotype is figured by Stirton, Woodburne and Plane, 1967, *Bull. Bur. Miner. Resour. Geol. Geophys. Aust.* no. 85, fig. 2 (in part).

17. *dunense*

Nototherium dunense De Vis, 1888. In Anon., *Abstr. Proc. Linn. Soc. N.S.W.* for December 28th, 1887 : v.

Holotype a left mandibular ramus with P₄-M₄, no. F.376 (formerly no. 5489), in the Queensland Museum.

Type locality Darling Downs, Queensland (from "drifts").

¹The holotype has not been seen by either author.

The original description is an abstract of De Vis, *Proc. Linn. Soc. N.S.W.* (2) 2 : 1065-70, pl. 38, which was published on March 21st, 1888; pl. 38 illustrates the holotype. The abstract was republished as De Vis in Anon., *Zool. Anz.* 11 : 122, on March 5th, 1888. The *Abstract* in which this name occurs antedates the practice of the Linnean Society of New South Wales of giving a notice of the next meeting in the *Abstract* of the last (see p. 39, under *Thylacinus rostralis*). However it is our experience that the publication of the *Abstr. Proc. Linn. Soc. N.S.W.* occurs before the date of publication of the same material in *Zool. Anz.*; therefore we accept that publication in this case took place before March 5th, 1888. The next meeting of the Linnean Society of New South Wales took place on January 25th, 1888.

A holotype is nominated in the abstract but not in the complete paper; there, several specimens are described and of these only F.376 agrees with the description of "a well-preserved jaw" in the original text.

18. *gilli*¹

Zygomaturus gilli Stirton, 1967. *Bull. Bur. Miner. Resour. Geol. Geophys. Aust.* no. 85 : 135, text fig. 1A (partly restored).

Holotype a badly abraded left P⁴, no. 2020, in the Department of Geology and Mineralogy, University of Melbourne. Found by either T. S. Hall or G. B. Pritchard some years before 1897 (Hall and Pritchard, 1897, *Proc. R. Soc. Vict.* 10 : 57).

Type locality Beaumaris, Port Phillip Bay, Victoria (Hall and Pritchard, p. 57, say found "on the beach at Beaumaris, just below the present hotel" where it occurred "loose among the pebbles on the beach floor").

The locality is stated by Stirton to be "Nodule bed of calcareous nodules, ferruginous nodules, and vertebrate remains in matrix of coarse clear-quartz sand; from base of Black Rock member of Sandringham Sands Formation. Sea cliffs of Port Phillip Bay, on axis of anticline near Beaumaris boatsheds opposite Bondley Street, Beaumaris, Victoria". The holotype is described and figured by Stirton, 1957, *Mem. natn. Mus. Vict.* no. 21 : 125, 6 text figs 3A, 3B (restoration), but without name other than that of the family; there, he notes that the preservation and fluorine tests indicate that it came from the contiguous cliffs of the Sandringham Sands. Gill, 1957, *Mem. natn. Mus. Vict.* no. 21 : 165-87, discussed the occurrence of fossil marsupials at Beaumaris and concluded that the holotype came from the Sandringham Sands. Singleton, 1941, *Proc. R. Soc. Vict.* 53 : 32, notes that the worn condition of many of the vertebrate teeth from the nodule bed suggests a remanié origin for some of the fossils. For a further note on the type locality see Woodburne, 1967, *Bull. Bur. Miner. Resour. Geol. Geophys. Aust.* no. 87 : 170, and for a discussion of the Black Rock Sandstone (or the Black Rock member of the Sandringham Sands) see Kenley, 1967, *Bull. geol. Surv. Vict.* no. 59 : 38, 43-5. Comparative description which involves *Zygomaturus gilli* is provided by Plane, 1967, *Bull. Bur. Miner. Resour. Geol. Geophys. Aust.* no. 85 : 117, and no. 86 : 57; and by Stirton, Woodburne and Plane, 1967, *Bull. Bur. Miner. Resour. Geol. Geophys. Aust.* no. 85 : 156, who also republished (fig. 2 in part) Stirton's text fig. 1A of the holotype. See footnote on pp. 78, 9, under *Kolopsis*.

¹The holotype has not been seen by either author.

19. *grata*

Owenia grata De Vis, 1887. In Anon., *The Brisbane Courier*, no. 9224, vol. 44, August 8th, 1887, p. 6, cols 1,2.

Holotype a damaged cranium and mandible, no. F.519, in the Queensland Museum. Discovered by Mr Kendal Broadbent (De Vis, 1888, *Proc. R. Soc. Qd* 4 : 105, adds "in April last"—paper read on August 5th, 1887).

Type locality Chinchilla, Darling Downs, Queensland.

Portions of the atlas and axis vertebrae are also mentioned in the original description, but no part of the description is based upon them. There is in the Queensland Museum a collection of matrix from the holotype and numerous bone fragments which include part of the atlas vertebra.

The original description is an abstract of De Vis, 1888, *Proc. R. Soc. Qd* 4 : 99-106, pls 1-4; the holotype is figured in pls 1-4.

20. *inermis*

Nototherium inermis Owen, 1845. *Descriptive and illustrated catalogue of the fossil organic remains of Mammalia and Aves contained in the Museum of the Royal College of Surgeons of England* : 314-16, pl. 8 (all figures reversed).

Lectotype the body of a right mandibular ramus without ascending ramus and lacking the crowns of the molars, formerly no. 1505 in the Museum of the Royal College of Surgeons of England (no. 3844 of Flower, 1884, *Catalogue of the specimens illustrating the osteology and dentition of vertebrated animals* . . . 2 : 732). Presented by Sir Thomas Mitchell (Owen, 1872, *Phil. Trans. R. Soc.* 162 : 41, says "transmitted" in 1842).

Type locality Darling Downs, Queensland (Owen says "From the alluvial or newer Tertiary deposits in the bed of the Condamine River, west of Moreton Bay, Australia").

The lectotype was selected by Woods, 1968, *Mem. Qd Mus.* 15 : 113, from two syntypical mandibular specimens formerly nos 1505 and 1507 in the Royal College of Surgeons of England; these have not been found by us.

The lectotype and paralectotype are regarded by the Curator of the Hunterian Collections as having been destroyed (see p. 40, under *Thylacinus spelaeus*, and pp. 190,1). The paralectotype, no. 1507 (Owen, 1845, pp. 318,19), comprising a fragment of a right mandibular ramus without teeth, was listed by Flower in a manuscript in the Royal College of Surgeons of England as missing in May, 1868 (see pp. 192,3 of this *Index*).

The original description of the lectotype is republished by Owen, 1845, *14th Rep. Br. Ass. Advmt Sci.* : 231,2, who says, on p. 233, that it came from "the bed of a tributary of the Condamine River"; and by De Strzelecki, 1845, *Physical description of New South Wales and Van Diemen's Land* . . . : 303-6. The lectotype

is refigured by Owen, 1845, *Odontography* . . . 2, pl. 90, fig. 4, and said, on p. 22, in the legend to the plate, to be a left ramus; the plate is dated 1845. The lectotype is later redescribed and figured by Owen, 1872, pp. 63,4, pl. 8, where a left mandibular ramus is added to the right in fig. 2 and lophids are added to M_{3-4} in figs 1-3; figs 1,3 are said, on p. 80, in the legend to the plate to be of a right and left ramus respectively; the basis of the lophid restorations is specimen no. 39979 in the British Museum (Natural History). No. 39979 is a broken left mandibular ramus with M_{3-4} and is recorded in the British Museum (Natural History) Register as having been collected by M. St Jean, at Gowrie, near Drayton, Darling Downs, Queensland and presented by Sir Daniel Cooper, Bart, July, 1866. This description and plate are republished by Owen, 1877, *Researches on the fossil remains of the extinct mammals of Australia* . . . 1 : 271,2; 2, pl. 42. Woods, 1968, pl. 13, figs 1,2, republished Owen's 1872, pl. 8, figs 2,3.

The specimen selected as lectotype by Woods is in accordance with Owen, 1859, *Q. Jl geol. Soc. Lond.* 15 : 179, and 1872, p. 63, who says that the species is founded on no. 1505; later, Owen, 1877, 1 : 515, called no. 1505 the "type of the species" but he also refers, on p. 514, to "type specimens of mandible".

Owen, 1872, in addition to saying, on p. 41, that the type material was transmitted to him by Mitchell, implies on p. 79, in a table, that the *Nototherium* material from the Darling Downs, sent to him by Mitchell in 1842, was found by Mitchell in that year. Mitchell's correspondence with Owen indicates that Mitchell had not visited the Darling Downs himself as late as April, 1849 (letter from Mitchell to Owen, dated April 2nd, 1849, in the British Museum (Natural History) *Owen Correspondence*, vol. 19, folio nos 252,3). Mitchell was clearly only the "transmitter", not the collector, and the table is of the same sort as the "Table of Localities of Fossils of *Phascolomys* . . ." (see p. 73, under *Phascolomys thomsoni*).

The spread of settlement on the Darling Downs at the time Owen named the species was such that there is little doubt that the lectotype came from the alluvial deposits of the south eastern Darling Downs (see Russell, 1888, *The genesis of Queensland* . . . : i-xvi, 17-636, for an account of the exploration and occupation of the Darling Downs; and see p. 74, under *Phascolomys thomsoni*, for some references to works which remark on fossil mammal localities found in the Darling Downs during its early settlement).

The relative dates of publication of Owen's works of 1845 which describe *Nototherium inerme*, i.e. *Descriptive and illustrated catalogue of the fossil organic remains of Mammalia* . . . ; *14th Rep. Br. Ass. Advmt Sci.*; and *Odontography* . . . part 3, are established in the following manner.

(i). *14th Rep. Br. Ass. Advmt Sci.* An anonymous notice in *The Athenaeum*, no. 916, May 17th, 1845, p. 473, col. 3, says that the *14th Report of the British Association for the Advancement of Science* was "just published". *The Athenaeum* was published weekly and the notice does not appear in earlier numbers than that of May 17th. We have been unable to gain information from the British Association which would advance this date of issue for the *14th Report*; the Treasurer's account for the period September 26th, 1844—June 19th, 1845, published as Anon., 1846, *15th Rep. Br. Ass. Advmt Sci.* : xii, xiii, reveals that only a few copies of the *14th Report*, i.e. "13th vol", had been sold by mid-June.

(ii). *Odontography* . . . *The Athenaeum*, no. 923, July 5th, 1845, p. 680, col. 3, announces in an anonymous notice that *Odontography* . . . "Part III. and last, containing 27 sheets and 68 plates engraved, 8vo." is "Now Ready". *Nototherium inerme* is contained in that part.

(iii). *Descriptive and illustrated catalogue of the fossil organic remains of Mammalia* This work is also not more precisely dated than the year 1845, but we know from a statement by De Strzelecki, 1845, *Physical description of New South Wales and Van Diemen's Land* . . . : 298, that Owen's *Catalogue* was published before that work was printed; from Anon., *The Athenaeum*, no. 916, May 17th, 1845, p. 476, col. 2, and no. 917, May 24th, 1845, p. 508, col. 2 and p. 515, col. 2, we know that De Strzelecki's work was published between May 17th and May 24th, 1845, and probably on May 21st. Anon., 1845, *Q. Jl geol. Soc. Lond.* 1 : 257, in an editorial note, refers to Owen's "recently published" Royal College of Surgeons of England *Catalogue*. The date of that note is indicated in an earlier introductory notice, Anon., 1845, *Q. Jl geol. Soc. Lond.* 1 : 1-3, where it is stated that the second number of that Journal, i.e. the number in which the editorial note appears, "will be published" on May 1st, 1845.

The minutes of the Museum Committee of the Royal College of Surgeons of England for February 4th, 1845 record that:

"Mr. Owen laid before the Committee a Copy of the Catalogue of the Fossil Mammalia, and reported that 250 Copies thereof had been printed in pursuance of the resolution of Council on the 5th, of May 1842."

And the minutes of the Council of the Royal College of Surgeons of England for February 6th, 1845 note that the Council resolved :

"That the recommendation of presenting a Copy of the Catalogue of the fossil Mammalia to the several Persons enumerated in the Minutes of the Committee of the 4th, Instant, be approved; and that the same be accordingly presented in the name of the President and this Council."

"That the Price of the said Catalogue be to Members fifteen shillings, and to the public one guinea; as proposed by the Museum Committee"

"That the Sale of such Catalogue be confided to Mr. Van Voorst upon the Terms stated in the report from the Museum Committee."

Subsequently, the minutes of the Museum Committee for February 25th, 1845 record that:

"The Secretary also reported that the Copies of the Catalogue of fossil Mammalia had been presented, in the Name of the President and Council, to the several Individuals proposed by this Committee."

The "several Individuals" are named in the minutes of the Museum Committee for February 4th, 1845 as being "Professors Buckland and Sedgwick, Count Strzelecki, Colonel Sir Thomas Mitchell, Ronald Gunn Esqr, Dr. Hobson, Revd. William Williams, Sir Woodbine Parish, Don de Angelis, Monsr. Falconet, Charles Darwin, John Brown, William J. Broderick and Samuel P. Pratt, Esquires; Professors Hitchcock, De Blainville, Von Meyer and Kaup; and to the Library of the Government Museum of Economic Geology, and Sir Henry De la Beche the Head of the Establishment".

There can be no doubt that the *Catalogue* was available before May 17th, 1845, and is the prior of the three publications.

21. *ingens*

Koalemus ingens De Vis, 1889. *Proc. R. Soc. Qd* 6 : 106-9, pl. 5 (in part).

Holotype the distal end of a right fibula, no. F.683, in the Queensland Museum.

Type locality "post-tertiary", Queensland at "a gathering place enriched by agencies of unusal [sic] range and efficacy" (De Vis, p. 105) (likely to be from Chinchilla Sand by preservation, Bartholomai, 1968, *Mem. Qd Mus.* 15 : 69).

The holotype is further described by Bartholomai, pp. 69-71, who also published photographs of it (pl. 9, figs 4-6). De Vis, p. 106, called the holotype the distal end of a left fibula.

22. *keanei*¹

Zygomaturus keanei Stirton, 1967. *Bull. Bur. Miner. Resour. Geol. Geophys. Aust.* no. 85 : 136-44, text figs 2,3,4A.

Holotype a broken skull comprising cranial fragments, namely left and right I¹ (I¹ is inadvertently called I³ in the legend, on p. 143, to fig. 4A), left maxillary fragment with P⁴-M⁴ (P⁴ and M¹ found separated from the maxilla in the quarry), right P⁴ (broken), M² M⁴, and a distorted mandible with posterior parts of rami incomplete, rami fused at the symphysis and containing the base of left I₁, left P₄-M₄ (all fractured), right P₄-M₄ (P₄ M₁ broken), no. P13844, in the South Australian Museum. Collected by Dr R. A. Stirton, June 28th, 1962 (*pers. comm.*, R. H. Tedford), on South Australian Museum and University of California Museum of Paleontology expedition.

Type locality Keane Quarry (University of California Museum of Paleontology locality V6265), north side of the first prominence to the north-east of Woodard Quarry (University of California Museum of Paleontology locality V5367); Woodard Quarry is about ¾ mile south-west of the north-west corner of Lake Palankarina, east of Lake Eyre and about 18 miles west and slightly south of Etadunna Station Homestead, South Australia. Military grid co-ordinate 657433 (Woodard and Keane Quarries), grid zone 5, Marree sheet, South Australia, 1:506,880; Australian Army H.Q., Cartographic Co., 1942 (locality details from Stirton, pp. 131,2,4). Mampuwordu Sands.

Stirton, Tedford and Miller, 1961, *Rec. S. Aust. Mus.* 14 : 19-61, report on the stratigraphy and fauna of the Mampuwordu Sands and show the position of Woodard Quarry in a locality map (text fig. 2). For a note on Keane Quarry see Stirton, 1963, *Aust. nat. Hist.* 14 : 182.

Comparative description which involves *Zygomaturus keanei* is provided by Plane, 1967, *Bull. Bur. Miner. Resour. Geol. Geophys. Aust.* no. 85 : 117,18; Stirton, Woodburne and Plane, 1967, *Bull. Bur. Miner. Resour. Geol. Geophys. Aust.* no. 85, fig. 2 (in part) illustrate the species. See footnote on pp. 78,9, under *Kolopsis*.

¹The holotype has not been seen by either author.

23. *loderi*

Diprotodon loderi Krefft, 1873. *The Sydney Mail and New South Wales Advertiser*, no. 686, vol. 16, August 23rd, 1873, p. 238, col. 2.

Holotype a palatal portion of a cranium with left and right I^{1-3} P^4-M^4 , no. F.4623, in the Australian Museum. Collected by Mr Andrew Loder *et al.*, February, 1869 and presented by Mr Merewether (see Krefft in Anon., *The Illustrated Sydney News*, no. 59, vol. 5, March 20th, 1869, p. 151, col. 3).

Type locality near the residence of Mr William Bretton senior (who was "residing at the Willow Tree"), Australian Agriculture Company's run Warrah near Murrurundi, New South Wales (Anon., *The Sydney Mail*, no. 451, vol. 10, February 20th, 1869, p. 5, col. 6); beneath 15 feet of alluvial soil on the Warrah River (Krefft in Anon., *The Illustrated Sydney News*, no. 59, vol. 5, March 20th, 1869, p. 151, col. 3).

As far as we can ascertain the holotype has not been figured. The anonymously published figure in *The Illustrated Sydney News*, no. 59, vol. 5, March 20th, 1869, p. 161, is probably based on Mr Turner's *Diprotodon* cranium in the Boyddian Collection (see pp. 69,70, under *Phascolomys parvus*, for notes on that Collection) and might not be the sketch referred to in Krefft's letter in Anon., *The Illustrated Sydney News*, no. 59, vol. 5, March 20th, 1869, p. 151, col. 3; the teeth in that figure (p. 161) agree neither with the description in Krefft's letter nor with those of the holotype. Measurements of the holotype (including a comparison with those of a *Diprotodon* specimen from Limeburner's Creek, Victoria) are given by Anon., *The Sydney Mail*, no. 451, vol. 10, February 20th, 1869, p. 5, col. 6.

A short anonymous notice of the discovery appears in *The Sydney Mail*, no. 450, vol. 10, February 13th, 1869, p. 14, col. 1.

The name is first published, as a *nomen nudum*, by Krefft in *The Sydney Mail and New South Wales Advertiser*, no. 579, vol. 12, August 5th, 1871, p. 722, col. 2.

24. *longiceps*

Diprotodon longiceps McCoy, 1865. *Trans. Proc. R. Soc. Vict.* 6 : 25. Replacement name for *Diprotodon annextans* McCoy, 1861.

Syntypes the syntypes of *Diprotodon annextans* McCoy; these include an imperfect mandible with left and right I_1 M_{1-4} , no. P12109, in the National Museum of Victoria. Presented by Mr Edward Bage having been found on the farm of Mr W. Wallace and saved from destruction by Mr Bage; from a well, Allotment 74, Parish of Ondit near Colac, 6½ miles N.E. of Lake Colac "at a depth of forty five feet from the surface, being about the level of the adjoining swamp", Victoria (see p. 85, under *Diprotodon annextans*). Other syntypes some bones of the

extremities, and some upper incisors, from Back Creek, and the distal end of a humerus "from Mount Macedon", deposited by Dr Greeves; the whereabouts of these other syntypes is not known to us.

Type localities a well, Allotment 74, Parish of Ondit near Colac, 6½ miles N.E. of Lake Colac "at a depth of forty five feet from the surface, being about the level of the adjoining swamp", Victoria; Talbot (determined as Back Creek by Keble, 1945, *Proc. R. Soc. Vict.* 57 : 37-9), Victoria; and "Mount Macedon", Victoria.

The original publication is an abstract of a paper presented by McCoy to the September 30th, 1861 meeting of the Royal Society of Victoria. This paper was subsequently lost and the abstract only has been published by the Society (see Anon., 1865, *Trans. Proc. R. Soc. Vict.* 6 : v,vi). Both the title of the abstract and the name used in it for the new species differ from those used by McCoy when he presented the paper in 1861—see p. 85, under *Diprotodon annexans*.

Later, in 1876, *Prodromus of the palaeontology of Victoria* . . . Decade 4 : 7-10,11 (two unnumbered text figures); pls 31 and 32, figs 1-1c (figures reversed), 1d; pl. 33, fig. 1 (figure reversed), McCoy redescribed and figured the species basing his description entirely upon the Colac mandible and noting that a Back Creek incisor (pl. 33, figs 2-2b) could only be assigned with doubt to the species. The process of eliminating specimens from a type series until only one is left is not a method of lectotype selection listed in the *International Code of Zoological Nomenclature*. But, since the Colac mandible has been accepted by Keble, pp. 39-42, and by Gill, 1953, *Mem. natn. Mus. Vict.* no. 18 : 164, as the holotype, Recommendation 74A of the *International Code of Zoological Nomenclature* should be noted when lectotype selection is undertaken for the species.

Some uncertainty exists about the locality Mount Macedon as it relates to this species; McCoy, 1876, p. 9, mentions that a distal end of a humerus of *Diprotodon* was presented by Dr Greeves from near Lake Timboon (= Lake Colongulac) but he (McCoy) does not explain whether this is the syntypical humerus with an emended locality; the syntypical humerus was said in his original description to have also been deposited by Dr Greeves—but from Mount Macedon. The locality Mount Macèdon in connection with diprotodontid fossils is discussed by Keble, pp. 32-7.

25. *macleayi* *Zygomaturus macleayi* Krefft, 1921. In Longman, 1921, *Mem. Qd Mus.* 7 : 76.

Holotype a palate with left and right P⁴-M⁴, no. F.4629, in the Australian Museum.

Type locality "Tertiary deposit intersected by the Condamine River W. of Moreton Bay—Australia" (registration data of British Museum (Natural History) cast no. 33260 of the holotype).

The cast no. 33260 from which the data of the type locality are inferred was presented by the "Trustees of the Museum of Nat. Hist. [Australian Museum] Sydney"; the Register in the Australian Museum has no data for the holotype beyond post Tertiary, Old Collection, and that it was entered in that Register in 1897. Longman gave no locality.

Longman publishes the name *Z. macleayi* and ascribes it to a manuscript by Krefft; he makes it available through giving, at the same time, adequate indication to a published figure by Krefft of the holotype, viz. 1882, *Exploration of the caves and rivers of New South Wales* . . . : Australian fossil remains, pl. 7, fig. 2. Since Longman makes Krefft solely responsible for both name and description, i.e. illustration qualifying the name, the authorship can only be ascribed to Krefft.

There could be some doubt from the manner in which Longman used *Z. macleayi* as to whether he was intending to bring the name into use for a taxon. However, he remarks that *Z. macleayi* evidently possessed premolars of the sub-triangular type unlike those of the type specimen of *Z. trilobus* (which he referred to "*Nototherium, sensu stricto*") and we conclude from this that Longman was uncertain of the real affinities of the specimen called *Z. macleayi* by Krefft but, being certain that it was unlike *Zygomaturus trilobus* (as he defined it through the characters of its premolars), he recognized that the Krefftian name belonged to a taxon which he could not certainly allocate.

Whitley, 1966, *Aust. Zool.* 13 : 230, incorrectly lists the name as available from Krefft's, 1870, use of it on p. 5 of *Wellington Caves. (Correspondence relative to exploration of.)* [Parliamentary Paper, N.S.W.] where it is a *nomen nudum*. There, Krefft says for the subject of pl. 4, fig. 4 "Palate of a new species of *Zygomaturus*, *Z. Macleayi*"; however, this reference is not to a published illustration (and hence does not make the name available) but is contained in the list, on pp. 5,6, of the series of twelve plates entitled "Photographs of Australian Fossils". The series was sent to Owen and had not been published; accordingly the reference does not make the name available. The list of the photographs which were included in those twelve plates was also published by Krefft in 1870 (with some amendments) under the title "Photographs of Australian fossil remains" in *Guide to the Australian fossil remains* . . . : 10-15. These photographic plates also remain unpublished. Neither of the sets of plates referred to in the lists mentioned above should be confused with other illustrations and plates with somewhat similar titles which were published by Krefft. The plates of the photographic series all differ from the two plates of "Australian fossil remains" published by Krefft, *The Sydney Mail and New South Wales Advertiser*, no. 697, vol. 16, November 8th, 1873, supplement; moreover, they are not included among those entitled "Australian fossil remains" which were published by Krefft, 1882, in *Exploration of the caves and rivers of New South Wales* . . .

26. *mawsoni*¹

Meniscolophus mawsoni Stirton, 1955. *Rec. S. Aust. Mus.* 11 : 258-65, text figs 7-9.

Holotype an incomplete mandible with left and right I_1 P_4 - M_4 (text figs 7,9), a left maxillary fragment containing M^{2-3} (text fig. 8) and a right M^3 , no. P13647, in the South Australian Museum (formerly University of California no. 44397). Collected by

¹The holotype has not been seen by either author.

Dr R. A. Stirton, July 31st, 1953 (*pers. comm.*, R. H. Tedford) on University of Adelaide Department of Geology, South Australian Museum, and University of California Museum of Paleontology expedition.

Type locality Palankarinna quarry (i.e. Woodard Quarry or locality), west side of Lake Palankarinna, 18 miles south 75° west of Etadunna Station Homestead, South Australia. Military grid reference 656431, ordnance sheet Marree, South Australia; H54/1.2.5.6, zones 5 and 6, first edition, 1942, scale 1:506,880. University of California Museum of Paleontology locality V5367. Mampuwordu Sands.

Stirton, Tedford and Miller, 1961, *Rec. S. Aust. Mus.* 14 : 19-61, report on the stratigraphy and fauna of the Mampuwordu Sands and show the position of University of California Museum of Paleontology locality V5367 in a locality map (text fig. 2). Stirton, p. 267, referred the stratigraphic unit, from whence the holotype came, to the Etadunna Formation. Later, Stirton, Tedford and Miller, p. 31, defined the Etadunna Formation and proposed the name Mampuwordu Sands for the overlying channel sands which contain the Palankarinna fauna of Woodard locality.

Stirton, p. 258, says the left maxillary fragment evidently belongs to the same individual as the mandible since the specimens were found in proximity and since both upper and lower teeth are in the same stage of wear. Some additional comments on the characters of the holotype are made by Stirton, 1967, *Bull. Bur. Miner. Resour. Geol. Geophys. Aust.* no. 85 : 145-7.

27. *minor*

Diprotodon minor Huxley, 1862. *Q. Jl geol. Soc. Lond.* 18 : 422-7, pl. 21, figs 4,5.

Holotype a fragmentary left maxilla with part of a palate with P⁴-M², no. M.10771, in the British Museum (Natural History) (transferred from the Geological Society of London, June 1911). Procured by Mr Isaac.

Type locality Gowrie, Darling Downs, Queensland (in ferruginous matrix).

Huxley, p. 422, says that he does not doubt that an unworn M⁴, no. M.10773 (pl. 21, fig. 6), is "of the same series" as the teeth of no. M.10771 and on p. 427, in the legend to pl. 21, says that it is only "probably" of the same specimen of *Diprotodon minor* as the latter. The British Museum (Natural History) Register notes that both specimens were presented by the Geological Society [of London] in 1911 (see also pp. 32,3, under *Dasyurus lanianus* concerning the date of presentation).

Specimen no. M.10771 is refigured as *Nototherium* by Owen, 1877, *Researches on the fossil remains of the extinct mammals of Australia* . . . 1 : 478, 511,13; 2, pl. 88, figs 15-17; Owen calls it *N. victorae* on p. 513 but figures it under the name *N. inerme* on p. 478.

The original figures of P⁴ are republished by De Vis, 1888, *Proc. R. Soc. Qd* 5, unnumbered plate in part (plate entitled "*Diprotodon* [sic] teeth") and the tooth row of M.10771 is reproduced by Krefft, *The Sydney Mail and New South Wales Advertiser*, no. 627, vol. 14, July 6th, 1872, p. 9, figs 4-9 (figures reversed).

28. **mittelli**

Nototherium mittelli Owen, 1845. *Descriptive and illustrated catalogue of the fossil organic remains of Mammalia and Aves contained in the Museum of the Royal College of Surgeons of England* : 316-18, pl. 9.

Holotype the posterior part of a left mandibular ramus with badly broken M₃₋₄, no. M.16590, in the British Museum (Natural History). Formerly no. 1506 in the Museum of the Royal College of Surgeons of England (no. 3843 of Flower, 1884, *Catalogue of the specimens illustrating the osteology and dentition of vertebrated animals* . . . 2 : 732). Transferred from the Royal College of Surgeons of England, October, 1946 (see p. 40, under *Thylacinus spelaeus*). Presented by Sir Thomas Mitchell (Owen, 1872, *Phil. Trans. R. Soc.* 162 : 41, says "transmitted" in 1842).

Type locality Darling Downs, Queensland (Owen says "From the alluvial or newer Tertiary deposits in the bed of the Condamine River, west of Moreton Bay, Australia").

The original description is republished by Owen, 1845, *14th Rep. Br. Ass. Advmt Sci.* : 232,3, who says that the holotype came from "the bed of a tributary of the Condamine River". It is figured by Owen, 1845, *Odontography* . . . 2, pl. 90, fig. 1 (in part) as *Diprotodon australis* (see legend to plate on p. 22; the plate is dated 1845) while it is further figured by Owen, 1872, p. 42 text fig. 1; this text figure is republished by Owen, 1877, *Researches on the fossil remains of the extinct mammals of Australia* . . . 1 : 250 text fig. 1. The holotype is commented on by Stirton, 1955, *Rec. S. Aust. Mus.* 11 : 261,2. Woods, 1968, *Mem. Qd Mus.* 15 : 113,14, discusses the character of the holotype and publishes photographs of it (pl. 13, figs 3 and 4 (a stereo-pair), 5).

See pp. 98,9, under *Nototherium inerme*, for a note concerning *Nototherium* material from the Darling Downs sent to Owen by Mitchell, and for the dates of publication of Owen's works in 1845 cited above.

29. **optatum**

Diprotodon optatum Owen, 1838. In Mitchell, *Three expeditions into the interior of eastern Australia, with descriptions of the recently explored region of Australia Felix, and of the present colony of New South Wales* 1 : xix; 2 : 362,3, pl. 31, figs 1,2.

Holotype the anterior extremity of a right mandibular ramus with an incomplete incisor, no. M.10796 (Mitchell no. IX; Geol. Soc. Lond. nos 13346, 13347—the holotype is in two portions; fig. 1 illustrates both, while fig. 2 illustrates only no. 13347), in

the British Museum (Natural History) (transferred from the Geological Society of London, June 1911). Sir Thomas Mitchell Collection (see p. 32, under *Dasyurus lanarius*).

Type locality Wellington Caves, New South Wales (see below and on p. 34, under *Dasyurus lanarius*).

The holotype is believed by us to be the specimen referred to by Mitchell as "the tusk" in his description of pl. 8, fig. 18, in a draft, dated September 2nd, 1831, of a letter containing information for submission to Baron Cuvier (*Mitchell Library manuscripts A295*³—Papers of Sir T. L. Mitchell, vol. 8, Miscellaneous, folio nos 189,90). The discovery of the tusk between, or in the vicinity of, points "S" and "O" mentioned in that draft is consistent with the locality of the holotype being Wellington Caves and the points possibly correspond to points "K" and "O", of Mitchell, 1838, 2, pl. 23 (2nd ed., 1839, 2, pl. 44)—see Mitchell's use of letters for localities at Wellington Caves in the draft, dated October 14th, 1830, of the paper by Mitchell which was read to the Geological Society of London on April 13th, 1831, in *Mitchell Library manuscripts A295*—Papers of Sir T. L. Mitchell, vol. 8, Miscellaneous, folio nos 193-221.

The portion of the holotype numbered 13347 has attached to it a label inscribed "From the large Cave. No. 6". That the cave is one of the caves at Wellington is made clear by Mitchell in a letter to Owen, dated January 28th, 1843, copy in the British Museum (Natural History) *Owen Correspondence*, vol. 19, folio nos 242-7; Mitchell says there that the tusk (which he specifies by reference to the plate and figures of it in Mitchell, 1839) occurred in "the Cave at Wellington".

The specimen that later became the holotype is first mentioned in an abstract of a paper by Mitchell, read to the Geological Society of London on April 13th, 1831 (*Proc. geol. Soc. Lond.* 1 : 321,2), where, on the basis of an identification by Mr Clift of the Museum of the Royal College of Surgeons of England, it is said to be seemingly part of one of the superior maxillary bones of an animal resembling the dugong. Presumably, this specimen was included in a collection noted by Anon., 1835, *Trans. geol. Soc. Lond.* (2) 3 : 29, as being donated by Major (i.e. Sir Thomas) Mitchell, April 11th, 1831. Nevertheless, Owen, 1870, *Phil. Trans. R. Soc.* 160 : 570, only gives the date 1836 when listing Sir Thomas Mitchell as having found "*Diprotodon australis*" in the "Breccia-cavern, Wellington Valley" (see p. 87, under *Diprotodon australis*, for the relationship between the names *D. optatum* and *D. australis*; and p. 73, under *Phascolomys thomsoni*, for a comment on information contained in Owen's 1870 list).

There is no description in Mitchell, 1838, 1 : xix, where the specific name is given, but there is ample indication that the species listed there is represented by the only specimen described in vol. 2 of the same work under the new generic name *Diprotodon*, but without a specific name in that place. Although the species is attributed to Owen by Mitchell, on p. xix, we have been unable to find any evidence in Owen's writings of Owen having at any time been aware that the name *Diprotodon optatum* had been used for the holotype. It is not likely that it was given by Mitchell because elsewhere in correspondence with Owen, i.e. in a letter dated January 28th, 1843, copy in the British Museum (Natural

History) *Owen Correspondence*, vol. 19, folio nos 242-7, he refers to the tusk by a manuscript name that is probably of his own coining when he writes "*Macropus Elephanteus*" (or whatever else you may call it)".

The original description and figures are republished in Mitchell's 2nd ed., 1839, 1 : xix; 2 : 368,9, pl. 49, figs 1,2. The original description is also republished by Woods, 1862, *Geological observations in South Australia* . . . : 381,2, and by Owen, 1870, p. 519, who figures the holotype, on p. 519, in text figures 1,1a. The latter figures are republished with the original description by Owen, 1877, *Researches on the fossil remains of the extinct mammals of Australia* . . . 1 : 189, text figs 1,1a.

30. **painei**

Palorchestes painei Woodburne, 1967. *Bull. Bur. Miner. Resour. Geol. Geophys. Aust.* no. 87 : 107-24, text figs 19-21.

Holotype a somewhat crushed nearly complete cranium, no. CPC6752, in the Commonwealth Palaeontological Collection, Bureau of Mineral Resources, Canberra. Collected by Dr M. O. Woodburne and party between late June and early August, 1964 (*pers. comm.*, M. O. Woodburne).

Type locality Paine Quarry (University of California Museum of Paleontology locality V6345), 4 miles south-west of Alcoota Station Homestead, 2.1 miles south-west of the junction of Waite and Ongeva Creeks, Northern Territory. Waite Formation.

Details of the geology of the type locality are given in the paper which contains the original description.

31. **parvus**

Diarcodon parvus Stephenson, 1963. *Palaeontology* 6 : 622,3, pl. 90, figs 1, 4a,b.

Holotype a left premaxilla with I¹⁻², no. F.50099, in the Australian Museum. Collected by Mr J. A. Mahoney, 1954.

Type locality Wellington Caves, New South Wales (found in compact breccia in the "Bone Cave").

The "Bone Cave" is a local name for a cavern not noted by Ramsay (see p. 29, under *Echidna ramsayi*) which lies to the south of his cave no. 3 and adjacent to the northern side of the phosphate mine. The "Bone Cave" is illustrated by Lane and Richards, 1963, *Helictite* 2, pl. 8, top figure, and noted by Tedford, 1966, *Univ. Calif. Publs geol. Sci.* 57 : 12.

¹This name is not published by us here as the name of a taxon but merely for historical and explanatory purposes.

32. **parvus**

Palorchestes parvus De Vis, 1895. *Proc. Linn. Soc. N.S.W.* (2) 10 : 84-8, pl. 14, fig. 9.

Lectotype a left mandibular fragment with P_4-M_4 , no. F.783, in the Queensland Museum.

Type locality deposits near Chinchilla, Darling Downs, Queensland (Woods, 1958, *Mem. Qd Mus.* 13: 189, 91). De Vis only mentions Darling Downs for his syntypes.

The lectotype was selected, discussed and figured by Woods, pp. 184-9, text fig. 5.

33. **rephaim**

Palorchestes rephaim Ramsay, 1885. In Anon., *The Sydney Morning Herald*, no. 14878, December 1st, 1885, p. 10, col. 4.

Holotype a palate with left and right P^4-M^4 , no. F.7272 (numbered also B.5936), in the Australian Museum. Collected by ? H. Barnes (Australian Museum Register).

Type locality Wellington Caves, New South Wales (Australian Museum Register). The locality is given in the original description as caves of Wellington Valley, New South Wales.

A cast of the holotype is described and figured as *Palorchestes azael* by De Vis, 1895, *Proc. Linn. Soc. N.S.W.* (2) 10 : 81-4, pl. 14, figs 5,6 (figures inadvertently recorded in pl. 14 as illustrating mandibular teeth). A description involving a Queensland Museum cast of the holotype, cast no. F.773, is provided by Woods, 1958, *Mem. Qd Mus.* 13 : 177-84. Measurements of a Mining and Geological Museum, Sydney, cast of the holotype are recorded by Dun, 1893, *Rec. geol. Surv. N.S.W.* 3 : 123.

The original publication of the name *Palorchestes rephaim* is in an account of an exhibition of the holotype (specified by its registration number), and the description of its characters, at the meeting of the Linnean Society of New South Wales held on November 25th, 1885. In addition to its publication in *The Sydney Morning Herald* it was republished as Ramsay, 1885, in Anon., *Abstr. Proc. Linn. Soc. N.S.W.* for November 25th, 1885 : vii; as Ramsay in Anon., 1886, *Zool. Anz.* 9 : 88; and as Ramsay in Anon., 1886, *Proc. Linn. Soc. N.S.W.* 10 : 761. Of these publications the account of the meeting of the Linnean Society of New South Wales published in *Zool. Anz.* 9 on February 8th, 1886, appears to be a copy of that published in *Abstr. Proc. Linn. Soc. N.S.W.* since they coincide in their incorrect use of capitalization for a number of words which are not incorrect in *The Sydney Morning Herald* account. This relationship between *Abstr. Proc. Linn. Soc. N.S.W.* and the Leipzig *Journal Zool. Anz.* has been found by us to be generally useful in dating copies of the former where this is not known or cannot be established by other means (see p. 39, under *Thylacinus rostralis*). In this present case, it can be used in the following way to determine that publication of the *Abstr. Proc. Linn. Soc. N.S.W.* took place before the end of 1885. The first mail from Sydney to Europe in 1886 was made up on January 1st, 1886, for despatch in the Compagnie des Messageries Maritimes

steamer *Océanien* (anonymous mail notice in *The Sydney Morning Herald*, no. 14905, January 1st, 1886, p. 8, col. 2). Sailing via Suez, and following its departure from Port Said on February 4th (Anon., *The Times* [London], no. 31676, February 6th, 1886, p. 7, col. 3), the *Océanien* arrived at Marseilles on February 9th (Anon., *The Times* [London], no. 31680, February 11th, 1886, p. 7, col. 2). An *Abstract* sent by this mail could not have been republished in Leipzig on February 8th, 1886, and we accept that *Abstr. Proc. Linn. Soc. N.S.W.* for November 25th, 1885, was published during 1885. The next meeting of the Linnean Society of New South Wales took place on December 30th, 1885. Lydekker, 1887, *Catalogue of the fossil Mammalia in the British Museum (Natural History)* 5 : 238, states that a cast of the holotype, cast no. M.2573 in that collection is labelled *Macropus ajax* in Owen's handwriting. Lydekker gives no description and the name is a *nomen nudum*. The name *Macropus ajax* was used previously by Owen, 1859, *Q. Jl geol. Soc. Lond.* 15 : 185, as a *nomen nudum* for a lower jaw in the Worcester Collection. This Collection was made in the Darling Downs, Queensland by Mr H. Hughes.

34. **robusta**

Euowenia robusta De Vis, 1891. *Proc. Linn. Soc. N.S.W.* (2) 6 : 159-65, pl. 13.

Holotype an imperfect mandible with the posterior half of the right ramus missing, no. F.517, in the Queensland Museum. Obtained by Mr H. Hurst "in August last" (paper read on April 29th, 1891).

Type locality Pleistocene alluvium along Freestone Creek¹ (Woods, 1968, *Mem. Qd Mus.* 15 : legend to pl. 14, fig. 1), Warwick District, Queensland.

Photographs of the holotype are published by Woods, pl. 14, figs 1,2.

35. **rotundus**¹

Kolopsis rotundus Plane, 1967. *Bull. Bur. Miner. Resour. Geol. Geophys. Aust.* no. 85 : 111-18, text fig. 2.

Holotype a fragmentary left maxilla with M³⁻⁴ and the posterior root of M²; posterior two thirds of root of left I¹; right P⁴ M⁴; no. F.3858 in the Queensland Museum (formerly no. F.3414 in the Geological Survey of Queensland—*pers. comm.*, A. Bartholomai). Donated by H. C. Clissold (*pers. comm.*, A. Bartholomai). Collected by David Nichterlein about 1964 (*pers. comms*, M. Plane and A. Bartholomai).

Type locality disused workings, Niba Gold alluvial gold mine, downstream from the junction of Bulolo and Watut Rivers, 7.2 miles north-north-west of Bulolo Post Office, Morobe District, Territory of Papua and New Guinea (University of California Museum of Paleontology locality V6270). In light-coloured arkosic sandstone and tuff. Otibanda Formation.

¹The holotype has not been seen by either author.

Plane, 1967, *Bull. Bur. Miner. Resour. Geol. Geophys. Aust.* no. 86 : 1-64, pls 1-6, provides further descriptive details of the species (pp. 55-7) and details of the geology of the type locality.

Comparative description which involves *Kolopsis rotundus* is provided by Stirton, 1967, *Bull. Bur. Miner. Resour. Geol. Geophys. Aust.* no. 85 : 135, 8, 44; by Stirton, Woodburne and Plane, 1967, *Bull. Bur. Miner. Resour. Geol. Geophys. Aust.* no. 85 : 156, who also republish Plane's text fig. 2c of the holotype (fig. 2 in part; illustration reversed); and by Woodburne, 1967, *Bull. Bur. Miner. Resour. Geol. Geophys. Aust.* no. 87 : 138, 9. See footnote on pp. 78, 9, under *Kolopsis*.

University of California Museum of Paleontology locality V6270 is written in error as University of California Museum of Paleontology locality V6271 in the original description.

36. **tasmanicum** *Nototherium tasmanicum* Scott, 1911. *Tasm. Nat.* 2 : 64-8, 3 pls (unnumbered).

Holotype an imperfect skeleton including (material detailed in original description) a broken cranium and mandible, an atlas vertebra, and a humerus, no. 1760, in the Queen Victoria Museum, Launceston. Found by Mr E. C. Lovell, July, 1910.

Type locality Mowbray Swamp, near Smithton, Tasmania, approximately four feet below the surface, approximately fifty-five feet above sea level (see Harrisson, 1911, *Tasm. Nat.* 2 : 61-3).

Scott refers to the state of preservation of the cranium and to the wear on the cheek-teeth but does not otherwise describe the cranium in the original description. The holotype is redescribed and figured by Scott, 1912, *Victoria Museum (Launceston) Brochures* no. 4 : 10 pages and three plates (all unnumbered) and Scott, 1915, *Rec. geol. Surv. Tasm.* no. 4 : 1-47, pls 1-22. It is further figured [as *Notherium* (sic) *tasmanicum*] by Scott, 1927, *Aust. Mus. Mag.* 3 : 24 text fig. (unnumbered). Gill and Banks, 1956, *Rec. Queen Vict. Mus.* no. 6 : 16-28, pls 1, 2, discuss the type locality and figure the holotype. Comparative descriptions which involve the holotype are provided by Scott and Lord, 1920, *Pap. Proc. R. Soc. Tasm.* 1920 : 28-30, 78-95, 98-112.

A notice of the discovery is given by Scott, *The Examiner* [Launceston], no. 200, vol. 69, August 23rd, 1910, p. 7, cols 3-5. See also below under *Nototherium tasmaniense*.

37. **tasmaniense** *Nototherium tasmaniense* Noetling, 1912. *Pap. Proc. R. Soc. Tasm.* 1911¹ : 125, 9. Unjustified emendation of *Nototherium tasmanicum* Scott, 1911.

¹Noetling's paper was read on November 14th, 1911, and separates of it bear the date 1911 printed on their front covers; but there is no statement that this is the date of issue. See footnote on p. 47, under *Wynyardia bassiana*, for a note on the relationship between publication date and volume in the *Papers and Proceedings of the Royal Society of Tasmania* and the dates of issue of separates of articles published in that journal.

Holotype the holotype of *Nototherium tasmanicum* Scott, i.e. an imperfect skeleton including a broken cranium and mandible, an atlas vertebra, and a humerus, no. 1760, in the Queen Victoria Museum, Launceston. Found by Mr E. C. Lovell, July, 1910. (Noetling, p. 125, says "their discoverer, Mr. Lovett [sic]").

Type locality Mowbray Swamp, near Smithton, Tasmania.

The name *Nototherium tasmaniense* was used four times in the same article by Noetling for the name of the bones discovered in Mowbray Swamp and described by Scott, 1911, *Tasm. Nat.* 2 : 64-8, 3 pls (unnumbered). We consider that the consistent use of the emendation by Noetling together with a clear indication to the use of the correct original spelling, demonstrates the intention of the author within the meaning of Article 33 (a) (ii) of the *International Code of Zoological Nomenclature* and, accordingly, treat the name as a junior objective synonym of the name in its original form.

See p. 110, under *Nototherium tasmanicum* for further details concerning the holotype.

38. **tedfordi**¹

Ngapakaldia tedfordi Stirton, 1967. *Bull. Bur. Miner. Resour. Geol. Geophys. Aust.* no. 85 : 4-26, text figs 1 (restored in part), 2A, 2B (restored in part), 3 (restored in part), 4A; pls 1-3.

Holotype a mutilated cranium and incomplete post-cranial skeleton, no. P13851, in the South Australian Museum. Collected by Harry J. Bowshall, August 2nd, 1961 (*pers. comm.*, R. H. Tedford) on South Australian Museum and University of California Museum of Paleontology expedition.

Type locality Ngapakaldi Quarry (University of California Museum of Paleontology locality V5858), eastern shore of Lake Ngapakaldi, a large saltpan about 5 miles long (N.E.-S.W.) and 2½ miles at its widest place (N.W.-S.E.); about 3 miles north-east of the south-west end of lake and about 4 miles north of Lake Pitikanta, about 22 miles west of Birdsville Track and an equal distance north of Cooper Creek in Tirari Desert east of Lake Eyre, South Australia. Approximate grid co-ordinate 642488, grid zone 5, Marree sheet, 1:506,880; Australian Army H.Q., Cartographic Co., 1942. In top of grey-green claystone unit below white calcareous mudstone. Etadunna Formation.

Stirton, Tedford and Miller, 1961, *Rec. S. Aust. Mus.* 14 : 19-61, report on the stratigraphy and fauna of the Etadunna Formation and show the position of the type locality in a map (text fig. 2). For a note on the Ngapakaldi Quarry see Stirton, 1963, *Aust. nat. Hist.* 14 : 183. A measured section at the type locality is described by Stirton, Tedford and Woodburne, 1967, *Rec. S. Aust.*

¹The holotype has not been seen by either author.

Mus. 15 : 458, 430 text fig. 2. Comparative description which involves *Ngapakaldia tedfordi* is provided by Woodburne, 1967, *Bull. Bur. Miner. Resour. Geol. Geophys. Aust.* no. 87 : 114, 34, 47; Stirton, Woodburne and Plane, 1967, *Bull. Bur. Miner. Resour. Geol. Geophys. Aust.* no. 85, fig. 2 (in part) illustrate the species. See footnote on pp. 78,9, under *Kolopsis*.

39. *tirarensis* *Neohelos tirarensis* Stirton, 1967. *Bull. Bur. Miner. Resour. Geol. Geophys. Aust.* no. 85 : 45-51, text fig. 1C (restored in part).

Holotype the posterior part of a left P⁴, no. P13848, in the South Australian Museum. Collected by Dr R. H. Tedford, August 12th, 1962 (*pers. comm.*, R. H. Tedford), on South Australian Museum and University of California Museum of Paleontology expedition.

Type locality Leaf Locality (University of California Museum of Paleontology locality V6213), about 1835 feet north of Ngapakaldi Quarry (University of California Museum of Paleontology locality V5858) in the east shore of Lake Ngapakaldi, between Birdsville Track and the shore of Lake Eyre, and between Cooper Creek and the Warburton River, South Australia. Approximate grid co-ordinate 642488, grid zone 5, Marree sheet, 1:506,880; Australian Army H.Q., Cartographic Co., 1942. Wipajiri Formation.

For a note on, and a photograph of, the type locality see Stirton, 1963, *Aust. nat. Hist.* 14 : 183,4, 182 text figure. Stirton, Tedford and Woodburne, 1967, *Rec. S. Aust. Mus.* 15 : 427-62, report on the stratigraphy and fauna of the Wipajiri Formation and show the position of the type locality in a map (text fig. 1). Comparative description which involves *Neohelos tirarensis* is provided by Woodburne, 1967, *Bull. Bur. Miner. Resour. Geol. Geophys. Aust.* no. 85 : 103; by Stirton, Woodburne and Plane, 1967, *Bull. Bur. Miner. Resour. Geol. Geophys. Aust.* no. 85 : 154,5, who also republish Stirton's text fig. 1C of the holotype (fig. 2 in part); and by Woodburne, 1967, *Bull. Bur. Miner. Resour. Geol. Geophys. Aust.* no. 87 : 148, 58. See footnote on pp. 78,9, under *Kolopsis*.

40. *torus* *Kolopsis torus* Woodburne, 1967. *Bull. Bur. Miner. Resour. Geol. Geophys. Aust.* no. 85 : 72-88, text fig. 5f.

Holotype a nearly complete cranium, no. CPC6747, in the Commonwealth Palaeontological Collection, Bureau of Mineral Resources, Canberra (number of holotype incorrectly given as CPC6749 in the original citation). Collected by Dr M. O. Woodburne and party between late June and early August, 1964 (*pers. comm.*, M. O. Woodburne).

Type locality Paine Quarry (University of California Museum of Paleontology locality V6345), 4 miles south-west of Alcoota

Station Homestead, 2.1 miles south-west of the junction of Waite and Ongeva Creeks, Northern Territory. Waite Formation.

Woodburne, 1967, *Bull. Bur. Miner. Resour. Geol. Geophys. Aust.* no. 87 : 1-187, pls 1-7, further describes and figures the holotype (pp. 139-48, text figs 28-30) and provides details of the geology of the type locality. Comparative description which involves *Kolopsis torus* is provided by Plane, 1967, *Bull. Bur. Miner. Resour. Geol. Geophys. Aust.* no. 85 : 111,12, 117-19, 127,8, and no. 86 : 57; and by Stirton, Woodburne and Plane, 1967, *Bull. Bur. Miner. Resour. Geol. Geophys. Aust.* no. 85 : 155,6, who also illustrate the species (fig. 2 in part). See footnote on pp. 78,9, under *Kolopsis*.

41. *trilobus*

Zygomaturus trilobus Macleay, 1858. In Owen in Anon., *Abstr. Proc. geol. Soc. Lond.* no. 12 : 49,50.

Holotype an almost perfect cranium, no. F.4635, in the Australian Museum. Donated by Frederick Neville Isaacs [Isaac] (Owen, 1859, *Q. Jl geol. Soc. Lond.* 15 : 168,9). Discovered 1856 (Owen, 1872, *Phil. Trans. R. Soc.* 162 : 42).

Type locality King Creek, Darling Downs, Queensland.

The original publication is an abstract of Owen, 1859, *Q. Jl geol. Soc. Lond.* 15 : 168-76, pls 7,8, where the holotype is figured (pl. 7, figs 1-4 and possibly pl. 8, fig. 5) from casts received at the British Museum subsequent to the reading of the paper — see Owen, 1859, pp. 168 footnote, 176. The publication date for the *Abstract* containing the original description is not known precisely but it is for the meeting of March 10th, 1858; it is undated but contains a list, on p. 50 (last page of no.12), of "Papers to be read, March 24th, 1858". We accept that it was issued no later than that date. The abstract is republished as Owen in Anon., *Geologist* 1 : 166,7, in April, 1858; as Owen in Anon., *Phil. Mag.* (4) 15 : 403,4, in May, 1858; as Owen in Anon., *Ann. Mag. nat. Hist.* (3) 2 : 73,4, in July, 1858; and again as Owen in Anon., *Q. Jl geol. Soc. Lond.* 14 : 541-3, in November, 1858.

The name *Z. trilobus* is often attributed to Owen, but it is clear that Owen had doubts about Macleay's conclusions; in the abstract Owen was said to be unable to find evidence of a generic distinction between *Zygomaturus* and *Diprotodon* and is said to have "suggested, however, that probably the lower jaw, when found, may show some peculiarities of dentition and proportions similar to these on which he has founded the genus: *Nototherium*"; and in the *Q. Jl geol. Soc. Lond.* version of the abstract occurs the additional phrase "with one species of which, *N. Mitchelli*, the cranium in question agrees in size". The complete text of the paper (as published) concludes by including *Z. trilobus* in synonymy with *Nototherium mitchelli* Owen (see legend, on p. 176, to pl. 7, fig. 1 of Owen, 1859). Although the 1858 abstract does not include the specific synonymy of the 1859 paper, we hold that it contains sufficient expression of doubt by Owen to satisfy us that Owen is solely attributing the specific name to Macleay who is also held responsible by him for the description which Owen summarizes in it. Any additional morphological description added by Owen to Macleay's text is regarded by us as a description of the specimen and not intended by Owen to be

part of a description of a new species. Even were the names published in synonymy, their subsequent acceptance by various authors fulfils the requirements of Article 11(d) of the *International Code of Zoological Nomenclature*.

The holotype was redescribed and figured by Owen, 1872, *Phil. Trans. R. Soc.* **162** : 44-8, 65-8, pl. 2, figs 1,2 (mandibular ramus added in both figures); pl. 3, figs 1-3; pl. 9, figs 3,4; this description and the figures are republished by Owen, 1877, *Researches on the fossil remains of the extinct mammals of Australia* . . . **1** : 251-6, 273-6; **2**, pl. 36, figs 1,2; pl. 37, figs 1-3; pl. 43, figs 3,4. It is figured also by Krefft, *The Sydney Mail and New South Wales Advertiser*, no. 623, vol. 13, June 8th, 1872, p. 713, fig. 1; this figure is republished by Whitley, 1966, *Aust. Zool.* **13**, pl. 19 (in part). It is further figured by Krefft, 1882, *Exploration of the caves and rivers of New South Wales* . . . : Australian fossil remains, pl. 12, fig. 5 and [as *Notherium* (sic) *mitchelli*] by Scott, 1927, *Aust. Mus. Mag.* **3** : 25 text fig. (unnumbered).

Some early references to the holotype are provided by Whitley, pp. 228-30.

42. *victoriae*

Nototherium victoriae Owen, 1872. *Phil. Trans. R. Soc.* **162** : 61-3, 76,7, 82, pl. 7; pl. 10, figs 4-6.

Holotype a broken left mandibular ramus (pl. 7, figs 1,2, 4 and pl. 10, figs 4-6 reversed), with symphysis and four molars (M_1 broken), no. P4986, in the South Australian Museum. Discovered by "Mr. Tilgate, of Wentworth, South Australia".

Type locality "near Lake Victoria, in that colony [i.e. in South Australia]" (in freshwater deposits).

Among the occurrences of *Nototherium* listed by him, Owen, p. 79, lists "Fr. Tilgate, Esq", as having found the genus only in "Freshwater deposits, near Lake Victoria, South Australia" and gives the date 1869. For a comment on information included by Owen in p. 79, see p. 73, under *Phascolomys thomsoni*. We have not discovered the identity of "Fr. Tilgate" of Wentworth, but we have little doubt that the accounts of the discovery of "a portion of the lower jawbone" and "one half of an animal's jawbone . . . about 12 inches in length", in a well at a depth of 45 feet (or 60 feet) near Lake Victoria, New South Wales, and of its possession by a Mr Felgate of Wentworth and its being sent to Adelaide (Anon., *Pastoral Times* [Deniliquin], no. 567, vol. 12, December 18th, 1869, p. 2, col. 3, and Anon., *The South Australian Advertiser* [Adelaide], no. 3497, vol. 12, January 1st, 1870, p. 3, col. 2), refer to the discovery of the holotype.

The original description and figures are republished by Owen, 1877, *Researches on the fossil remains of the extinct mammals of Australia* . . . **1** : 269-71, 84,5, 90; **2**, pl. 41; pl. 44, figs 4-6.

43. *watutense*

Nototherium watutense Anderson, 1937. *Rec. Aust. Mus.* **20** : 73-6, pl. 8.

Holotype a fragment of a left mandibular ramus with the root of M_3 and a part of M_4 , no. F.36311, in the Australian Museum.

Type locality a lacustrine deposit on "Waiganda or Roaring Creek", tributary of Watut River, Territory of Papua and New Guinea (about 6 feet from top of freshwater beds); relocated by Plane, 1967, *Bull. Bur. Miner. Resour. Geol. Geophys. Aust.* no. 85 : 107, as 0.8 miles due north of the Otibanda triangulation beacon, on a water race, which formerly drew water from a tributary of Wiganda [= Wáiganda] Creek, just downstream from the present site of Kaumunga village, 4.5 miles south-west of the Gold and Power Company residence at Slate Creek, Morobe District, Territory of Papua and New Guinea.

Anderson notes, on p. 75, that a right mandibular ramus, Australian Museum no. F.36312, belongs in all probability to the same individual as the left ramus. Plane, pp. 107-11, in discussing and comparing the characters of the species, comments on the characters of the holotype which he accepts as comprising both rami. Plane, 1967, *Bull. Bur. Miner. Resour. Geol. Geophys. Aust.* no. 86 : 1-64, pls 1-6, provides details of the geology of the type locality.

Family Macropodidae

Generic names

1. *Brachalletes*¹ De Vis, 1883. In Anon., *The Sydney Morning Herald*, no. 14043, April 2nd, 1883, p. 8, col. 3.

Type species by original indication *Brachalletes palmeri* De Vis, 1883.

2. *Dorcopsoidea* Woodburne, 1967. *Bull. Bur. Miner. Resour. Geol. Geophys. Aust.* no. 87 : 43,4.

Type species by original designation *Dorcopsoidea fossilis* Woodburne, 1967.

3. *Hadronomas* Woodburne, 1967. *Bull. Bur. Miner. Resour. Geol. Geophys. Aust.* no. 87 : 83.

Type species by original designation *Hadronomas puckridgi* Woodburne, 1967.

4. *Halmaturotherium* Krefft, 1872. *The Sydney Mail and New South Wales Advertiser*, no. 637, vol. 14, September 14th, 1872, p. 327, col. 1.

Described without included species. Characters redefined under unjustified emendation *Halmatutherium* Krefft, 1873.

5. *Halmatutherium* Krefft, 1873. *The Sydney Mail and New South Wales Advertiser*, no. 686, vol. 16, August 23rd, 1873, p. 238, col. 2.

Unjustified emendation, i.e. junior objective synonym, of *Halmaturotherium* Krefft, 1872. Characters redefined but published without species both here and again by Krefft, *The Sydney Mail and New South Wales Advertiser*, no. 697, vol. 16, November 8th, 1873, p. 595, col. 1 (republished by Krefft, 1874, *Trans. R. Soc. N.S.W.* 7 : 146). Status as unjustified emendation (*International Code of Zoological Nomenclature* Article 33 (a) (ii)), rather than incorrect subsequent spelling, established by repeated usage of the emendation by Krefft.

The species included by Krefft in *Halmatutherium* in an unpublished MS. entitled *Description of the Plates* are *Halmatutherium thomsonii* and *Halmatutherium scottii*— see Krefft's *Description of the Plates*, folio nos 19,20, legend to pl. 8, figs 1, 2 (*H. thomsonii*); 19,20,2 legend to pl. 8, figs 4,5 (called 4 by Krefft in legend),

¹It is possible that this name should be included among the Diprotodontidae.

and pl. 10, fig. 1 (*H. scottii*) in *Mitchell Library manuscripts A264—Krefft Papers MSS*. The Description of the Plates is an undated explanatory text to Krefft, 1882, *Exploration of the caves and rivers of New South Wales . . .* : Australian fossil remains, pls 1-17. See also Krefft's arrangement of fossil Macropodidae in 1870, *Wellington Caves. (Correspondence relative to exploration of.)* : 8,9, and in an extract from his letter, dated January 29th, 1869 [sic], quoted in 1870, *Q. Jl geol. Soc. Lond.* 26 : 415, 16.

6. *Leptosiagon* Owen, 1874. *Phil. Trans. R. Soc.* 164 : 785,6.

Type species by original indication *Leptosiagon gracilis* Owen, 1874. *Nec Leptosiagon* Trask, 1856 (Annelida).

7. *Pachygnathus* Krefft, 1872. *The Sydney Mail and New South Wales Advertiser*, no. 637, vol. 14, September 14th, 1872, p. 327, col. 1.

Described without included species. *Nec Pachygnathus* Dugès, 1834 (Arthropoda). See p. 116, under *Halmatutherium*, concerning Krefft's arrangement of fossil Macropodidae.

8. *Pachysiagon* Owen, 1874. *Phil. Trans. R. Soc.* 164 : 784,5.

Type species by original indication *Pachysiagon otuel* Owen, 1874.

9. *Pachysiagon* Owen, 1877. *Researches on the fossil remains of the extinct mammals of Australia; with a notice of the extinct marsupials of England* 1 : 449,50.

Type species by original indication *Pachysiagon ferragus* (= *Macropus ferragus* Owen, 1874). *Nec Pachysiagon* Owen, 1874 (Marsupialia).

We treat this name as separate from *Pachysiagon* Owen, 1874, because Owen employs it for a genus with a single included species making no mention of *P. otuel* which was the only included species (and therefore type species) in his former usage of *Pachysiagon*. In the same work, on pp. 454,5, he allocates the type specimen (and only specimen) of *Pachysiagon otuel*, without note of its former name, within the species *Procoptodon pusio* but does not call *Pachysiagon* Owen, 1874 a synonym of *Procoptodon* Owen, 1874 which it becomes by his action. Since *Pachysiagon* Owen, 1877, is used for a different genus from *Procoptodon* in the same work it can only be treated as a separate name with its own type species.

10. *Phascolagus* Owen, 1874. *Phil. Trans. R. Soc.* 164 : 261-4.

Type species by subsequent designation *Phascolagus erubescens* (= *Halmaturus erubescens* Sclater, 1870) (by Thomas, 1888, *Catalogue of the Marsupialia and Monotremata in the collection of the British Museum (Natural History)* : 10, under the

name *M. robustus* (*Halmaturus erubescens* is given as a junior subjective synonym of *Macropus robustus* on pp. 22,3 of the same work; see *International Code of Zoological Nomenclature* Article 69 (a) (iv)). *P. altus* Owen, 1874 and *P. erubescens* were the originally included species).

11. *Prionotemnus* Stirton, 1955. *Rec. S. Aust. Mus.* **11** : 252-4.

Type species by original designation *Prionotemnus palankarinicus* Stirton, 1955.

12. *Procoptodon* Owen, 1874. *Phil. Trans. R. Soc.* **164** : 786-8.

Type species by original designation (p. 792) *Procoptodon goliath* (= *Macropus goliath* Owen, 1845).

13. *Propleopus* Longman, 1924. *Mem. Qd Mus.* **8** : 20,1.

Replacement name for *Triclis* De Vis, 1888.

14. *Protemnodon* Owen, 1874. *Phil. Trans. R. Soc.* **164** : 274,5.

Type species by subsequent designation *Protemnodon anak* Owen, 1874 (by Simpson, 1930, *Post-Mesozoic Marsupialia* : 76, from *P. anak* Owen, 1874, *P. og* Owen, 1874, *P. mimas* Owen, 1874 and *P. roechus* Owen, 1874). See also under *Sthenurus*.

15. *Simosthenurus* Tedford, 1966. *Univ. Calif. Publs geol. Sci.* **57** : 10, 11. [Described with subgeneric rank.]

Type species by original designation *Sthenurus occidentalis* Glauert, 1910.

16. *Sthenurus* Owen, 1873. In Anon., *Nature, Lond.* **7** : 255.

Type species by original indication *Sthenurus atlas* (= *Macropus atlas* Owen, 1838).

Owen includes two specific names, *atlas* and *brehus*, in combination¹ with *Sthenurus* in this abstract of his later published 1874, *Phil. Trans. R. Soc.* **164** : 245-87, pls 20-7; but of these only *atlas* had been published in a nomenclaturally available form, and *brehus* is a *nomen nudum* here.

¹The abstract contains a printer's error which, at first sight, would suggest that *Sthenurus* is not published in combination. Its use is in a list of species of Macropodidae considered in the paper as follows: "*Macropus Titan*, *M. affinis*, *Osphranter Cooperi*, *O. Gouldii*, *Phascolagus altus*, *Sthenurus*, *Atlas S. Brehus*, *Protemnodon Anak*, *P. Og*, *P. Mimas*, and *P. Roechus*." Comparison of each binomen along the list shows that the comma between *Sthenurus* and *Atlas* is misplaced. Moreover, *Atlas* is not among the five genera specified in the title of the paper. Capitalization is no indication since both generic names and specific names based on proper names are capitalized.

The generic name *Protemnodon* was also published here for the first time, but it is not made available by this because it is not described or defined here and the summary contains no "indication" in the form of an already available specific name which is used in combination with it, as in the case of *Sthenurus*.

The date of publication of the abstract in *Nature, Lond.* is January 30th, 1873. A further (slightly different) abstract of the same paper is published as Owen in Anon., 1873, *Proc. R. Soc.* **21** : 128; the part (no. 141) which contains p. 128 also contains an account of papers read on January 30th, 1873 so it must post-date the publication of the abstract in *Nature, Lond.*

17. *Synaptodon* De Vis, 1888. In Anon., *The Brisbane Courier*, no. 9649, vol. 45, December 17th, 1888, p. 6, col. 4; and in Anon., *Evening Observer* [Brisbane], no. 1687, vol. 6, December 17th, 1888, p. 2, col. 5.

Type species by original indication *Synaptodon aevorum* De Vis, 1888.

There are no provisions in the *International Code of Zoological Nomenclature* which would enable a first reviser to select one of the two 1888 publications as being the original description. The *Code* (Article 24 (a)) provides for selection in the cases where more than one name is published for a single taxon, or identical names are published for different taxa, but the situation we are faced with here is not one of these kinds.

18. *Triclis* De Vis, 1888. *Proc. Linn. Soc. N.S.W.* (2) **3** : 5-8.

Type species by original indication *Triclis oscillans* De Vis, 1888.
Nec Triclis Loew, 1851 (Arthropoda).

19. *Troposodon* Bartholomai, 1967. *Mem. Qd Mus.* **15** : 22,3.

Type species by original designation *Sthenurus minor* Owen, 1877.

Specific names

1. **aevorum** *Synaptodon aevorum* De Vis, 1888. In Anon., *The Brisbane Courier*, no. 9649, vol. 45, December 17th, 1888, p. 6, col. 4; and in Anon., *Evening Observer* [Brisbane], no. 1687, vol. 6, December 17th, 1888, p. 2, col. 5.

Holotype a fragment of a right mandibular ramus with one almost complete cheek-tooth and a portion of a second cheek-tooth, no. F.811, in the Queensland Museum.

Type locality Chinchilla, Darling Downs, Queensland (De Vis, 1889, *Proc. R. Soc. Qd* **5** : 158).

The original descriptions are extracts from De Vis, 1889, *Proc. R. Soc. Qd.* 5 : 158-60, pl. 7 (in part); there, the holotype is figured in pl. 7.

There are no provisions in the *International Code of Zoological Nomenclature* which would enable a first reviser to select one of the two 1888 publications as being the original description. The *Code* (Article 24 (a)) provides for selection in the cases where more than one name is published for a single taxon, or identical names are published for different taxa, but the situation we are faced with here is not one of these kinds.

2. *affinis*

Macropus affinis Owen, 1845. *Descriptive and illustrated catalogue of the fossil organic remains of Mammalia and Aves contained in the Museum of the Royal College of Surgeons of England* : 328,9.

Holotype a fragmentary left mandibular ramus with M_{2-3} , and the roots of P_4 M_1 M_4 , formerly no. 1524 in the Museum of the Royal College of Surgeons of England (no. 3764 of Flower, 1884, *Catalogue of the specimens illustrating the osteology and dentition of vertebrated animals* . . . 2 : 719). Presented by Sir Thomas Mitchell. The holotype is regarded by the Curator of the Hunterian Collections as having been destroyed (see p. 40, under *Thylacinus spelaeus*, and pp. 190,1).

Type locality Darling Downs, Queensland (Owen says "From the alluvial or newer tertiary deposits in the bed of the Condamine River, west of Moreton Bay, Australia").

See Bennett, 1876, *Trans. phil. Soc. Qd* 2 : 3-10, concerning the localities for early fossil mammal collections from Queensland.

The holotype is redescribed and figured by Owen, 1874, *Phil. Trans. R. Soc.* 164 : 260, pl. 23, figs 10,11. This description and the figures are republished by Owen, 1877, *Researches on the fossil remains of the extinct mammals of Australia* . . . 1 : 411,12; 2, pl. 83, figs 10,11.

The original description is republished by Waterhouse, 1845, *A natural history of the Mammalia* 1 : 59,60.

See p. 99, under *Nototherium inerme*, concerning the date of publication in 1845 of Owen's catalogue; and see p. 131, under *Macropus goliath*, concerning the publication date of Waterhouse's text.

3. *altus*

Phascolagus altus Owen, 1874. *Phil. Trans. R. Soc.* 164 : 261-4, pl. 22, figs 1,2.

Holotype a palate with left and right P^3 - M^3 and with left and right P^4 and M^4 exposed in their crypts, no. M.10779 (Mitchell no. II*; Geol. Soc. Lond. no. 13338), in the British Museum (Natural History) (transferred from the Geological Society of London, June, 1911). Sir Thomas Mitchell Collection.

Type locality "Wellington Valley", New South Wales.

For notes on the Sir Thomas Mitchell Collection and the locality "Wellington Valley" see pp. 32-5, under *Dasyurus lanarius*.

The original description and figures are republished by Owen, 1877, *Researches on the fossil remains of the extinct mammals of Australia* . . . 1 : 413-16; 2, pl. 82, figs 1,2.

The holotype was first described and figured in Mitchell, 1838, *Three expeditions into the interior of eastern Australia* . . . 2 : 360, pl. 29, figs 4, 5 (republished in Mitchell's 2nd ed., 1839, 2 : 366, pl. 47, figs 4, 5), with the remark by Owen "This specimen I believe to belong to *Macropus Titan*" (see also p. 148, under *Macropus titan*). Owen's 1838 description is also republished by Woods, 1862, *Geological observations in South Australia* . . . : 379.

4. anak

Protemnodon anak Owen, 1874. *Phil. Trans. R. Soc.* 164 : 275-7, pl. 25, figs 1,2.

Holotype a portion of a left mandibular ramus with P_4 - M_4 , no. M.1895, in the British Museum (Natural History) (formerly in the Museum of the Natural History Society of Worcester). Presented by Sir Richard Owen, August, 1884 (British Museum (Natural History) Register). Collected by Mr Henry Hughes.

Type locality Darling Downs, Queensland (Owen adds "fresh-water deposits exposed in the beds of creeks").

The original description and figures are republished by Owen, 1877, *Researches on the fossil remains of the extinct mammals of Australia* . . . 1 : 428-30; 2, pl. 85, figs 1,2 (holotype incorrectly called a right ramus in the legend (1 : 476) to these figures). Stirton, 1963, *Univ. Calif. Publs. geol. Sci.* 44 : 136 text fig. 13a, 154-9, refigures the holotype from a cast and records measurements for it. In the original description Owen refers to no. M.1895 as the type specimen on which the species was founded (by him) in 1859, *Q. Jl. geol. Soc. Lond.* 15 : 185, but the name *Macropus anak* is a *nomen nudum* there. Mr Hughes is noted by Owen, 1859, p. 185, as the collector of the material which included the holotype.

5. andersoni

Sthenurus andersoni Marcus, 1962. *Rec. Aust. Mus.* 25 : 299-304, text fig. 1.

Holotype a left mandibular ramus with the root of I_1 , anterior root of M_1 and with P_4 M_{2-4} , no. MF.946, in the Australian Museum.

Type locality west side of Bone Camp Gully, a tributary of Ironbark Creek, 15 miles east of Bingara, Portion 176, Parish of Durham (Department of Lands Parish Map, 6th ed., 1964),

County of Murchison, New South Wales. Military grid co-ordinate 378303, ordnance sheet Inverell, H56/5, zone 8, 2nd ed., 1942, scale 1 : 253,440.

The bone deposit from whence the holotype came is described by Anderson, 1889, *Rec. geol. Surv. N.S.W.* 1 : 116-26, pls 6-10, who gives the locality as Portion 121, Parish of Durham. Wilkinson, 1887, *A. Rep. Dep. Mines N.S.W.* 1886: 129 and Anderson, 1888, *A. Rep. Dep. Mines N.S.W.* 1887 : 155, might be referring to this deposit when they remark on fossil bones from the neighbourhood of Myall Creek Station, New South Wales.

The holotype forms part of a collection of mammalian material from Bone Camp Gully originally belonging in the Mining Museum, Sydney. This material is noted in the Register of the Mining Museum as having been collected by Mr W. Anderson; however, Anderson, 1889, p. 126, states that the collection from this locality was made by the Survey Collector, Mr C. Cullen—see also Wilkinson, 1888, *A. Rep. Dep. Mines N.S.W.* 1887 : 140, Anderson, 1889, *A. Rep. Dep. Mines N.S.W.* 1888 : 179, and Carne, 1889, *A. Rep. Dep. Mines N.S.W.* 1888 : 192, for notes on the acquisition of the collection by the Mining Museum.

The holotype is mentioned by Tedford, 1966, *Univ. Calif. Publs geol. Sci.* 57 : 21.

6. *antaeus*

Protemnodon antaeus Owen, 1877. *Researches on the fossil remains of the extinct mammals of Australia; with a notice of the extinct marsupials of England* 1 : 448,9; 2, pl. 110, figs 1-5.

Holotype an incomplete left mandibular ramus with P₄-M₄ and with the alveolus of the incisor, no. M.2258, in the British Museum (Natural History). Presented by Dr G. Bennett (Lydekker, 1887, *Catalogue of the fossil Mammalia in the British Museum (Natural History)* 5 : 213).

Type locality Queensland (Lydekker, p. 213). Stirton, 1963, *Univ. Calif. Publs geol. Sci.* 44 : 141, adds "probably Darling Downs".

Stirton, pp. 138 text fig. 14b, 154-9, refigures the holotype from a cast and records measurements for it. Lydekker, p. 213, says that his list (on pp. 213,14) of specimens of *Macropus roechus* (as *Macropus raechus*) includes the "types" of *Protemnodon antaeus*. He then lists two specimens as having been figured by Owen (nos M.2258, 43581) and a third (no. 43379) which he says was "Noticed by Owen". Although Owen does not state that, of these specimens, no. M.2258 is the type (i.e. the holotype), sufficient indication is given by him, on p. 449, that this specimen is the one to which he is referring when speaking of the "type-specimen"; moreover, he refers, on p. 449, to specimen no. 43379 as being of "an older individual than the type-specimen".

7. *antiquus*

Sthenurus antiquus Bartholomai, 1963. *Mem. Qd Mus.* 14 : 67-71, text fig. 10.

Holotype a part of a left maxilla with P⁴-M², no. F.2975 (formerly no. 11204), in the Queensland Museum.

Type locality ? Chinchilla¹, Darling Downs, Queensland.

Bartholomai notes that all the specimens in the Queensland Museum collection, definitely referred to the species, are believed to have been collected from the Chinchilla Sand at Chinchilla.

P⁴ and M² of the holotype were originally described and figured by De Vis, 1895, *Proc. Linn. Soc. N.S.W.* (2) **10** : 96,7, pl. 16, figs 7,8 (M² incorrectly called an upper third molar, on p. 131, in the legend to fig. 8) as a paratype of *Sthenurus oreas* De Vis.

Some measurements for the holotype are given by Anderson, 1932, *Rec. Aust. Mus.* **18** : 386, who identifies it as *Sthenurus oreas* under its original registration number, 11204.

The holotype is mentioned by Tedford, 1966, *Univ. Calif. Publs. geol. Sci.* **57** 49.

8. *antiquus*

Potorous tridactylus antiquus Broom, 1896 [as *Potorous tridactylus* var. *antiquus*]. *Proc. Linn. Soc. N.S.W.* **21** : 50,1, pl. 6, figs 4-7.

Syntypes include the specimens figured with the original description. These include a left maxillary fragment, still partly embedded in breccia, with dP⁴-M² and with P⁴ exposed in its crypt, no. F.4201 (figs 4,6); and a fragment of a right mandibular ramus, still partly embedded in breccia, with the roots of M₁₋₂, with M₃ erupting, and with P₄ exposed in its crypt, no. F.51880 (fig. 7); both syntypes are in the Australian Museum. The "P³ (left upper?)" of fig. 5 cannot be found. Collected by Dr R. Broom.

Type locality Broom Cave, Wombeyan Caves, near Taralga, New South Wales.

See p. 42, under *Perameles wombeyensis*, for a discussion of Broom's Wombeyan types; see also Ride, 1960, *J. Proc. R. Soc. West. Aust.* **43** : 80, for notes on the type locality.

¹The designation "? Chinchilla" is used by A. Bartholomai (*pers. comm.*) when referring to fossil specimens marked C20 in the Queensland Museum. C20 is a registration number allocated in the Queensland Museum Register to a collection of recent animals, largely vertebrates, from Charleville, Queensland, collected by Mr K. Broadbent. C21 is allocated to a collection of 2441 fossils from Chinchilla also made by Mr Broadbent. C21 appears on no fossils in the Queensland Museum and Bartholomai believes that the number C20 was misapplied to the specimens of Broadbent's collection of fossils from Chinchilla.

9. **atlas**

Macropus atlas Owen, 1838. In Mitchell, *Three expeditions into the interior of eastern Australia, with descriptions of the recently explored region of Australia Felix, and of the present colony of New South Wales* 2 : 359, pl. 29, fig. 1.

Holotype a broken right mandibular ramus with dP_4 - M_2 and with P_4 and M_4 exposed in their crypts and M_3 missing, no. M.10778 (Mitchell no. I; Geol. Soc. Lond. no. 13336), in the British Museum (Natural History) (transferred from the Geological Society of London, June, 1911). Sir Thomas Mitchell Collection.

Type locality "Wellington Valley", New South Wales.

For notes on the Sir Thomas Mitchell Collection and the locality "Wellington Valley" see pp. 32-5, under *Dasyurus lanarius*.

The original description and figure are republished in Mitchell's 2nd ed., 1839, 2 : 365, pl. 47, fig. 1, while the former is republished by Woods, 1862, *Geological observations in South Australia* . . . : 378, who writes the specific name as "*Athos*". The holotype is figured by Owen, 1845, *Odontography* . . . 2, pl. 101, figs 3 (in part), ? 4 (said on p. 24 in the legend to the plate to be of a "second" molar and called in 1845, 1 : 392, a right "penultimate" molar); the plate is dated 1844. The holotype is redescribed and further figured by Owen, 1874, *Phil. Trans. R. Soc.* 164 : 265, 8,9, pl. 22, figs 3,4. This description and the figures are republished by Owen, 1877, *Researches on the fossil remains of the extinct mammals of Australia* . . . 1 : 416, 17, 20; 2, pl. 82, figs 3,4. Tedford, 1966, *Univ. Calif. Publs. geol. Sci.* 57 : 11-14, 62,3, redescribes the holotype and comments on the locality.

The holotype is also illustrated in a MS. page of drawings (Owen, 1838, British Museum (Natural History) *Owen Collection—Drawings*, folio 452, "plate" b). We do not know if the locality data large Cave at F written there besides a drawing of the holotype of *Macropus titan* (see p. 34, under *Dasyurus lanarius*) refers also to the holotype of *Macropus atlas*. The drawing in "plate" b is a version of that published by Owen, 1845, in pl. 101, fig. 3.

10. **birdselli**¹

Macropus (Macropus) birdselli Tedford, 1967. *Univ. Calif. Publs. geol. Sci.* 64 : 114-27, text fig. 27b (partly restored).

Holotype left and right mandibular rami with left M_{1-4} and right I_1 M_4 , no. P13857, in the South Australian Museum. Collected by Dr R. H. Tedford, March 26th, 1953 (*pers. comm.*, R. H. Tedford).

Type locality on northern side of Lake Menindee, approximately 12 miles north-west of Menindee, New South Wales. *In situ* in Unit B, site 1 (University of California Museum of Paleontology locality V5371).

¹The holotype has not been seen by either author.

Details of the geology of the type locality are given in the paper which contains the original description.

11. **brehus**

Sthenurus brehus Owen, 1874. *Phil. Trans. R. Soc.* **164** : 272-4, pl. 27, figs 5-9.

Syntypes an incomplete palate with left M^{2-4} and right M^{3-4} , no. 43303a (figs 5, 6), and a left maxillary fragment with P^4 M^1 , no. 43853 (figs 7-9), in the British Museum (Natural History). Krefft Collection (see p. 37, under *Thylacinus major*).

Type locality Breccia Cave, Wellington Caves (given by Owen as Breccia-cave, Wellington Valley), New South Wales.

The two syntypes are said by Owen to form part of the results of the exploration (of Wellington Caves) by Prof. Thomson and Gerard Krefft but the data for specimen no. 43853, in the British Museum (Natural History) Register, indicate that the specimen was presented by the Exhibition Commissioners for New South Wales at the Paris Universal Exhibition, 1867; this Exhibition was held before the Thomson and Krefft exploration of 1869. Lydekker, 1887, *Catalogue of the fossil Mammalia in the British Museum (Natural History)* **5** : 210, agrees with the Register for no. 43853 and, on p. 209, notes that no. 43303a was presented by the Trustees of the Australian Museum, in 1870, and gives the locality "cave in the Wellington Valley" for it; the presentation date is not included in the entry for it in the British Museum (Natural History) Register.

Owen does not nominate a holotype and later, 1876, *Phil. Trans. R. Soc.* **166** : 212, 13, says that the species was founded on both no. 43303a and no. 43853 and refers in 1876, on p. 215, to the former as the "type subject" and to the latter as the "type specimen". Subsequently, in 1877, *Researches on the fossil remains of the extinct mammals of Australia* . . . **1** : 427, in text new in that work, he calls no. 43303a the "type specimen". Later, Lydekker states, on p. 209, that no. 43303a "is the type" and this is accepted by Stirton, 1963, *Univ. Calif. Publ. geol. Sci.* **44** : 139-41, and by Tedford, 1967, *Univ. Calif. Publ. geol. Sci.* **64** : 102; Recommendation 74A of the *International Code of Zoological Nomenclature* should be noted when lectotype selection is undertaken for the species.

The original description and figures are republished by Owen, 1877, **1** : 424-6; **2**, pl. 87, figs 5,6 (no. 43303a), 7-9 (no. 43853). Stirton, pp. 140 text fig. 15b, 148-53, figures a cast of no. 43303a and records measurements for both it and no. 43853. Tedford, pp. 101,2, 6-8, discusses both syntypes and records measurements for them (no. 43853 is inadvertently written as no. 43653 on p. 106).

12. **brownei**

Sthenurus brownei Merrilees, 1968. *J. Proc. R. Soc. West. Aust.* **50** : 65-79, text figs 1,2.

Holotype an almost complete right mandibular ramus with I_1 , P_4 - M_4 and ankylosed small portion of the left ramus with the broken root of I_1 , no. 63.2.94, in the Western Australian Museum.

Type locality Mammoth Cave, near Margaret River, Western Australia. From Glauert's excavation, north-central in the Cave.

13. **buloloensis** *Protemnodon buloloensis* Plane, 1967. *Bull. Bur. Miner. Resour. Geol. Geophys. Aust.* no. 86 : 44-50, text figs 11a-d.

Holotype a fragmentary mandible with left I_1 P_4 - M_2 , M_{3-4} (broken) and right I_1 M_{2-3} (I_1 M_2 broken), no. CPC6774, in the Commonwealth Palaeontological Collection, Bureau of Mineral Resources, Canberra (formerly University of California Museum of Paleontology no. 45243). Obtained by G. D. Woodard, 1955 (*pers. comm.*, M. Plane).

Type locality at Sunshine alluvial gold sluicing workings, western bank of Watut River, approximately 9 miles north of Bulolo township, Morobe District, Territory of Papua and New Guinea (University of California Museum of Paleontology locality V5564). In claystone. Otibanda Formation.

The view of the left I_1 , presented in fig. 11b is not a lingual view of I^1 as stated in the legend to the figure. It is another buccal view of the left I_1 , drawn with the lateral surface more closely parallel with the page than is shown in fig. 11a.

Details of the geology of the type locality are given in the paper which contains the original description; for details of the collecting localities at Sunshine, see, in particular, pp. 63,4, p. 14 text fig. 3, p. 62 text fig. 15.

14. **cooperi** *Osphranter cooperi* Owen, 1874. *Phil. Trans. R. Soc.* **164** : 261, pl. 24, figs 17,18 (both figures reversed).

Holotype the forepart of a left mandibular ramus with P_4 - M_2 , no. 32886, in the British Museum (Natural History). Purchased at Stevens' auction rooms (British Museum (Natural History) Register).

Type locality "freshwater beds of Darling Downs, Queensland".

Owen records in the original description that the specimen was presented by Sir Daniel Cooper, Bart, but it is recorded in the British Museum (Natural History) Register as having been purchased at Stevens' auction rooms; it could belong to the Boydian Collection—see pp. 69,70, under *Phascolomys parvus*, for notes on this Collection. Lydekker, 1887, *Catalogue of the fossil Mammalia in the British Museum (Natural History)* **5** : 224, records the holotype as having been purchased in 1857. The earliest of the presentations to the British Museum (Natural History) known to have been made by Sir Daniel Cooper was in 1861 and the first registration number applied to it is 35911.

For specimens presented to the British Museum (Natural History) by Sir Daniel Cooper see p. 65, under *Phascolomys magnus* Murie.

Lydekker, p. 224, gives the locality as "Pleistocene of the Condamine River, Queensland".

The original description and figures are republished by Owen, 1877, *Researches on the fossil remains of the extinct mammals of Australia* . . . 1 : 412,13; 2, pl. 84, figs 17,18.

15. **cuneata** *Bettongia cuneata* Owen, 1877. *Researches on the fossil remains of the extinct mammals of Australia; with a notice of the extinct marsupials of England* 1 : 107; 2, pl. 5, fig. 15.

Holotype a major part of a left mandibular ramus with I_1 M_{1-3} (P_4 restored in fig. 15; M_4 not discernible); present whereabouts unknown.

Type locality an unspecified cave.

See pp. 36,7, under *Thylacinus major* concerning this citation of type locality and Owen's pl. 5.

Lydekker, 1887, *Catalogue of the fossil Mammalia in the British Museum (Natural History)* 5 : 205, notes that specimens apparently agreeing precisely with the holotype are in the collection. We are unable to identify the holotype in the collection of the British Museum (Natural History).

The original figure is republished by Johnston, 1888, *Systematic account of the geology of Tasmania* : pl. 55, fig. 9.

16. **cuniculoides** *Bettongia cuniculoides* McCoy, 1868 [as *bettongis cuniculoides*]. *Sections and Notes to accompany Geological Survey of Victoria Quarter Sheet 14 N.W. (Bradford)* : Note 12.

Holotype a jaw fragment containing a deciduous premolar and with or without other teeth; present whereabouts unknown. Collected "by Brown".

Type locality on the bank of the Loddon River, Parish of Baringhup, Loddon District, Victoria (Geological Survey of Victoria locality F^a 1). In red sandy loam three to five feet from the surface.

Gill, 1953, *Mem. natn. Mus. Vict.* no. 18 : 162-6, did not find the holotype which, from McCoy's description of it, is probably a mandibular specimen. The original description is contained in a separate undated sheet of *Sections and Notes* accompanying *Quarter Sheet 14 N.W.* This *Quarter Sheet* was first published in 1868 when two editions were printed; both editions have that year inscribed on them and at least that related to the *Sections and Notes* was published subsequent to August 10th, 1868, because a letter dated August 3rd, 1868, written by A.R.C. Selwyn, Government Geologist, Geological Survey of Victoria, to McCoy, seeking details of fossil bones and freshwater shells which were

sent to McCoy in May, 1868, notes that the *Quarter Sheet* of the area within which these fossils were found was about to be published and that Selwyn wished to insert a note respecting them; McCoy's reply, dated August 10th, 1868, is written on the bottom of Selwyn's letter and contains the mammal identifications and descriptions which were included in Note 12 of the *Sections and Notes* (Selwyn's letter with McCoy's reply appended is preserved in the archives of the National Museum of Victoria). The number of the Note, 12, which includes McCoy's identifications accompanies the locality symbol F^a 1 on the face of only one of the two editions of the *Quarter Sheet* dated 1868, while the locality symbol appears on both editions of the *Quarter Sheet*. If the date 1868 which appears on the edition of the *Quarter Sheet* citing Note 12 can be relied upon, and the undated sheet of *Sections and Notes* was issued with it, then the name *B. cuniculoides* dates from not earlier than August 10th, 1868, and not later than the end of the year. There is no evidence that the *Sections and Notes* were issued separately from the dated *Quarter Sheet* which refers to them, and there is no evidence that the dated *Quarter Sheet* first became available later than the year specified, accordingly the date of publication should be accepted as that specified in the work (*International Code of Zoological Nomenclature* Article 21). Anon., 1915, *Catalogue of the books, manuscripts, maps and drawings in the British Museum (Natural History)* 5 : 2214, records the *Sections* referring to *Quarter Sheet 14 N.W.* as having been published in 1869; but in the absence of proof that the year 1868 is incorrect, we can only suggest that this may refer to the date of receipt of the work at the British Museum.

The Selwyn letter mentioned above records the fossil bones as having been collected "by Brown". The area included in *Quarter Sheet 14 N.W.* was geologically and topographically surveyed by G. H. F. Ulrich and H. Y. L. Brown in 1866-7 (see in *Quarter Sheet*.) therefore it seems likely that the latter is the collector mentioned by Selwyn. Notes printed on the face of *Quarter Sheet 14 S.W. (Maldon)* undoubtedly refer to fossil marsupial material found at locality F^a 1 in *Quarter Sheet 14 N.W.* and as the former *Quarter Sheet* was published in 1867, the holotype might have been collected no later than that year.

17. dryas

Halmaturus dryas De Vis, 1895. *Proc. Linn. Soc. N.S.W.* (2) 10 : 109-11, pl. 17, figs 13, ?15.

Lectotype a part of a right maxilla with P⁴-M³, no. F. 3582, in the Queensland Museum.

Type locality ?Chinchilla, Darling Downs, Queensland (Bartholomai,¹ 1966, *Mem. Qd Mus.* 14 : 116; De Vis, pp. 75, 80, 4, only gives Darling Downs, Queensland for the species) ?Chinchilla Sand (Bartholomai, p. 116).

The lectotype was selected, redescribed and refigured by Bartholomai, p. 116, pl. 15, figs 1 and 2 (a stereo-pair), 3, who notes that there is little doubt that M³ of the lectotype is represented by pl. 17, fig. 15 of De Vis. De Vis stated that the "type" was maxillary but did not designate which of the four maxillae he lists was the holotype. Bartholomai selected the best preserved maxillary specimen from the series as the lectotype.

¹See footnote on p. 123, under *Sthenurus antiquus*, for a note on specimens which are given the locality ? Chinchilla by Bartholomai.

18. **faunus** *Macropus faunus* De Vis, 1895. *Proc. Linn. Soc. N.S.W.* (2) 10 : 127-9, pl. 18, figs 4,5.

Holotype a partial right maxilla with P^4-M^3 (P^4 inadvertently called P_4 in fig. 4), no. F.2924, in the Queensland Museum.

Type locality Darling Downs, Queensland (see De Vis, pp. 75, 80, 4).

The holotype is redescribed and refigured by Bartholomai, 1966, *Mem. Qd Mus.* 14 : 122,3, pl. 18, figs 1 and 2 (a stereo-pair), 3, who notes that its preservation indicates that it was most probably derived from fluvial deposits of the eastern Darling Downs.

19. **ferragus** *Macropus ferragus* Owen, 1874. *Phil. Trans. R. Soc.* 164 : 784, pl. 81, fig. 4; pl. 82, figs 3,4; pl. 83, fig. 3.

Holotype a part of a right mandibular ramus with M_{3-4} , no. 32903, in the British Museum (Natural History). Purchased at Stevens' auction rooms (British Museum (Natural History) Register).

Type locality "Pleistocene of the Condamine River, Queensland" (Lydekker, 1887, *Catalogue of the fossil Mammalia in the British Museum (Natural History)* 5 : 230,1).

No locality is given in the original description although the holotype was apparently included among the specimens noted by Owen, 1874, p. 783, as having come from "freshwater beds of the Queensland province". No locality is given in the British Museum (Natural History) Register for this specimen which could belong to the Boydian Collection; see pp. 69,70, under *Phascolomys parvus*, for notes on this Collection. Lydekker, p. 231, records the holotype as having been purchased in 1857.

The original description and figures are republished by Owen, 1877, *Researches on the fossil remains of the extinct mammals of Australia* . . . 1 : 449,50; 2, pl. 96, fig. 4; pl. 97, figs 3,4; pl. 105, fig. 3, and the species called *Pachysiagon ferragus*.

Tedford, 1967, *Univ. Calif. Publ. geol. Sci.* 64 : 135, 140,2, discusses the holotype and records measurements for it.

20. **fossilis** *Dorcopsoides fossilis* Woodburne, 1967. *Bull. Bur. Miner. Resour. Geol. Geophys. Aust.* no. 87 : 44-82, text figs 10,11a.

Holotype a broken cranium with right P^4-M^4 , left $P^4 M^1$ (broken), M^{3-4} , no. CPC6750, in the Commonwealth Palaeontological Collection, Bureau of Mineral Resources, Canberra. Collected by Dr M. O. Woodburne and party between late June and early August, 1964 (*pers. comm.*, M. O. Woodburne).

Type locality Paine Quarry (University of California Museum of Paleontology locality V6345), 4 miles south-west of Alcoota Station Homestead, 2.1 miles south-west of the junction of Waite and Ongeva Creeks, Northern Territory. Waite Formation.

Details of the geology of the type locality are given in the paper which contains the original description.

21. *gilli*

Sthenurus gilli Merrilees, 1965. *J. Proc. R. Soc. West Aust.* **48** : 22-6, text fig. 1.

Holotype a mandible with ankylosed rami broken posteriorly, and with left and right I_1 P_3 - M_3 , right M_4 in crypt, left P_4 excavated from crypt, no. P21609, in the National Museum of Victoria. Collected and presented by Mr C. Austin, 1957 (National Museum of Victoria Register).

Type locality Shire Quarry, Section 22, Parish of Kaladbro, Strathdownie, Victoria.

22. *goliah*

Macropus goliah Owen, 1845. In Waterhouse, *A natural history of the Mammalia* **1** : 59.

Holotype a fragment of a right maxilla with M^{1-3} ; no. M.1896, in the British Museum (Natural History). Transmitted to Owen by Sir Thomas Mitchell in 1844 (Owen, 1874, *Phil. Trans. R. Soc.* **164** : 792) and presented to the British Museum (Natural History) by Sir Richard Owen, August, 1884 (British Museum (Natural History) Register).

Type locality Darling Downs, Queensland (from the "newer Tertiary deposits").

The holotype is redescribed and figured by Owen, 1874, pp. 791,2, pl. 79, fig. 1, where the number of molars is corrected from two to three. For a note on the localities for early collections from the Darling Downs see p. 98, under *Nototherium inerme*.

The 1874 description and figure are republished by Owen, 1877, *Researches on the fossil remains of the extinct mammals of Australia* . . . **1** : 460; **2**, pl. 94, fig. 1. Stirton and Marcus, 1966, *Rec. Aust. Mus.* **26** : 357, figs 3a,b, figure the holotype from a cast. Tedford, 1967, *Univ. Calif. Publ. geol. Sci.* **64** : 80-3, discusses the holotype and records measurements of it.

Lydekker, 1887, *Catalogue of the fossil Mammalia in the British Museum (Natural History)* **5** : 234, incorrectly records the molars as being M^{2-4} .

Tate, 1948, *Bull. Am. Mus. nat. Hist.* **91** : 338, has questioned whether the holotype, no. M.1896, is the specimen described by Owen in 1845 and comments that the specimen figured by Owen, 1874, pl. 79, fig. 8, is incorrectly identified (in 1874, p. 802) as a left mandibular specimen and suggests that it may be the type. The specimen figured there is known to us and is a mandibular fragment, no. F.18667, in the Australian Museum; a cast of it, no. M.3674, is in the British Museum (Natural History).

The original publication is often dated from 1846, but Waterhouse published *A natural history of the Mammalia* in a number of parts which were issued monthly (see the Address in vol. 1 (1845-6) of Waterhouse's work). Owen, 1874, p. 792 footnote, records that the species was originally noted in part 2, *Macropodidae*, 1845, p. 59. This date of issue, i.e. 1845, of part 2 is confirmed by an anonymous notice in *The Athenaeum*, no. 940, November 1st, 1845, p. 1062, col. 2., which records that part 2 is now ready [for sale].

23. *gouldii*

Osphranter gouldii Owen, 1874. *Phil. Trans. R. Soc.* **164** : 261, pl. 23, figs 15,16 (? figures reversed).

Holotype an anterior portion of a mandibular ramus (side uncertain) described as having the remnant of the socket of P_3 , and dP_4 M_1 much worn; fig. 16 shows that M_2 was also present and unworn (in that figure four molariform teeth are shown and are identified as P_3 dP_4 M_{1-2} , and are called "four molars" on p. 285 in the legend to fig. 15). Formerly no. 1521 in the Museum of the Royal College of Surgeons of England (no. 3765 of Flower, 1884, *Catalogue of the specimens illustrating the osteology and dentition of vertebrated animals* . . . **2** : 719). Presented by Count De Strzelecki, 1844 (name of donor given by Owen, 1845, *Descriptive and illustrated catalogue of the fossil organic remains of Mammalia* . . . : 328; date given by Flower, p. 719).

Type locality one of the caves in Wellington Valley, New South Wales (Owen, 1845, p. 328).

The type locality is probably Wellington Caves—see De Strzelecki, 1845, *Physical description of New South Wales and Van Diemen's Land* . . . : 144,5, for his note on osseous breccia in Wellington Valley.

The holotype is regarded by the Curator of the Hunterian Collections as having been destroyed (see p. 40, under *Thylacinus spelaeus*, and pp. 190,1).

The holotype was first listed, only under the generic name *Macropus*, by Owen, 1845, p. 328, as part of a right ramus with the root of the incisor and "four of the molar teeth *in situ*"; the locality and donor are given there.

Subsequently, the specimen became the holotype of *O. gouldii* but no locality or donor was mentioned in that place, nor was the specimen mentioned by number; also, in that work the holotype is called a left ramus, on p. 285, in the legend to

figs 15,16; moreover, fig. 15 is called an outside view which is an error—an inside, i.e. lingual, view is shown; there is no reversal between figs 15 and 16 (compare the enamel borders of “d,” in figs 15 and 16). The connection between Owen’s two statements concerning this specimen is provided by Flower, p. 719, who applies Royal College of Surgeons of England registration numbers to the specimen and gives the number of Owen’s plate and figures which apply to the description of the new species; Flower calls the specimen a “Portion of the left ramus of mandible” which agrees with Owen’s 1874 description but not with the earlier one of 1845.

The immaturity attributed to the type by Owen, 1874, p. 261, is questioned by Lydekker, 1887, *Catalogue of the fossil Mammalia in the British Museum (Natural History)* 5 : 220,1, who thought that it might well have belonged to an individual slightly older than a specimen, no. 43345a, for which he records the presence of M_{1-4} . The original description and figures are republished by Owen, 1877, *Researches on the fossil remains of the extinct mammals of Australia* . . . 1 : 413; 2, pl. 83, figs 15,16.

24. *gracilis*

Leptosiagon gracilis Owen, 1874. *Phil. Trans. R. Soc.* 164 : 785,6, pl. 76, figs 11-15.

Holotype a portion of a right mandibular ramus with M_{2-3} and the alveolus of M_1 , no. 40005, in the British Museum (Natural History). Presented by Sir Daniel Cooper, Bart, July, 1866 (British Museum (Natural History) Register).

Type locality “Pleistocene of Queensland” (Lydekker, 1887, *Catalogue of the fossil Mammalia in the British Museum (Natural History)* 5 : 231; probably Gowrie, near Drayton, Darling Downs, Queensland—see below).

No locality is given in the original description although the holotype might be among those specimens noted by Owen, 1874, p. 783, as coming from “fresh-water beds of the Queensland province”. We believe that Gowrie is probably the type locality because the Donations Book for the Department of Geology in the British Museum (Natural History) records only Gowrie, near Drayton for the presentation made by Cooper in 1866; see p. 65, under *Phascolomys magnus* Murie. The British Museum (Natural History) Register gives the locality for the holotype only as Queensland.

The original description and figures are republished by Owen, 1877, *Researches on the fossil remains of the extinct mammals of Australia* . . . 1 : 450,1; 2, pl. 89, figs 11-15.

Tedford, 1967, *Univ. Calif. Publs. geol. Sci.* 64 : 135, 140,2,3, discusses the holotype and records measurements for it.

25. *hacketti*

Sthenurus atlas hacketti Le Souef, 1910. *The West Australian* [Perth], no. 7445, vol. 26, February 5th, 1910, p. 5, col. 2. Replacement name for *Sthenurus occidentalis* Glauert, 1910.

Holotype the holotype of *Sthenurus occidentalis* Glauert, i.e. an imperfect mandible with left and right I₁ P₄-M₄, no. 60.10.2, in the Western Australian Museum. Found by Messrs E. A. Le Souef and Connolly (sic) [T. Connelly], 1904.

Type locality Mammoth Cave, near Margaret River, Western Australia.

For notes on the collection of the holotype, its type locality, and other discussion of it and a note on the relation between this name and that of its senior objective synonym see pp. 135,6, under *Sthenurus occidentalis*.

26. **indra** *Halmaturus indra* De Vis, 1895. *Proc. Linn. Soc. N.S.W.* (2) 10: 112,13, pl. 17, figs 18-20.

Holotype a partial left mandibular ramus with P₃ dP₄ M₁ (P₄ (fig. 19) has been excavated from its crypt and its present whereabouts is unknown), no. F.3595, in the Queensland Museum.

Type locality Darling Downs, Queensland (see De Vis, 1895, pp: 75, 80,4).

The holotype is redescribed and refigured by Bartholomai, 1966, *Mem. Qd Mus.* 14: 116,17, pl. 15, figs 4 and 5 (a stereo-pair), 6, who notes that its preservation suggests that the Chinchilla Sand is its likely place of origin, i.e. that Chinchilla, Darling Downs, Queensland is the type locality.

27. **magister** *Macropus magister* De Vis, 1895. *Proc. Linn. Soc. N.S.W.* (2) 10: 120-4, ?pl. 18, figs 13,14.

Lectotype an incomplete cranium with right P³-M² and with P⁴ excavated from its crypt, no. F.645, in the Queensland Museum.

Type locality Ravensthorpe, Pilton, Darling Downs, Queensland (from fluviatile deposits) (Bartholomai, 1966, *Mem. Qd Mus.* 14: 123; De Vis, pp. 75, 80, 4, only gives Darling Downs for the species).

The lectotype was selected, redescribed and figured by Bartholomai, pp. 123,4, pl. 19 (figs 1 and 2 a stereo-pair), who believed that De Vis, p. 125, had mentioned that the type of *Macropus magister* was maxillary; Bartholomai selected as lectotype the maxillary specimen with the best juvenile dentition in the type series. Moreover, he regards it likely that the lectotype represents that specimen figured in pl. 18, figs 13 and 14 of De Vis; these are the only figures of maxillary premolars of this species given by De Vis.

28. *mimas*

Protamnodon mimas Owen, 1874. *Phil. Trans. R. Soc.* **164** : 278-81, pl. 26, figs 1-3.

Holotype a broken left mandibular ramus with P_4-M_4 , no. 43351 (original no. 5), in the British Museum (Natural History). Obtained by Dr George Bennett. The specimen is dated November 18th, 1871 (date and original number on a label attached to the specimen). Presented by Dr George Bennett, 1872 (Lydekker, 1887, *Catalogue of the fossil Mammalia in the British Museum (Natural History)* **5** : 211).

Type locality Gowrie Creek, Darling Downs, Queensland (from "freshwater deposits forming the bed of "Gowrie Creek," "). The locality Gowrie is given for the holotype in the British Museum (Natural History) Register.

Lydekker, pp. 207-11, refers to the "types" of the species. However, among the specimens described by Owen in the original description only no. 43351 is called by him (on p. 279) a type ("type mandible"). Subsequently, Owen, 1877, *Researches on the fossil remains of the extinct mammals of Australia* . . . **1** : 447, refers to no. 43351 as the "type-specimen".

The original description and figures are republished by Owen, 1877, **1** : 431-4; **2**, pl. 86, figs 1-3. Stirton, 1963, *Univ. Calif. Publ. geol. Sci.* **44** : 138 text fig. 14a, 154-9, refigures the holotype from a cast and records measurements for it.

29. *minor*

Sthenurus minor Owen, 1877. *Proc. zool. Soc. Lond.* **1877** : 352-61, pl. 37; pl. 38, figs 1-4.

Holotype a palate with left P^4-M^3 , and right P^3-M^3 , and with the right P^4 and M^4 of both sides exposed in their crypts, no. 48409, in the British Museum (Natural History). Transmitted by Rev. W. B. Clarke who received the holotype from "Mr Lowe, of Goree" (Clarke, 1878, *J. Proc. R. Soc. N.S.W.* **11** : 209; Lydekker, 1887, *Catalogue of the fossil Mammalia in the British Museum (Natural History)* **5** : 219, says presented by Rev. W. B. Clarke, 1877).

Type locality "the Talbragar country" [county unspecified], New South Wales.

The type locality is altered by Clarke, p. 209, from that given by Owen "a "rocky alluvial deposit" in the shaft of a gold-lead in the county of Phillip, New South Wales". Elsewhere, Clarke, 1878, *Remarks on the sedimentary formations of New South Wales* . . . : 100, gives the locality as "district of the Castlereagh River"—the Talbragar and Castlereagh Rivers are adjacent for parts of their length; we have adopted "Talbragar country" as the locality from these alternatives because it is this that Clarke uses when commenting on that given by Owen. Lydekker, p. 219, gives the locality as "Pleistocene of County Phillip, New South Wales"

Figures 2,3 of pl. 38 are said by Owen to be of the right P^4 but are apparently reversed figures of the left—the P^4 on the right side is only exposed in its crypt from the labial side. Bartholomai, 1967, *Mem. Qd Mus.* **15** : 23, 28-32, discusses the holotype and records measurements for a cast of it, no. F.3394, in the Queensland Museum. He gives the type locality as "Talbragar country, Co. Bligh, N.S.W."

The name *S. minor* is employed by Lydekker, p. 218, in the combination *Macropus minor* (Owen). In this form it is a secondary junior homonym of *Macropus minor* Shaw, 1800.

30. **morgani** *Potorous morgani* Finlayson, 1938. *Trans. R. Soc. S. Aust.* **62** : 132-40, pls 5; ?6; ?7.

Syntypes an almost complete cranium, no. P3413 (pl. 5, figs A, D, E), and an almost complete cranium and mandible, no. P168 (pl. 5, figs B, C, F, G, H), in the South Australian Museum. Dr A. M. Morgan Collection (no. P3413); forwarded by Miss Edith May, February, 1926 (no. P168).

Type locality Kelly Hill Caves, Flinders Chase, Kangaroo Island, South Australia.

Finlayson noted that parts of a skeleton (pls 6,7) are associated with the cranium and mandible (no. P168). He said that he believed, beyond reasonable doubt, that these bones, with the exception of three fragments, were derived from the same animal as no. P168; however, he stated that the diagnosis of the new species is upon "cranial" characters alone.

31. **notabilis** *Sthenurus notabilis* Bartholomai, 1963. *Mem. Qd Mus.* **14** : 72-4, text fig. 11.

Holotype a part of a right mandibular ramus with P_3 - M_1 and with P_4 excavated from its crypt, no. F.3817, in the Queensland Museum. Collected by Mr J. T. Woods, April 10th, 1958 (Queensland Museum Register).

Type locality western side of large gully system, Chinchilla Rifle Range (Rifle Range No. 78), Parish of Chinchilla, Darling Downs, Queensland. Military grid reference 363677, Chinchilla 4 mile military map. Chinchilla Sand.

The holotype is commented on by Tedford, 1966, *Univ. Calif. Publs geol. Sci.* **57** : 25,6.

32. **occidentalis** *Sthenurus occidentalis* Glauert, 1910. *Rec. West. Aust. Mus.* **1** : 31-6, pl. 5.

Holotype an imperfect mandible with left and right I_1 P_4 - M_4 , no. 60.10.2, in the Western Australian Museum. Found by

Messrs E. A. Le Souef and Connolly (sic) [T. Connelly], 1904 (Le Souef, *The West Australian* [Perth], no. 3699, vol. 30, February 21st, 1914, p. 12, col. 8).

Type locality Mammoth Cave, near Margaret River, Western Australia.

The holotype is redescribed and refigured by Glauert, 1910, *Bull. geol. Surv. West. Aust.* no. 36 : 53-61, text figs 1-3; pls 10-12; a cast of the holotype is figured by Anderson, 1932, *Rec. Aust. Mus.* 18, pl. 46, fig. 2 (in part).

The relative dates of publication of Glauert's two publications in 1910 which contain descriptions of *S. occidentalis* are as follows:

(i). *Rec. West. Aust. Mus.* 1 : 1-38, pls 1-5, i.e. part 1, was published before February 2nd, 1910 (publication of part 1 mentioned in Anon., *The West Australian* [Perth], no. 7442, vol. 26, February 2nd, 1910, p. 4, col. 1; and copies of part 1 despatched between February 7th and 9th, 1910—Western Australian Museum Postage Books).

(ii). *Bull. geol. Surv. West. Aust.* no. 36 was not published before March 21st, 1910 (date of Government Geologist's prefatory note (Maitland, p. 5) to Bulletin no. 36).

The name *S. occidentalis* appears without description before February, 1910 in Woodward, 1909, *Geol. Mag.* 6 : 210-12; and in Anon., *The West Australian* [Perth], no. 7132, vol. 25, February 2nd, 1909, p. 3, col. 4. In addition the name *Sthenurus atlas hacketti* was proposed for it by E. A. Le Souef in a MS. report made to the Western Australian Caves Board in 1905. An extract from this report was published soon after Glauert's description of *S. occidentalis* by Le Souef, *The West Australian* [Perth], no. 7445, vol. 26, February 5th, 1910, p. 5, col. 2, where the name, although published without description or definition, is clearly referable to the prior published *S. occidentalis* and we have no doubt it was intended by Le Souef to be a replacement name; it is so treated in this *Index* (see p. 132). Le Souef's report to the Caves Board is published later in *The West Australian* [Perth], no. 3699, vol. 30, February 21st, 1914, p. 12, cols 8,9, where the name is given as *Sthenurus hacketti* and is without description, definition or indication in that place.

An account of the discovery of the holotype is given by Le Souef, 1914, p. 12, col. 8; by Woodward, 1910, *Rec. West. Aust. Mus.* 1 : 9,10; as well as in an anonymous account of a lecture by Glauert in *The West Australian* [Perth], no. 3892, vol. 30, October 1st, 1914, p. 9, cols 5,6. Glauert, 1948, *West. Aust. Nat.* 1 : 100-4, and Merrilees, 1968, *J. Proc. R. Soc. West. Aust.* 50 : 66, published further remarks on the type locality.

Additional information about the holotype is given by Merrilees, pp. 65-79. The holotype is mentioned by Tedford, 1966, *Univ. Calif. Publs. geol. Sci.* 57 : 33.

33. *odin*

Halmaturus odin De Vis, 1895. *Proc. Linn. Soc. N.S.W.* (2) 10 : 111,12, pl. 17, figs 16,17.

Holotype a right mandibular ramus with P_4-M_3 ; present whereabouts unknown (see Bartholomai, 1966, *Mem. Qd Mus.* 14 : 118).

Type locality Darling Downs, Queensland (see De Vis, pp. 75, 80,4).

The measurements attributed by Stirton, 1957, *Mem. natn. Mus. Vict.* no. 21 : 124, to a specimen called "type" by him refer to a paratype, no. F.3589, in the Queensland Museum (see Bartholomai, p. 118).

34. **og**

Protemnodon og Owen, 1874. *Phil. Trans. R. Soc.* **164** : 277,8, pl. 25, figs 5,6.

Holotype a broken left mandibular ramus with P_4 - M_4 , no. 35963, in the British Museum (Natural History). Presented by Sir Daniel Cooper, Bart, June, 1861 (British Museum (Natural History) Register).

Type locality Gowrie, [Darling Downs], Queensland (British Museum (Natural History) Register).

No locality is given in the original description. For the locality of specimens presented to the British Museum (Natural History) by Sir Daniel Cooper, Bart, in 1861 see p. 65, under *Phascolomys magnus* Murie. Lydekker, 1887, *Catalogue of the fossil Mammalia in the British Museum (Natural History)* **5** : 217, states that the specimen was presented in 1866 but the entry in the Register (see above) specifies that it was presented in June, 1861.

Owen describes no. 35967, on p. 277, as a specimen of *Protemnodon anak* but figures it as *Protemnodon og* (legend, on p. 286, to pl. 25, figs 11-13); we regard it, at most, as a referred specimen. Both no. 35963 and no. 35967 are included by Lydekker, on pp. 217,18, in a list of eight specimens said by him to include "The types" of *Protemnodon og*. The original description and figures are republished by Owen, 1877, *Researches on the fossil remains of the extinct mammals of Australia* . . . **1** : 430; **2**, pl. 85, figs 5,6. Stirton, 1963, *Univ. Calif. Publ. geol. Sci.* **44** : 136 text fig. 13b, 154-9, refigures the holotype from a cast and records measurements for it; he, p. 139, gives the type locality as Gowrie Creek, Darling Downs, Queensland.

35. **oreas**

Sthenurus oreas De Vis, 1895. *Proc. Linn. Soc. N.S.W.* (2) **10** : 96,7, pl. 16, figs 5,6.

Holotype left and right mandibular rami each with P_4 - M_4 (P_4 is inadvertently called P_3 in fig. 5), no. F.2923 (formerly no. 11204), in the Queensland Museum.

Type locality Darling Downs, Queensland (see De Vis, pp. 75, 80,4).

The holotype is redescribed and refigured by Bartholomai, 1963, *Mem. Qd Mus.* **14** : 59-63, text fig. 4, who notes that its preservation is typical of the "Pleistocene sediments" of the Darling Downs, i.e. the "younger alluvia of the eastern

Darling Downs". The measurements attributed by Stirton, 1957, *Mem. natn. Mus. Vict.* no. 21 : 124, to a specimen called "type" by him refer to a paratype, no. F.2931 (formerly no. 8841), of *S. oreas*, later listed by Bartholomai, p. 67, as a paratype of *Sthenurus antiquus* (see Bartholomai, p. 62).

The holotype is mentioned by Tedford, 1966, *Univ. Calif. Publs geol. Sci.* 57 : 39-43.

36. **orientalis** *Sthenurus (Simosthenurus) orientalis* Tedford, 1966. *Univ. Calif. Publs geol. Sci.* 57 : 50-3, 66,7, text fig. 19.

Holotype an incomplete right mandibular ramus with P_4 - M_4 and a portion of the left ramus at the symphysis, no. F.10201, in the Australian Museum. Collected prior to 1905 (Australian Museum Register).

Type locality Wellington Caves, New South Wales.

37. **oscillans** *Triclis oscillans* De Vis, 1888. *Proc. Linn. Soc. N.S.W.* (2) 3 : 5-8, pl. 1.

Holotype an incomplete left mandibular ramus with I_1 P_4 - M_4 , no. F. 3302, in the Queensland Museum. Obtained ("brought to light") by Mr R. Frost.

Type locality King Creek, Darling Downs, Queensland.

The holotype is redescribed and refigured by Woods, 1960, *Mem. Qd Mus.* 13 : 199-201, text fig. 1. Stereo-photographs of M_2 of the holotype are published by Ride, 1964, *J. Proc. R. Soc. West. Aust.* 47 : 122 text fig. 13c.

Comparative description which involves the holotype is provided by Tedford, 1967, *Univ. Calif. Publs geol. Sci.* 64 : 25-9.

38. **otibandus** *Protemnodon otibandus* Plane, 1967. *Bull. Bur. Miner. Resour. Geol. Geophys. Aust.* no. 86 : 26-44, text fig. 6.

Holotype an almost complete right mandibular ramus with I_1 P_4 - M_4 , no. CPC6771, in the Commonwealth Palaeontological Collection, Bureau of Mineral Resources, Canberra. Obtained by M. Plane, 1963 (*pers. comm.*, M. Plane).

Type locality on a cliff about 20 feet above the western bank of the Upper Watut River, 1.8 miles south of the Gold and Power Company's residence at Slate Creek, Morobe District, Territory

of Papua and New Guinea (University of California Museum of Paleontology locality V6234). In blue to grey claystone. Oti-banda Formation.

Details of the geology of the type locality are given in the paper which contains the original description.

Comparative description which involves the species is provided by Woodburne, 1967, *Bull. Bur. Miner. Resour. Geol. Geophys. Aust.* no. 87 : 88-94, 104. See footnote on pp. 78,9, under *Kolopsis*.

39. *otuel*

Pachysiagon otuel Owen, 1874. *Phil. Trans. R. Soc.* **164** : 784,5, pl. 76, figs 7-10.

Holotype a part of a right mandibular ramus with M_{2-4} and a fragment of M_1 , no. 46310, in the British Museum (Natural History). Presented by G. B. King, 1874 (Lydekker, 1887, *Catalogue of the fossil Mammalia in the British Museum (Natural History)* **5** : 237).

Type locality King Creek, Clifton, Darling Downs, Queensland (Lydekker, p. 237).

No locality is given in the original description although the holotype was apparently included among the specimens noted by Owen, 1874, p. 783, as coming from "freshwater beds of the Queensland province". The British Museum (Natural History) Register gives the locality as Kings Creek, Queensland.

The original description (in part) and figures are republished by Owen, 1877, *Researches on the fossil remains of the extinct mammals of Australia* . . . **1** : 454,5; **2**, pl. 89, figs 7-10, where the holotype is included within *Procoptodon pusio* Owen.

Stirton and Marcus, 1966, *Rec. Aust. Mus.* **26** : 358, fig. 6, figure a cast of the holotype.

40. *palankarinnicus*¹ *Prionotemnus palankarinnicus* Stirton, 1955. *Rec. S. Aust. Mus.* **11** : 252-8, text fig. 3.

Holotype an incomplete right mandibular ramus with P_4 - M_4 , no. P13646, in the South Australian Museum (formerly University of California no. 44381). Collected on University of Adelaide Department of Geology, South Australian Museum, and University of California Museum of Paleontology expedition, 1953.

Type locality Palankarinna quarry (i.e. Woodard Quarry or locality), west side of Lake Palankarinna, 18 miles south 75° west of Etadunna Station Homestead, South Australia. Military

¹The holotype has not been seen by either author.

grid reference 656431, ordnance sheet Marree, South Australia, H54/1.2.5.6, zones 5 and 6, first edition, 1942, scale 1 : 506,880. University of California Museum of Paleontology locality V5367. Mampuwordu Sands.

Stirton, Tedford and Miller, 1961, *Rec. S. Aust. Mus.* **14** : 19-61, report on the stratigraphy and fauna of the Mampuwordu Sands and show the position of University of California Museum of Paleontology locality V5367 in a locality map (text fig. 2). Stirton, p. 267, referred the stratigraphic unit, from whence the holotype came, to the Etadunna Formation. Later, Stirton, Tedford and Miller, p. 31, defined the Etadunna Formation and proposed the name Mampuwordu Sands for the overlying channel sands which contain the Palankarinna fauna of Woodard locality.

Comparative description which possibly involves the holotype is provided by Stirton, 1963, *Univ. Calif. Publs. geol. Sci.* **44** : 147,8.

41. **pales**

Sthenurus pales De Vis, 1895. *Proc. Linn. Soc. N.S.W.* (2) **10** : 94-6, pl. 15, fig. 2.

Holotype a right P⁴ (inadvertently called P₄ in fig. 2), no. F.815 (formerly no. 10214), in the Queensland Museum.

Type locality Darling Downs, Queensland (see De Vis, pp. 75, 80,4).

The holotype is redescribed and refigured by Bartholomai, 1963, *Mem. Qd Mus.* **14** : 63-6, text fig. 7, who notes that its preservation is typical of specimens from fluvial deposits in the south-eastern Darling Downs. Tedford, 1966, *Univ. Calif. Publs. geol. Sci.* **57** : 43,4, 68, described a cast of the holotype.

42. **palmeri**¹

Brachalletes palmeri De Vis, 1883. In Anon., *The Sydney Morning Herald*, no. 14043, April 2nd, 1883, p. 8, col. 3.

Holotype a broken femur, no. F.3308, in the Queensland Museum.

Type locality Chinchilla, Darling Downs, Queensland (De Vis, 1883, *Proc. Linn. Soc. N.S.W.* **8** : 190,1).

The collector is unknown but De Vis refers, on p. 191, to the part played by Sir A. Palmer in the discovery of bones of *Brachalletes*.

The original description is in one of four abstracts of De Vis, *Proc. Linn. Soc. N.S.W.* **8** : 190-3, the date of publication of which is July 17th, 1883—see Fletcher, 1896, *Proc. Linn. Soc. N.S.W.* (2) **10** : 536. Of these, only the dates of that in Anon., *The Sydney Morning Herald*, no. 14043, p. 8 (April 2nd, 1883), and that in Anon., *Zool. Anz.* **6** : 303 (June 4th, 1883) are known. A third in Anon.,

¹It is possible that this name should be included among the Diprotodontidae.

Sth. Sci. Rec. 3 : 120, is only known to have been published in April, 1883; according to the *International Code of Zoological Nomenclature* Article 21(b) it has priority of April 30th. The fourth is in Anon., *Abstr. Proc. Linn. Soc. N.S.W.* for March 28th, 1883 : ii; assuming that this can be dated in the same manner as the publication concerned with *Thylacinus rostralis* (see p. 39), we can obtain no more prior date than April 25th for it, i.e. the date of the succeeding meeting of the Linnean Society of N.S.W. Accordingly, we accept the description in *The Sydney Morning Herald* as the original publication.

43. **pan**

Macropus pan De Vis, 1895. *Proc. Linn. Soc. N.S.W.* (2) 10 : 124-7.

Holotype a part of a right maxilla with dP^4-M^2 , no. F.2925, in the Queensland Museum.

Type locality Darling Downs, Queensland (see De Vis, pp. 75, 80,4).

The holotype is redescribed and figured by Bartholomai, 1966, *Mem. Qd Mus.* 14 : 124,5, pl. 18, figs 4,5 and 6 (a stereo-pair), who notes that its preservation indicates that it has most likely been derived from the Chinchilla Sand, i.e. that Chinchilla, Darling Downs, Queensland is the type locality.

De Vis, p. 125, refers to "The types of the species" as being the maxillaries alone and further in the text, on p. 127, notes that a "young" maxilla is "the type" and, on p. 126, refers to M^2 of the "type specimen". In this text, on p. 126, he also makes reference to a P^4 "which may be taken as the type of the species" but the context is such that it is clear that he is not designating a P^4 to be the type specimen but, rather, is stating that the character of a particular P^4 may be taken as typical of P^4 of the species. Accordingly, Bartholomai, p. 125, has identified the only juvenile maxillary specimen among De Vis' series, no. F.2925, as the holotype.

44. **puckridgi**

Hadronomas puckridgi Woodburne, 1967. *Bull. Bur. Miner. Resour. Geol. Geophys. Aust.* no. 87 : 83-95, text fig. 14.

Holotype a fragmentary right mandibular ramus with P_4-M_4 , no. CPC6751, in the Commonwealth Palaeontological Collection, Bureau of Mineral Resources, Canberra. Collected by Dr M. O. Woodburne and party between late June and early August, 1964 (*pers. comm.*, M. O. Woodburne).

Type locality Paine Quarry (University of California Museum of Paleontology locality V6345), 4 miles south-west of Alcoota Station Homestead, 2.1 miles south-west of the junction of Waite and Ongeva Creeks, Northern Territory. Waite Formation.

Details of the geology of the type locality are given in the paper which contains the original description.

45. *pusio*

Procoptodon pusio Owen, 1874. *Phil. Trans. R. Soc.* **164** : 786-8, pl. 77, figs 2-7.

Holotype two partial maxillae with left and right dP^4-M^3 and with P^4 of each side exposed in its crypt, no. 39996, in the British Museum (Natural History). Presented by Sir Daniel Cooper, Bart, July, 1866 (British Museum (Natural History) Register).

Type locality "Pleistocene of Queensland" (Lydekker, 1887, *Catalogue of the fossil Mammalia in the British Museum (Natural History)* **5** : 235; probably Gowrie, near Drayton, Darling Downs, Queensland—see below).

No locality is given in the original description but the British Museum (Natural History) Register gives "Queensland". Stirton and Marcus, 1966, *Rec. Aust. Mus.* **26** : 353, give King Creek, Darling Downs, Queensland, but state no authority for this. We believe that Gowrie is probably the type locality because the Donations Book for the Department of Geology in the British Museum (Natural History) records only Gowrie, near Drayton, for the presentation made by Cooper in 1866—see p. 65, under *Phascolomys magnus* Murie for notes on specimens presented to the British Museum (Natural History) by Sir Daniel Cooper.

Owen notes that "part of" dP^4 is present in each maxilla but dP^4 is shown complete (but worn) in fig. 6 and M^4 is also shown in fig. 7; these teeth are not now with the holotype, nor is their presence mentioned by Lydekker, p. 235.

The original description and figures are republished by Owen, 1877, *Researches on the fossil remains of the extinct mammals of Australia* . . . **1** : 451-4; **2**, pl. 90, figs 2-7. Stirton and Marcus, p. 357, figs 1a,b, refigure the holotype.

46. *rapha*

Procoptodon rapha Owen, 1874. *Phil. Trans. R. Soc.* **164** : 788-91, pl. 77, figs 8-12; pl. 78.

Syntypes: (1). An anterior fragment of a left mandibular ramus with I_1 , P_3 , dP_4 (all broken) and with P_4 exposed in its crypt, no. 32885 (pp. 788-90, pl. 77, figs 8-12), in the British Museum (Natural History). Purchased at Stevens' auction rooms (British Museum (Natural History) Register). From the Condamine River, Queensland (Lydekker, 1887, *Catalogue of the fossil Mammalia in the British Museum (Natural History)* **5** : 236). (2). An incomplete right mandibular ramus with the root of I_1 and with P_4-M_4 (P_4 badly damaged), no. F.10152 (pp. 790,1, pl. 78), in the Australian Museum. From the Condamine River District, Queensland (Australian Museum Register).

Type locality Condamine River District, Darling Downs, Queensland.

Syntype no. 32885 could belong to the Boydian Collection; see pp. 69,70, under *Phascolumys parvus*, for notes on this Collection. Lydekker, p. 236, gives the date of purchase as being 1857.

The original description and figures are republished by Owen, 1877, *Researches on the fossil remains of the extinct mammals of Australia* . . . 1 : 457,8; 2, pl. 90, figs 8-12 (no. 32885); 1 : 458-60; 2, pl. 93 (no. F.10152).

Syntype no. F.10152 is refigured by Krefft, 1882, *Exploration of the caves and rivers of New South Wales* . . . : Australian fossil remains, pl. 8, fig. 5 (see also p. 116, under *Halmatherium*, concerning a legend to this figure).

Owen does not nominate a holotype but, having argued that both specimens represent the same species, describes some of the specific characters from each; subsequently, he refers, in 1877, 1 : 483, to the "type-subject" illustrated in pl. 90, figs 8,10, but also says, on p. 483, that he was "led to a reference of" syntypical specimen no. 32885 "to the genus and species represented by the plaster cast of a mutilated mandibular ramus with the molar series of teeth figured in Plate XCIII" (syntypical specimen no. F.10152). Although both syntypes are included among the material noted by Lydekker, pp. 235,6, as belonging in the species, no specimen is called by him a type of *Procoptodon rapha*. Later, Lydekker, 1891, *Q. Jl geol. Soc. Lond.* 47 : 571-4, pl. 21, discusses both specimens and says that no. 32885 is the type.

Stirton and Marcus, 1966, *Rec. Aust. Mus.* 26 : 358, figs 5a-c, figure a cast of no. 32885; they call no. 32885 the holotype; Recommendation 74A of the *International Code of Zoological Nomenclature* should be noted when lectotype selection is undertaken for the species.

Owen described the characters of no. F.10152 from a cast and photographs; a cast, no. M.3676, of this specimen, was presented to the British Museum (Natural History) by Sir Richard Owen, 1884 (British Museum (Natural History) Register).

47. *roechus*

Protemnodon roechus Owen, 1874. *Phil. Trans. R. Soc.* 164 : 281, pl. 27, figs 10-13.

Holotype a part of a left mandibular ramus with P₄-M₃, no. 35968, in the British Museum (Natural History). Presented by Sir Daniel Cooper, Bart, June, 1861 (see below).

Type locality Gowrie, [Darling Downs] Queensland (British Museum (Natural History) Register).

Owen says that the specimen was presented by George King and that it was from King Creek, Clifton Station, but the Register of specimens in the Department of Palaeontology at the British Museum (Natural History) shows that the specimen was presented by Sir Daniel Cooper in June, 1861 and gives its locality as Gowrie, Queensland. In Owen's statement of the locality he gives no reason as to why the locality should be different from that in the Register and there is no note of an alteration of the locality to King Creek in the Register. We conclude that it is probably an inadvertent error on Owen's part.

Lydekker, 1887, *Catalogue of the fossil Mammalia in the British Museum (Natural History)* 5 : 212,13, seems to have reached the same conclusion and gives the locality as "Pleistocene of Gowrie, Queensland", while noting that it was presented by Sir Daniel Cooper, Bart, but with the date 1866. For specimens presented to the British Museum (Natural History) by Sir Daniel Cooper see p. 65, under *Phascolomys magnus* Murie.

The incorrect subsequent spellings *rhoechus*, *röchus*, *rhöchus*, *raechus* and *rhaechus* have been used.

The spelling *rhoechus* appeared in Owen, 1877, *Researches on the fossil remains of the extinct mammals of Australia* . . . 1 : xiv (Table of Contents) but, being correctly spelt elsewhere in the same work, i.e. 1 : 434,77 and 2 : 7 (Summary of the Plates), we regard it as an inadvertent error.

The germanized spelling *röchus* (of the original *roechus*) was used by Roger, 1879, *KorrespBl. zool.-miner. Ver. Regensburg* 33:77.

The germanized spelling *rhöchus* (of the inadvertent error *rhoechus*) was adopted by Roger, 1887, *Ber. naturw. Ver. Schwaben* 29 : 12; by Roger, 1894, *Ber. naturw. Ver. Schwaben* 31 : 20; and by Roger, 1896, *Ber. naturw. Ver. Schwaben* 32 : 11.

The spelling *Macropus raechus* was used first by Lydekker, p. 212, and later in other works (e.g. Lydekker, 1894, *A hand-book to the Marsupialia and Monotremata* : xv; Lydekker, 1896, *A hand-book to the Marsupialia and Monotremata* : xiii; and by Flower and Lydekker, 1891, *An introduction to the study of mammals living and extinct* : 169). It has been widely adopted. Like the spelling *rhoechus* and *rhaechus* we treat it here as an "incorrect subsequent spelling" and not as an emendation because its first use by Lydekker, in conjunction with an incorrectly spelled citation by Lydekker of "*Protemnodon raechus*[sic], Owen", seems to demonstrate that he had merely miscopied the specific name from the original (see *International Code of Zoological Nomenclature* Article 33 (b)).

The spelling *rhaechus* was used once by Etheridge in 1878, *A catalogue of Australian fossils* . . . : 192. There is nothing to indicate that the substitution of *ae* for *oe* is a deliberate departure from the incorrect spelling in the Table of Contents of Owen, 1877, and we treat it as an incorrect spelling. This interpretation is supported by its later "correction" to *raechus* [sic] by Etheridge, in Jack and Etheridge, 1892, *The geology and palaeontology of Queensland and New Guinea* . . . : 678.

The original description and figures are republished by Owen, 1877, 1 : 434; 2, pl. 87, figs 10-13.

Stirton, 1963, *Univ. Calif. Publs geol. Sci.* 44 : 140 text fig. 15a, 154-8, figures the holotype from a cast and records measurements for it.

48. *scottii*

Halmaturus scottii Krefft, 1870 [as *Halmaturus* (?) *scottii*]. *Wellington Caves. (Correspondence relative to exploration of.)* : 9.

Holotype a fractured left mandibular ramus with a fragment of dP₄, M₁₋₃, M₄ erupting, and P₄ exposed in its crypt, no. F.19652, in the Australian Museum. Krefft Collection (see p. 37, under *Thylacinus major*).

Type locality Breccia Cave, Wellington Caves, New South Wales.

An isolated upper molar is also included within *Halmaturus scottii* by Krefft in the original text but no part of the description is based upon it and its present whereabouts is unknown.

Krefft does not include a locality in his description of the species; however, he notes, on p. 7, under Genus—*Zygomaturus*, in the list which includes the original description of *Halmaturus scottii* (also the original descriptions of *Myiodon australis*, *Plectodon*, and *Halmaturus thomsonii*) that this list comprises Wellington specimens only; again, he refers, on p. 8, under Family—Macropodidae, to the macropodid specimens as "Wellington relics". Further, Krefft indicates in his letter, on p. 7, accompanying the list that the collection listed is from the Wellington Caves; Owen specifies the Breccia Cave for the holotype (see below).

The original description is republished and the holotype figured by Krefft, 1882, *Exploration of the caves and rivers of New South Wales* . . . [Parliamentary Paper, N.S.W.] : 11, pl. 10, fig. 1 (i.e. upper left figure; plate entitled Australian fossil remains). It is also figured (from a photograph) under the name *Procoptodon goliah* by Owen, 1874, *Phil. Trans. R. Soc.* **164** : pl. 80, fig. 5. Owen's figure is republished by him, 1877, *Researches on the fossil remains of the extinct mammals of Australia* . . . **2**, pl. 95, fig. 5. Krefft's description is of a left mandibular ramus but his figure is reversed and he calls it a right ramus in his undated manuscript explanatory text to the figure (Description of the Plates, folio no. 22, in *Mitchell Library manuscripts A264*—Krefft Papers MSS). Owen, 1874, p. 802, and 1877, **1** : 480, calls it a right ramus in his legends to pl. 80, fig. 5, and pl. 95, fig. 5 respectively. However, these figures are of a left ramus and in the text he says of it and of the locality (1874, p. 797; 1877, **1** : 465) "left mandibular ramus of a young *Procoptodon Goliah* . . . obtained from the Breccia-cave of Wellington Valley; the original is in the Museum of Natural History of Sydney [Australian Museum], New South Wales".

Krefft's references to *Halmaturus scottii* (and *Halmaturus thomsonii*) in 1870, *Guide to the Australian fossil remains* . . . : 6, 11-13, are to *nomina nuda* in that work. Whitley, 1961, *Proc. R. zool. Soc. N.S.W.* **1958-9** : 29, implies that copies of Krefft's 1870 Guide were issued with plates ("most copies lack plates"). However, this was not the case. The 18 plates referred to by Whitley were issued with the 1882 Parliamentary Paper noted above. The Guide of 1870 listed the contents of an exhibition of 12 plates of photographs under the title of "Photographs of Australian fossil remains". The names of new species listed in the contents of these plates are *nomina nuda* because they were not accompanied by published illustrations, descriptions, definitions or indications. See also p. 103, under *Zygomaturus macleayi*, concerning these photographs and pp. 116, 17, under *Halmaturus* concerning Krefft's text to pl. 10, fig. 1 of the holotype.

49. *siva*

Halmaturus siva De Vis, 1895. *Proc. Linn. Soc. N.S.W.* (2) **10** : 113, 14, ?pl. 17, figs 21, 2.

Holotype a partial right mandibular ramus with P_4 M_{2-4} , no. F.2926 (formerly no. 11181), in the Queensland Museum.

Type locality Darling Downs, Queensland (see De Vis, pp. 75, 80, 4).

The holotype is redescribed and figured by Bartholomai, 1966, *Mem. Qd Mus.* 14 : 118, 19, pl. 16, figs 4 and 5 (a stereo-pair), 6, who notes that its preservation is typical of specimens derived from fluviatile deposits of the eastern Darling Downs; he thinks it likely that pl. 17, figs 21 and 22 of De Vis represent the holotype.

50. *spelaeus*

Hypsiprymnus spelaeus Waterhouse, 1845. *A natural history of the Mammalia* 1 : 60, 1.

Holotype a portion of a right maxilla with P⁴-M², formerly no. 1537 in the Museum of the Royal College of Surgeons of England (no. 3795 of Flower, 1884, *Catalogue of the specimens illustrating the osteology and dentition of vertebrated animals* . . . 2 : 723). Presented by Count De Strzelecki, 1844 (date given by Flower, p. 723).

Type locality one of the caves in Wellington Valley, New South Wales (in "ferruginous breccia").

The type locality is given by Owen, 1845, *Descriptive and illustrated catalogue of the fossil organic remains of Mammalia* . . . : 333; Waterhouse says caverns of Wellington Valley. The locality is probably Wellington Caves—see De Strzelecki, 1845, *Physical description of New South Wales and Van Diemen's Land* . . . : 144, 5, for his note on osseous breccia in Wellington Valley.

The holotype is regarded by the Curator of the Hunterian Collections as having been destroyed (see p. 40, under *Thylacinus spelaeus*, and pp. 190, 1).

Waterhouse described the characters of this specimen and referred to the catalogue number given to it, on p. 333, by Owen; he believed that Owen had described the species in that work but the name is a *nomen nudum* there.

The original description appears on pages 60, 1 of Waterhouse's work; since p. 59 of this work is known to have been included in part 2, published in 1845 (see p. 131, under *Macropus goliath*), and part 3 was also published in that year (noticed as ready for sale in Anon., *The Athenaeum*, no. 944, November 29th, 1845, p. 1159, col. 1), the date of publication of pp. 60, 1 is taken by us as falling in 1845 (the page numbers contained within the various parts are unknown to us).

A fragmentary maxilla illustrated by Owen, 1877, *Researches on the fossil remains of the extinct mammals of Australia* . . . 2, pl. 5, fig. 13, and called by him *Hypsiprymnus spelaeus* in the legend to that figure (1 : 107), is unlikely to be the holotype.

51. *thomsonii*

Halmaturus thomsonii. Krefft, 1870 [as *Halmaturus* (?) *thomsonii*]. *Wellington Caves. (Correspondence relative to exploration of.)* : 9.

Holotype the anterior portion of a left mandibular ramus with I₁ (now missing), M₁₋₂, no. F.30330, in the Australian Museum. Krefft Collection (see p. 37, under *Thylacinus major*; Krefft

notes, on p. 9, that the species was obtained at the first examination of the caves in 1866, but it is not clear if this remark refers to the holotype or to some other material assigned to the species).

Type locality Wellington Caves, New South Wales. Krefft does not include the locality in his description, but see p. 145, under *Halmaturus scottii*, concerning it.

The original description is republished and the holotype is figured by Krefft, 1882, *Exploration of the caves and rivers of New South Wales* . . . : 10, pl. 8, fig. 1 (i.e. upper left figure), fig. 2 (incisor) (plate entitled Australian fossil remains). The explanatory text to these two figures is contained in Krefft's undated manuscript Description of the Plates, folio nos 19, 20, in *Mitchell Library manuscripts* A264—Krefft Papers MSS. See p. 145, under *Halmaturus scottii*, concerning publication of the name *Halmaturus thomsonii* by Krefft and p. 116, under *Halmatutherium*, concerning Krefft's 1882, text to pl. 8, figs 1,2.

52. *thor*

Halmaturus thor De Vis, 1895. *Proc. Linn. Soc. N.S.W.* (2) 10 : 102-4, pl. 17, ? fig. 1, fig. 2.

Lectotype a part of a right mandibular ramus with the erupting P_4 exposed from above, M_{1-3} M_4 erupting, no. F.3602, in the Queensland Museum.

Type locality Ravensthorpe, Pilton, Darling Downs, Queensland (fluviatile deposits) (Bartholomai, 1966, *Mem. Qd Mus.* 14 : 119; De Vis, pp. 75, 80, 4, only gives Darling Downs for the species).

The lectotype was selected, redescribed and refigured by Bartholomai, pp. 119,20, pl. 17, figs 1 and 2 (a stereo-pair), 3, who believes that it is almost certainly the specimen represented by pl. 17, fig. 1 of De Vis.

53. *tindalei*¹

Sthenurus (Sthenurus) tindalei Tedford, 1966. *Univ. Calif. Publ. geol. Sci.* 57 : 26-33, 64,5, text fig. 8.

Holotype a fragmentary cranium containing the broken right I^{1-3} and left I^{1-2} , nearly complete left I^3 , and left and right P^4-M^4 ; no P13820, in the South Australian Museum.

Type locality northern side of Lake Menindee, approximately 12 miles N.W. of Menindee, New South Wales (from unit B of Tindale, 1955, *Rec. S. Aust. Mus.* 11 : 269-98, pl. 25 = Unit 4 of Tedford, 1955, *Rec. S. Aust. Mus.* 11 : 299-305. University of California Museum of Paleontology locality V5371).

¹The holotype has not been seen by either author.

Tedford, 1966, p. 27, gives the number of the Unit from which the holotype came as 3 but this is an inadvertent error (*pers. comm.*, R. H. Tedford); the no. of the holotype is given by him, on p. 26, as P138201. Tedford, 1967, *Univ. Calif. Publs geol. Sci.* **64** : 8-24, pls 1,2, provides an account of the geology at Lake Menindee and, on pp. 147-51, discusses radiocarbon dates for the type locality and other mammal-bearing sites.

54. titan

Macropus titan Owen, 1838. In Mitchell, *Three expeditions into the interior of eastern Australia, with descriptions of the recently explored region of Australia Felix, and of the present colony of New South Wales* **2** : 359,60, pl. 29, fig. 3.

Holotype a fragment of a right mandibular ramus with part of M₁, M₂, and P₄ exposed in its crypt, no. M.10777 (Mitchell no. II; Geol. Soc. Lond. no. 13337), in the British Museum (Natural History) (transferred from the Geological Society of London, June, 1911). Sir Thomas Mitchell Collection (see p. 32, under *Dasyurus lanianus*).

Type locality Large Cavern, Wellington Caves, New South Wales (see p. 34, under *Dasyurus lanianus*).

The original description and figure are republished in Mitchell's 2nd ed., 1839, **2** : 365,6, pl. 47, fig. 3, while the former is republished by Woods, 1862, *Geological observations in South Australia* . . . :378,9.

The holotype is figured by Owen, 1845, *Odontography* . . . **2**, pl. 101, figs 1,2 (said on p. 24 in the legend to the plate to be of a second premolar, and called in 1845, **1** : 392, a "left penultimate molar"); the plate is dated 1844.

The holotype is redescribed and further figured by Owen, 1874, *Phil. Trans. R. Soc.* **164** : 248,9, 56, pl. 22, figs 17,18, who says, on pp. 248, 56, that the species was founded on it and refers also to it, on p. 256, as the "type specimen". Owen's treatment of this specimen as a holotype is in accordance with his original statement in Mitchell, 1838, p. 359, that "*Macropus Titan*. O. I give this name to an extinct species The remains of this species consist of a fragment of the right ramus of the lower jaw. (II) Fig. 3, Pl. 29". Owen then discusses the premolars of the holotypes of *M. titan* and *M. atlas* before making the statement about specimen no. M.10779 (see pp. 120,1, under *Phascolagus altus*) as follows: "A portion of cranium with the molar series of teeth of both sides. (II*) Fig. 4 and 5, Pl. 29. This specimen I believe to belong to *Macropus Titan*". Accordingly, we treat specimen no. M.10779 as a referred specimen (and not as a syntype) but those who do not should note Recommendation 74A of the *International Code of Zoological Nomenclature* when lectotype selection is made.

Owen's 1874 description and figures are republished by him in 1877, *Researches on the fossil remains of the extinct mammals of Australia* . . . **1** : 400-7,8; **2**, pl. 82, figs 17,18.

Tedford, 1967, *Univ. Calif. Publs geol. Sci.* **64** : 119-24, 40,1, discusses the holotype and records measurements for it.

55. **trisulcatus** *Hypsiprymnus trisulcatus* McCoy, 1865 [as *Hypsiprymnus trisulcatus*]. *Geological Survey of Victoria Quarter Sheet 7 N.W. (Mount Aitken)* : Note.

Type material consists of, or includes, a "large premolar in the lower jaw"; present whereabouts unknown.

Type locality Bone Cave, in Bone Cave Ravine at the head of Toolam Toolern Creek, 5 miles S. by E. from Gisborne, Victoria.

See p. 31, under *Dasyurus affinis*, for notes on the discovery of the Bone Cave and its fauna, subsequent publications concerning the locality, and what is known of the material.

A quotation of the original description is published anonymously in *The Illustrated Sydney News*, no. 52, vol. 5, September 4th, 1868, p. 37, col. 3. The original description is republished, together with a description and illustrations of toptypical specimens by Mahoney, 1964, *Proc. R. Soc. Vict.* 77 : 525-33, pl. 78.

56. **vinceus** *Halmaturus vinceus* De Vis, 1895. *Proc. Linn. Soc. N.S.W.* (2) 10 : 100-2.

Lectotype a partial left maxilla with P⁴ -M⁴, no. F.3577, in the Queensland Museum.

Type locality King Creek, Clifton, Darling Downs, Queensland (fluviatile deposits) (Bartholomai, 1966, *Mem. Qd Mus.* 14 : 120; De Vis, pp. 75, 80, 4, only gives Darling Downs for the species).

The lectotype was selected, redescribed and figured by Bartholomai, pp. 120,1, pl. 17, figs 4, 5 and 6 (a stereo-pair), who notes that the P⁴ figured as *Halmaturus vinceus* by De Vis, pl. 16, fig. 12, could not be located in the Queensland Museum and that none of the other specimens figured at that time (pl. 16, figs 13-15) as *H. vinceus* could be distinguished among the large series of originally-referred remains of the species. The lectotype is mentioned by Bartholomai, 1967, *Mem. Qd Mus.* 15 : 29.

57. **vishnu** *Halmaturus vishnu* De Vis, 1895. *Proc. Linn. Soc. N.S.W.* (2) 10 : 114-16, pl. 17, figs 3,4.

Lectotype a partial right mandibular ramus with P₄-M₄, no. F.3860, in the Queensland Museum.

Type locality Darling Downs, Queensland (see De Vis, pp. 75, 80, 4).

The lectotype was selected, redescribed and refigured by Bartholomai, 1966, *Mem. Qd Mus.* 14 : 121,2, pl. 16, figs 1 and 2 (a stereo-pair), 3, who notes that its preservation suggests that it has been derived from fluviatile deposits of the eastern Darling Downs. The measurements attributed by Stirton, 1957, *Mem. natn. Mus. Vict.* no. 21 : 124, to a specimen called "type" by him refer to the lectotype (Bartholomai, p. 122).

58. *wombeyensis* *Macropus (Halmaturus) wombeyensis* Broom, 1896. *Proc. Linn. Soc. N.S.W.* 21 : 48-50, pl. 6, figs 1,2,?3.

Syntypes: (1), (2). A partial left maxilla with broken molars, palatal vacuity, and pterygoid flange, no. B.5; and portion of a right mandibular ramus, no. B.2; in the Anatomical Museum, University of Edinburgh; Broom Collection. (3), (4), (5), (6). A palatal fragment, still partly embedded in breccia, no. F.51895 (Broom Collection no. B.4); a portion of a right mandibular ramus, no. F.51894 (Broom Collection no. B.1) (fig. 1); a portion of a left mandibular ramus with P_4 - M_3 , broken M_4 , no. F.51896 (Broom Collection no. B.6); and a portion of a left mandibular ramus, still partly embedded in breccia, with P_4 - M_4 , no. F.4199 (fig. 2—said on p. 60 in the legend to the plate to illustrate right lower teeth, ?fig. 3); in the Australian Museum (syntypes nos F.51894-51896 transferred into the collection of the Australian Museum from the Anatomical Museum, University of Edinburgh in 1966). (7). Maxillary fragment; present whereabouts unknown. Syntypes found by Dr R. Broom.

Type locality Broom Cave, Wombeyan Caves, near Taralga, New South Wales.

Broom notes that two of the mandibular rami are presumably from the same individual but does not specify which rami are being referred to by him in his remark.

See p. 42, under *Perameles wombeyensis*, for a discussion of Broom's Wombeyan types; see also Ride, 1960, *J. Proc. R. Soc. West. Aust.* 43 : 80, for notes on the type locality.

MARSUPIALIA *incertae sedis*

Generic names

1. *Archizonurus* De Vis, 1889. *Proc. R. Soc. Qd* 6 : 109-11.

Type species by original indication *Archizonurus securus* De Vis, 1889.

Specific names

1. **procusculus** *Cuscus procusculus* De Vis, 1889. *Proc. R. Soc. Qd* 6 : 111, 12, pl. 5 (in part).

Holotype a fragment of a right scapula with the glenoid and imperfect coracoid process, no. F.687, in the Queensland Museum.

Type locality "post-tertiary", Queensland at "a gathering place enriched by agencies of unusal [sic] range and efficacy" (De Vis, p. 105) (probably Chinchilla, by preservation—*pers. comm.*, A. Bartholomai).

Roger, 1894, *Ber. naturw. Ver. Schwaben* 31: 19, and again in 1896, *Ber. naturw. Ver. Schwaben* 32 : 9, used the spelling *Cuscus praecursus* referring it to De Vis. We do not attribute any deliberate intention to Roger's use of the same spelling in two separate works since the texts for the entry are identical. Although seemingly a different name, we believe it to be a printer's or copyist's error for which no intent to depart from the original *procusculus* can be demonstrated and treat it as an "incorrect subsequent spelling" rather than an emendation (see *International Code of Zoological Nomenclature* Article 33 (b)).

2. **securus** *Archizonurus securus* De Vis, 1889. *Proc. R. Soc. Qd* 6 : 109-11, pl. 5 (in part).

Holotype the distal third of a scapula with the coracoid process, no. F.682, in the Queensland Museum.

Type locality "post-tertiary", Queensland at "a gathering place enriched by agencies of unusal [sic] range and efficacy" (De Vis, p. 105) (probably Chinchilla, by preservation—*pers. comm.*, A. Bartholomai).

?MARSUPIALIA

Generic names

1. *Chronozoon* De Vis, 1883. *Proc. Linn. Soc. N.S.W.* 8 : 392-5.

Type species by original indication *Chronozoon australe* De Vis, 1883.

Specific names

1. **australe** *Chronozoon australe* De Vis, 1883. *Proc. Linn. Soc. N.S.W.* 8 : 392-5, pl. 17 (cast only illustrated).

Holotype a part of a skull comprising the parietals and the upper part of the occipital bones, no. F.610, in the Queensland Museum.

Type locality Chinchilla, Darling Downs, Queensland.

De Vis, p. 394, suspected that the holotype may be sirenian. De Miklouho-Maclay in Anon., 1883, *Proc. Linn. Soc. N.S.W.* 8 : 298, regarded it as consisting of the occipital and parietal bones of a gigantic wombat and Mr J. T. Woods (pers. comm.) believes it to be *Phascolomys gigas* Owen (Vombatidae).

EUTHERIA
Order PROBOSCIDEA

(Species described from material said to be Australian, but seeming on zoogeographical grounds to be from elsewhere)

Generic names

1. *Notelephas* Owen, 1882. *Phil. Trans. R. Soc.* **173**: 777-81.

Type species by original indication *Notelephas australis* Owen, 1882.

Specific names¹

1. *australis* *Mastodon australis* Owen, 1844. *Ann. Mag. nat. Hist.* **14**: 268-71, text figs 1,2.

Holotype the crown of an "incompletely formed" molar ("apparently the fourth molar of the left side of the lower jaw"), formerly no. 2649 in the Museum of the Royal College of Surgeons of England (number given by Flower, 1884, *Catalogue of the specimens illustrating the osteology and dentition of vertebrated animals* . . . **2**: 514; no number was given by Owen in the original description or when he referred to the holotype in 1845, *Descriptive and illustrated catalogue of the fossil organic remains of Mammalia* . . . : 307). Presented by Count De Strzelecki (Flower, p. 514) who bought it from a native "at Boree, the sheep station of Captain Ryan" (De Strzelecki, 1845, *Physical description of New South Wales and Van Diemen's Land* . . . : 312). Owen, 1882, *Phil. Trans. R. Soc.* **173**: 777, says that it was brought from Australia by De Strzelecki in 1843.

Type locality "a cave further in the interior than those of Wellington Valley".

The holotype is regarded by the Curator of the Hunterian Collections as having been destroyed (see p. 40, under *Thylacinus spelaeus*, and pp. 190,1).

The original description is republished by Owen, 1845, *Calcutta J. nat. Hist.* **5**: 572-6.

The holotype is now believed to be a specimen of a South American species of proboscidean—see Falconer, 1868, *Palaeontological memoirs and notes* . . . **2**: 271-7, and Anderson, 1933, *Proc. Linn. Soc. N.S.W.* **58**: xiii.

¹It is possible that the name *Dinotherium australe* should be included here and not on pp. 86,7.

2. **australis**

Notelephas australis Owen, 1882. *Phil. Trans. R. Soc.* **173** : 777-81, pl. 51.

Holotype three larger portions, ? and many smaller portions (including microscopical sections) of "apparently" the same tusk, nos M.1888, M.1889, in the British Museum (Natural History). Discovered by Mr Fred. N. Isaac and submitted by E. Thurston Holland.

Type locality "a superficial drift-deposit of a ravine in a district of Darling Downs, Australia, about 60 miles to the eastward [sic] of Moreton Bay".

Lydekker, 1886, *Catalogue of the fossil Mammalia in the British Museum (Natural History)* **4** : xii, noted his opinion that the specimen apparently presents no characters by which it can be generically distinguished from a tusk of *Elephas* or *Mastodon*.

Longman, 1916, *Proc. R. Soc. Qd* **28** : 83, believes that it is most unlikely that this specimen was collected in Australia.

Order RODENTIA

Family Muridae

Generic names—none based upon fossils.

Specific names

1. **mordicus** *Mastacomys mordicus* Thomas, 1922. *Ann. Mag. nat. Hist.* (9) 10 : 550,1.

Holotype a right maxilla with three molars, no. 22.10.1.3, in the Mammal Section, Department of Zoology, British Museum (Natural History). Presented by Professor F. Wood Jones.

Type locality a guano cave at Mount Gambier, South Australia (Wood Jones, 1925, *The mammals of South Australia* 3 : 323; the locality is given by Thomas as a guano cave, Mount Gambier District, South Australia).

See Ride, 1956, *Proc. zool. Soc. Lond.* 127 : 434,5, for a discussion of the type locality.

2. **wombeyensis** *Mastacomys wombeyensis* Ride, 1956. *Proc. zool. Soc. Lond.* 127 : 431-9, text fig. 1A.

Holotype a left maxilla with three molars, no. F.47322, in the Australian Museum (formerly Broom Collection no. B.59/a, Anatomical Museum, University of Edinburgh; transferred from the University of Edinburgh in 1957). Collected by Dr R. Broom.

Type locality Broom Cave, Wombeyan Caves, near Taralga, New South Wales.

See Ride, 1960, *J. Proc. R. Soc. West. Aust.* 43 : 78-80, for notes on the holotype and the type locality.

Order CARNIVORA

Family Otariidae

Generic names—none based upon fossils.

Specific names

1. **williamsi** *Arctocephalus williamsi* McCoy, 1877. *Prodromus of the palaeontology of Victoria; or, figures and descriptions of Victorian organic remains* Decade 5 : 7-9, pl. 41; pl. 42, figs 1c-e; (all figures reversed).

Holotype an incomplete skull, no. P12110, in the National Museum of Victoria. Presented by Dr Williams.

Type locality Queenscliff, Victoria ("5 feet below the surface in what was described as marl and sandstone, overlaid with limestone and sandy loam. The men who found the fossil were engaged in excavating limestone for road making from a sloping bank forming the boundary of Swan Ponds at the nearest point to the sea (the Narrows)").

For a note on the locality see Keble, 1946, *Mem. natn. Mus. Vict.* no. 14 : 77. The holotype and the geology at the type locality are discussed by Gill, 1968, *Palaeogeogr., Palaeoclim., Palaeoecol.* 5 : 235-9.

Order SIRENIA

Family Dugongidae

Generic names—none based upon fossils.

Specific names

1. **brevirostris** *Halicore brevirostris* De Vis, 1905. *Ann. Qd Mus.* no. 6 : 26-30, pl. 10.

Holotype a rostral portion of a cranium with the anterior part of the palate, and with the broken roots of the incisors in alveoli, no. F.344, in the Queensland Museum. Obtained by Mr W. H. Rands from Capt. Barton.

Type locality Busai, Murua Island (= Woodlark Island), Territory of Papua and New Guinea (from alluvium lying "but little above high water mark").

The holotype comprises one main piece and a number of smaller fragments. Part of the centrum of a vertebra and the middle portion of a rib are noted by De Vis, on p. 30, as "Accompanying the skull"; these are not described by him and we do not know if they belong with the holotypical cranium.

De Vis, p. 27, was extremely doubtful if the alluvium "was the real matrix" of the holotype. The geology of Woodlark Island is reported upon by Trail, 1967, *Rep. Bur. Miner. Resour. Geol. Geophys. Aust.* no. 115 : 1-32, pls 1-3.

The date of publication was omitted by the printer for *Ann. Qd Mus.* no. 6, however Mr E. P. Wixted, Librarian of the Queensland Museum, informs us that the date September, 1905 was "handwritten on issue before circulation".

Order CETACEA

Cetacean names have not been grouped by us within families. To our knowledge there has been no revision of the status of Australian species; since we have made no revision ourselves they could only be allocated to families by us on the basis of the arrangements of their associated generic names in other works. This is an uncertain procedure and we have rejected it; moreover there are so few fossil cetaceans listed in this *Index* that we do not anticipate any inconvenience through our listing them in a single group.

Generic names

1. *Cetotolites* McCoy, 1879. *Prodromus of the palaeontology of Victoria; or, figures and descriptions of Victorian organic remains* Decade 6 : 13,14. Type species not designated from the originally included species (pp. 14-17) viz. *C. leggei* McCoy, 1879, *C. pricei* McCoy, 1879 and *C. nelsoni* McCoy, 1879.

It could be held that McCoy was not proposing that this name should be used, generically, in the biological sense; but he uses it himself as a generic name in the binomina he applies to new species; accordingly, we can see no alternative but to accept it.

2. *Mammalodon* Pritchard, 1939. *Victorian Nat.* **55** : 155-7. Type species by original indication *Mammalodon colliveri* Pritchard, 1939.
3. *Metasqualodon* Hall, 1911. *Proc. R. Soc. Vict.* **23** : 262,3. Type species by original indication *Metasqualodon harwoodi* [sic] (= *Zeuglodon harwoodii* Sanger, 1881).
4. *Parasqualodon* Hall, 1911. *Proc. R. Soc. Vict.* **23** : 262. Type species by original indication *Parasqualodon wilkinsoni* (= *Phocodon wilkinsoni* McCoy, 1866).
5. *Physetodon* McCoy, 1879. *Prodromus of the palaeontology of Victoria; or, figures and descriptions of Victorian organic remains* Decade 6 : 19. Type species by original indication *Physetodon baileyi* McCoy, 1879.
6. *Scaptodon* Chapman, 1918. *Proc. R. Soc. Vict.* **30** : 149,50. Type species by original designation *Scaptodon lodderi* Chapman, 1918.

Specific names

1. *baileyi*

Phyetodon baileyi McCoy, 1879. *Prodromus of the palaeontology of Victoria; or, figures and descriptions of Victorian organic remains* Decade 6 : 19,20, pl. 55, figs 1-1c, 2.

Syntypes two longitudinally sectioned incomplete teeth in the National Museum of Victoria: (1). Nos P5519 (fig. 1 in part, reversed) and P5520 (fig. 1 in part, fig. 1a, both figures reversed); figs 1b (reversed) and 1c (? reversed) illustrate one or other parts of the syntype. Discovered and presented by Mr J. F. Bailey. From "Mordialloc", Victoria. (2). No. P5521 (fig. 2 reversed). From "the Beach near the Red Bluff, Brighton", Victoria (data from a MS. page with drawings of no. P5521, including fig. 2 published by McCoy, in the archives of the National Museum of Victoria).

Type localities "Mordialloc", Victoria and "Beach near the Red Bluff, Brighton", Victoria (McCoy only says "Rare in the ferruginous layers of the older Pliocene Tertiary strata of Mordialloc").

The two syntypes were originally registered under nos 30447, 30448, in the National Museum of Victoria with the date January 8th, 1878, and locality Mordialloc; subsequently they were re-registered under nos P5519-P5521 with the locality Beaumaris. Bailey, himself, 1882, *Sth. Sci. Rec.* 2 : 155, when discussing the exhibition of a cetolith which he implies is from "Our tertiary strata at Cheltenham, near Mordialloc" says that the cetolith was from "the same spot where I previously obtained the large tooth of . . . *Phyetodon*, species (*Baileyi*),—no other similar specimen having as yet been found".

See Hall and Pritchard, 1897, *Proc. R. Soc. Vict.* 9 : 190-5, and Chapman, 1912, *Rec. geol. Surv. Vict.* 3 : 237,8, concerning McCoy's locality "Mordialloc". The geology in the neighbourhood of Beaumaris is discussed by Gill, 1957, *Mem. natn. Mus. Vict.* no. 21 : 165-87, and Kenley, 1967, *Bull. geol. Surv. Vict.* no. 59 : 30-46, pl. 2. Tertiary fossil localities in the Brighton-Beaumaris area are reported upon by Hall and Pritchard, pp. 190-203.

The specific name is spelt both *baileyi* (p. 19) and *bayleyi* (Contents of Decades—Decade VI) in the original publication; but *bayleyi* is clearly an inadvertent error (apparently editorial) and is corrected in the first subsequent use of the name known to us, i.e. McCoy, 1881 (June), *Sth. Sci. Rec.* 1 : 105, in a Presidential address to the Field Naturalists' Club of Victoria where only the correct spelling *baileyi* is used.

The syntype portion no. P5520 is now in five parts. The smaller fragment produced by longitudinal sectioning of syntype no. P5521 is known today only from an unpublished figure in the MS. page of drawings mentioned above; the whereabouts of this fragment has not been discovered by us.

2. *colliveri*

Mammalodon colliveri Pritchard, 1939. *Victorian Nat.* 55 : 151-9, text figs 1-5.

Syntypes: (1). An incomplete skull and portion of the postcranial skeleton, still partly embedded in matrix, no. M.U.G.D.1874 (text figs 1 in part, 2,3), in the Department of Geology and Mineralogy, University of Melbourne. (2). A molariform tooth, no. P17535 (text figs 1 in part, 4,5), in the National Museum of Victoria. Syntypes collected by Dr G. B. Pritchard, Mr F. S. Colliver and Mr A. Frostick in early January, 1932. No. M.U.G.D.1874 was presented by Mr F. S. Colliver, October 19th, 1939 (Singleton, 1945, *Proc. R. Soc. Vict.* **56** : 284); no. P17535 was also presented by Mr Colliver, October 11th, 1957 (National Museum of Victoria Register).

Type locality "cliff face about 12 feet above the level of the beach . . . barely a hundred yards around [i.e. S.W. of] the Bird Rock corner", Torquay, Victoria. "*Glycymeris* beds" (see below).

Singleton, p. 284, reports no. M.U.G.D.1874 as coming from the "Lower beds, Bird Rock cliffs, near Spring Creek, Torquay" and adds "It is from about a foot above the Spring Creek ledge at its extreme S.W. margin (F. S. Colliver, personal communication, 23.10.44) and is thus from within the *Glycymeris* beds".

No. P17535 is believed by Pritchard, p. 151, to belong to the skull, no. M.U.G.D. 1874 ("which no doubt belonged to this skull"), but we list the specimens as being syntypes because we cannot be certain that only one individual is involved.

3. *cudmorei*

Steno cudmorei Chapman, 1917. *Proc. R. Soc. Vict.* **30** : 41,2, pl. 4, fig. 5.

Holotype a tooth, no. P13033, in the National Museum of Victoria. Found and presented by Mr F. A. Cudmore.

Type locality Beaumaris, Port Phillip, Victoria.

Cudmore, 1926, *Victorian Nat.* **43** : 78-82, when referring to delphinid specimens from Beaumaris, mentions only the nodule bed at the base of the Black Rock Sandstone (or Black Rock member of the Sandringham Sands). He does not specify whether he found the holotype *in situ* or loose among the shingle on the shore platform at Beaumaris.

For some references to the geology at Beaumaris see p. 159, under *Physetodon baileyi*.

4. *davidi*

Prosqualodon davidi Dart, 1923 (September). *Proc. zool. Soc. Lond.* **1923** : 638-43, text figs 18-21. Unjustified emendation of *Prosqualodon davidis* Flynn, 1923.

Holotype, the holotype of *Prosqualodon davidis* Flynn, i.e. an incomplete skull and much of the post-cranial skeleton, formerly in the Department of Zoology, University of Tasmania; the only material of the holotype now known to be extant comprises the following specimens in the Department of Geology, University of Tasmania: no. 85536, a lumbar vertebra; no. 85537, a thoracic vertebra; no. 85538, a lumbar vertebra; no. 85539, a lumbar vertebra; no. 85540, a lumbar vertebra; no. 85541, a thoracic vertebra; no. 85577, an ossified intervertebral disc; no. 85604, the central part of the ?right forelimb including the distal epiphysis of the humerus, diaphysis and both epiphyses of the ulna, the diaphysis and proximal epiphysis of the radius, five carpals, and metacarpals II, III, IV and V; no. 85605, the nearly complete right mandibular ramus with the condyle, coronoid process, ten posterior teeth and part of a more anterior alveolus; no. 85606, a nearly complete right scapula; in addition there are some fragments mostly of ribs and vertebrae which, together with casts of some parts of the holotype, are registered under nos 85542-85576, 85578-85603. Discovered by Professor T. T. Flynn, September, 1919.

Type locality about twenty-five feet above the cliff base, Fossil Bluff, Wynyard, Tasmania. Fossil Bluff Sandstone.

For further information on the holotype, and on the type locality, see below under *Prosqualodon davidis* Flynn, 1923.

Although Dart, in introducing the emendation *P. davidi*, does not cite Flynn's earlier (July, 1923) reference, there can be no doubt that his usage is an emendation of Flynn's name, *davidis*, and is not a separately proposed name. Dart says, on p. 638, that the cast of the endocranial cavity which he is describing is of "*Prosqualodon davidi* which he [Flynn] has recently described". Moreover there can be no doubt that the substitution of *davidi* for *davidis* is an intentional emendation of an error in latinization because Dart is consistent in its use and he is followed by Flynn, 1932, *Geol. Mag.* 69 : 327-9, and 1948, *Trans. zool. Soc. Lond.* 26 : 155-97. Accordingly, it satisfies the provisions of *International Code of Zoological Nomenclature* Article 33 (a) (ii) and is treated by us here as a junior objective synonym of the name in its original form.

5. *davidis*

Prosqualodon davidis Flynn, 1923 (July). *Aust. Mus. Mag.* 1 : 266-72, 3 text figs.

Holotype an incomplete skull and much of the post-cranial skeleton, formerly in the Department of Zoology, University of Tasmania; the only material of the holotype now known to be extant comprises the following specimens in the Department of Geology, University of Tasmania: no. 85536, a lumbar vertebra; no. 85537, a thoracic vertebra; no. 85538, a lumbar vertebra; no. 85539, a lumbar vertebra; no. 85540, a lumbar vertebra; no. 85541, a thoracic vertebra; no. 85577, an ossified intervertebral disc; no. 85604, the central part of the ?right forelimb including the distal epiphysis of the humerus, diaphysis and both

epiphyses of the ulna, the diaphysis and proximal epiphysis of the radius, five carpals, and metacarpals II, III, IV and V; no. 85605, the nearly complete right mandibular ramus with the condyle, coronoid process, ten posterior teeth and part of a more anterior alveolus; no. 85606, a nearly complete right scapula; in addition there are some fragments mostly of ribs and vertebrae which, together with casts of some parts of the holotype, are registered under nos 85542-85576, 85578-85603. Discovered by Professor T. T. Flynn, September, 1919.

Type locality about twenty-five feet above the cliff base, Fossil Bluff, Wynyard, Tasmania (Flynn, p. 268, says in the cliff beds at Table Cape, near Wynyard). Fossil Bluff Sandstone.

The text figures in the original description are as follows: that on p. 267 is of a restoration of the skull and those on p. 268 are of a tooth and a cast of the skull.

The holotype was described and illustrated without name by Flynn, 1920, *Nature, Lond.* 106 : 406,7, text figs 1,2A-C. Dart, 1923 (September), *Proc. zool. Soc. Lond.* 1923 : 638-43, text figs 18-21, described an endocranial cast. Two further descriptions are provided by Flynn, 1932, *Geol. Mag.* 69 : 327-9, and 1948, *Trans. zool. Soc. Lond.* 26 : 155-97, text figs 1-8,9 in part, 10,11b; pl. 1, figs 1-3, 5,6; pl. 2, figs 7-9, 12-14; pls 3,4. Included in the latter description are precise details of the finding of the specimen and its position in the cliff face; see also the original description, p. 266, for a text figure showing the position in the cliff face. Flynn's 1948 publication contains a note by Carter on the holotype (pp. 192,3, pl. 6, figs g,h). David, 1950, *The geology of the Commonwealth of Australia* 1 : 537, contains a note on the deposit. Gill, 1957, *Mem. natn. Mus. Vict.* no. 21 : 135-43, Banks, 1962, *J. geol. Soc. Aust.* 9 : 233-5, and Quilty, 1966, *Aust. J. Sci.* 29 : 143,4, discuss the geology at the type locality. Where *P. davidis* is mentioned by name in these references, it is under the unjustified emendation *Prosqualodon davidi* Dart, 1923. David, pl. 50, fig (b), illustrates the cranium and uses the name *Prosqualodon davidis* Flynn for it in the legend to the figure.

The circumstances which led to the loss of the cranium and much of the very complete post-cranial skeleton of the holotype have not been published to date; they are detailed in letters in the Western Australian Museum from the Department of Zoology, University of Tasmania, the Tasmanian Museum, and Professor A. M. Clark (formerly at the University of Tasmania and now at the Flinders University of South Australia). The circumstances are as follows:

Towards the end of 1961, shortage of accommodation in the Zoology Department at the University of Tasmania led to the conversion of the departmental museum into office and laboratory accommodation. Dr J. L. Hickman, lecturer in Zoology, knowing the importance of the holotype, packed the cranium in sawdust in a wooden box together with some of the smaller parts. Other parts of the holotype (which are the few specimens now in the Department of Geology of the University of Tasmania) were allowed to remain in cabinets on an end wall. Subsequently it was discovered that the wooden box had disappeared and enquiries have not revealed it, or even anyone who has any knowledge of its subsequent disposal. The Department of Zoology has since been rehoused in a new building. Dr Hickman fears that the specimen may have gone to one of two rubbish tips, one of which has been made into a playing field.

Casts of the cranium of the holotype are in the Tasmanian Museum (cast no. D749) and the Australian Museum (cast no. L.1527).

The name *Prosqualodon davidis* was used for the first time in Flynn's 1923 popular account of the find entitled "A whale of bygone days"; the name appears in the legend to a figure of the skull, p. 267. In the text, on p. 268, Flynn says that the new whale was named after Sir T. W. Edgeworth David and from this one would expect the name *davidi* or *davidii* to have been formed. There is no evidence of an inadvertent error such as a *lapsus calami*, or a copyist's or printer's error, and the name occurs as *davidis* in the index to the volume. It appears to be an error in latinization. Accordingly, *davidis* is to be retained as the "correct original spelling" (*International Code of Zoological Nomenclature* Article 32 (a)).

6. ***gambierense*** *Squalodon gambierense* Glaessner, 1955. *Rec. S. Aust. Mus.* 11 : 362-7, text figs 5a-c.

Holotype a molariform tooth, no. F15107, in the Department of Geology, University of Adelaide. Presented by Mr P. Pritchard, 1952.

Type locality Pritchard Brothers' quarry, about 7½ miles west-north-west of Mount Gambier, South Australia. Gambier Limestone.

The holotype is said by Glaessner probably to be from a right mandibular ramus. The Gambier Limestone is reported upon by Ludbrook, 1961, *Bull. geol. Surv. S. Aust.* no. 36 : 1-96, pls 1-8.

7. ***geelongensis*** *Ziphius (Dolichodon) geelongensis* McCoy, 1882. *Prodromus of the palaeontology of Victoria; or, figures and descriptions of Victorian organic remains* Decade 7 : 23-6, pl. 69 (figures 1,1a reversed).

Holotype an incomplete tooth, no. P7464, in the National Museum of Victoria. Received from either Rev. Mr Legge, Rev. Mr Price or Mr Nelson.

Type locality "Waurin Ponds quarries", near Geelong, Victoria.

McCoy says "Not uncommon in the Miocene Tertiary of the Waurin Ponds quarries, near Geelong" but this statement of commonness seems to refer to various cetacean specimens including a number of teeth which were "thinner and shorter" than the holotype and which McCoy said "may be old teeth of females".

The holotype was believed by McCoy to be from a left mandibular ramus; it is now in two pieces.

For locality plans of Waurin Ponds quarries see 1863, *Geological Survey of Victoria Quarter Sheet 28 N.E. (Duneed)*, and Coulson, 1960, *Proc. R. Soc. Vict.* 72 : 47 text fig. 3; for the geology of the area and a further plan of the quarries

see 1964, *Geological Survey of Victoria Geelong Sheet*, no. 857, zone 7, scale 1:63,360. McCoy, pp. 18,19, gives a section in one of the quarries and discusses the distribution of cetacean remains in it. Mulder, 1914, *Geelong Nat.* 6 : 23-6, comments on the quarries and their fossils.

8. *harwoodii* *Zeuglodon harwoodii* Sanger, 1881. *Proc. Linn. Soc. N.S.W.* 5 : 298-300, text figs A,B.

Holotype a molariform tooth, no. P8446, in the South Australian Museum. From J. C. Harwood (Sanger said "I owe" the specimen to James C. Harwood).

Type locality Murray River, near Wellington, South Australia (in yellow calcareous clay; "Tertiary Beds").

Fragments of a second tooth from the same bed are also noted by Sanger but are not described.

The original figures are reproduced by Hall, 1911, *Proc. R. Soc. Vict.* 23 : pl. 36, figs 7A,B, who was unable to locate the holotype and who reported, on p. 257, that apparently it had disappeared. For a note on the locality, and on the holotype, see Glaessner, 1955, *Rec. S. Aust. Mus.* 11 : 364-6. The stratigraphy of the Murray basin in South Australia is reported upon by Ludbrook, 1961, *Bull. geol. Surv. S. Aust.* no. 36 : 1-96, pls 1-8.

9. *leggei* *Cetotolites leggei* McCoy, 1879. *Prodromus of the palaeontology of Victoria; or, figures and descriptions of Victorian organic remains* Decade 6 : 14,15, pl. 54, figs 1, 1a.

Syntypes two cetoliths of which only one, no. P7449 (figs 1,1a) in the National Museum of Victoria, has been found. One syntype presented by Rev. Mr Legge.

Type locality "Waurin Ponds quarries", near Geelong, Victoria (McCoy says "Rare in the Miocene Tertiary strata of Waurin Ponds quarries, near Geelong").

A second cetolith, no. P7450, identified in the National Museum of Victoria Palaeontological Register as *Cetotolites leggei* from Waurin Ponds cannot be found; whether or not it is the missing syntype is unknown to us. This specimen and no. P7449 possibly are the two cetoliths listed as nos 30431, 30432 in an early Register of the National Museum of Victoria and identified there as *Cetotolites leggei* from Waurin Ponds, with the date January 6th, 1879. Specimens bearing the numbers 30431 and 30432 have not been found in the collection. We do not know if they were later re-registered as P7449 and P7450 in the Palaeontological Register which further records that Rev. J. Legge presented one of the two specimens numbered P7449 and P7450; but the Register does not specify which. McCoy's figs 1,1a of P7449 are included in a MS. page of drawings, in the archives of the National Museum of Victoria, which also includes the name of Mr Price and date July 10th, 1877; however, these data appear there above drawings of a syntype of *Cetotolites pricei* and may refer only to that specimen.

For references on Waurin Ponds and its fossils see pp. 163,4, under *Ziphius* (*Dolichodon*) *geelongensis*.

10. **lodderi**¹

Scaptodon lodderi Chapman, 1918. *Proc. R. Soc. Vict.* **30** : 149-52, pl. 27.

Holotype a tooth with a separate microscopic section, no. Q.V.M.1, in the Queen Victoria Museum, Launceston. Found by Miss Lodder in 1897 and bequeathed by her.

Type locality "the mouth of the Leven [River], at Ulverstone", Tasmania (found washed up after a heavy gale).

Chapman identified the holotype as a mandibular tooth and believed it to have come "Probably from either Janjukian or Kalimnan beds of the Table Cape series".

11. **lodgei**

Scaldicetus lodgei Chapman, 1917. *Proc. R. Soc. Vict.* **30** : 34,5, pl. 4, fig. 6.

Holotype a tooth with the tip missing, no. P13032, in the National Museum of Victoria. Discovered by Mr H. Lodge and presented by Mr F. P. Spry.

Type locality "Muddy Creek, near Hamilton", Victoria.

Chapman concluded that the holotype came from the "*Vaginella* band at Clifton Bank", Muddy Creek. The geology in the neighbourhood of Muddy Creek is discussed by Gill, 1957, *Mem. natn. Mus. Vict.* no. 21 : 143-64.

12. **macgeei**

Scaldicetus macgeei Chapman, 1912. *Rec. geol. Surv. Vict.* **3** : 236-8, pl. 40.

Holotype a tooth with the tip missing, no. P12889, in the National Museum of Victoria. Obtained by Mr F. D. Macgee.

Type locality Beaumaris, Port Phillip, Victoria, in the ferruginous and calcareous clays of the Beaumaris cliffs, ¼ mile north of the Beaumaris Hotel, and at about 6-10 feet above high water mark. Black Rock Sandstone (or Black Rock member of the Sandringham Sands).

For a note on the Black Rock Sandstone see Kenley, 1967, *Bull. geol. Surv. Vict.* no. 59 : 43-5.

¹ The holotype has not been seen by either author.

13. *nelsoni*

Cetotolites nelsoni McCoy, 1879. *Prodromus of the palaeontology of Victoria; or, figures and descriptions of Victorian organic remains* Decade 6 : 16,17, pl. 54, figs 3-3b, 5.

Syntypes not more than thirteen cetoliths including nos P7454 (figs 3-3b), and P7456 (fig. 5), in the National Museum of Victoria. Syntypes nos P7454, P7456 presented by Mr W. Nelson.

Type locality Waurn Ponds, near Geelong, Victoria (McCoy says "Not uncommon in the Miocene Tertiary strata of Waurn Ponds, Geelong").

McCoy's figs 3-3b, of syntype P7454, with Mr Nelson's name and the date March 20th, 1871, written beside them, are included in a MS. page of drawings in the archives of the National Museum of Victoria. McCoy's fig. 5 of syntype P7456, which also appears in that page, is not accompanied there by Mr Nelson's name or a date; however, the National Museum of Victoria Palaeontological Register records that both P7454 and P7456 were presented by Mr W. Nelson. Syntype no. P7456 is less complete now than it was when drawn for McCoy's fig. 5.

Specimens nos P7457, P7458, P7459 (also numbered 30439, 30440, 30441), and P26253, identified in the National Museum of Victoria Palaeontological Register as *Cetotolites nelsoni* from Waurn Ponds, may be syntypes. Specimen labels with nos P7457, P7458 and P26253 state that these cetoliths were received from Mr Price, and record the date July 10th, 1877, while that with no. P7459 states that it was received from Mr Nelson and records the date March 20th, 1877¹.

Seven cetoliths, which may also be syntypes of *Cetotolites nelsoni*, and which have not been found, are also listed, under nos 30436-30438, 30442-30445, in an early Register of the National Museum of Victoria. They are identified there as *Cetotolites nelsoni* from Waurn Ponds with the date January 6th, 1879. No specimens bearing these numbers have been found and we do not know if they were later re-registered and now bear numbers of the Museum's Palaeontological Register.

An unspecified number (at least one) of cetoliths belonging to the variety *rugosa* (here treated as of subspecific rank—see *International Code of Zoological Nomenclature* Article 45 (d), (e)) are included among the fourteen specimens of *Cetotolites nelsoni* said by McCoy to be in the National Museum of Victoria, and to have been collected by the Rev. Mr Legge, the Rev. Mr Price, and Mr Nelson, so the exact number of syntypes of *nelsoni* (*sensu stricto*) is not known.

McCoy's introductory remarks on pp. 13,14, probably are intended to mean many, if not all, of the cetoliths from "Waurn Ponds" described by him in Decade 6 of the *Prodromus of the Palaeontology of Victoria* . . . are from the Waurn Ponds quarries; this interpretation is supported by a later remark about cetoliths from "the Waurn Ponds Miocene Tertiary quarries" by McCoy, 1883, *Sth. Sci. Rec.* 3 : 141,2, in an Annual address to the Field Naturalists' Club of Victoria.

For references on Waurn Ponds and its fossils see pp. 163,4, under *Ziphius* (*Dolichodon*) *geelongensis*.

¹The year 1877 which is given on the label with specimen no. P7459 must be treated with caution in view of the year 1871 which is given with the MS. drawing of P7454 (see above) and which must be treated with similar caution. We do not know if one of these is an error.

14. *pricei*

Cetotolites pricei McCoy, 1879. *Prodromus of the palaeontology of Victoria; or, figures and descriptions of Victorian organic remains* Decade 6 : 15,16, pl. 54, figs 2-2b.

Syntypes several cetoliths of which only one, no. P7451 (figs 2, 2a,b), in the National Museum of Victoria, has been found. Syntype no. P7451 received from Rev. C. S. Y. Price (McCoy says several specimens brought by the Rev. Mr Price).

Type locality Waurn Ponds, near Geelong, Victoria (McCoy says "Not uncommon in the Miocene Tertiary strata of Waurn Ponds, near Geelong").

Syntype no. P7451 is one of three cetoliths, nos P7451, P7452, P7453, which are listed in the National Museum of Victoria Palaeontological Register as *Cetotolites pricei* from Waurn Ponds, and it is possible that nos P7452 and P7453 may also be syntypes. For one of these (registration number unspecified) the Register further notes the date July 10th, 1877 and records it as having been presented by Rev. C. S. Y. Price; because both that date and Mr Price's name are written above McCoy's figs 2-2b of P7451 in a MS. page of drawings in the archives of the National Museum of Victoria, it seems likely that this is the specimen to which the Register entry refers. Neither of the specimens nos P7452 and P7453 has been found. It is possible that these, and syntype P7451, may also be the three cetoliths listed, as nos 30433, 30434, 30435, in an early Register of the National Museum of Victoria and which are identified there as *Cetotolites pricei* from Waurn Ponds, with the date January 6th, 1879. Specimens bearing these numbers have not been located either.

For a note on McCoy's locality "Waurn Ponds" see p. 166, under *Cetotolites nelsoni*; for references on Waurn Ponds and its fossils see pp. 163,4, under *Ziphius (Dolichodon) geelongensis*.

15. *rugosa*

Cetotolites nelsoni rugosa McCoy, 1879 [as *Cetotolites nelsoni* var. *rugosa*]. *Prodromus of the palaeontology of Victoria; or, figures and descriptions of Victorian organic remains* Decade 6 : 17, pl. 54, figs 4,4a.

Holotype a cetolith, no. P7455, in the National Museum of Victoria. Presented by W. Nelson (National Museum of Victoria Palaeontological Register).

Type locality Waurn Ponds, near Geelong, Victoria (McCoy says "Not uncommon in the Miocene Tertiary strata of Waurn Ponds, Geelong" for *C. nelsoni* including *rugosa*).

The date of collection or presentation of the holotype is not known although McCoy's figs 4,4a of the holotype are included in a MS. page of drawings, in the archives of the National Museum of Victoria, under the names Mr Nelson and Waurn Ponds and on the same page a syntype, no. P7454, of *Cetotolites*

nelsoni is figured and the date March 20th, 1871 given there for it (see also footnote on p. 166). We do not know if the date in the MS. page belongs also to the holotype, no. P7455.

For a note on McCoy's locality "Wauru Ponds" see p. 166, under *Cetotolites nelsoni*; for references on Wauru Ponds and its fossils see pp. 163,4, under *Ziphius (Dolichodon) geelongensis*.

16. **wilkinsoni** *Phocodon wilkinsoni* McCoy, 1866. *Notes sur la zoologie et la palaeontologie [sic] de Victoria, par Frederick M'Coy*: 23.

Holotype a molariform tooth, no. P5528, in the National Museum of Victoria. Found by Mr C. S. Wilkinson's Victorian Geological Survey party, 1864.

Type locality between Sentinel Rock and Castle Cove, Aire District, Victoria; in soft yellow limestone (McCoy gives the locality as "sables tertiaires miocènes de la côte du Cap Otway"). Geological Survey of Victoria locality A^w3. Glen Aire Clays.

The original description is republished in English by McCoy, 1867, *Intercolonial Exhibition of Australasia, Melbourne, 1866-67* . . . : 322 (also numbered 16), and 1867, *Ann. Mag. nat. Hist.* (3) 20 : 191,2. The holotype is redescribed and figured by McCoy, 1867, *Geol. Mag.* 4 : 145, pl. 8, fig. 1, and 1875, *Prodromus of the palaeontology of Victoria* . . . Decade 2 : 7,8, pl. 11, figs 1-1b, 1d (all figures reversed), 1c (? reversed). It is also figured by Hall, 1911, *Proc. R. Soc. Vict.* 23 : pl. 36, fig. 5.

For details concerning the finding of the holotype and the type locality see Wilkinson, 1865, *Report of the Director of the Geological Survey of Victoria for the period from June 1863 to September 1864, with appendices* : 23 (republished by Duncan, 1870, *Q. Jl geol. Soc. Lond.* 26 : 291), sketch section of coast from Castle Cove to the mouth of the Parker River, and Wilkinson, 1866, *Reports relative to the Geological Survey of Victoria, 1865* : map of part of the counties of Polwarth and Heytesbury, Cape Otway District . . . Hall and Pritchard, 1899, *Proc. R. Soc. Vict.* 12 : 36-58, pl. 6, and Carter, 1958, *Bull. geol. Surv. Vict.* no. 55 : 1-76, pls 1-10, report upon Wilkinson's Aire District localities.

ANNOTATED BIBLIOGRAPHY

The bibliography includes works referred to in the text as well as some others considered to be of particular significance to the student of fossil mammals from Australia and New Guinea.

Many references are annotated with such information as references to places of republication, or references to works establishing precise dates of publication. Republished texts may differ from the original and we comment on noteworthy variations where these occur.

Where primary taxonomic information (such as descriptions of types, or details of type localities) is contained in a publication which we judge to be difficult to obtain, we have published the information, or relevant parts of it, here. Manuscripts have sometimes been treated in this way. Some manuscripts (including letters) have been edited for publication but only minor changes have been made. Where the formal citation of the date of a manuscript is given in the form "MS. date"—e.g. (1873 *MS. date*)—the date cited is not a date of publication, but is that ascribable to the manuscript.

The text and the bibliography contain references to information derived from manuscripts of Sir Richard Owen and his correspondents. Those cited as *Owen Collection—Drawings* and *Owen Correspondence* are in the British Museum (Natural History), General Library. The *Owen Collection—Drawings* consist largely of manuscript drawings executed by various artists and related to Owen's numerous publications. The *Owen Correspondence* comprises twenty seven bound volumes of correspondence the arrangement of which is (with some errors) alphabetical according to the name of the writer and then chronological under that name. Much of the correspondence consists of letters and copies of letters received by Owen but copies of some letters written by him are also included. Letters, and copies of letters, from Dr G. Bennett and G. F. Bennett to Owen (including all those cited in the bibliography) are in the Mitchell Library, Sydney, N.S.W. in a collection of microfilm (FM 4/127—negative; FM 4/128—positive) and photographic prints (Uncatalogued MSS set 361, item 4).

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- ANON. [? Mitchell, T. L.] (?)—*Owen Collection—Drawings*, folio 443, "plate" b [containing two illustrations of the holotype of *Dinotherium australe* Owen; the artist is unknown but might be Sir Thomas L. Mitchell].
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- ANON. (1840)—III. Donations to the Cabinet of Minerals in A list of donations to the library, to the collection of maps, plans, sections, and models; and to the cabinet of minerals, belonging to the Geological Society of London, from the close of the twenty-eighth session in June 1835, to the close of the thirty-first session in June 1839. Together with the dates at which they were respectively made, and the names of the donors. *Trans. geol. Soc. Lond.* (2) **5** : pages unnumbered.
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- ANON. (1852)—Untitled. *Pap. Proc. R. Soc. Van Diemen's Land* 2 : 158,9.
- ANON. (1856)—A fossil. *The Courier of the Mines and Bendigo Daily Mail* [Sandhurst], no. 253, September 30th, 1856, p. 2, col. 6. [Republished below.]

A Fossil.—We have to acknowledge the receipt of a letter from Mr. Ferguson, of the late firm of Dennis and Ferguson, stating that he had forwarded to our office the jaw bone of an animal, discovered embedded in cement at a depth of thirty feet from the surface. This valuable relic we have never received, and we shall feel obliged to Mr. Ferguson if he will inform us how we may obtain it.

- ANON. (1856)—Extraordinary fossil. *The Courier of the Mines and Bendigo Daily Mail* [Sandhurst], no. 260, October 8th, 1856, p. 3, col. 1. [Republished below.] Republished in *The Argus* [Melbourne], no. 3215, October 10th, 1856, p. 5, col. 4.

Extraordinary Fossil.—We mentioned a short time since that a fossil obtained at Dunolly had been forwarded to us by Mr. Ferguson. At the time that paragraph appeared the relic had not reached, but through the attention of Mr. Dixon, of the Shamrock, we have at length obtained possession of it. At first sight we set it down as the lower jaw of a native dog, but Mr. Panton, to whom we handed it for inspection, declares it to be the jaw of a kangaroo. That gentleman intends visiting Dunolly for the purpose of inspecting the ground

and stratum from which it was obtained. It was found, according to Mr. Ferguson, in hard cement, at a depth of 50 feet from the surface. It is likely to create some sensation among the savans [sic] of the colony, as Mr. Panton informs us that the discovery is altogether unprecedented.

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ANON. (1869)—Murrurundi. Wednesday. [February 10th, 1869]. *The Sydney Mail*, no. 450, vol. 10, February 13th, 1869, p. 14, col. 1. [Republished below.]

MURRURUNDI.

Wednesday.

The fossil remains of the large animal discovered on Mr. Andrew Loder's station, are those of the *Diprotodon*, the head almost perfect, three feet long. Mr. Loder intends to present the specimen to the Australian Museum.

ANON. (1869)—Discovery of the bones of an extinct animal, supposed to be the *Deprhohadar* [sic]. *The Sydney Mail*, no. 451, vol. 10, February 20th, 1869, p. 5, col. 6. [Republished below.]

Discovery of the Bones of an Extinct Animal, supposed to be the *Deprhohadar*—Our Murrurundi correspondent writes:— Some few years ago Mr. William Bretton, senior, residing at the Willow Tree, found near to his residence some bones which he thought could not be those of either a bullock or a horse, on account of their size. They were imbedded in the soil, beside a gully. Mr. Bretton mentioned the circumstance to several persons, but no one at the time took much interest in the matter. Several persons have seen the remains, but they were only partially exposed; but little notice was taken of the matter until two years ago a gentleman was sent up here to look at the remains by a Mr. Keene, of Newcastle, and he took away some bones, which were sent to the Paris Exhibition. A few months ago a Mr. Beaumont, of Newcastle, came to Murrurundi, and, having heard of the remains, proceeded out to look at them, with Mr. Loder, of Colley Creek. He pronounced them to be the bones of an extinct animal. Dr. Gordon, of Murrurundi, sent to Mr. Krefft, of the Museum, who at once communicated with Mr. Loder, the only person who took any interest about the remains, and through whom the discovery has been made known to the "scientific [sic] world." A few days past Mr. Krefft, Mr. Keene, and Mr. Beaumont proceeded out to the Willow Tree (Mr. Loder having had men employed to excavate) to take the bones that could be obtained for the Museum. They succeeded in getting the upper jaw perfect, and

some of the vertebrae. The following is the measured size:—Length of palate, 8 inches; fore molars, $2\frac{3}{4}$ inches; hind molars, 4 inches; from cheek to cheek, outside measure, 18 inches—the animal was on its back. A few years ago, in Geelong, the remains of a *deprohedar* [sic] were discovered at Limeburner's Creek:—Length of the palate, $7\frac{1}{4}$ inches; width between the fore molars, $3\frac{1}{8}$ inches; hind molars, $3\frac{1}{2}$ inches. So it will be seen that the size of the one found at the Willow is much larger than the one found at Geelong. The remains were found on the A.A. Company's run Warrah, and not on Mr. Loder's run, as reported in your telegraphic news of Wednesday, the 12th [sic].

ANON. (1869)—The *Diprotodon*, or gigantic native bear. *The Illustrated Sydney News*, no. 59, vol. 5, March 20th, 1869, p. 151, col. 3, p. 161, figure. [Text republished below; the figure, on p. 161, which illustrates the text, and which is entitled Fossil remains recently found at Murrurundi.—see page 151, is not of the Murrurundi specimen.]

THE DIPROTODON, OR GIGANTIC NATIVE BEAR.

The fossil animal, of which we this month give an illustration, was one of the gigantic representatives of the marsupial tribe in Australia, and exceeded in bulk a good-sized elephant. To give some idea of the large proportions of the creature, we have figured the skull and the lower jaw of an old man kangaroo, which weighed 200 lbs., and added a scale by which the proportions can be well ascertained. The position of this giant in the system has been often misunderstood. Professor Owen arranged it first with the wombats; others considered it to be a sort of kangaroo, but Mr. Krefft tells us that it is a kind of gigantic native bear; and probably resembled in habit, shape of limbs, teeth, and diminutive tail the harmless "koala" much more than a kangaroo. We cannot go into the anatomy of this extinct animal, and must refer those interested to the forthcoming Museum Catalogue. Considering the rich material at the trustees' command, the curator will, no doubt, prove his statement. The following letter was received from Mr. Krefft when at Murrurundi.

Gentlemen,—According to promise I send you a sketch of the skull of the gigantic fossil, which has been exhumed by Mr. Andrew Loder on the Warrah river, the property of the Australian Agricultural Company; it is about the same size as the skull in the Museum collection and very perfect, but so brittle that great care is required in moving the specimen belonging to a very aged individual; the teeth are worn almost level with the bone, even the gigantic tusks are ground down much more than I have ever seen them before. We had some rare fun in digging the skull out, as everybody present expected to find some old bullock's skull, horns and all, but when the great bear had been laid bare, and the teeth were counted and examined, and corresponded with all I told them, then even the Rev. Mr. Nash, to whose kindness I am deeply indebted, had to acknowledge that the skull, being beneath 15 feet of alluvial soil, must have been there long before the run was taken up, or cattle introduced. Mr. Loder expressed a hope that such kind of kangaroo would never come to life again, after which we went to lunch and drank prosperity to the A.A. Company.

We continued our labours, but it grew late and we parted to return next day. I was much amused at the severe test put upon Dr. Creed, of Scone, and myself by some young Australians, who planted broken horses' and bullocks' teeth in the bank, and felt rather disappointed because we rejected them and only took genuine kangaroo bones and teeth, which now and then were brought to light.

Before I conclude I must mention, that Messrs. Mitchell, Beaumont, and Gordon, of Murrurundi, noticed these bones first, which were so much decomposed however, that nothing could be done with them. After the skull had been discovered in the place which I pointed out, by Mr. Andrew Loder, Mr. Keene, examiner of coal fields, who was on duty in the district, offered to take charge of it, and promised to see the fossil safe to Sydney. The thanks

of the trustees are due to Mr. Merewether, the general superintendent of the A.A. Company, who has kindly presented this valuable fossil to the Museum, and who has promised to have the grounds examined in the hope of discovering more such relics. I shall be down in a few days, and I remain, gentlemen,

Sincerely yours,
GERARD KREFFT.

The Proprietors *Illustrated Sydney News*.

ANON. (1869)—Fossil deposit. *Pastoral Times* [Deniliquin], no. 567, vol. 12, December 18th, 1869, p. 2, col. 3. [Republished below.] Republished in *The Sydney Morning Herald*, no. 9857, vol. 60, December 24th, 1869, p. 4, col. 5, and *The Sydney Mail*, no. 495, vol. 10, December 25th, 1869, p. 13, col. 1.

Fossil Deposit.—There is in the possession of Mr Felgate, of Wentworth, Lower Darling, one half of an animal's jawbone, it is about 12 inches in length, and there are 6 perfect teeth from $1\frac{1}{4}$ to $1\frac{1}{2}$ inches square. The enamel is beautifully preserved on the teeth. The specimen is supposed to have belonged to one of the species of kangaroos of gigantic size, and as it was taken out of the earth 60 feet below the surface while the discoverer was digging a well, one our of [sic] learned professors may throw some light upon the specimen. A local geologist estimates, that the bone was deposited 360,000 years ago, but we are not in possession of the reasoning which he uses thus to make his calculations. As it was found in the colony of New South Wales but close to a meeting of that colony with South Australia and Victoria, it is as yet uncertain to which colony the rare specimen shall be sent. We hope to hear of its examination by those who are best able to render a good account of this wonderful evidence of the pre-historic era.

ANON. (1870)—Untitled. *Q. Jl geol. Soc. Lond.* 26 : 415-17. [An account is given of the reading of a letter, dated Sydney, January 29th, 1869 [sic], from G. Krefft.]

ANON. (1870)—Untitled. *The South Australian Advertiser* [Adelaide], no. 3497, vol. 12, January 1st, 1870, p. 3, col. 2. [Republished below.]

Some fossil remains of an extinct animal were recently discovered near Lake Victoria, at a depth of 45 feet, by some well-sinkers. They consist of a portion of the lower jaw bone of a beast larger than an ox, with some fragments belonging to the same animal. These specimens having come into the possession of Mr. Felgate, of Wentworth, he sent them to Adelaide, and they were left at our office for inspection for a day or so. Dr. Schomburgk and Mr. F. G. Waterhouse pronounced the bones to be those of the *Diprotodon Australis*, of which animal Mr. Waterhouse, some months ago, obtained the greater part of the skeleton beyond the Burra. The animal was in fact a gigantic kangaroo, and that of which the bones are to be seen at the Museum must have been two or three times the size of Mr. Felgate's specimen. The one was rather larger than an ox, the other of the dimension of an elephant. We compared the jaw-bone and teeth with those of the skull of the present kangaroo, and the comparison proved at once that the animals belonged to the same genus. What strikes one in these bones from Lake Victoria is the beautiful state of preservation in which they are. Their surfaces are smooth and shiny, while the teeth have all the enamel on them perfectly uninjured. Besides the large specimens, there is part of a jaw, with fine perfect teeth, of some smaller animal and fragments of jawbones with the teeth much worn or very imperfect. Other scraps of anatomy in the collection will take time to classify. It is a pity the largest specimen was broken in getting out, but we understand Mr. Felgate intends to visit the spot and collect all the fossil remains that he can.

- ANON. (1870)—New South Wales Parliament. Legislative Assembly. Tuesday, November 8. *The Sydney Morning Herald*, no. 10131, vol. 62, November 9th, 1870, p. 2, cols 1-4.
- ANON. (1870)—The Wellington Caves. *The Sydney Morning Herald*, no. 10136, vol. 62, November 15th, 1870, p. 2, cols 3-5. Republished in *The Sydney Mail*, no. 543, vol. 11, November 26th, 1870, p. 15, cols 1-3. [This article publishes extracts from a Parliamentary Paper entitled *Wellington Caves. (Correspondence relative to exploration of.)*. Additional information concerning the Parliamentary Paper is given below under Krefft, G. (1870).]
- ANON. (?1872)—Greville's official post office directory of New South Wales, containing the names, residences, and occupation of the inhabitants of the post towns of the colony. Arranged locally and alphabetically. 1872. Sydney, Greville, iv,xlix, 582 pp.
- ANON. (1873)—Society Meetings. The Royal Society. *The Sydney Mail and New South Wales Advertiser*, no. 697, vol. 16, November 8th, 1873, p. 595, cols 2,3.
- ANON. (1882)—Melbourne International Exhibition, 1880-1881. Official record containing introduction history of exhibition description of exhibition and exhibits official awards of commissioners and catalogue of exhibits. Melbourne, Mason, Firth & M'Cutcheon, clxviii, 681 pp.
- ANON. (1883)—Notes and exhibits. *Proc. Linn. Soc. N.S.W.* 8: 296-8.
- ANON. (1886)—The mails. *The Sydney Morning Herald*, no. 14905, January 1st, 1886, p. 8, col. 2.
- ANON. (1886)—The mails. *The Times* [London], no. 31676, February 6th, 1886, p. 7, col. 3.
- ANON. (1886)—The mails. *The Times* [London], no. 31680, February 11th, 1886, p. 7, cols 1,2.
- ANON. (1887)—Notes and exhibits. *Proc. Linn. Soc. N.S.W.* (2) 1: 1122,3.
- ANON. (1888)—Note. *Abstr. Proc. Linn. Soc. N.S.W.* for March 28th, 1888, p.i.
- ANON. (1888)—Linnean Society of New South Wales. *Zool. Anz.* 11: 459,60.
- ANON. (1894)—The mails. *The Sydney Morning Herald*, no. 17405, January 1st, 1894, p. 4, col. 4.
- ANON. (1894)—Mail & shipping intelligence. *The Times* [London], no. 34178, February 3rd, 1894, p. 11, col. 5.
- ANON. (1902)—Death of Sir Daniel Cooper. *The Sydney Morning Herald*, no. 20044, June 7th, 1902, p. 9, col. 4.
- ANON. (1909)—A new Australian fossil. Important discovery in the Mammoth Cave. *The West Australian* [Perth], no. 7132, vol. 25, February 2nd, 1909, p. 3, col. 4.

ANON. (1910)—Interesting fossil remains. Discovered in the Mammoth Cave. A link with the dead past. *The West Australian* [Perth], no. 7442, vol. 26, February 2nd, 1910, p. 4, cols 1, 2. [Extract republished below.]

INTERESTING FOSSIL REMAINS.
DISCOVERED IN THE MAMMOTH CAVE.
A LINK WITH THE DEAD PAST.

That conditions in this State must have been very different from what they are today is proved by the fact that the wombat was once a member of its fauna. The almost complete skeleton of this burrowing animal was found in a long narrow hole at the spot where the excavations were undertaken, and it has been satisfactorily ascertained that the Western Australian animal is distinct from the forms living and extinct, met with in the Eastern States. It has been named *Phascolumys hacketti*, in honour of Dr. Hackett, who is chairman not only of the museum committee and of the Caves Board, but also president of the Zoological Gardens, in order to commemorate the vast amount of time and energy that he has devoted to the advancement of science in this State.

ANON. (1911)—June 14th, 1911. *Q. Jl geol. Soc. Lond.* 67: c-ciii.

ANON. (1915)—*Catalogue of the books, manuscripts, maps and drawings in the British Museum (Natural History)*. Vol. 5. SO-Z. London, the Trustees of the British Museum (Natural History), pp. 1957-2403.

ANON. (1953)—Annual report, 1952. *Pap. Proc. R. Soc. Tasm.* 87: ii-viii.

ANON. (1958)—Cooper, Sir Daniel. P. 50 in *The Australian Encyclopaedia*. Vol. 3. Sydney, Angus and Robertson.

APLIN, C. D. H. (1857 *MS. date*)—Copy of a Geological Survey of Victoria memorandum in the archives of the National Museum of Victoria. [The memorandum lists specimens forwarded to Professor McCoy and including bones from a cave at the head of Toolam Toolern Creek.]

BAILEY, J. F. (1882)—A few remarks on *Cetotolithes*, or whale ear stones. *Sth. Sci. Rec.* 2: 155.

BANKS, M. R. (1962)—Marine succession. *J. geol. Soc. Aust.* 9: 233-6.

BARKLY, H. (1865)—30th September, 1861. Ordinary meeting. *Trans. Proc. R. Soc. Vict.* 6: ix.

BARKLY, H. (1865)—Anniversary address of the President. *Trans. Proc. R. Soc. Vict.* 6: xix-xxxiv.

BARKLY, H. (1865)—Anniversary address of the President. *Trans. Proc. R. Soc. Vict.* 6: xxxvii-xlviii.

BARNES, H. (1875)—Pp. 19-22, 52,3 in Appendix no. 4. Report of the sub-committee appointed by the Trustees of the Australian Museum on the 16th of June, 1874, to inquire into certain charges against the Curator. Appendix No. 4 is pp. 6-57 in [New South Wales Parliamentary Paper] *Australian Museum. (Report from Trustees for 1874.)*, pp. 1-57. Parliamentary Paper

- republished, 1875, in *New South Wales. Votes and Proceedings of the Legislative Assembly during the session of 1875, with the various documents connected therewith* 4 : 243-99 (also numbered 1-57).
- BARNES, R. (1875)—Pp. 23-7, 51,2 in Appendix no. 4. Report of the sub-committee appointed by the Trustees of the Australian Museum on the 16th of June, 1874, to inquire into certain charges against the Curator. Appendix No. 4 is pp. 6-57 in [New South Wales Parliamentary Paper] *Australian Museum. (Report from Trustees for 1874.)*, pp. 1-57. Parliamentary Paper republished, 1875, in *New South Wales. Votes and Proceedings of the Legislative Assembly during the session of 1875, with the various documents connected therewith* 4 : 243-99 (also numbered 1-57).
- BARTHOLOMAI, A. (1962)—A new species of *Thylacoleo* and notes on some caudal vertebrae of *Palorchestes azael*. *Mem. Qd Mus.* 14 : 33-40.
- BARTHOLOMAI, A. (1963)—Revision of the extinct macropodid genus *Sthenurus* Owen in Queensland. *Mem. Qd Mus.* 14 : 51-76.
- BARTHOLOMAI, A. (1966)—The type specimens of some of De Vis' species of fossil Macropodidae. *Mem. Qd Mus.* 14 : 115-26, pls 15-19.
- BARTHOLOMAI, A. (1967)—*Troposodon*, a new genus of fossil Macropodinae (Marsupialia). *Mem. Qd Mus.* 15 : 21-33.
- BARTHOLOMAI, A. (1967 *MS. date*)—Letter from A. Bartholomai to J. A. Mahoney, dated October 20th, 1967, in the archives of the Western Australian Museum [containing collecting data for the holotypes of *Thylacoleo crassidentatus* Bartholomai and *Sthenurus notabilis* Bartholomai].
- BARTHOLOMAI, A. (1968)—A new fossil koala from Queensland and a reassessment of the taxonomic position of the problematical species, *Koalemus ingens* De Vis. *Mem. Qd Mus.* 15 : 65-72, pl. 9.
- BARTHOLOMAI, A. (1969 *MS. date*)—Letter from A. Bartholomai to W. D. L. Ride, dated January 29th, 1969, in the archives of the Western Australian Museum [containing collecting data for the holotypes of *Phascolarctos stirtoni* Bartholomai, *Kolopsis rotundus* Plane and *Sthenurus antiquus* Bartholomai and for the lectotype of *Halmaturus dryas* De Vis].
- BENNETT, G. (1872)—A trip to Queensland in search of fossils. *Ann. Mag. nat. Hist.* (4) 9 : 314-21.
- BENNETT, G. (1873 *MS. date*)—Letter from G. Bennett to R. Owen dated August 8th, 1873. British Museum (Natural History) *Owen Correspondence*, vol. 3, folio nos 347-50. [Published below.] Published Coppleson, 1955, *Bull. Post Grad. Comm. Med. Univ. Sydney* 11 : 250-2.

Sydney, Augt 8th 1873

My Dear Owen,

I received a letter from my son George dated Toowoomba, July 15th as follows "I went out to Gowrie & got Mr. G. B. King to go with me & search for fossils after the late floods; in the morning we explored up the creek towards Toowoomba, & got a good many minor ones, in the afternoon we went down the creek and got but few specimens until we were about three miles below the station, when in getting out a tooth we found a large under jaw & at last we found ourselves in the midst of fossils having obtained a complete fore leg which includes the feet & all perfect, & I believe this is the first that has been yet found. I could not stop over Monday so we intend to continue our researches on Saturday next, as I am sure we must have the whole skeleton as we are still in the midst of bones, & we intend to take them all out ourselves, as we cannot get men to look carefully enough and I may safely say you will have the finest collection of fossils yet sent from Queensland. We will go on until we clear the whole bank, & I wish to know if you would like the foot-bones sent at once, or wait until we get the whole which will take some time; or, anyhow, you can instruct me how to send them as we have nearly 200 lbs of bones already. We had to dig right into the face of the bank."

On the receipt of this letter I sent him a telegram requesting him to send the smaller foot-bones by the parcel post. The next letter was dated July 22d., in which he says "We have completed our researches for the present & you will have from Mr. King as fine a collection of fossils as have ever been got together. I send by parcel post a few specimens of the toes" A letter was afterwards received from Mr. G. B. King dated July 24th in which he says "At the request of your son George I send you by this post, three packets containing the smallest of the foot bones & toes of the fossils we had collected, the remainder of the foot bones will be forwarded in a small box packed with the large bones."

In George's letter of the 25 of July he says "According to your telegram you will receive by this post such of the foot-bones as we could possibly send you, as you know the bones near the shin bone are large & could not be packed for post, but it is probable the whole will be sent by the next steamer." Some of the metacarpal bones arrived safe & are evidently a great acquisition. I had photographs & casts taken at the Museum with Krefft's aid, the photographs are enclosed but as the originals & all those to arrive will be sent by the next mail it is not worth while to send the casts, but it was considered advisable to take casts in case any accident should happen to the originals in transit, George says "when I first found the toe I set to & scratched the rest out with my hands in the excitement". I told him when in Queensland that you were very desirous of procuring the bones of the foot. I fully expected to have sent you photographs of the remainder of the bones of the feet by this Mail, I say Photographs as there would not have been time to take casts & forward them this Mail; but they have not arrived this steamer but will very probably arrive on Monday next. The reason I expected them was from receiving a letter from Mr. G. B. King two days ago of which the following is a copy. July 29 1873 "By this days Train I forward to you to the care of Messrs. G. King & Co three cases of Fossil bones, they are each numbered on the address card. No 1. contains the shoulder blade (in pieces) & the leg bones as well as ribs etc. No 2. contains Jaws, back bones etc. No 3. some of the larger foot bones, which I could not send by post the other day, & a smaller box containing fragments of the head & a small paper parcel containing more of these fragments. The whole of these were found at one spot. I wrote yesterday to the Steam Company's Agents at Ipswich & to the Agent at Brisbane requesting them to see they are passed on without delay so that you may receive them without delay."

It is not improbable that not having received them this steamer the cases may have arrived too late & no doubt will come on by the next steamer due on Sunday or Monday next. I took these bones to the Museum & on examination & comparison with Mr. Krefft, we arrived at this conclusion That these bones are evidently new to science & they belong to a gigantic Phalanger which resembled the Wombat in the shape of the limbs & probably the

Phalangers proper in its dentition. The specimens consist of five short, thick, rather rough and distorted metacarpal bones resembling those of the Wombat but differing still very much from the ordinary Wombat. The largest of the Metacarpals is 2½ inches in length and 1½ inches in thickness.

The corresponding bones in the *Mylodon* show a similar rough surface for the attachment of strong ligaments etc. There are two or three carpal bones (marked X in photograph) the digits to the number of four being evidently complete. The Phalanges, except the nail-bones, resemble those of the Wombat, the latter not being so broad but much serrated on the under surface & at the points. I have no doubt on the arrival of the remainder of the bones, that those gentlemen will have discovered a complete fore-foot if not a complete fore-leg, which will be a valuable acquisition to science. We have given you the result of our observation; but when you have the opportunity of examining them yourself you will be able to draw your own conclusions. The two extra copies of your valuable Papers of *Phascolumys* and *Nototherium* that came with mine I gave to the Legislative Library of Queensland and to Mr. G. B. King, if you have a spare copy could you oblige me with one for Mr. W. B. Tooth.

As Lady Robinson & other Ladies have specimens of the *Euplectella* & neither know the name or anything about them I compiled the enclosed paper for them and published in the Herald of Augt 5 & Mail of Augt 9th & it pleased them very much.

I shall I hope be able to give you a further account of the remainder of the fossils & send you the whole of those most important by the next Mail. I have just seen this day in the Lancet of May 17th a paragraph announcing the death of your dear & excellent wife, it shocked me much & I could hardly credit the announcement at first, as I was not aware she was ill. Accept my dear old friend our deep & heartfelt sympathy for your loss. It is needless to say more. With the united kindest wishes of Mrs Bennett & myself

I remain
My Dear Owen
Your sincere friend
George Bennett

R. Owen Esqre F.R.S.
&c &c

BENNETT, G. (1873 *MS. date*)—Letter from G. Bennett to R. Owen dated September 5th, 1873 and with postscript dated September 6th. British Museum (Natural History) *Owen Correspondence*, vol. 3, folio nos 351,2. [Published below.]

Sydney Sept 5th 1873

My Dear Owen,

Since my last letter the Fossils arrived from Queensland in three cases, & I believe them to be the finest collection that has been made for some time & I have no doubt many of them will be of great interest to you. I sent to Krefft at the Museum to inspect them & have permitted him to take the rarest for casts for the Museum previous to the originals being transmitted to you in case of accidents, many of the broken specimens have been restored, many of the fragmentary portions having been found among the debris, this, as in the Atlas now sent to you, has been effected by the skill of Mr. Henry Barnes of the Australian Museum (give him credit for it when an opportunity offers) who has also succeeded in many others which will be afterwards sent to you.

By the Mail Steamer I have sent the important & will no doubt be the most interesting to you, the foot bones, they consist of three metacarpal bones of the right(?) & two of the left side, the left ones are marked 1 & 2(X) they remind one of the toe bones of the fore foot of the *Myiodon*. There are three other wrist bones, & thirteen Phalanges, four of which are terminal ones or "nail bones". The latter resemble the nails of the Wombat in their rough & serrated points & lower parts, they are however more compressed than Wombat nail-bones & evidently belong to some animal which may have been as large as a Grizzly Bear or larger. All these bones arrived first. In the cases that arrived since there were other Carpal bones which appear similar in colour & I think that they belong to the foot of this animal. One of the bones sent & which we consider to be the Os Calcis is the most extraordinary bone we have ever seen, & will no doubt merit a full description at your hands. It is forwarded in this case. A fine Atlas came in two parts & having been skillfully joined will also accompany the present collection: The remainder will be sent by a fast sailing vessel & if there are any requiring immediate notice, by the next Mail Steamer. Several of these will be restored as far as possible before they are sent & of the rarest, casts & photographs will be taken. With our united kindest regards,

I remain
My Dear Owen
Your sincere friend
George Bennett

R. Owen Esqre
F.R.S. &c

P.S. I have enclosed the Bill of Lading by Mail Steamer.

Sept 6th. I went to the Museum this morning & find that some good restorations have been made by Barnes & casts taken. One of the restored jaws which will be forwarded to you next mail evidently approximates more to the Koala than Wombat on comparing the skulls of the recent animals. As our specimens multiply there appears to be more than one species of *Diprotodon* & no doubt of the other Mammals. I shall be very desirous of hearing your opinion when you have had an opportunity of examining them.

I had a letter from George this morning in which he says that Mr King & himself have been prevented by heavy rains from continuing their explorations but commence again when the fine weather sets in.

I think Krefft will write to you as he takes great interest in the fossils.

G B

BENNETT, G. (1873 *MS. date*)—Letter from G. Bennett to R. Owen dated November 1st, 1873 and with a postscript dated November 3rd. British Museum (Natural History) *Owen Correspondence*, vol. 3, folio nos 353-6. [Text of November 1st published below.]

Sydney Novr 1st 1873

My Dear Owen,

I received your kind & welcome letter to the 9th of August, & were pleased to hear you were able to resume your old work, in which no doubt you will find solace. I hope the collection of fossil Mammals sent by the last Mail & those now sent by this Mail (for which a Bill of Lading is enclosed) will afford you new material for your work on the Fossil Mammals of Australia. You will be able to see on examination of these specimens, how well by the aid of our Museum Formatrix, Mr Henry Barnes, we have been able to make some excellent restorations. The large bones of the leg, vertebra etc. being bulky will follow these by a sailing vessel, these I do not expect will be so new & valuable to you as those sent by the Mail, altho' they will probably prove useful in enabling you to form a skeleton. The

whole of these specimens were collected at one place in a bank on Gowrie Creek by my son George & Mr. G. B. King, so that when you have new species you may have a *Kingii* & *Bennettii*. The fossil bones sent by this Mail consist of a nearly perfect lower jaw; a Radius, & an Ulna nearly perfect, & two fragments of these two bones evidently belonging to the same animal, but opposite ones. Also the Os Calcis; the case is filled up with fragments which may be of some use to you. Casts have been taken of the whole of these fossils & the Queensland Museum have applied for a set which will be forwarded to them. A set is also to be given to the Melbourne Museum in exchange for some skeletons of Wombats sent to our Museum.

Many in Queensland are searching for the jaws & other portions of the *Thylacoleo* & I hope their search will prove successful. I believe the carnivorous Marsupial of Queensland will turn out at last to be the Tree Kangaroo(!) If you could send me a "Carte" of your dear wife I should deem it a great favour, as a memento of one so highly esteemed & deeply regretted by all those who knew her. With our united kindest regards & deep sympathy

I remain
My Dear Owen
Your sincere friend
George Bennett

R. Owen Esqre. F.R.S.

&c &c

P.S. Any Papers sent through Sampson Low & Co. will always reach me safely.

BENNETT, G. (1874)—Pp. 45-51, 56-8 in [New South Wales Parliamentary Paper] *Report from the Select Committee on the Sydney Museum; together with the Proceedings of the Committee, Minutes of Evidence and Appendix*, pp. 1-13, 1-109. Parliamentary Paper republished, 1874, in *New South Wales. Votes and Proceedings of the Legislative Assembly during the session of 1873-4, with the various documents connected therewith* 5 : 819-31, 833-941 (also numbered 1-13, 1-109).

BENNETT, G. (1874 *MS. date*)—Copy of letter from G. Bennett to R. Owen dated June 11th, 1874. British Museum (Natural History), *Owen Correspondence*, vol. 3, folio nos 293,4.

BENNETT, G. (1875)—Pp. 54-7 in Appendix no. 4. Report of the sub-committee appointed by the Trustees of the Australian Museum on the 16th of June, 1874, to inquire into certain charges against the Curator. Appendix no. 4 is pp. 6-57 in [New South Wales Parliamentary Paper] *Australian Museum. (Report from Trustees for 1874.)*, pp. 1-57. Parliamentary Paper republished, 1875, in *New South Wales. Votes and Proceedings of the Legislative Assembly during the session of 1875, with the various documents connected therewith* 4 : 243-99 (also numbered 1-57).

BENNETT, G. (1880 *MS. date*)—Letter from G. Bennett to R. Owen dated June 7th, 1880. British Museum (Natural History) *Owen Correspondence*, vol. 4, folio nos 9,10. [Extract published below.]

I have also another portion of the lower jaw of the new *Palorchestes* you described in the *Zool. Trans.* & found at Gowrie about the same place as the other portion.

BENNETT, G. (1880 *MS. date*)—Letter from G. Bennett to R. Owen dated July 3rd, 1880. British Museum (Natural History) *Owen Correspondence*, vol. 4, folios 11, 12. [Extract published below.]

I have also sent you the jaws of *Thalycoleo* [sic] and others and also another portion of the jaw of your new *Palorchestes*, obtained from the same locality, which you have just described in the "Transactions of the Zool. Soc."

BENNETT, G. F. (1876)—Notes of rambles in search of fossil remains on the Darling Downs. *Trans. phil. Soc. Qd* 2 : 1-10. [Paper read at the monthly meeting of the Queensland Philosophical Society, December 7th, 1875. See Marks, 1960, *Proc. R. Soc. Qd* 71 : 27, 8, for the history of the publication of *Trans. phil. Soc. Qd*.]

BENSLEY, B. A. (1903)—On the evolution of the Australian Marsupialia; with remarks on the relationships of the marsupials in general. *Trans. Linn. Soc. Lond.* (2) (Zoology) 9: 83-217, pls 5-7.

BONWICK, J. (1858)—*Western Victoria; its geography, geology, and social condition. The narrative of an educational tour in 1857*. Geelong, Thomas Brown, 157 pp.

BRODERIP, W. J. *et al.* (1832)—Report from the Council. *Proc. geol. Soc. Lond.* 1 : 347-59.

BROOM, R. [In Anon.] (1895)—On a new fossil mammal allied to *Hypsiprymnus*, but resembling in some points the Plagiaulacidae. *Abstr. Proc. Linn. Soc. N.S.W.* for June 26th, 1895, p. ii. Republished 1895, *Zool. Anz.* 18 : 371.

BROOM, R. (1895)—On a fossil mammal allied to *Hypsiprymnus*, but resembling in some points the Plagiaulacidae. *Proc. Linn. Soc. N.S.W.* (2) 10 : 373. [Title only.]

BROOM, R. [In Anon.] (1895)—On a small fossil *Petaurus*-like marsupial. *Abstr. Proc. Linn. Soc. N.S.W.* for November 27th, 1895, p. ii. Republished 1896, *Zool. Anz.* 19: 47.

BROOM, R. (1896)—On a small fossil marsupial with large grooved premolars. *Proc. Linn. Soc. N.S.W.* (2) 10 : 563-7, pls 25, 45.

BROOM, R. (1896)—On a small fossil marsupial allied to *Petaurus*. *Proc. Linn. Soc. N.S.W.* (2) 10 : 568-70, pl. 46.

BROOM, R. (1896)—Report on a bone breccia deposit near the Wombeyan Caves, N.S.W.: with descriptions of some new species of marsupials. *Proc. Linn. Soc. N.S.W.* 21: 48-61, pls 6-8.

BUTLER, P. M. *et al.* (1967)—Mammalia. Pp. 763-87 in *The fossil record. A symposium with documentation jointly sponsored by the Geological Society of London and the Palaeontological Association*. Ed. by W. B. Harland *et al.* London, Geological Society of London.

- CARNE, J. E. (1889)—Appendix no. 5 [untitled]. Pp. 190-2 in [New South Wales Parliamentary Paper] *A. Rep. Dep. Mines N.S.W.* 1888 : 1-245 [Additional information concerning the Parliamentary Paper is given above under Anderson, W. (1889).]
- CARNE, J. E. & JONES, L. J. (1919)—The limestone deposits of New South Wales. *Mineral Resour. N.S.W.* no. 25 : xii, 1-411.
- CARTER, A. N. (1958)—Tertiary Foraminifera from the Aire District, Victoria. *Bull. geol. Surv. Vict.* no. 55 : 1-76, pls 1-10.
- CAVE, A. J. E. (1941)—Museum. *Rep. R. Coll. Surg.* 1940-1941 : 3-16. [The publication date is not included in this Report; however, a copy of it in the library of the Royal College of Surgeons of England has an accession date, 8th December, 1941, stamped on p. 1. Pp. 3-15 give an account of the damage to the collections during the 1939-45 war; see also below under Webb-Johnson, A. (1947).]
- CHAPMAN, F. (1912)—On the occurrence of *Scaldicetus* in Victoria. *Rec. geol. Surv. Vict.* 3 : 236-8, pl. 40.
- CHAPMAN, F. (1917)—New or little-known Victorian fossils in the National Museum. Part 21.—Some Tertiary cetacean remains. *Proc. R. Soc. Vict.* 30 : 32-43, pls 4,5.
- CHAPMAN, F. (1918)—On an apparently new type of cetacean tooth from the Tertiary of Tasmania. *Proc. R. Soc. Vict.* 30 : 149-52, pl. 27.
- CLARK, A. M. (1966 *MS. date*)—Letter from A. M. Clark to W. D. L. Ride, dated September 19th, 1966, in the archives of the Western Australian Museum [containing information concerning the whereabouts of the holotype of *Prosqualodon davidis* Flynn].
- CLARKE, W. B. (1853)—[New South Wales Parliamentary Paper] Letter from the Rev. W. B. Clarke, to the Honorable the Colonial Secretary, on the geology of the basin of the Condamine River. (Report No. X.). *New South Wales. Geological Surveys*, pp. 1-17. Republished, 1853, in *New South Wales. Votes and Proceedings of the Legislative Council, during the session of the year 1853. With the various documents connected therewith* 2 : 853-69 (also numbered 1-17). Republished, 1855, in [British Parliamentary Blue Book] *Further papers relative to the discovery of gold in Australia. (In continuation of papers presented February 14, 1854.) Presented to both Houses of Parliament by Command of her Majesty, December 1854*, pp. 29-45. [Appendix No. 1 of this Report, with the addition of some introductory remarks and entitled Fossil bones [author Clarke, W. B.], was earlier published anonymously in *The Sydney Morning Herald*, no. 3285, vol. 22, November 30th, 1847, p. 2, cols 1-3. Appendix No. 2, a letter by W. S. Macleay, was earlier published in *The Sydney Morning Herald*, no. 3289, vol. 22, December 4th, 1847, p. 2, col. 7, p. 3, cols 1,2. Macleay's letter is commented on by W. B. Clarke in a letter, entitled Mr. Turner's

- Diprotodon* and signed W. B. C., published in *The Sydney Morning Herald*, no. 3290, vol. 22, December 6th, 1847, p. 2, cols 6,7; this letter is not included by Clarke in Report No. X.]
- CLARKE, W. B. (1878)—Notice of a new fossil extinct species of kangaroo, *Sthenurus minor* (Owen). (Supplemental to the notice of the new fossil bird, *Dromornis australis* (Owen).). *J. Proc. R. Soc. N.S.W.* **11** : 209-12.
- CLARKE, W. B. (1878)—*Remarks on the sedimentary formations of New South Wales. Illustrated by references to other provinces of Australasia*. 4th ed. Sydney, Govt Printer, 165pp.
- CLAY, J. *et al.* (1962)—*Northern Territory*. Lexique stratigraphique international. Vol. 6—Oceania, fascicule 5—Australia, 5g. Paris, Centre National de la Recherche Scientifique, 136 pp.
- COPPLESON, V. M. (1955)—The life and times of Dr. George Bennett. *Bull. Post Grad. Comm. Med. Univ. Sydney* **11** : 207-64, pls 1-7.
- CORNELIUS, E. H. (1969 *MS. date*)—Letter from E. H. Cornelius to W. D. L. Ride, dated February 25th, 1969, in the archives of the Western Australian Museum [containing publication data concerning Owen, 1845, *Descriptive and illustrated catalogue of the fossil organic remains of Mammalia and Aves contained in the Museum of the Royal College of Surgeons of England*].
- COULSON, A. (1960)—Some structural features in the Barrabool Hills. *Proc. R. Soc. Vict.* **72** : 45-52.
- COXEN, C. (1894)—Obituary notice of Dr. George Bennett, F.L.S., F.Z.S., etc. *Proc. R. Soc. Qd* **10** : 37,8.
- CUDMORE, F. A. (1926)—Extinct vertebrates from Beaumaris. *Victorian Nat.* **43** : 78-82.
- DART, R. A. (1923)—The brain of the Zeuglodontidae (Cetacea). With a note on the skulls from which the endocranial casts were taken, by Andrews, C. W. *Proc. zool. Soc. Lond.* **1923** : 615-54.
- DAVID, T. W. E. (1950)—*The geology of the Commonwealth of Australia*. Vol. 1. Edited and much supplemented by W. R. Browne. London, Edward Arnold, xx, 747 pp., 58 pls.
- DE STRZELECKI, P. E. *See* STRZELECKI, P. E. *de*
- DE VIS, C. W. [In Anon.] (1883)—“On *Brachalletes palmeri*,” an extinct marsupial. *The Sydney Morning Herald*, no. 14043, April 2nd, 1883, p. 8, col. 3. Republished 1883, *Abstr. Proc. Linn. Soc. N.S.W.* for March 28th, 1883, p. ii. Republished 1883, *Sth. Sci. Rec.* **3** : 120. Republished 1883, *Zool. Anz.* **6** : 303.
- DE VIS, C. W. (1883)—On remains of an extinct marsupial. *Proc. Linn. Soc. N.S.W.* **8** : 11-15.

DE VIS, C. W. (1883)—On tooth-marked bones of extinct marsupials. *Proc. Linn. Soc. N.S.W.* 8 : 187-90.

DE VIS, C. W. (1883)—On *Brachalletes palmeri* an extinct marsupial. *Proc. Linn. Soc. N.S.W.* 8 : 190-3.

DE VIS, C. W. (1883)—On a fossil calvaria. *Proc. Linn. Soc. N.S.W.* 8 : 392-5, pl. 17.

DE VIS, C. W. [In Anon.] (1885)—On an extinct monotreme—*Ornithorhynchus agilis*. *The Daily Observer* [Brisbane], no. 549, vol. 2, April 11th, 1885, p. 2, col. 6. [Republished below.] Republished *The Brisbane Courier*, no. 8504, vol. 39, April 13th, 1885, p. 6, col. 6.

ROYAL SOCIETY OF QUEENSLAND.

A meeting of the above society was held yesterday evening in the library of the Queensland Museum, with the president, Dr. Bancroft, in the chair.

FOSSIL PLATYPUS.

Mr. C. W. De Vis read a paper "On an extinct monotreme—*Ornithorhynchus agilis*." After remarking the grounds on which it was probable that the monotremes had been associated with the marsupials and *Ceratodus* in this as well as the Northern hemisphere, at an earlier geological epoch, the author stated that though one of the two genera which constituted this division of mammalia—namely, *Echidna*, was already known as occurring in the tertiary bone deposits of Australia through the researches of the late Mr. G. Krefft and Professor Owen, and fossil bones of probably the same species of *Echidna* had lately been procured by the museum from the Darling Downs, the other monotreme—namely, *ornithorhynchus*, had not hitherto been reported as occurring here or elsewhere, in geological time, earlier than the present. Evidence, however, that this latter, too, shared the extended range of *Echidna*, had lately been yielded by two small bones procured at King's Creek by Mr. K. Broadbent. These were a right tibia and a jawbone derived from an adult individual, and probably from the same animal. The characters presented by each bone were dealt with in detail, and a comparison was instituted between these and the corresponding features in the recent platypus, by which means it was concluded that though the tibia would refer the ancient monotreme to an animal differing rather widely from its living analogue, the mandible would suggest an alliance much less remote. Both these bones, however, would refer their possessor to a monotreme smaller and more slender than our present platypus, and the character of the muscular impressions on the tibia to one which might be appropriately distinguished by the designation *agilis*. The fossil jaw presented the remarkable pitted alveolus, which in the recent animal supports the horny tooth, but which sufficiently differed from that of the latter.

DE VIS, C. W. (1885)—On an extinct monotreme, *Ornithorhynchus agilis*. *Proc. R. Soc. Qd* 2 : 35-8, pl. 4.

DE VIS, C. W. [In Anon.] (1886)—A postpliocene artiodactyle. *The Brisbane Courier*, no. 8837, vol. 41, May 12th, 1886, p. 6, cols 4,5. [Republished below.] Republished *The Daily Observer* [Brisbane], no. 879, vol. 3, May 12th, 1886, p. 2, cols 5, 6.

ROYAL SOCIETY.

The monthly meeting of the Royal Society of Queensland was held on Friday evening in the library of the Museum.

A fine pair of *Phalacrognathus Mülleri* MacL., perhaps the most magnificent of Australian beetles, and gold found in the gizzard of an ibis, were shown by Mr. De Vis, who also exhibited the fossils illustrating his paper, and skulls of the peccary, *babiroussa*, and pig of New Guinea.

A POSTPLIOCENE ARTIODACTYLE.

A paper was then read by Mr. De Vis, introducing to the notice of the meeting a number of teeth which he had discovered among the fossils procured from the Darling Downs. The author observed that before the advent of the white man and his familiars on Australian soil, there seems to have been no word for pig in the tongue of any native tribe. We must infer that the existence of the animal was unknown throughout the country. It is truly a remarkable fact that New Guinea swine have never, to our knowledge, accomplished the short passage between the northern and southern shores of Torres Straits, or, having done so, failed to establish themselves where the European pig finds it easy to recover and maintain its independence. It must be confessed that Northern Australia is, by reason of its fitful rainfall, not eminently adapted as a whole to the habits of the animal, still its scrubs and river banks would, previous to our occupation of the country, have been able to afford food and shelter to a goodly population of the kind unless, indeed, native improvidence effected its destruction. What then if we assume that a pig or pig-like beast has been a dweller in the land in past time, and has perished utterly from its face? Shall we not be more than ever impressed with the breadth, if not totality, of the eclipse to which the vertebrate fauna or our geological yesterday appears to have been subjected, more than ever curious to know the physical geography, its causes, and reactions which wrought the disappearance of a creature so tenacious of life as well as purpose as the pig, yet permitted the descent of a new though weaker world of marsupial life. The assumption is indeed improbable in the ratio of the difficulty it adds to that already felt when we attempt to account for the change from the late to the present, yet it is one which by testimony reliable as far as it goes seems to be raised to the higher rank of presumption. That testimony is now submitted for examination.

It consists of a hindmost grinder strikingly similar to that of the peccary but simpler in structure and with a smoother surface. After describing this tooth, the author proceeded to adduce confirmatory evidence of the alliance of this old suiline with the peccaries rather than with the true pigs. This he showed was supplied by two lower and four upper front teeth, and from one of the former he estimated the full size of the animal to have been 10ft. 6in. in length and 4ft. 6in. in height. A portion of the tusk shows that the beast was as well armed, and therefore many times as formidable, as the peccary and wild boar. An interesting feature of the upper front tooth was pointed out—it is not fully formed when cut as in the rest of the pig family, but continues to grow during a great part of the animal's life, as it does in the hippopotamus, thus indicating evolution from a stock common to both. If it be as true, as it appears to be, that we have here one of the few mammals yet certainly recognised as placental in the Queensland post tertiaries, telling us the same rule of affinity with American forms as we lately seemed to hear from the extinct alligator, the fact is interesting, and will eventually be instructive. No such affinity exists between the tertiary marsupials of the two countries, and no relation of origin one from the other is probable. The opossums of America are a very ancient race, derived from, or from a common source with, those once inhabiting Europe. How then, whence, and when, did this peccary-like suiline and the alligator-like saurian (to say nothing of the *mastodon*) come into association with marsupials unknown to their precursors? May we suppose that they came from America or from Europe by an eastern route, or *vice versa*. The alligator being originally common to America and Europe might possibly have done so, but the peccaries, an American evolverment, as exclusively as the pigs were a growth of the Old World, could

hardly have passed through Europe or Africa without leaving traces behind them or bringing in their company one or other of the pigs. If we assume that both Australia and America derived their entire faunas from some common centre, we shall be under the necessity of assuming further that migration from that centre went on throughout many geological periods, for the ancestors of the opossums repose in the American trias, while the procaelian crocodile and the highly specialised suiline are of late geological date. For the present, the most probable hypothesis is that the post tertiary fauna of Australia was, as it were, a deposit of several derivative strata, peccaries, and alligators coming from America by means of a continuity of land eastwards, which persisted to a comparatively late date—*ceratodus*, and possibly the marsupials, from Europe, through India by an opposite route; the ostrich-like birds from the same source, which has given their descendants to other parts of the Southern Hemisphere; the monotremes from a direction yet unknown. After demonstrating the peculiarities of the various teeth on which the writer's conclusions are founded, he added, "Assuming that these fossils will be found to typify a new genus of the extinct suilines, I venture to propose for it the name *Prochaerus* with the specific limitation *ceter*, both in allusion to its occupation of the country before the arrival of the true pigs. The comparative frequency of its teeth shows that it was not altogether a rare member of the past fauna.

DE VIS, C. W. [In Anon.] (1887)—On an extinct mammal of a genus apparently new. *The Brisbane Courier*, no. 9224, vol. 44, August 8th, 1887, p. 6, cols 1,2. [Republished below.]

ROYAL SOCIETY.

The usual monthly meeting of the Royal Society was held in the museum library on Friday evening.

The scientific portion of the business was inaugurated by a paper on

A NEW FOSSIL MAMMAL,

entitled "On an Extinct Mammal of a Genus Apparently New;" by Mr. C. W. De Vis, M.A.

The subject of this paper was a huge and nearly perfect head, the total length of the cranium exceeding 20½ in. Viewing its upper profile were presented first the produced and deflected intermaxillary bones in front of the orifice of the nose; then the nasals, narrow and obtuse, overhanging this, and then a gently descending slope from the tip of the nasals to the union between these and the frontal bones, and then upon these frontals an openly sweeping upward curve. On either side the processes of the cheek bone, long and descending below the level of the upper molars, formed conspicuous objects, as did also these large but slender cheek bones themselves. The [l]ower mandible, now connected with the skull, was narrow but deep and sloped away at the symphysis, or chin, at an angle of 40 deg. The brain case, apparently small in capacity, had been shattered and crushed in. In the upper jaw, on each side, were two incisor teeth, one premolar and four molars; and in the lower jaw each lateral portion presented the same number of molars and premolars but only one incisor. It was the anterior of the two pair of incisor-teeth in the upper and the corresponding pair in the lower jaw around which so much interest centred. These were in the form of rapidly-tapering tusks, the upper ones measuring 2.2 in., and the lower ones 2.3 in. in length (measured at the inner fore-angle), those above and below being similar in size, shape, and curvature. The interval between the tips of these curious incisors was the same in upper and lower jaw. These tusk-like teeth also presented on the inner—the same—side of the opposite pairs, large surfaces of wear. The second pair of incisors, present in the upper jaw only, were quite rudimentary, with columnar crowns sloping and curving forward from their outlet. The grinding teeth in each jaw more or less resembled those of the other animals of the family Diprotodontina. They were all very much worn on their upper surfaces, and the two front grinders on the

lower jaw were also worn on the inner sides of the crowns. Between the incisors and molars in the lower jaw also was a rough protuberant body. The existence of this tuberosity and the position also of the surfaces of wear on the different teeth, as well as other considerations, had suggested to the author that the animal to which the fossil skull belonged was endowed with a powerful tongue and muscular expansile lips, and that it masticated and yet laboriously ground its food—the leafy twigs from the branches of saplings, which the large tusks enabled the animal to grapple and hold down. The group to which the newly-discovered animal, represented by the skull exhibited, belonged was that named *Diprotodontina*, which comprised animals huge in bulk and heavy of limb, ranging downward in size from *Diprotodon*, which attained nearly the dimensions of an elephant to *Sthenomerus*, which might have been only as large as a small bullock. Mr. De Vis proposed to designate this animal *Owenia grata*, assigning to it as a generic title a name suggested by that of the veteran expositor of the extinct mammals of Australia, Sir Richard Owen. Concerning its position in the family to which it belonged, the author remarked: “The affinity of *Owenia* to the gravi-grade diprotodonts, known by their cranial remains, is plainly expressed by the structure of its grinding teeth. Had these alone been left to us it would have been difficult to avoid the error of referring them to a small species of *Nototherium*. The incisors on the other hand are so strongly differentiated, not only from those of *Diprotodon*, *Nototherium*, and *Stenomerus* [sic], but from those of the phytophagous marsupials generally, that had these been our sole guides we might have been led to speculate on the existence of a carnivore more destructive than *Thylacoleo*. But its general relationship being evident, it is only necessary to ascertain to which of the older and better-known genera it has the nearest alliance. The absence of the dilated muzzle, flat face, elevated forehead, huge zygomata, and strongly inflected mandibular angle of *Nototherium* shows that in its leading characters its affinity to that genus was anything but close. From *Diprotodon* it was not so far removed in the several features in which it departs from *Nototherium*, or rather departs less from its more ponderous contemporary. In the conformation of the posterior moiety of the mandible, that of the condyle excepted, it indeed resembles *Diprotodon* rather closely, the chief difference being in the greater development of the alar expansion in the newer genus.” The museum collection contained bones of the skeleton, other than crania, which could not yet be associated with any characterised genus of fossil mammals, but one was not at present justified in referring any of these also to this new genus—*Owenia*.

Mr. De Vis informed the meeting that the subject of the present notice was discovered by Mr. Kendal Broadbent, at Chinchilla, on the Darling Downs, and it must have come to rest in the place where found but a few months after death, since not only was the lower jaw still in its natural position, but portions of the first two vertebrae also. The brain-case and fragile portions of the lower jaw had, however, become crushed.

DE VIS, C. W. (1887)—A post-Pliocene artiodactyle. *Proc. R. Soc. Qd* 3 : 42-7, pl. 1.

DE VIS, C. W. [In Anon.] (1888)—On a supposed new species of *Nototherium*. *Abstr. Proc. Linn. Soc. N.S.W.* for December 28th, 1887, p. v. Republished 1888, *Zool. Anz.* 11 : 122.

DE VIS, C. W. (1888)—On a supposed new species of *Nototherium*. *Proc. Linn. Soc. N.S.W.* (2) 2 : 1065-70, pl. 38.

DE VIS, C. W. (1888)—On an extinct genus of the marsupials allied to *Hypsiprymnodon*. *Proc. Linn. Soc. N.S.W.* (2) 3 : 5-8, pl. 1.

DE VIS, C. W. (1888)—On an extinct mammal of a genus apparently new. *Proc. R. Soc. Qd* 4 : 99-106, pls 1-4.

- DE VIS, C. W. (1888)—On *Diprotodon minor*—Hux. *Proc. R. Soc. Qd* 5 : 38-44, 1 plate (plate unnumbered and entitled *Diprotodon* [sic] teeth).
- DE VIS, C. W. [In Anon.] (1888)—On *Synaptodon aevorum*, a new genus of extinct mammals. *The Brisbane Courier*, no. 9649, vol. 45, December 17th, 1888, p. 6, col. 4. [Republished below.] Republished *Evening Observer* [Brisbane], no. 1687, vol. 6, December 17th, 1888, p. 2, col. 5.

ROYAL SOCIETY.

The ordinary monthly meeting of the Royal Society of Queensland was held in the Education Office on Friday evening.

The president, Mr. C. W. De Vis, contributed three papers—the first on *Synaptodon aevorum*, a new genus of extinct mammals, in which it is held that “the mammalian origin of the fossil which shows on its outer side the commencing convexity of the base of the ascending process requires no demonstration. The *facies* of its teeth conspires with its geological associations to suggest its marsupial derivation, and if such source be assumed its bilophodont structure compels us to refer it to one of the herbivorous or semi-herbivorous families of the order.”

- DE VIS, C. W. (1889)—On a new genus of extinct mammals. *Proc. R. Soc. Qd* 5: 158-60, pl. 7 (in part).
- DE VIS, C. W. [In Anon.] (1889)—The Phalangistidae of the posttertiary [sic] period. *Evening Observer* [Brisbane], no. 1786, vol. 6, April 13th, 1889, p. 4, col. 5. [Republished below.] Republished *The Brisbane Courier*, no. 9750, vol. 45, April 15th, 1889, p. 6, col. 5.

Royal Society of Queensland.

The ordinary monthly meeting of this society was held in the society's room, Edward-street, last night. The attendance at these meetings has been steadily increasing, and the room was well filled on this occasion. The president (Mr. C. W. De Vis, M.A.) occupied the chair.

The President's paper proved one of the most important that had yet been read before the society; it dealt with the Phalangistidae of the posttertiary [sic] period, and proved that just as in South America gigantic sloths, tapirs, and armadilloes preceded the present, and comparatively diminutive, animals of the same classes; so in Queensland our native bear, opossum, and cuscus are but feeble representatives of extinct genera, similar in type, but much more bulky and powerful. Possibly, from the arboreal habits of the family, few of its relics were entombed in the post-tertiary drifts, and fossil bones which can be ascribed to phalangiers are extremely rare. The author has at length obtained parts of the bony framework of nine species plainly referable to Phalangistidae. An examination of the remains of the first species proves the former existence in Queensland of a native bear at least thirty times the weight of an ordinary specimen of the existing species. Its dentition marks it out a vegetable feeder, like its closely allied, but not congeneric modern representative. In naming this *Koallmus* (Greek, Koállmos, a stupid fellow) the writer notes—“It would be a curious coincidence if the the native name Koala were also found to refer, as it well might, to the stupidity of the living animal.” Other sets of fossils reveal to us the former presence in north-east Australia of equally bulky archetypes of well-known existing forms, and among these of a cuscus-like phalanger resembling the Toolah, *P. Archeri*, but in life at least 6 ft. long and 800 lb. or 900 lb. in weight. It would be interesting to discover some reasons for this degradation in size of Australian forms. Mr. De Vis does not offer any theory; but the disappearance of a supposed formerly existent inland sea, and the

reduction in height of our mountain ranges by denudation, without corresponding elevation, may have united to bring about such changes of climate as would powerfully effect fauna or flora.

In the discussion which followed it was stated that the chief fossil finds came from the Darling Downs, the Peak Downs, the South River, and similar localities, but the reasons which favoured these sites could not be adduced.

- DE VIS, C. W. (1889)—On the Phalangistidae of the post-Tertiary period in Queensland. *Proc. R. Soc. Qd* 6 : 105-14, pl. 5.
- DE VIS, C. W. [In Anon.] (1891)—In confirmation of the genus *Owenia*, so-called. *The Sydney Morning Herald*, no. 16568, April 30th, 1891, p. 6, col. 8. Republished 1891, *Abstr. Proc. Linn. Soc. N.S.W.* for April 29th, 1891, p. v. Republished 1891, *Zool. Anz.* 14 : 219.
- DE VIS, C. W. (1891)—In confirmation of the genus *Owenia* so-called. *Proc. Linn. Soc. N.S.W.* (2) 6 : 159-65, pl. 13.
- DE VIS, C. W. (1891)—Remarks on post-Tertiary Phascolomyidae. *Proc. Linn. Soc. N.S.W.* (2) 6 : 235-46.
- DE VIS, C. W. [In Anon.] (1893)—A thylacine of the earlier nototherian period in Queensland. *Abstr. Proc. Linn. Soc. N.S.W.* for November 29th, 1893, p. v. Republished 1894, *Zool. Anz.* 17 : 47.
- DE VIS, C. W. (1894)—A thylacine of the earlier nototherian period in Queensland. *Proc. Linn. Soc. N.S.W.* (2) 8 : 443-7.
- DE VIS, C. W. (1895)—A review of the fossil jaws of the Macropodidae in the Queensland Museum. *Proc. Linn. Soc. N.S.W.* (2) 10 : 75-133, pls 14-18.
- DE VIS, C. W. (1905)—Fossil vertebrates from New Guinea. *Ann. Qd Mus.* no. 6 : 26-31, pl. 10. [For the date of publication of this work see p. 157 of this *Index*.]
- DE VIS, C. W. (1907)—Fossils from the Gulf watershed. *Ann. Qd Mus.* no. 7 : 3-7.
- DOBSON, J. (1972 *MS. date*)—Letter from Jessie Dobson to J. A. Mahoney, dated January 17th, 1972, in the archives of the Western Australian Museum. [Published below.] [The enclosure mentioned in the letter is published below under Flower, W. H. (1868 *MS. date*).]

THE ROYAL COLLEGE OF SURGEONS OF ENGLAND
35-43 Lincoln's Inn Fields, London WC2A 3PN

Dear Mr. Mahoney,

The following specimens of Comparative Osteology were among those destroyed when the Royal College of Surgeons was bombed in May 1941:

Thylacinus speclaeus [sic] Flower's Cat. Nos. 3934 and 3935.
Owen's Cat. (Fossils) Nos. 1548, 1549.
From Wellington Valley. Both presented by Count Strzelecki.

- Nototherium inerme* (*Nototherium mitchelli*) Flower's Cat. No. 3844.
Owen's Cat. (Fossils) No. 1505.
From bed of Condamine River. Presented by Col. Sir T. L. Mitchell, 1842.
- Macropus affinis*
Flower's Cat. No. 3764
Owen's Cat. (Fossils) No. 1524. Figured in Phil. Trans. 1874. Pl. xxiii. Figs. 10, 11.
From the Condamine River. Presented by Col. Sir T. L. Mitchell.
- Osphranter gouldii*
Flower's Cat. No. 3765
Owen's Cat. (Fossils) No. 1521. Figured in Phil. Trans. 1874. Pl. xxiii. Figs. 15, 16.
From Wellington Valley. Presented by Count Strzelecki. 1844.
- Hypsiprymnus spelaeus*
Flower's Cat. No. 3795
Owen's Cat. (Fossils) No. 1537.
From Wellington Valley. Presented by Count Strzelecki. 1844.
- Mastodon australis*
Flower's Cat. No. 2649
See: Owen. Ann. and Mag. Nat. Hist. Oct. 1844. Vol. xiv, p. 268; and Falconer. Palaeont. Mem. Vol. ii. p. 271. Add. to Owen's Cat. (Fossils). No. 707A.
Presented by Count Strzelecki.
- Nototherium inerme*
Owen's Cat. (Fossils) No. 1507.
This is recorded as missing by Professor W. H. Flower in 1868 (see enclosure). Owen's description is amended to read:
A segment of the *left* ramus etc.

None of the following specimens can be identified as having at any time been included in the College of Surgeons' Collection of Comparative Osteology:

Dasyurus mordax
Perameles tenuirostris
Phalangista sicca
Phascolomys gigas
Dinotherium australe
Bettongia cuneata

JESSIE DOBSON
Curator of the Hunterian Museum
17th January, 1972.

J. A. Mahoney, Esq.,
Department of Geology and Geophysics,
University of Sydney,
Sydney, New South Wales,
Australia 2006.

DUN, W. S. (1893)—On palatal remains of *Palorchestes azael*, Owen, from the Wellington Caves bone-deposit. *Rec. geol. Surv. N.S.W.* 3 : 120-4, pl. 16.

DUN, W. S. (1895)—Notes on the occurrence of monotreme remains in the Pliocene of New South Wales. *Rec. geol. Surv. N.S.W.* 4 : 118-26, pls 11, 12.

- DUNCAN, P. M. (1870)—On the fossil corals (Madreporaria) of the Australian Tertiary deposits. *Q. Jl geol. Soc. Lond.* **26** : 284-318, pls 19-21.
- ELLIS, W. F. (1969 *MS. date*)—Letter from W. F. Ellis to J. A. Mahoney, dated March 11th, 1969, in the archives of the Western Australian Museum [containing information concerning the date of issue of separates of papers published in *Pap. Proc. R. Soc. Tasm.*].
- ETHERIDGE, R. (1878)—*A catalogue of Australian fossils (including Tasmania and the island of Timor) stratigraphically and zoologically arranged*. Cambridge, Cambridge University Press, x, 232 pp.
- ETHERIDGE, R. (1918)—The ungual phalanges termed *Myiodon australis* by Krefft, spelaeoan animal vel *Thylacoleo* by Owen, and *Thylacoleo* by Lydekker. *Ann. Mag. nat. Hist.* (9) **2** : 307-18, pls 18-20.
- FALCONER, H. (1868)—*Palaeontological memoirs and notes of the late Hugh Falconer, A.M., M.D. with a biographical sketch of the author. Compiled and edited by Charles Murchison, M.D., F.R.S. Vol. 2. Mastodon, elephant, rhinoceros, ossiferous caves, primeval man and his cotemporaries*. London, Robert Hardwicke, ix, 675 pp., 38 pls.
- FINLAYSON, H. H. (1938)—On a new species of *Potorous* (Marsupialia) from a cave deposit on Kangaroo Island, South Australia. *Trans. R. Soc. S. Aust.* **62** : 132-40, pls 5-7.
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| 2 ¹ . | 4 ¹ . | 11 ¹ . | 25. | 70. | 71. | 104. | 106. |
| 130. | 138. | 174. | 176. | 177. | 211. | 211 ¹ . | 212. |
| 346. | 347 347. | 352. | 369. | 372. | 376. | 384. | 385. |
| 386. | 387. | 394. | 395. | 400. | 403. | 404. | 406. |
| 409. | 439 439. | 458. | 479 479. | 471. | 484. | 485. | 491. |
| 502. | 505. | 506. | 510. | 511. | 520. | 521. | 542. |
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| 558. | 559. | 560. | 564. | 567 ¹ . | 567 ² . | 568 ¹ . | 575. |
| 585 ¹ . | 592. | 593 ¹ . | 594. | 595. | 596. | 610. | 616. |

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| 629. | 639. | 639 ¹ . | 643. | 646. | 654. | 658. | 661. |
| 663. | 693. | 701. | 702. | 703. | 714. | 732. | 736. |
| 748. | 792. | 793. | 794. | 795. | 796. | 797. | 798. |
| 799. | 801. | 802. | 803. | 804. | 805. | 806. | 807. |
| 809. | 810. | 813. | 814. | 815. | 816. | 817. | 818. |
| 820. | 821. | 822. | 823. | 824. | 825. | 834 ¹ . | 837 ¹ . |
| 835 ¹ . | 836 ¹ . | 837 ¹ . | 838 ¹ . | 839 ¹ . | 841 ¹ . | 842 ¹ . | 843 ¹ . |
| 844 ¹ . | 862 ¹ . | 863. | 864 ¹ . | 869. | 897. | 913. | 918. |
| 919. | 920. | 921. | 922. | 947. | 952. | 953. | 954. |
| 959. | 960. | 961. | 966. | 982. | 984. | 985. | 1020. |
| 1001. | 1021. | 1024. | 1027. | 1028. | 1038. | 1071. | 1083. |
| 1085. | 1086. | 1118. | 1126. | 1128. | 1164. | 1168. | 1171. |
| 1175. | 1176. | 1186. | 1187. | 1188. | 1189. | 1190. | 1197. |
| 1485. | 1487. | 1488. | 1490. | 1491. | 1492. | 1493. | 1494. |
| 1495. | 1496. | 1497. | 1498. | 1499. | 1500. | 1503. | 1507. |
| 1508. | 1555. | 1563. | 1563 ¹ . | 1564. | 1567. | 1568. | 1568 ¹ . |
| 1568 ¹ . | 1572. | 1579 ¹ . | 1580. | 1586. | 1587. | 1589. | 1590. |

List of specimens missing from the Series of fossil Mammals & birds.
May. 1868.

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193 of Tome I remarks in a footnote "Dans mon mémoire . . . qui paraîtra dans le Bulletin de la Société géologique pour 1853" and a footnote on p. 6 of the text for pl. 36 refers to "le genre *Micromeryx*, Lartet, 1851".

Tome I, p. 192.

La ressemblance des animaux éteints avec les genres caractéristiques de la faune actuelle est bien plus évidente encore à la Nouvelle-Hollande qu'en Amérique ou en Europe. Ses dépôts pliocènes ou pléistocènes ont fourni de grands Kanguroos, un grand Wombat, diverses autres espèces congénères de celles d'aujourd'hui, les genres de *Diprotodon* et *Nototherium* qui étaient aussi des Marsupiaux, mais dont les allures et la taille approchaient de celles de nos grands Pachydermes diluviens, et le Dasyurien, plus grand que le Lion, que M. Owen nomme *Thylacoleo*. Ainsi tous les Mammifères éteints que l'on a découverts à la Nouvelle-Hollande, et dont nous avons donné précédemment la liste, sont, comme la très-grande majorité des espèces actuelles de ce continent, des animaux marsupiaux, et l'on ne peut encore citer qu'une seule dent pour démontrer qu'il y avait avec eux des Mastodontes.

Tome II, p. 7 of text for plate 36 [text entitled Note sur le genre *Eurytherium*, suivie d'une liste comparative des Mammifères observés dans les bassins de Paris et d'Apt, et de remarques sur les Ongulés observés en France].

Les Mammifères fossiles de la Nouvelle-Hollande sont aussi des Marsupiaux soit congénères des espèces actuelles, soit de genres différents. Des dépôts australasiens, que l'on peut regarder provisoirement comme pliocènes, ont fourni les grands Kanguroos décrits par M. Owen; les genres *Diprotodon* et *Nototherium* du même auteur, qui sont des Marsupiaux pachydermoïdes; un grand Wombat, ainsi que le Dasyurien, plus grand qu'un Lion, que ce savant anatomiste va décrire sous le nom de *Thylacoleo* et dont il nous a fait voir quelques débris conservés au musée huntérien.

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CAVE HUNTING.
THE DISCOVERER AT WORK.
MR. GLAUERT'S LABOURS.

Proceeding, the lecturer touched upon an exceedingly interesting section of his investigations. In 1904, he explained, a number of workmen, while engaged in forming a path near the mammoth cave in this State, made the discovery of a large number of bones. Mr. E. A. Le Souef collected a number of these, among which were the jaws of the *Sthenurus* and two thigh bones, which, though unfamiliar to Mr. Le Souef, were found subsequently to belong to the gigantic echidna, which he (Mr. Glauert) had just described in part 3 of the "Museum Records." In 1905 the Director of the Perth Museum; Mr. B. H. Woodward, visited the locality, bringing back to Perth specimens from the Mammoth, Bride's, and Museum caves. In 1909 the lecturer visited the Mammoth cave under

instructions from the Director of the Museum, to undertake the systematic examination of a portion of the cave. The result of his labours, which occupied a period of less than two months, was that he amassed a collection of some 2,000 specimens, which included a *nototherium*, a Tasmanian wolf, a Tasmanian devil, a native bear, an extinct Western Australian wombat, several forms of extinct kangaroos, one of which was at least twice the size of the grey kangaroo of to-day, the Western Australian *sthenurus*, the giant echidna, and many other forms. In 1912 he visited several other caves, and was assisted by the late Mr. L. McK. Burns. But, though a number of bones were collected in the Bride's and Museum caves, the results were not as satisfactory as those achieved in the Mammoth cave. In the early part of the present year he was instructed to continue his search in the cave which had yielded such a rich harvest in 1909. The result of the labours of the first few weeks were of such great scientific importance that the Director appealed to the public for assistance to enable him (Mr. Glauert) to continue the work. Sir Winthrop Hackett, who had so generously stood behind other similar ventures, was in the old country on that occasion. The public made so liberal a response that he was enabled to remain in the caves until the approach of the winter forced him to discontinue his labours. The specimens collected by him on this occasion were sent to Perth in 21 cases, and included the remains of 20 individuals of *nototherium*, the Tasmanian devil, 10 native bears, 12 Hackett's wombat, 40 *sthenuri*, the marsupial lion, 10 echidnas, and a number of other specimens which had not yet been identified, but which were expected to contain remains of a number of specimens new to science.

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Myiodon (?) Australis (Krefft).

A distal or ungual phalanx of some unknown animal, resembling the same bone of a *Myiodon* (the distal phalanx of the pollex).

The specimen referred to is quite unique, and proves the existence in Australia of a large sloth not unlike the South American genus *Myiodon*; the size of the bone is about 1 inch and 2 lines in length. Another much smaller distal phalanx, also covered by a "hood," is in the collection, but this belongs evidently to either a dog or cat like creature.

Some lower incisor teeth of another new animal allied to the *Thylacoleo* have been found, for which I have proposed the generic term of—

Plectodon.

These much fractured teeth are distinguished by a dental fold on the inner side, raised in one specimen about 2 lines above the other portion of the tooth (at the tip), and gradually diminishing. The outer surface is marked by a shallow groove in the middle. The enamel is rugged, resembling the worm-eaten appearance exhibited by the molars of the Diprotodons; but the marks are not so deep. The other specimens are very fragmentary, but the commencement of the fold is well marked in each. Besides these relics, a few shaft bones belonging to the first or inner toe of a large phalanger have been obtained, which are referable to either the *Thylacoleo* or *Plectodon*.

Halmaturus (?) Thomsonii (Krefft).

This species was obtained at the first examination of the caves in 1866. The typical specimen consists of the anterior portion of a left mandible with perfect first and second molar. The premolar is broken off, and the remaining sockets show that it was a compact powerful tooth. The median ridge of the molars is thin, with many folds on the inner side. The hind part of the second lobe is also strongly ridged or folded, and has a central triangular mark in the middle of the two last molars. The articulating symphysis shows that the mandibles were closely united together, and that the action peculiar to the incisors of modern kangaroos must have been altogether wanting. The fang of the incisor is of moderate size, with the crown tapering, and probably slightly incurved at the tip; the tooth is too much fractured to give a correct description of it.

2. The second specimen consists of a fractured right mandible, with four perfect molars and spurious premolar; the incisor is missing, as is also the permanent premolar, which, judging from the size of the empty socket below the spurious tooth, must have been large and compact.

Halmaturus (?) Scottii (Krefft).

1. This is an allied species of much larger size, but with a smaller and more compressed premolar which is still imbedded in its alveolous [sic] and resembles in form the premolar of *H. atlas*. The specimen referred to is a fractured mandible of the left side, with the last molar breaking through, the three first grinders perfect, and a fractured portion of the spurious premolar; the permanent tooth is exposed beneath.

2. A much-worn molar of the upper series; no other teeth of the upper portion are known to us.

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Natural History.
The Phalanger Tribe—(CONTINUED.)
By Gerard Krefft.

I gave a short account of the northern striped Phalanger in No. 617 of the *Mail*, followed by a review of Professor Owen's last paper on the highly interesting and much misunderstood animal called *Thylacoleo carnifex* [sic]. Sketches, showing the dentition of this creature, appear in the present issue.

The *Thylacoleo*, which combines in the structure of its skull and in the formation and function of its teeth relationship with every one of our marsupial groups, is the most typical of Australian Implacentals. The flying Phalangens come next to it, and to these belongs the *Dactylopsila*, without a parachute, or skin-membrane. This section is not sufficiently understood at present. M. F. Cuvier informs us, for example, that the teeth of the "sugar squirrel," *Belideus sciureuj* [sic], resemble those of the genus *Cuscus*, or of the common vulpine Phalanger, which is certainly a mistake, because the teeth of the animals mentioned differ totally from each other. Foreign naturalists often lay down laws for us with very scanty material at their command, though it may require hundreds of skulls of a species to prove what is the rule, and what the exception.

The great M. Cuvier (George) was a far more acute observer that [sic] his brother Frederic; but, clever as he was, he never fixed "Principles in Palaeontology" for the determination of fossil mammalian remains which he had never seen. His advice to students—"examine the molar teeth; they determine whether an animal is a Herbivore or Carnivore"—is thoroughly sound, but not without exception, like other human rules,—the

exception to Cuvier's rule being our friend the *Thylacoleo*, which animal ground its food with the premolar teeth. The true molars of this creature, in particular the upper one, have certainly not a very carnivorous aspect, and are almost functionless; and when Cuvier taught comparative anatomy he was not prepared for exceptional cases like the present. George Cuvier was a man with a larger mind than some of his followers, and had he possessed the collections of the present day he would have arrived, in this instance, at more correct conclusions than his great pupil.

DESCRIPTION OF THE ILLUSTRATIONS.

No. 1.—Skull (less than one-half natural size) of *Thylacoleo carnifex* restored in 1869.

The upper jaw contains the following teeth, counting from right to left:—

1st, 2nd, 3rd [sic] 3rd, incisors, 1 canine, 2 small premolars, a large third premolar which performs the function of cutting and grinding the food, and a single transversing deposed molar tooth which is not visible (figured below under No. 6). The lower jaw contains the right incisor, next to it two or three tubercular teeth representing the canine and first and second premolar, the large third premolar and two molars behind it, the last of which is functionless and very small.

In the real skull the upper canine is partly or altogether hidden by the first small premolar and the third incisor, just as the third great premolar hides the two or three small tubercular teeth between it and the incisor below. The bringing into view of all the teeth has of course slightly altered the shape of the anterior part of the skull.

No. 2.—Represents the grinding surface of a much worn left upper premolar, to which, and to the lower premolar (No. 4), the function of crushing the food was assigned. The worn aspect of these great teeth sufficiently proves that the animal was not a highly developed carnivore.

No. 3.—is a right upper canine tooth, natural size, of a species of *Thylacoleo*, for which I have proposed the name of *robustus*. The canine of *T. carnifex* is much smaller (see fig. 10).

No. 4.—The left lower, much worn, third premolar of *Thylacoleo carnifex*, natural size.

No. 5.—The right lower incisor of a *Thylacoleo*, showing much attrition near the tip, which was caused by the mandibles being loosely attached, and more or less movable, a convincing proof that these weak incisor teeth were not designed for the purpose of "holding, retaining, and killing," the gigantic marsupial herbivores of former ages.

No. 6.—The upper molar which is hidden in our skull; natural size. This tooth evidently belongs to a larger species than the one described.

No. 7.—The right upper 1st incisor.

- | | | |
|-----|---|--------------|
| 8. | " | 2nd " |
| 9. | " | 3rd " |
| 10. | " | canine |
| 11. | " | 1st premolar |
| 12. | " | 2nd " |

all of the natural size. Of the two small flat premolars a broad view is given to show the size of the teeth.

They are, however, inserted in such a manner that the narrower portion faces outwards. This mode of implantation accounts for the small space these teeth appear to take up in the skull.

No. 13.—One of several right upper first incisor teeth, showing the complete absence of enamel on the inner surface against which the lower incisor works.

No. 14.—The right lower incisor of a koala or native bear, natural size, proving that the *Thylacoleo* was but twice as large, and that its lower incisor teeth resemble those of the harmless native bear very much.

KREFFT, G. (1872)—Natural history. The phalanger tribe—(continued.). *The Sydney Mail and New South Wales Advertiser*, no. 623, vol. 13, June 8th, 1872, p. 713, cols 2-4, figs 1-5.

KREFFT, G. (1872)—Natural history. The phalanger tribe—(concluded.). *The Sydney Mail and New South Wales Advertiser*, no. 627, vol. 14, July 6th, 1872, p. 9, cols 2-4, figs 1-10.

KREFFT, G. (1872)—Natural history. The kangaroo tribe—(continued.). *The Sydney Mail and New South Wales Advertiser*, no. 637, vol. 14, September 14th, 1872, p. 327, cols. 1,2. [Extract concerning the larger kangaroos republished below.]

Natural History.
The Kangaroo Tribe—(CONTINUED).
By Gerard Krefft.
Fossil Species.

Remains of the kangaroo tribe in a fossil state are numerous, the smaller ones being better preserved in cave deposits, whilst those of ordinary size and the very large species occur more frequently in alluvial ground. The large species may be divided into three groups.

1st. The short-headed kinds of great size, with thick compact jaws, rather weak lower incisor teeth and many-ridged powerful grinders. Of this group we know chiefly lower jaws, and I do not think that a single portion of the upper rami has as yet come to hand. This group I shall distinguish by the generic term of

Pachygnathus (thick-jawed).

The premolar tooth in all the rami examined is not so much developed as in the other more slender-jawed large species; it is compressed, and the lower incisor is also remarkable for its weakness. The symphysis—that is, the part where the rami join—is very rugged, and was firmly fixed during the life of the animal, so that mobility in the two halves, as in the present kangaroos, was impossible. Modern kangaroos have cartilage between the mandibles, and can open and contract them slightly, using the sharp-edged teeth like scissor-blades for cutting the grass. I have once before suggested that the bulky species became extinct probably in consequence of their inability to sustain life during severe droughts, when the grass was scanty, which the other species with moveable jaws were able to nip close to the ground. However this may have been, the whole tribe has disappeared, and we know only a few very fragmentary remains.

The many short tarsal bones and thick finger joints which are occasionally found, may be referred to this same genus. I fear, however, that we shall never be quite certain on that point, because the remains of individuals are scattered about in such a manner that no man can say to which species this or that bone may have belonged; and as to expecting to find a complete skeleton by itself, I for one shall not indulge in such visions.

Those men of science who are always ready to name new species on the strength of each separate piece of bone which comes to hand, would do well to pay a visit to our bone caverns, and to the alluvial flats and creek banks in the Murrurondi [sic] and Scone district, where Dr. Creed, M.L.A., has discovered many fine fragments of various kinds of kangaroos. Dr. Bennett, who has visited the King's Creek bone deposits in Queensland, gives the same account about the manner in which the specimens are scattered about and broken, so that a classification of them, except as bones of a certain group of animals, is impossible.

The second new genus which it is necessary to establish will be named

Halmaturotherium

(meaning an ancient *Halmaturus*). This division comprises species of the kangaroo tribe, which, though of much larger size, still resemble in their dentition the *Halmaturi* or wallabies of the present day. These wallabies are distinguished from the kangaroos of the genus *Macropus* by the greater permanence of their teeth. If an aged "boomer" is examined, it will be noticed that he has probably lost half his grinders, and is obliged to do the best he can with one pair above and below in each ramus; but with the wallaby proper the case is different. This smaller animal may wear away the teeth, but all in an equal degree; there is not the same tendency to push the anterior teeth forward and out, though some species which form the connecting link between wallabies and kangaroos proper, approach to this condition. Besides, the wallabies have always large and permanent premolars (the first tooth in each ramus above and below), and these teeth are also well developed in certain large and extinct species. Another good characteristic in [sic] the large size of the first upper incisor the narrow second tooth, and the moderate-sized, third, which is sometimes smooth and spade-like, and not furnished with the one or two indentions or folds which the third upper incisor of the genus *macropus* [sic] exhibits.

It is necessary to be particular, because the single specimen of an upper ramus in the almost perfect set of incisor teeth, is deposited in our collection, and I believe is still unique.

The loose teeth are well-known to me, but it was impossible to tell till this specimen was found to which group they belonged. There is also another first, second, and third upper incisor imbedded in solidified mud, of a species which resembles in its third tooth the present black wallaby, which has the usual deep fold at the posterior margin but probably belonging to an animal from 200 to 300 lbs. in weight.

It may be necessary to make two or more sub-divisions for these extinct kangaroos, or wallabies, which had rather firm jaws and more or less tulip-formed incisor teeth—teeth with deep cavities open at the crown. Besides these, we have to note the common genera of *Macropus*, *Osphranter*, *Halmaturus*, and a rather gigantic *Macropus*, which differs little, except in size, from the genus still living.

KREFFT, G. (1873)—Discovery of the missing bones of the *Diprotodon*. *The Sydney Morning Herald*, no. 11000, vol. 68, August 19th, 1873, p. 5, col. 5. [Republished below.]

DISCOVERY OF THE MISSING BONES OF THE
DIPROTODON.
TO THE EDITOR OF THE HERALD.

Sir,—The missing foot bones of the *Diprotodon*, the gigantic marsupial of Post Pliocene Australia, have at last been discovered, thanks to the energy displayed by Dr George Bennett, F.L.S. When in Queensland during his last trip, the Doctor drew attention to these long missing parts, on the shape of which naturalists have speculated for nearly half a

century. Mr. George F. Bennett (son of Dr. Bennett) and Mr. George B. King, of Gowrie, Queensland, took the investigation in hand, and they were highly successful, having discovered a rare deposit, comprising jaws and teeth of both the *Diprotodon* and *Nototherium*, or *Zygomoturus* [sic]. The cases containing them arrived in town on Saturday last, and having been inspected by Dr. Bennett and myself were found to be of great interest, in particular the bones of the feet, which though not exactly perfect and somewhat broken, gave a very good idea of the animal's probable mode of progression. The *Diprotodon* was as bulky as the largest living elephant, but stood low on its legs which bore much resemblance to those of the great Proboscidean. The feet, however, were more like those of the *Mylodon*, a South American gigantic Sloth. There are of course a good many of the smaller bones missing though others such as some metacarpal and nail bones occur, which evidently belonged to more diminutive allied species. The nail-bones are without a sheath, but deeply furrowed near the tip and resemble those of a gigantic wombat; being, however, more compressed. A nearly perfect "atlas" resembles that of a wombat on a large scale and is not completely ossified below. There is also the tulip-shaped end of the collar-bone, showing how close some of the parts come to the corresponding ones of the wombats. I believe that the animal stood not more than six feet high at the shoulder, and that the tribe probably lived on coarse herbage or leaves, felling the trees with their great tusks like modern beavers. The whole collection is one of the best ever brought to Sydney, and it will enable Professor Owen to add to his descriptions of some of our fossils, and more particularly to correct errors which, on account of insufficient material, have now and then occurred in his papers.

I am thankful that Dr. Bennett. has allowed photographs and casts to be taken at the Museum of the more interesting specimens; which will be dispatched by the outgoing mail.

I am, Sir, your obedient servant,
GERARD KREFFT.

Postscript.—Dr. Bennett has sent all the foot-bones, and I find that there are only three or four of the *Diprotodon*; the rest belong to some other "nondescript creature," which certainly had a foot like the American *Mylodon*. G.K.

KREFFT, G. (1873)—Natural history. Review of Professor Owen's papers on the fossil mammals of Australia. *The Sydney Mail and New South Wales Advertiser*, no. 686, vol. 16, August 23rd, 1873, p. 238, cols 1-4. [Republished below.]

Natural History.

Review of Professor Owen's Papers on the Fossil Mammals of Australia.

By Gerard Krefft.

1. Report on the Fossil Remains discovered by Sir Thomas Mitchell, in the Caves of Wellington Valley. Three expeditions into the interior of Eastern Australia, &c., May 8, 1830 [sic], by Major T. L. Mitchell, F.G.S., Surveyor-General of New South Wales. Vol. 2, p. 359. By Professor Richard Owen, F.R.S.
2. Descriptive and Illustrated Catalogue of the Fossil Organic Remains, &c., contained in the Museum of the Royal College of Surgeons of England, London. 1845. 4to, pp. 391 and 10 plates. By Professor Richard Owen, F.R.S.

3. On the Fossil Mammals of Australia, part 1. Description of a mutilated skull of a large marsupial carnivore (*Thylacoleo carnifex*) (Owen), from a calcareous conglomerate stratum, eighty miles south-west of Melbourne, Victoria. Philosophical Transactions of the Royal Society of London. Vol. 149. (1859.) Pp. 309 to 322. 5 plates, 4to. By Professor Richard Owen, F.R.S., &c.
4. On the Fossil Mammals of Australia, part II. Philosophical Transactions of the Royal Society of London, vol. 156 (1866), pp. 73 to 82, 3 plates, 4to. By Richard Owen, F.R.S.
5. On the Fossil Mammals of Australia, part III., *Diprotodon Australis* (Owen). By Richard Owen, F.R.S. Philosophical Transactions of the Royal Society for 1870, pp. 519 to 578, 16 plates.
6. On the Fossil Mammals of Australia, part IV., Dentition and Mandible of *Thylacoleo carnifex*, &c. By Professor Owen. Philosophical Transactions of the Royal Society for 1870, pp. 213 to 266, 4 plates.
7. On the Fossil Mammals of Australia, part V., genus *Nototherium* (Owen). By Professor Owen, F.R.S. Philosophical Transactions of the Royal Society for 1871, pp. 41 to 82, 10 plates.
8. On the Fossil Mammals of Australia, part VI, genus *Phascolomys* (Geoffr). By Professor Owen, F.R.S. Philosophical Transactions of the Royal Society for 1871, pp. 173 to 196.

The contributions of Professor Owen to Australian literature are considerable, and in discussing the eight papers here mentioned I have no other object in view than to point out errors for which the author is not always responsible. The first account of fossil Australian animals is given in Sir Thomas Mitchell's work "Three Expeditions," in which two large kangaroos named *Macropus Atlas* and *Macropus Titan* are described. A species of *Hypsiprymuns* [sic], or more correctly a bettong, or rat kangaroo, identical with our still living *Bettongia Grayi*, is mentioned, and also a phalanger or "opossum," a wombat (*Phascolomys Mitchellii*), a large Dasyure or Tasmanian tiger, *Dasyurus (Sarcophilus)* [sic] *Laniarius*, and the gigantic *Diprotodon Australis*. Of these animals the two kangaroos and the *Diprotodon* alone are distinct species. The wombat *Phascolomys Mitchellii* may have differed also from now living ones, but the bettongs, the large Tasmanian tiger, and the *Sarcophilus*; or Tasmanian devil, are identical with the still existing Gray's Bettong (*Bettongia Grayi*), and with the two ferocious Dasyures, the *Thylacinus* and *Sarcophilus* of Tasmania.

The catalogue of the Royal College of Surgeons contains descriptions of many remains which are more fully described in a subsequent treatise, and I desire to point out that the teeth of *Diprotodon* on plate VI., which are intended to represent the molar series of that animal, could not belong to the same individual, otherwise the surface of the first two or three teeth would have shown greater abrasion.

Persons acquainted with the peculiar wear of the teeth of living herbivorous marsupials will see at a glance that those of a *Diprotodon* figured on plate VI. of the College of Surgeons "Catalogue of Fossil Mammalia and Aves" are arbitrarily put together and must have been the teeth of different animals. When the last molar is still imperfect, and enclosed in the alveolus, the first and second tooth are already much worn, and as such wear is not indicated in the teeth represented, they cannot be what they are stated to be, namely the second, third, fourth, and fifth molars of *Diprotodon Australis*.

The whole row are back teeth, fourth or fifth ones of several animals of that genus.

On plate VII. (of the same catalogue) five illustrations are given of *Diprotodon Australis*, namely, portions of lower jaws; and if these figures are compared with the subsequent figures of *Diprotodon Australis*, in particular with those on plate XXXV. of the Philosophical Transactions for 1870, it will probably be admitted that they also belong to very different animals.

The genus *Nototherium* is first defined in this catalogue, and figures are added of two species, on plate VIII, of *Nototherium inerme*, and on plate IX of *Nototherium Mitchelli*. To these illustrations I shall refer again.

Plate X. represents, according to the explanation on p. 391 (Catalogue of Fossil Mammalia and Aves in the collection of the Royal College of Surgeons), the astragalus of probably a species of *Nototherium*, and the inside view of the os calcis or heel bone of probably the *Diprotodon Australis*.

It is difficult to say to what genus this astragalus belongs. It is certainly that of a gigantic phalanger; whether a *Nototherium*, *Diprotodon*, or even a *Thylacoleo*, no person can tell.

The lower figures 5, 6, 7, and 8, designated as heel bones (os calcis) of probably the *Diprotodon Australis* are in reality broken atlas vertebrae of a gigantic (wombat-like) phalanger. This I pointed out years ago, and am glad to notice that Professor Owen himself has been led to believe that the bones figured "may be fragments, somewhat rolled and worn, of atlas vertebrae."*

I think it would have been as well to state distinctly what the specimens are, because there cannot be the slightest doubt of their nature. The os calcis is not perforated like each half of a *Diprotodon*'s atlas, and this distinguishing mark alone should have enabled the author to tell us, without wavering, what the bones are which were figured by him under the name of Calcaneum. The imperfect jointure of the atlas in our gigantic extinct animals is a proof that they belonged to the Phalanger tribe, and more particularly to some aberrant and now extinct section intermediate between the wombat and the koala. The lower portion of the atlas of the wombat is never ossified, and in young subjects both halves are separate pieces, held together by cartilage. Our extinct gigantic phalangers possessed an atlas of similar structure. With regard to the papers read by Professor Owen before the Royal Society of London in 1857 and 1866, no further remarks are necessary. The fallacy of the views expressed therein, that the *Thylacoleo* was a predacious carnivore, have been fully explained by Professor Flower and myself, chiefly in the Sydney Mail, and the "Annals of Natural History." This explanation has been approved of by the chief anatomists of the day, Professor Owen excepted. Not having seen the papers in question till now, I had no opportunity to remark earlier, that the bone figured on plate XIII., fig. 6, vol. 149, of the Philosophical Transactions, determined as the "metacarpal" of a carnivorous quadruped, is the "metatarsal" of the inner digit of an extinct kangaroo—in plain English, the first joint of the inner hind toe of that well-known animal. It was pointed out by me long ago that a tribe of kangaroos formerly existed in Australia which resembled the wombats in the shortness of their firmly-jointed mandibles, whose feet were also much shorter than those of the modern kangaroo or wallaby, and who were furnished with narrow and [sic] blunt incisor teeth unfit to nip the grass in the manner of the present kangaroo.

This kind of animal has been referred to a special genus, for which the name of *Halmaturium* was proposed by me in the Sydney Mail of September 14, 1872.

To such a short-headed herbivorous kangaroo the left fourth metatarsal belongs, which has been pronounced the "metacarpal" of a carnivore.

An interval of five-and-twenty years lies between the publication of the College of Surgeons' "Catalogue of Fossil Mammalia and Aves," and the thorough re-investigation of the *Diprotodon* in the Philosophical Transactions for 1870. The British Museum must have received many valuable additions of fossil bones during this quarter of a century, and I know that Dr. G. Bennett more particularly sent numerous specimens for examination. Nevertheless

*Phil. Transact. 1870, p. 540.

the result is singularly barren. After all these years of trial the genus remains restricted to a single species. There can be no objection to keep the number of species under, in particular when they were founded on single bones or teeth, but when dealing with perfect jaws, or with portions of such, we are bound to describe and class them separately. This not being done by the author (who refers, for example, all the *Diprotodon* remains to one single kind, classing them as male, female, or young), I shall try and explain why such arrangement is defective.

It is necessary again to draw attention to the established fact that the large extinct mammals of this country were allied to the Phalanger family, and to an intermediate form which stood between the wombat and the native bear (*Phascolomys* and *Phascolarctos*). The molar teeth with their tapering fangs, the short-crowned and deep-rooted premolars, the imperfectly ossified atlas, the tusk-like incisors are points still retained in the skeleton of the living koala and wombat, and are seldom met with in the kangaroos. It was, therefore, hazardous to state distinctly that a bone or tooth or a fragment of jaw belonged to either a male, a female, or a young animal of a certain species, if such tooth or jaw happened to be of smaller size (besides being perhaps of totally different structure) than some other fragment.

If male and female koalas and male and female wombats are without much bodily difference at the present day, and if their bones cannot be sexually determined, it is quite logical to conclude that their male and female progenitors or extinct allies, the gigantic diprotodons, did not differ much in bulk sexually. It is also correct to assume that jaws of different sizes and teeth of different structure belonging to the genus in question, should be referred to distinct species, and should not be put aside with the general remark of "probably a female," or "a young female of *Diprotodon Australis*."

When Professor Owen fully described the *Diprotodon* first, he pointed out the worm-eaten appearance of the enamel of the molars, a characteristic peculiarity which may often hold good as a specific character, but which could not always be relied on, and I have no fault to find if this enamel test is discarded as a point of "generic" distinction. On plates 37 and 38 of the *Diprotodon* treatise* we find two very different sets of teeth figured as "probably those of a male and female," and I cannot help thinking that there must be something wrong here, because some of the teeth have smooth the other coarse enamel, and besides this they differ in shape. I can give a good example with regard to the variation of *Diprotodon* skulls by referring those interested to my description of *Diprotodon Loderi*, in a former paper of the Sydney Mail. This skull is smaller than the *Diprotodon Australis*, the molar teeth are, however, equally as large, perfectly smooth, and the premolar not larger than a filbert nut. This perfect skull is in the Australian Museum. All the teeth figured on plates 37 and 38 are supposed to be only sexually distinct, and their wear ought to prove sufficiently that the set of teeth presented in the catalogue of the Royal College of Surgeons† which do not show any abrasion from first to last must have been imaginative, not a trustworthy and illustrative set. It is to be regretted that the author reproduces these identical teeth (which are probably back-teeth of several species put conveniently together) into the new *Diprotodon* treatise (see plate XL of Professor Owen's paper on the *Diprotodon*), whereby much confusion is caused to students who try to follow the author's arguments.

Let any unbiassed person examine plate XXXVIII. and look at the last molar and compare the successively much worn teeth with the teeth marked 1, 5, 9, and 12 of plate XL (not one of which is worn), and it will appear plain that there is a grave error, accidentally made through ignorance in 1845, and perpetuated with improved knowledge in 1870. I state again the teeth are back teeth from first to last.

*Phil. Transac. 1870, p. 519.

†Collection of Fossil Mammalia and Aves, plate VI.

We should always bear in mind that the Phalangers are our most typical animals, and that they were far more numerous and larger in ancient times. There existed at least twenty different *Diprotodons*, in size between a hippopotamus and a common pig; and probably many *Zygomaturus Nototherium* [sic] and wombats besides.

The kangaroos consisted chiefly of short-footed and short-headed species, though a few slender-limbed animals occur already, some of which have successfully maintained their position to the present day.

A few years ago such an assertion would have been considered doubtful; but at our time when people are liberal enough to admit that those who study nature must be able to judge about such things, it is no longer a matter of surprise to hear that development had something to do with the productions of new species.

The typical animal being the Phalanger, still represented by native bear, flying squirrel, opossum, and wombat—we cannot be much astonished to notice the resemblance of the earlier kangaroos to some of these animals, and we must not find fault with Professor Owen because he failed to recognise the rather stout outer foot bones of a primitive herbivore, mistaking it for that of the hand or manus† of a carnivore. This error will probably be corrected in the Professor's next paper. Many of the earlier speculations regarding our fauna have not been verified and no carnivorous animal larger than a common Tasmanian tiger has as yet been proved to exist in post pliocene Australia; and the notion that the *Thylacine* or the harmless *Thylacoleo* carried the numerous remains of bones and teeth into the Wellington Breccia Cave is altogether untenable at the present day.

It is also a curious fact that the remains of real carnivorous marsupials and of dogs are exceedingly rare in those alluvial deposits which have hitherto yielded so rich a harvest of *Diprotodon* and other bones of great animals.

On plate 43 of the Philosophical Transactions for 1870 the author figures portion of the first or atlas vertebra, and the "axis" or "vertebra dentata," both of the natural size, and belonging, as I infer, to the *Diprotodon Australis*. The "axis" may be referable to the giant marsupial, but the atlas is not, being too small by half for such a ponderous creature. Two of the fossil atlas vertebrae in the Museum collection are perforated by canals which allow a common lead pencil to pass, whilst a third is grooved only; all three differ considerably in shape, and must have belonged to three distinct species.

On page 545 the author states that the wombats have only four or five dorsal vertebrae; I have, however, counted six, and even seven in the hairy-nosed wombat *P. lasiorhinus*.

In bringing my remarks on the *Diprotodon Australis* to an end I decline to discuss the drawings of skull and mandibles on plate 35, because the artist was not equal to the task. By means of photography, a more elongate and otherwise more correct representation of the skull (a splendid cast of the original) was obtained by me. The skull attached to the attempted restoration on plate 50 is still more distorted, the fore part of the body too high, and the whole altogether too long on its legs. A common wombat skeleton would give the best idea of what a gigantic *Diprotodon* was like, and the original never had the long tail indicated in the restoration.

The splendid set of fossil remains discovered by Messrs. Bennett and King, at Gowrie, and forwarded to Dr. George Bennett, F.Z.S., &c., contains a nearly perfect atlas, which is four times as large as the one figured by Professor Owen.

†Philosophical Transactions, 1859.

Part V. of Professor Owen's Paper on the Fossil Mammals of Australia treats of the genus *Nototherium*. The author informs us that in 1842 two mutilated mandibles were discovered by Sir Thomas Mitchell in the bed of the Condamine River, which were first determined as young *Diprotodons*, but subsequently recognised as parts of full-grown animals, for which the genus *Nototherium* was established. Professor Owen thought first that the incisor teeth were missing in this genus, but this was proved not to be the case, because some of these animals possess very small incisor teeth in the lower jaw.

In 1856 the famous, still unique, and very perfect skull of a gigantic marsupial animal was discovered by Mr. F. N. Isaacs, in the King's Creek, Darling Downs, presented to the Australian Museum, and described by the late Mr. W. S. Macleay as *Zygomaturus trilobus*. This skull is claimed by Professor Owen as belonging to the animal named by him (from a jaw) *Nototherium Mitchelli*. Having been favoured by the author with a cast of the bone in question, I can with confidence assert that the specimen could never have belonged to Mr. Macleay's *Zygomaturus*.

It will be generally admitted that the teeth of one individual do not differ in structure, above and below, and that if we have to deal with upper teeth, which have the enamel perfectly smooth, cannot presume that mandibular teeth, which show a decidedly rough exterior, could be claimed as belonging to a smooth enamelled upper set. This, however, is precisely what Professor Owen is doing. Our original *Zygomaturus* skull contains teeth, smooth as glass, and Owen's *Nototherium Mitchelli* has rough teeth, showing the worm-eaten appearance pointed out as a peculiarity of the genus *Diprotodon*; and I have every reason to believe that the author of the famous "Odontography" will reconsider his decision in this matter. Comparing the size of the first grinders (or premolars) above and below, a great difference is observable between the upper teeth in our original skull and the corresponding lower ones contained in the jaws said to belong to it. The premolar above is one inch and nearly a quarter in length and only one-eighth less in width, it is provided with powerful fangs, has four tubercles on the working surface, and is altogether little inferior to the second tooth of the series.

The only lower jaw which has a tolerably perfect premolar, is in the Australian Museum, and this tooth is one-third smaller than the upper one; the length is half an inch; the width, in the centre, three-eighths of an inch; the two fangs combined are not larger than one fang of the upper tooth. The enamel is perfectly smooth, whilst the cast of *Nototherium Mitchelli*, sent to me, has a rough "wormeaten" surface.

On plate II. of the 5th treatise (Phil. Trans., 1872, p. 41) a lower jaw is drawn beneath the side view of the skull which I sent to the author. No locality where this jaw was found is given, and it appears to me that it is a restoration of our jaw in the Australian Museum collection, the teeth being besides considerably altered. If such a jaw exists it should have been stated where, and the upper surface of the teeth should have been illustrated.

To the front view of the *Zygomaturus* skull a corresponding view of this (imaginary?) jaw is added; but in the description of the plate nothing is said of it. The "skull only" is referred to as that of *Nototherium Mitchelli*. The jaw figured on plate IV. (of the 5th part) comprises three views, said to have been purchased from Mr. Ben. Boyd's collector, must have had very small incisor teeth. The author, who would fain claim this small-toothed jaw as belonging to the skull in the Australian Museum, considers it even to be identical with it, and yet he designs the most formidable pair of incisors as shown on plate II.; so that it is difficult to imagine what kind of lower cutting teeth the animal really had.

On plate VIII. we have a representation of a jaw, said to be that of *Nototherium inerme*, which does not show a trace of incisors, though the bone is tolerably perfect; and, with all due respect to the author, it is impossible to believe that a genus is well described within so wide a margin as the genus *Nototherium*. A definition would read at present thus;—"Lower

incisors sometimes absent, sometimes represented by large tusks." If the jaw without teeth belongs to a *Nototherium*, the one with large tusks does not. Originally the genus was founded on a species without incisor teeth, or with very diminutive ones; and to animals with such jaws the term should be confined.

The cutting teeth of the *Nototherium* or *Zygomaturus*, are constantly mistaken by anatomists here or elsewhere. Professor M'Coy figured one of the lower series in 1865,* under the belief that it was the "canine" of the *Taylacoleo* [sic]. Having pointed out what the tooth really was in the 18th volume of the "Annals" for 1866, p. 148, I noticed a subsequent paper by Professor Owen, describing "an upper front incisor, right side, of the *Nototherium Mitchellii*."† The specimen is stated to be 5 inches 1 line in length, and 1 inch 7½ lines in diameter, a formidable tooth, and one which could never have been contained in the "original" jaw of *Nototherium Mitchellii* (P. 4 of part V.) The same tooth is exhibited again (P. IX., part V., figs. 1 and 2), and the fact that it is what Professor Owen believes it to be is announced with authority. We cannot blame the author, who has never seen the upper first incisor of a *Zygomaturus* or *Nototherium* in its alveolus, that he thus mistakes a lower tooth of some other gigantic phalanger; still, it teaches us to be careful in such matters. The upper first cutting tooth of the *Zygomaturus* or *Nototherium* is totally different from the lower, and forms about one-sixth of the segment of a circle. It has a deep groove at the lower inner part, thickens to double the size above it, and is of the same width throughout, the working surface being broken off. A shallow groove is formed in the centre of the outer surface, disappearing near the crown. It is a tooth of more or less continuous growth, as the pulp-cavity clearly shows; whilst the lower tooth of the *Nototherium* proper ceases to absorb the pulp at a certain age of the animal. It should be borne in mind that our unique *Zygomaturus* skull shows a similarly constructed tooth, which has been laid bare especially for Professor Owen's inspection, who received casts, photographs, and descriptions of the subject in dispute. I regret to say the Professor has hitherto failed to recognise the characters pointed out, and he continues to illustrate his works [sic] erroneously with the "lower" incisors of certain gigantic phalangers, informing his readers that they are "upper" ones. As the Australian Museum has sole possession of these upper teeth, the correctness of my statement cannot well be disputed.

The difference between the lower incisors of the *Diprotodon* and *Nototherium* consists in the first being round, straight, and tusk-like; and the latter compressed, fusiform, and slightly curved. I conclude, therefore, that the illustrations of a jaw of a young *Nototherium Mitchellii* (pl. II. of part V.) is in reality that of a *Diprotodon*; chiefly because the incisors, though still small, show already their tusk-like nature. I could point out many more errors, all of which I am ready to prove, but my time is too short, and I shall therefore allow this matter to rest, and give a recapitulation of my remarks.

The gigantic extinct animals of Australia should be classed with the Phalangers, with whose skeleton they agree best, there being a considerable resemblance to the Wombat in general appearance, though the structure of the feet discloses *mylodon* characters. The size of the species varied from that of an elephant to a common pig, but all stood low on their legs, and the largest was probably less than five or six feet high at the shoulders.

They are divisible into three or four genera, namely—

The Diprotodons,

with tusk-like round lower incisors, and curved adze-shaped upper ones.

With generally a small premolar, lost in aged animals, and four large grinders above and below in each ramus. Probably twenty different species existed.

The Nototheriums,

whereof only lower jaws are known containing diminutive incisor teeth and small premolars with four grinders like the first group.

* Ann. and Mag. of Nat. Hist., 1865. Vol. XVI. 3rd series, p. 448. Woodcut.

† Ann. and Mag. of Nat. Hist. Vol. XVIII., 3rd series, p. 475. R.M.

The Zygomaturus Tribe,

whereof only a perfect skull and fragments of the palate, &c., are shown, with compressed upper first incisors forming the sixth segment of a circle, continuously growing, and with two other much smaller teeth behind the first, which resemble those of the koala. The grinders consist of a stout premolar and four molars above and below in each ramus. To the Zygomaturus many of the numerous jaw fragments and loose teeth may be referable; it is impossible, however, to give a decided opinion on so many varying loose teeth, till perfect jaws with incisor teeth come to hand, and these should have been found in conjunction with the upper ramus. All assertions about the teeth "probably" belonging to males when large, and to females or young when small, are delusive because there is no sexual difference as to size in the phalangers and wombats of the present day, and there is not the slightest proof that a difference existed in the progenitors of these animals.

Some of the kangaroo tribe differ in size between male and female, but phalangers never. Professor Owen's supposition as to the generic character of certain fossil bones is therefore totally unfounded.

I have obtained sufficient evidence that Diprododons [sic], or Nototheriums, existed of small size, with teeth resembling certain kangaroos, with the two lobes of the molar teeth joined by a central ridge, and as there must have been many intermediate forms it would be hazardous to say, without further evidence, to what animal these teeth really belonged. I can "guess" as well as others, but prefer "evidence," and do not like to see my classification questioned or superseded.

The last group of extinct Phalangers comprises

The Thylacoleo Tribe,

which was fully discussed in a previous paper published in the Sydney Mail, about eighteen months ago.

The last group, containing some gigantic and now extinct species, comprises

The Wombats,

which are, in fact, phalangers of an aberrant form, distinguished by teeth of a continuous growth. On this last section, discussed by Professor Owen (Part VI. of the "Fossil Mammals of Australia"). I shall have a few words to say at some future time, because only a few new species are noticed, of at least twenty well-defined kinds.

In conclusion, I thank Dr. George Bennett, F.Z.S., &c., for the liberal manner with which he has allowed me to inspect and photograph the first gigantic foot-bones discovered during the long series of years that Australian fossil remains were hunted for. These bones will give Professor Owen another opportunity to express himself on the true character of the extinct giants, which, as far as their feet were concerned, had a good deal of the *mylodon* about them. Like that great American sloth, they probably fed on twigs and leaves more than on herbage; but I do not think they ascended trees, they may have felled them, however, like the beavers of the present day. When they had fought the battle of life in vain, their limbs may have become modified for climbing or for digging, because the koala or native bear, and the wombats, are the most characteristic remaining species which now link the present epoch to that of the past.

KREFFT, G. (1873)—Natural history. Fossil Australian mammals, and a few remarks on their classification. *The Sydney Mail and New South Wales Advertiser*, no. 688, vol. 16, September 6th, 1873, p. 302, cols 1,2. [Extract concerning *Diprotodon bennettii* Krefft republished below.]

Natural History.
Fossil Australian Mammals, and a few Remarks on their Classification.

By Gerard Krefft.

Since my last remarks on this subject, Messrs. George B. King and George F. Bennett have forwarded all the collections made at Gowrie to Dr. G. Bennett, with whom I inspected the series, concluding that the specimens were in rather a deplorable state, and that it would be a difficult matter to make head or tail of them. I received permission, however, to take what I desired for a closer examination, and the result was better than expected.

Four or five species of gigantic Phalangers can be traced from these remains besides several great kangaroos and a few wombats. Not a vestige of carnivore was found among the several hundredweight of fossil bones examined. With the aid of specimens in the Museum collection I have since been able to prove, beyond a doubt, that some of the large animals resembled the Koola [sic], or Native Bear, in the structure of the lower jaw, and others the common opossum. The right mandible of one species in particular has been so successfully restored, thanks to a similar jaw received from Dr. Creed, M.L.A., that very little is wanted now to perfect it, and the broken bits required for this purpose may still be found. In fact there is every hope to erect, during the course of this summer, a plaster cast skeleton or model of one, though not of the largest species. The posterior portion of the jaw just referred to measures, at the broadest portion of the inflected angle, six inches across.

KREFFT, G. (1873)—Natural history. Mammals of Australia and their classification. Part I.—Ornithodelphia and Didelphia. *The Sydney Mail and New South Wales Advertiser*, no. 697, vol. 16, November 8th, 1873, p. 594, cols 1-4, p. 595, col. 1, supplement pls 1, 2. [Extracts concerning *Zygomaturus creedii* Krefft and *Diprotodon bennettii* Krefft together with legends to plates republished below.] Republished without plates and legends to plates by Krefft, 1874, *Trans. R. Soc. N.S.W.* 7 : 135-47.

Natural History.
Mammals of Australia and their Classification.
Part I.—Ornithodelphia and Didelphia.

By Gerard Krefft.

An exhaustive Review of all Professor Owen's papers on Australian Fossil Remains has lately been published in the pages of the Sydney Mail, and to this, which will be added as an appendix, I refer for particulars. Our *Zygomaturus* skull retains its incisor teeth, and I possess the fractured portion of the upper jaw of another *Zygomaturus*, containing the first incisor, the broken off second, and the alveolus of the third. These fragments were discovered by Dr. Creed, near Scone, and formed part of a skull which unfortunately broke to pieces when touched. The first of these teeth is figured on plate No. 2. The principal difference between the two genera is as follows:—

Genus *Diprotodon*.

First pair of upper front teeth broad, scalpiform, or chisel-like, without compressed sides. The following teeth much smaller, right below the first pair, and not in a line with them, not unlike the corresponding ones of the native bear. Lower incisors very large, rounded, and tusk-like.

Genus *Zygomaturus*.

First upper incisor with compressed sides, like wombat teeth, of equal width throughout, and forming generally one-fourth of the segment of a circle; the next pair in a line with the first, not pushed beneath them, much smaller, with straight fangs, and not unlike the same teeth in the *Bettongia Campestris*—or rat kangaroo.

I shall now give a list of the animals hitherto discovered in a fossil state, and arrange them in the following order:—

Fam. Phalangistidae.

To this family belong all the gigantic fossil mammals [sic]. The following genera are represented:—

Genus *Diprotodon*.

With two described species *D. Australis* and *D. Bennettii*. The last mentioned animal has lately been found by Messrs. King and Bennett, at Gowrie, in the Darling Downs district. The splendid casts now before the meeting were prepared by Mr. Henry Barnes, assisted by his brother, Robert Barnes. These casts and models represent the four legs of the marsupial giant named in honour of Dr. George Bennett, of this city, who was kind enough to put the material for the restoration of an almost perfect skeleton at my disposal.

There were at least a dozen or more different kinds of Diprotodons, but their description cannot now be entered on.

Genus *Zygomaturus*.

Two species are at present described, but I possess proof that more existed.

DESCRIPTION OF THE PLATES.

(SEE SUPPLEMENT.)

Plate I.

Fig. 1.—Side view of lower jaw of *Diprotodon Bennettii* (Krefft).

Fig. 2.—Back view of the same.

Fig. 3.—“Native Bear” jaw on the same scale as the large jaw.

Fig. 4.—A lower incisor of the same.

Fig. 5.—Lower jaw of *Diprotodon Australis* (Owen).

Fig. 6.—Back view of the same.

Fig. 7.—Skull and jaw of the same.

The last three sketches from Professor Owen’s work.

Plate II.

No. 1.—Working surface of a lower incisor of *Nototherium Mitchellii* (Owen).

Nos. 2, 3, 4, 5.—Four views of the left lower incisor, taken from a *Nototherium* jaw (No. 8).

Nos. 6 and 6a.—A lower incisor, and its lower part of *Nototherium Mitchellii*. (From Professor Owen’s work, who considers this tooth to be an upper one).

Nos. 7, 7a, 7b, 7c.—Four views of a left upper first incisor of Creed’s *Zygomaturus*.

KREFFT, G. (1874)—Pp. 1-17, 98-109 in [New South Wales Parliamentary Paper] *Report from the Select Committee on the Sydney Museum; together with the Proceedings of the Committee, Minutes of Evidence and Appendix*, pp. 1-13, 1-109. Parliamentary Paper republished, 1874, in *New South Wales. Votes and Proceedings of the Legislative Assembly during the session of 1873-4, with the various documents connected therewith* 5 : 819-31, 833-941 (also numbered 1-13, 1-109).

KREFFT, G. (1882)—In [New South Wales Parliamentary Paper] *Exploration of the caves and rivers of New South Wales. (Minutes, reports, correspondence, accounts.)*, pp. 1-52, 37 plates (18 entitled Australian fossil remains). Parliamentary Paper republished, 1882, in *New South Wales. Votes and Proceedings of the Legislative Assembly during the session of 1882, with the various documents connected therewith* 5 : 551-602 (also numbered 1-52), 37 plates. [An Australian Museum Library set of the 18 plates entitled Australian fossil remains has the artists’ and printer’s names and the date 1870 printed on each plate.]

KREFFT, G. [In Anon.] (1882)—P. 7 in [New South Wales Parliamentary Paper] *Exploration of the caves and rivers of New South Wales. (Minutes, reports, correspondence, accounts.)*, pp. 1-52, 37 plates (18 entitled Australian fossil remains). [Additional information concerning the Parliamentary Paper is given above under Krefft, G. (1882).]

KREFFT, G. (?)—Description of the plates, folio nos 1-42. Krefft Papers MSS. *Mitchell Library manuscripts A264*.

KREFFT, G. (?)—Class Mammalia, folio nos 1-13. Krefft Papers MSS. *Mitchell Library manuscripts A264*. [Folio nos 9 (in part)-13 published below.]

Bennett's *Diprotodon*, *Diprotodon bennettii* Krefft. I name a somewhat smaller species in honor of Dr George Bennett FLS &c of this city to whose exertions Professor Owen is chiefly indebted for some of his choicest specimens. The remains whereon this species is founded were discovered by Messrs Bennett and King at Gowrie, Darling Downs. They consisted of numerous very fragmentary pieces which were put together at the Museum; casts were then taken of the larger masses and these again were joined till the bone had become perfect, or nearly so. In this manner the most important bones were restored. It had become necessary to model a few of the bones and this was accomplished by taking advantage of the corresponding parts in very young wombats or native bears which at that stage of their existence resemble these giants more than when adult. Some bones such as the tibia and fibula for example existed in several fragments in the Museum Collection; they were of course pressed into the service though they may not have belonged to the identical animal. The difference between the leg bones of the various species will not however be found very great. Though all the bones were found together, have the same colour, and appear to be in the same condition—still they may have belonged to various species. The very fragmentary bones of the skull, a few of the upper grinders and the many fragments of the mandible which enabled its restoration correspond however with the greater bulk of the bones so found, whilst other teeth and portions of the jaw are different in colour and water worn. I therefore have decided to base my description of Bennett's *Diprotodon* chiefly on the shape of the mandible and the almost perfect teeth. Of the upper series we possess the two last grinders of the right side proving the animal aged—the last tooth being already much worn. These two teeth occupy a space four inches and a half in extent; each anterior lobe being 1¾ inch wide. The posterior lobe of the last is as usual smaller and 1½ inch wide; each tooth has a narrow talon in front and behind. The fragment containing the teeth in question clearly shows the malar process which rises an inch above the space between the two last teeth. There appears to have been a palatal opening resembling the one in the *Phascolarctos* and extending to the middle of the second last molar. The lower jaw was very much broken but with a great deal of patience the fragments were fitted together till the restored jaw now before the Meeting was perfected and a cast taken thereof. The difference between this bone and the mandible of Professor Owen's *Diprotodon australis* becomes at once apparent in the following points.

Diprotodon australis.

Inflected angle absent (see fig. of Plate). Anterior portion of mandible produced, chin-like, the lower incisor inserted at a considerable angle its diameter more than three times in the vertical depth of the mandible. Molar series 9 inches in length, intervening space between molars and incisor 6 inches.

Diprotodon bennettii.

Inflected angle present, 6 inches wide below condyle. Anterior portion of mandible retiring, lower incisors more horizontally inserted & their diameter a little more than twice in the

vertical depth of the jaw. Molar series eight inches in length, intervening space between molars and incisors six inches. There is not a trace of the lower premolar in Bennett's *Diprotodon*.

The difference between the two animals cannot be so well described as explained by figures and two views of both mandibles have therefore been added. The ascending ramus and the condyle were obtained from original fragments in the Museum Collection; they however be not quite correct but will be found not far different when the missing parts are discovered.

KREFFT, J. L. G. See KREFFT, G.

LAISSUS, Y. (1969 *MS. date*)—Letter from Y. Laissus to J. A. Mahoney, dated March 8th, 1969, in the archives of the Western Australian Museum [containing information from the Bibliothèque Centrale du Muséum National d'Histoire Naturelle, Paris, concerning the publication of Gervais, 1848-52, *Zoologie et paléontologie françaises (animaux vertébrés) ou nouvelles recherches sur les animaux vivants et fossiles de la France*].

LANE, E. A. & RICHARDS, A. M. (1963)—The discovery, exploration and scientific investigation of the Wellington Caves, New South Wales. *Helicute* 2 : 1-55, pls 1-8.

LE FANU, W. R. (1964 *MS date*)—Letter from W. R. Le Fanu to A. Neumann, dated September 28th, 1964, in the archives of the Western Australian Museum [containing information concerning the publication of Owen, 1845, *Descriptive and illustrated catalogue of the fossil organic remains of Mammalia and Aves contained in the Museum of the Royal College of Surgeons of England*].

LEICHHARDT, L. (1847)—*Journal of an overland expedition in Australia, from Moreton Bay to Port Essington, a distance of upwards of 3000 miles, during the years 1844-1845*. London, T. and W. Boone. xx, 544 pp., separate map (in 3 sheets and entitled *Detailed map of Dr. Ludwig Leichhardt's route in Australia, from Moreton Bay to Port Essington. (upwards of 3000 miles, performed in the years 1844 & 1845.) Laid down from his original map. adjusted & drawn to the maritime surveys of Captns. Flinders, King, Wickham, Stokes, Blackwood, &c.*).

LE SOUEF, E. A. (1910)—Interesting fossil remains. *The West Australian* [Perth], no. 7445, vol. 26, February 5th, 1910, p. 5, col. 2. [Republished below.]

INTERESTING FOSSIL REMAINS.

To the Editor.

Sir, —The following is an extract from an article in your paper of the 2nd inst. under the above heading:— "A lower jaw and one or two small fragments had been collected some few years ago by Mr. E. A. Le Souef, but it was only after Mr. Glauert's examination and report a commission which was entrusted to him by the Caves Board in December, 1908, that the presence of a new species of this animal was recognised, and it now bears the appropriate name of *Sthenurus occidentalis*—the western sthenurus—for it is the only known Western Australian form, and is distinct from any yet found in the Eastern States." Here is another extract taken from my report to the Caves Board on the fossil discoveries in the mammoth cave in 1904:— "Right under the stalagmite we found the lower jawbone of a

large marsupial much resembling a kangaroo rat in dental character. This animal I identify as belonging to Owens' sub-generic section of macropodidae, which he named sthenurus owing to the strength of its tail.

The one discovered resembles broadly the typical sthenurus atlas, but shows such differences of detail to the plates of specimens to which I have access that I feel justified in provisionally naming it after the worthy president of the Caves Board, who has done so much to advance all science and popular education in this State. And, therefore, this western form of extinct kangaroo will unless comparatively recently discovered and named elsewhere be henceforth known as 'sthenurus atlas hacketti.'—

Yours, etc.

E. A. LE SOUEF.

South Perth, February 4.

- LE SOUEF, E. A. (1914)—Fossil marsupials at the Mammoth Cave. Mr. Le Souef's report. *The West Australian* [Perth], no. 3699, vol. 30, February 21st, 1914, p. 12. cols 8,9.
- LONGMAN, H. A. (1916)—The supposed artiodactyle Queensland fossils. *Proc. R. Soc. Qd* 28 : 83-7.
- LONGMAN, H. A. (1921)—A new genus of fossil marsupials. *Mem. Qd Mus.* 7 : 65-80, pls 4-7.
- LONGMAN, H. A. (1924)—Some Queensland fossil vertebrates. *Mem. Qd Mus.* 8 : 16-28, pls 1-4.
- LUDBROOK, N. H. (1961)—Stratigraphy of the Murray Basin in South Australia. *Bull. geol. Surv. S. Aust.* no. 36 : 1-96, pls 1-8.
- LUDBROOK, N. H. (1967)—Correlation of Tertiary rocks of the Australasian region. Pp. 7-19 in *Tertiary correlations and climatic changes in the Pacific* [Symposium no. 25, Eleventh Pacific Science Congress, Tokyo, 1966]. Ed. by Kotora Hatai. Sendai, Sesaki Printing and Publishing Co.
- LYDEKKER, R. (1886)—*Catalogue of the fossil Mammalia in the British Museum (Natural History) Cromwell Road, S.W. Part 4. Containing the Order Ungulata, Suborder Proboscidea.* London, the Trustees of the British Museum (Natural History), xxiv, 235 pp.
- LYDEKKER, R. (1887)—*Catalogue of the fossil Mammalia in the British Museum (Natural History) Cromwell Road, S.W. Part 5. Containing the Group Tillodontia, the Orders Sirenia, Cetacea, Edentata, Marsupialia, Monotremata, and supplement.* London, the Trustees of the British Museum (Natural History), xxxv, 345 pp.
- LYDEKKER, R. (1891)—On lower jaws of *Procoptodon*. *Q. Jl geol. Soc. Lond.* 47 : 571-4, pl. 21.
- LYDEKKER, R. (1894)—*A hand-book to the Marsupialia and Monotremata.* London, W. H. Allen, xvii, 302 pp.
- LYDEKKER, R. (1896)—*A hand-book to the Marsupialia and Monotremata.* London, Edward Lloyd, xvi, 320 pp.

McCOY, F. [In Anon.] (1861)—Untitled. *The Argus* [Melbourne], no. 4783, October 1st, 1861, p. 5, cols 1,2 [Republished below.]

An ordinary meeting of the Royal Society was held, in their hall, last evening; His Excellency the Governor presiding.

Professor M'Coy read a very interesting paper "On bones of a gigantic marsupial found near Colac, with observations on the genera *Diprotodon* and *Nototherium*." The great object of the paper was to establish, in the discovery of this marsupial, a new species, to which the professor gave the name of *Diprotodon annexans*, and which he escribed [sic] as being one sixth larger than the largest diprotodon known—as large, in fact, as an elephant; as well as to show that by its discovery he had been able to prove, from the combination of their characteristics in this species, that the two genera, *diprotodon* and *nototherium* of Professor Owen were identical. The anatomy of this marsupial, the professor added, was nearer to that of the native bear than of any other animal.

McCOY, F. (1861)—On the ancient and recent natural history of Victoria. Pp. 159-74 in *Catalogue of the Victorian Exhibition, 1861 : with prefatory essays, indicating the progress, resources, and physical characteristics of the colony, by W. H. Archer. Ferd. Mueller. R. Brough Smyth. Professor Neumayer. Fred. McCoy. A.R.C. Selwyn. Wm. Birkmyre.* Melbourne, Govt Printer, 300 pp. Republished 1862, *Ann. Mag. nat. Hist.* (3) 9: 137-50, as Note on the ancient and recent natural history of Victoria. [Clarson, Shallard, & Co., Melbourne, also printed a *Catalogue of the Victorian Exhibition, 1861 . . .* (1861, pp. 1-226) and included McCoy's essay in pp. 131-45. J. Ferres (Melbourne, Govt Printer) printed French and German translations of the *Catalogue . . . with prefatory essays . . .*; these too are dated 1861.]

McCOY, F. (1865)—*Geological Survey of Victoria Quarter Sheet 7 N.W. (Mount Aitken).* Note.

McCOY, F. (1865)—On the bones of a new gigantic marsupial. *Trans. Proc. R. Soc. Vict.* 6 : 25.

McCOY, F. (1866)—*Notes sur la zoologie et la palaeontologie [sic] de Victoria, par Frederick M'Coy.* Traduit de l'anglais par E. Lissignol. Melbourne, Masterman, 35 pp. [Information concerning the English text of this paper is given below under McCoy, F. (1867).]

McCOY, F. (1867)—On the recent zoology and palaeontology of Victoria [Intercolonial Exhibition essay no. 7]. Pp. 307-30 (also numbered 1-24) in *Intercolonial Exhibition of Australasia, Melbourne, 1866-67. Official record, containing introduction, catalogues, reports and awards of the jurors, and essays and statistics on the social and economic resources of the Australasian colonies.* Melbourne, Blundell. Issued as a separate, 1867, pp. 1-24. Melbourne, Steam Printing Works. Republished, 1867, *Ann. Mag. nat. Hist.* (3) 20 : 175-202. [Information concerning a French translation of this paper is given above under McCoy, F. (1866).]

McCOY, F. (1867)—On the occurrence of the genus *Squalodon* in the Tertiary strata of Victoria. *Geol. Mag.* 4 : 145, pl. 8, fig. 1.

McCOY, F. (1868)—*Sections and notes to accompany Geological Survey of Victoria Quarter Sheet 14 N.W. (Bradford).* Note 12. [Republished below.]

At this point the tertiary escarpment, which in other places is separated from the river by an alluvial flat, forms its present bank, rising almost perpendicularly to the height of about 50 feet on the north bank. It is composed of red, sandy loam, and whitish sandy clay, containing small nodules and dendritic concretions of impure limestone, which are possibly derived from the fossil bones and shells imbedded in the loam; also, small rounded fragments of light vesicular basalt.

During the progress of the survey several bones of Mammals, and also of *Helix*, were dug out of the red sandy loam at this place, at a depth of from 3 to 5 feet from the surface, and Professor McCoy describes them as follows:—"The fossil bones examined from the clays on the banks of the Loddon indicate a Pliocene rather than a modern age, for of the only three determinable fragments, one species does not now inhabit the continent, and the other two are extinct. The remains are a skull of the Tasmanian devil (*sarcophilus ursinus*), a lower jaw of an extinct wombat (*phascolomys pliocen*—McCoy), and a new extinct kangaroo-rat (*bettongis cuniculoides*—McCoy), differing from the allied living form in the deeper and stronger jaw and simplicity of the milk premolar."

The above determination, by Professor McCoy, confirms the correctness of the previous mapping of these deposits by the Geological Survey as Upper Newer Pliocene.

McCOY, F. (1874)—*Phascolomys pliocen* (McCoy). *Prodromus of the palaeontology of Victoria; or, figures and descriptions of Victorian organic remains*. Decade 1: 21,2, pls 3-5. Melbourne, Geological Survey of Victoria.

McCOY, F. (1875)—*Squalodon wilkinsoni* (McCoy). *Prodromus of the palaeontology of Victoria; or, figures and descriptions of Victorian organic remains*. Decade 2 : 7,8, pl. 11, figs 1-1d. Melbourne, Geological Survey of Victoria.

McCOY, F. (1876)—*Thylacoleo carnifex* (Ow.). *Prodromus of the palaeontology of Victoria; or, figures and descriptions of Victorian organic remains*. Decade 3: 7-12, pl. 21. Melbourne, Geological Survey of Victoria.

McCOY, F. (1876)—*Diprotodon longiceps* (McCoy). *Prodromus of the palaeontology of Victoria; or, figures and descriptions of Victorian organic remains*. Decade 4 : 7-11, pls 31-3. Melbourne, Geological Survey of Victoria.

McCOY, F. (1877)—*Arctocephalus williamsi* (McCoy). *Prodromus of the palaeontology of Victoria; or, figures and descriptions of Victorian organic remains*. Decade 5: 7-9, pls 41,2. Melbourne, Geological Survey of Victoria.

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Sydney, N. S. Wales
6th April 1842,

My dear Sir—,
I lately had the pleasure of hearing from you by the hands of M. Leichhardt—who appears quite in raptures with the novelty of all he finds on the face of Australian earth—, saying he will never be able to go back to Europe etc., Such enthusiasm is well and I doubt not Mr. L. will in due time make discoveries.

I write now chiefly to apprise you of my having sent by the same vessel—which will take the mail & this letter—(namely the Eweretta)—a box containing some fossil fragments of bones—addressed to you—These are not satisfactory specimens such as I hope soon to send you, but being the first from the locality, I am anxious you should first hear of them. I can tell you but little of the manner in which they occur—but such bones are found on Darling Downs—those extensive plains which you will see marked to the S. W. of Moreton Bay, on most maps of this country—They are at the sources of the Darling river, and at a great height above the level of the sea—upwards of 6000 feet. I am informed that these huge bones—(of which I send you but fragments)—are found in some abundance—I wish I could see the place—but I cannot attempt any exploratory journey under our present Governor for various reasons—to which I cannot now more particularly allude—

What will interest you most, is a tooth, which I have put up amongst these fragments—being from the same locality—It is packed in the same kind of paper so I hope care will be taken to find it—I thought it safest buried—amongst the fragments, as such a small article—at the top, might fall out at the custom house.

I am promised part of a rib and other bones—by the gentleman who gave the tooth—and I have some hopes of obtaining a jaw-bone—When I do it shall be sent to you forthwith.

That portion of N. S. Wales—namely Moreton Bay, is about to be opened to colonists—and the ground being very rich—it is expected that much of it will be sold—, The danger is that Government will make the price too high—a grand mistake which has already nearly ruined us.

But these matters are quite harassing,—compared with the calm and satisfactory speculations of science, I must conclude by wishing you that success in your interesting researches which they are so well entitled to —Pray give my kindest regards and remembrances to Mr. Clift—and believe me ever My dear Sir—

Your faithful & obliged friend
T. L. Mitchell

Professor Owen F.R.S. GS.

&c &c &c

MITCHELL, T. L. (1842 *MS. date*)—Draft, dated December 20th, 1842, of a letter from T. L. Mitchell to R. Owen. Papers of Sir T. L. Mitchell, vol. 4, 1840-1849, pp. 285,6. *Mitchell Library manuscripts A293*. [Published below.]

Sydney, N.S. Wales
20th December 1842.

My dear Sir,

Some months ago, I forwarded to you a collection of fragments of bones—and subsequently I wrote to you, enclosing two drawings of a portion of a Jawbone from the same locality—(Condamine River, Darling Downs Westward of Moreton Bay in Lat 28S. & Long. 151°.) Since then another similar portion of a Jawbone—has been found, and although both of these fragments—unfortunately want the fore part of the ramus—I was too well aware of the interest any of the teeth would have with you—not to make every effort to obtain these fossils or at least casts of them for you,—I have, accordingly, now obtained (by the kindness of my friend Dr Nicholson F.GS.) a cast of that fragment whereof I have already sent you two drawings—the original having been sent to Robt Clark Esq, Surgeon Farnham Surrey—or Chas. M. Burnett Esq—Surgeon Alton Hampshire Hants—by some friend or relative here—to whom it belonged, Another specimen, however, equally fine, has been presented to me with permission to send it to you by David Forbes Esq—(son of our late Chief Justice)—but both these specimens are but portions of the Jawbone. I have at length however—been fortunate enough to obtain a complete Jawbone—having instructed my assistants to search carefully—and this—being a great antique I have transmitted to my valued friend Dr. Buckland being well aware within the Geoll. Societys walls it will be as accessible to you as if it were in the Hunterian Museum while I am thus, able, at the same

time, to send it as a token of my regard for our President & the Society to which I owe so much, including even your valuable friendship—

This letter is intended to go to England by the same vessel—which will take home the cast and specimens already mentioned—viz the *Olinda*. The Postmaster General here Mr Raymond has kindly undertaken to send them specially in one of his mail boxes—I have packed the specimens in cigar boxes—with wool—so that I hope they will come safely to hand—but, it may be necessary for you to cause enquiry to be made—as soon as you receive this letter which I must now conclude as the mail is about to close.

I remain ever my dear Sir

Richd. Owen Esq F.R.S.
Hunterian Museum
Lincoln's Inn Fields

Yours very sincerely
T.L.M.

MITCHELL, T. L. (1843 *MS. date*)—Copy of letter from T. L. Mitchell to R. Owen dated January 28th, 1843. British Museum (Natural History) *Owen Correspondence*, vol. 19, folio nos 242-7. [Published below.]

Sydney, N.S. Wales
28th. Jan'y 1843

My Dear Sir

I have just shipped in charge of my friend Mr. Bidwell [*Bidwill*] another collection of Fossil bones from the same locality as those jaws which I have already sent home to you, and to Dr. Buckland. These consist of numerous specimens—but the most interesting are packed near the top in blotting paper, the rest in white paper—. There are two jaws—but at the bottom of the box are the very large bones (of course the most interestg) next to the teeth and jaws—although to you, any fragment may have records of character wholly illegible to me, and therefore I have caused every fragment to be packed with care.

I am much pleased with what these bones appear to prove—namely that the tusk figured in my travels (as Fig 1 & 2 Pl. 49) really belonged to a kangaroo, which you once, I remember, thought it resembled. You will find in the most perfect of the jaws now sent part of the same sort of tooth—corresponding with the place of the lower incisor of the Kangaroo—while the large molars in these jaws (as in all those lately sent home) so strongly resemble those of the *Macropus* that I can scarcely doubt that we have here evidence of gigantic Kangaroos to which *Macropus Atlas* and *Titan* are but pigmies. To you however, we look for information as to the real character of the animals to which the bones, teeth & jaws once belonged and I need not add how anxious we shall be here to learn something about them.—In the various fragments of jaws & teeth accompanying these bones—you will perceive a gradation of several intermediate sizes from *Macropus Atlas* (of which I think you will recognise a specimen) up to the *Macropus Elephanteus* (or whatever else you may call it)—It is consolatory here to find that Australia did once support herbivorous animals of such magnitude—and that an animal, so well provided for a country of burning woods and fallen timber—by its young-protecting pouch and saltatory powers has always belonged to Australia—although the curious gradation of species—and the diminutive character of existing classes seem to indicate the energies of animal nature here to be on the wane—unless indeed this is a wise provision of providence for the introduction of those other large animals by man's agency—which have been found better suited to his wants.—

You will, I think, find among the larger bones, a solution to the enigma of Jamieson's bone—pronounced by the French scavans [*sic*] to have belonged to a young elephant—The

occurrence of that bone however and the tusk already mentioned—with and over the mass of smaller fossils bones in the Cave at Wellington is a valuable fact—if, as I think they may, they can be identified with these bones from the banks of the Condamine.—Both situations are high above the sea—but the Condamine chiefly so—as stated in my former letter.

You will find a large metatarsal bone—and two very remarkable, metacarpal bones—one apparently the heel of a saltatory animal—and young.—

In conclusion I must beg to be kindly remembered to Mr. Clift—And, when you and Dr. Buckland, are reminded by these bones of one still deeper under ground, pray inform him that their resuscitation and circumnavigation is due to the two beforementioned existing causes, and believe me ever, My Dear Sir

Very sincerely yours

T. L. Mitchell

P.S. I beg leave to introduce to you my friend J. C. Bidwell Esqre the bearer of this letter and the box of bones to England—Mr. Bidwell is a very able botanist—and takes home some highly interesting and valuable objects in that branch of science.

Richard Owen Esqre F.R.S
&c &c &c

Signed (Sir) T. L. Mitchell, C.B. &c

MITCHELL, T. L. (1849 *MS. date*)—Letter from T. L. Mitchell to R. Owen dated April 2nd, 1849. British Museum (Natural History) *Owen Correspondence*, vol. 19, folio nos 252,3. [Published below.]

Sydney. N.S. Wales 2d April 1849

My dear Sir—

A very fine specimen of a large fossil head—and many bones—corresponding, was found in the locality—where those you have already described were found—during my last absence in England.

These bones (unfortunately for science) fell into the hands of a great speculator on the verge of bankruptcy, who imagined they were of very great value—and at first declined to allow casts to be taken of them—He did not positively refuse to allow me to take drawings of them, as I wished to have done on my arrival for you, but he did not answer my notes—and only called on me when I was not at home. Mr. Wall, Curator of the Australian Museum—at length succeeded in obtaining a set of casts—very well coloured in imitation of the originals—and from these I have taken a sheet of drawings, which I have much pleasure in transmitting herewith to you—I trust you will excuse the rough and hasty drawing—with the Camera Lucida (the inside sketch of the upper & lower incisors excepted)—They may perhaps suffice to convey to you a clearer idea of the fossils than any verbal description—I only wish it were in my power to obtain and present the original to the Hunterian Museum—where it certainly ought to be—If I can obtain a set of casts I shall be happy to send even them, but I am aware how important it would be to you to obtain the original—

The occurrence of so many of these fossils remains of gigantic animals—at the higher part of the valley of the Condamine is a striking fact to geologists—The more the geography of our interior becomes known—the greater appears to be the importance of that basin—which may be said to be still the-one-only basin known to the Westward of the Blue Mountains—(or Coast Range) and the Condamine valley is about the most elevated—and Eastern of the great interior plains, or downs—I hope to complete in a few months a general plan of our surveys—which may be useful to show the locality of the Condamine. My duties have never led me in that direction—but if they should, I might probably be able to procure some good specimens for you—

Meanwhile, I must live on in hope—that more expeditious means of communication with the mother country may be adopted, when you—may come to visit—at one trip—Mahomet and the mountain, and get home after an absence of three months.

I feel particularly interested in such a consummation, not only from the pleasure I should feel to see you in this hemisphere—and because you would yourself be much gratified, but because I have invented a screw conductor, by which I hope to see these hopes realized. I shall endeavour to send you a drawing explanatory of this contrivance—and if you will show it to my kind friend, the Dean of Westminster—or to any other of your friends likely to make it known I shall be much obliged—for I left money for taking out a patent in England and, as yet, have heard nothing of the result—but these things must require time to be known and duly appreciated. I beg to send my kindest remembrances to Mrs. Owen—and Mr Clift—and I remain ever, my dear Sir—

Sincerely yours
T. L. Mitchell

Professor Owen—Hunterian Museum

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OWEN, R. [In Anon.] (1858)—Lecture by Professor Owen. *The Leeds Mercury*, no. 6852, vol. 95, September 28th, 1858, p. 4, col. 5.

OWEN, R. [In Anon.] (1858)—Professor Owen's lecture on Monday evening. The extinct quadrupeds of Australia. *The Leeds Mercury*, no. 6854, vol. 95, September 30th, 1858, p. 4, cols 2,3. [Republished below.] Republished in *The Sydney Morning Herald*, no. 6413, vol. 39, December 25th, 1858, p. 3, cols 4-6, as The British Association.—Meeting at Leeds. Professor Owen's lecture on the extinct quadrupeds of Australia.

PROFESSOR OWEN'S LECTURE ON MONDAY EVENING.

THE EXTINCT QUADRUPEDS OF AUSTRALIA.

We but briefly noticed the able lecture of Professor Owen in our impression on Tuesday. We have now pleasure in presenting a more copious report.

Professor Owen commenced by pointing out the characters of the class mammalia and the principles on which that class had been divided by previous naturalists, specifying more particularly the systems of Aristotle, Linnaeus, and Cuvier. He showed that the locomotive organs, the teeth and the generative system did not characterise the natural primary division of the class; but that these were truly indicated by the nervous system. The Professor then briefly pointed out the four modifications of the brain which characterised the four primary groups or sub-classes of the mammalia, and defined the characters of these sub-classes, under the names Lyencephala, Lissancephala, Gyrencephala, Archencephala. The Lyencephala are those quadrupeds in which the hemispheres of the brain are not joined together by the mass of transverse fibres called "corpus callosum." They include two orders, one called Monotremata, the other Marsupialia. It was to quadrupeds of the latter order that his discourse would [be] more particularly referred. Not any species of marsupial quadruped exists in the continents of Europe, Asia, or Africa. On the discovery of America, some small quadrupeds of that continent became known to naturalists as being peculiar by possessing a pouch in which the young were protected and carried for some time after birth, whence the name marsupialia, signifying "pouched beasts." The American species all belong to one genus, called *Didelphys* or opossum. They are small insectivorous quadrupeds, and most of them dwell in trees. When Captain Cook and Sir Joseph Banks returned from the circumnavigatory voyage in which Botany Bay was discovered, they brought information of other curious marsupial animals which lived in Australia, and especially that called the kangaroo, so remarkable for the length and strength of its hind-legs and tail. The subsequent travellers and settlers in Australia soon transmitted additional information, with specimens of the peculiar marsupial quadrupeds of that continent, so that the marsupialia are now known as one extensive order, the species of which are restricted to America, Australia, New Guinea, and a few islands extending thence towards Asia. The principal genera were then described, some being carnivorous, others insectivorous, others frugivorous or feeding on buds and leaves, others herbivorous, others burrowing and living on roots. The opossums (*Didelphys*) are peculiar to America: none are found in Australasia. The greatest number and diversity of marsupial quadrupeds exist in Australia and Tasmania. Four or five genera are represented in New Guinea. A single arboreal genus (*Cuscus*) represents the order in the Indian Archipelago. Of the present known existing Marsupialia, the largest species are the great kangaroo (*Macropus major*), familiar to most by living specimens in menageries and zoological gardens, and the thylacine or hyena of the Tasmanian colonist; the latter is carnivorous, and about the size of the shepherd's dog. Most of the marsupialia are smaller than the common cat. Professor Owen then proceeded to give a history of the discovery of fossil remains of animals in Australia. The first which he noticed was that made by Major, afterwards Sir Thomas Mitchell, the Surveyor-General of Australia, in 1831. In his first exploring expedition, this traveller discovered extensive caves in a limestone district of Wellington

valley, and in the breccias of the caves he found many fossil bones and teeth, which were submitted to Professor Owen's inspection, and described by him in the Appendix to the account of the expedition published by Sir T. Mitchell in 1838. Amongst these cave fossils, Professor Owen had discovered the remains of the phalanger (*phalangista*), the wombat (*phascolomys*), the potoroo (*hyppiprymnus* [sic]), the kangaroo (*macropus*), the *dasyurus*, and *thylacimus* [sic]. But, although the fossils were referable to the foregoing existing genera, they were all different from any species now known. Amongst the kangaroos were two species which were much larger than the *macropus major*; the remains of the *dasyurus* were larger than those of the *D. ursinus*, the largest living species, now peculiar to Tasmania. The *thylacimus* [sic] also was by this discovery shown to have formerly lived in Australia, as well as in Tasmania, to which it is now peculiar. But, besides the foregoing fossils, there was a single tooth, an incisor or tusk of some quadruped which must have equalled a large ox or a rhinoceros in size. In this tooth Professor Owen perceived such characters as led him to found upon it a new genus, which he termed "*Diprotodon*." In 1844, Professor Owen received some fossils from Dr. Hobson, of Melbourne, which had been discovered in sinking a well at Mount Macedon, near Port Phillip. These fossils included a portion of the lower jaw, having an incisive tusk in situ, identical in shape and structure with that on which the genus *Diprotodon* had been founded, and also molar teeth, resembling in form those of the kangaroo, but with generic modifications. This confirmation of the former existence in Australia of a gigantic marsupial herbivorous quadruped, allied to the kangaroo, was communicated to the British Association at their meeting in 1844, and was noticed in the "Annals and Magazine of Natural History," for October, 1844. In the same paper Professor Owen stated that he had received from Sir Thomas Mitchell some Australian fossils, indicative of a second genus of large marsupial quadrupeds, which he described under the name *Nototherium*. Although the molar teeth in both the *Diprotodon* and *Nototherium* presented the same two-ridged type as those of the kangaroo, they differed in wanting the smaller connecting ridge. The 'astragalus' and 'calcaneum' (two of the ankle-bones), which had been transmitted with other fossil bones from Moreton Bay by Sir Thomas Mitchell, presented marsupial characters, but by their size must have belonged to either the *Diprotodon* or *Nototherium*. In the kangaroos these ankle-bones have peculiarities associated with the very long hind-legs; but the large fossil ones resembled more those of the wombats, whence Professor Owen inferred that the *Diprotodon* must have had the hind limbs more nearly equal in length to the fore limbs. Subsequent discoveries proved the truth of this inference. In 1847, a Mr. Turner brought from Darling Downs to Sydney a large collection of fossil bones, chiefly obtained from King's Creek, a tributary of the Condamine river, Darling Downs. These downs are extensive, slightly undulating plains, covered with herbage developed from a rich black soil, containing concretions of carbonate of lime. Ranges of low hills, with smaller slopes and flat-topped cones, formed of basaltic rock, resting on a felspathic or trachytic base, accompany the shallow valleys, and bear an open forest formed of various species of rather stunted *Eucalyptus*. The plains are filled with an alluvium of great depth; wells of sixty feet deep having been sunk in it. The plains in which the fossils have been found are those distinguished by the creeks called Hodgson's, Campbell's, Isaac's, King's, and Oakey Creek, which traverse the plains on the west [sic] side of the Condamine, into which they fall. The fossils are found in the beds of the creeks, particularly in the mud of the dried-up water-holes, or amongst beds of trachytic pebbles, which are overlaid by layers of clay and loam, with marly concretions, above which is the rich black surface soil. Fossil bivalve and univalve shells are found associated with and sometimes cemented to the bones; but they are of the same species as those still existing in the present creeks and waterholes. The most extraordinary of the fossils brought from King's Creek by Mr. Turner, was an almost entire skull of the *Diprotodon Australis*. Its length was three feet; the two great anterior tusks,—whence the name *Diprotodon*,—projected a few inches beyond that length. Behind these tusks were two smaller incisors in each premaxillary bone; but these six upper incisors were opposed, as in the kangaroo, by a single pair of large incisors in the lower jaw. The characters of this extraordinary cranium were described by Professor Owen, and illustrated by drawings of the natural size. A descending process of the zygomatic arch was pointed out as illustrating the affinities of the *Diprotodon* with the

Macropus, or the kangaroos. With this skull had been found a large blade-bone, 2 feet 4 inches long, a humerus, 2 feet 2 inches in length; a femur, 2 feet 5 inches in length, remarkable for the great extent of the neck, several vertebrae, fragments of ribs, and other bones, all agreeing in proportion with the skull and belonging to the same species, and most probably the same individual. This collection of bones, when brought to Sydney, were noticed by the Rev. Mr. Clarke, and by Mr. Macleay in letters in the *Sydney Morning Herald*, and plaster casts were taken of the chief specimens. The whole collection was purchased of Mr. Turner by a Mr. Boyd, who was about to return to England. This gentleman died on the voyage, and the ship in which the fossils had been embarked was wrecked, and its whole cargo supposed to have been engulfed. A series of the casts of the fossils taken at Sydney was transmitted by the authorities of the Museum there to the trustees of the British Museum. About the time when these casts arrived, a sale of fossil remains took place at Stevens' Auction-room. These fossils were found to belong to large marsupial animals, were purchased for the British Museum, and proved to be the originals from which the casts in the Sydney Museum had been taken. The auctioneer stated that they had been the property of a Mr. Boyd. They will form the subject of a memoir by Professor Owen. Besides the parts of the skeleton of the great *Diprotodon*, they included a lower jaw of the same large extinct marsupial as the Professor had previously determined under the name of *Nototherium Mitchelli*; and this jaw showed that there were two incisive tusks and ten molar teeth—five on each side—in that genus. In January, 1858, Professor Owen received from Mr. George Bennett, V.L.C., of Sydney, sketches of a fossil cranium, which had been found in the same formation and locality of Darling Downs as the *Diprotodon*. This new skull was eighteen inches long and fifteen wide. It had three incisors and five molars on each side, and from its correspondence in size with the lower jaw of the *Nototherium* the Professor believed it to belong to that genus. A cast of this cranium has been sent from Sydney to the British Museum, and has served to show that a fragment of upper jaw with molar teeth, in Mr. Turner's collection, belonged to the same genus. These teeth show precisely that structure which Professor Owen had previously pointed out as distinguishing the teeth of the *Nototherium* from those of the *Diprotodon*. The lower jaw of the *Nototherium Mitchelli* in Mr. Turner's series, now in the British Museum, belongs to the same species as the cranium now in the Museum at Sydney. This cranium is chiefly remarkable for the great size and width of the zygomatic arches, which have also the descending process as in *Diprotodon*. The facial bones in advance of the orbit form a kind of short pedunculate appendage to the rest of the skull, increasing in a remarkable manner in both vertical and lateral extent towards its fore extremity. The cavity of the nose was divided by a bony septum, as in one species of wombat. Thus were established proofs of the former existence in Australia of two genera of herbivorous marsupial animals, resembling the pachyderms in proportions; one (*Diprotodon*) equalling or surpassing in size the largest living *Rhinoceros*, the other (*Nototherium*) equalling the ox or Tapir. Professor Owen next referred to some fossils included in the collection sent by Dr. Hobson from Melbourne, Australia Felix, which belonged to a species of true wombat (*Phascolomys*), but four or five times larger than the largest known existing species. These fossils had been noticed by the Professor, and referred to *Phascolomys gigas*, in the Transactions of the Zoological Society as early as 1842. Professor Owen inferred, from the fact of there having been large herbivorous animals in Australia in former periods that a large carnivorous animal had co-existed with them. In a letter to the editor of the "Annals of Natural History," November 1st, 1842, he writes—"Some destructive species of this kind must have co-existed of larger dimensions than the extinct *Dasyurus lanarius*, the ancient destroyer of the now equally extinct gigantic kangaroo (*Macropus Titan*) whose remains were discovered in the bone caves of Wellington Valley." The Rev. Mr. Clarke, in his report to the Governor of Australia. No. X., Oct. 14th, 1853, "On the Geology of the Basin of the Condamine River," referring to this remark, observes "the discovery of what *must have existed* cannot be altogether incapable of demonstration, and therefore, such a verification of Professor Owen's anticipation is to be hoped for on many grounds." In 1846, the Professor received from William Adeney, Esq., portions of a fossil skull of a carnivorous quadruped as large as a lion. These fossils were discovered in the banks of the Timboon lake, situated eighty miles

south-west of Melbourne. The lake is shallow, and becomes almost dry in autumn, when its bed is covered with a pretty thick deposit of common salt of good quality. The surrounding country is volcanic. The fossils occur in a narrow white strip of calcareous conglomerate, traversing the clay-cliff, which is here and there indented with capes of basaltic boulders. The fossil in question included part of the right maxillary bone, with the last two molar teeth. The first of these presented the trenchant or carnassial type of crown, the second was a small tubercular tooth, situated, as in the lion and tiger, on the inner side of the back part of the carnassial. The crown of this carnassial was $2\frac{1}{4}$ inches in extent; that of the largest lion being one inch and a half; the margin of this flesh cutting tooth is straight in the fossil, not indented as in the lion. A portion of the right ramus of the lower jaw contained two teeth, answering to those above the carnassial, with an even cutting edge of one inch and a half long; the tubercular, which is directly behind, is half an inch long. On closely comparing this fossil skull with the skulls of existing carnivorous animals of the placental and marsupial orders, Professor Owen concluded from the structure of the occiput of the organ of hearing, of the bony palate, and of the orbit in reference to the position of the lacrymal hole, that the large carnivora represented by that fossil belonged to the marsupial order, not to the placental carnivora. He had proposed for it the name *Thylacoleo*, or lion with a pouch. Thus were completed, by evidence of species of quadrupeds that appear to have become extinct in Australia, the representatives in the marsupial series of the chief forms of the terrestrial mammalia known in other parts of the globe. The Professor, in conclusion, referred to the character, as one natural continent, of the vast tract of dry land now artificially divided into Europe and Asia; and he showed that all the fossil remains of quadrupeds from caves and recent tertiary strata in Europe, coeval with the ossiferous caves and strata in Australia, belonged to genera which still had existing representatives in Europe or Asia, such as the horse, the elephant, the rhinoceros, oxen, deer, bears, hyenas, felines, &c. The hippopotamus, indeed, had become extinct in Asia as in Europe, but still existed in Africa. He then made a similar comparison between the aboriginal quadrupeds of South America now living, such as the sloths, armadillos, anteaters, platyrhine monkeys, llamas, peccaris, and the fossil megatherioids, glyptodons, glossotheres, large fossil monkeys, macranthenid, and peccaris. Australia had already yielded evidence of an analogous correspondence between its latest extinct and its present mammalian Fauna: and this was the more interesting and striking on account of the very peculiar organisation of the native quadrupeds of that division of the globe. The marsupials there represent analogously the chief land quadrupeds of the larger continents; *e.g.*, the dasyures play the parts of the foxes and marten-cats, the bandicoots (*perameles*), of the hedgehogs and shrews, the phalangiers and koalas of the squirrels and monkeys, the wombats of the beavers, the kangaroos of the deer tribe. The first collection of mammalian fossils from the bone-breccias of the Australian caves had brought to light the former existence of large species of existing marsupial genera, some of which, for example *Thylacinus* [sic] and *Sarcophilus*, though now seemingly extinct in Australia proper, are still represented by species in the adjacent island of Tasmania; the others were fossil wombats, phalangiers, potoroos, and kangaroos, but of different species, and some of larger size than any known existing species. The fossils of the herbivorous marsupialia were of young or not full-grown animals, whence the Professor inferred that they had been dragged into the cave to be devoured. Subsequently, and at short intervals, fossils had been obtained from pliocene strata, and these had demonstrated the former existence of marsupial animals representing the great pachyderms of Asia and the *megatherium* of America, together with a marsupial beast of prey, rivalling the lion or tiger in size, and equal to cope with the *diprotodon* and *nototherium*. Thus it was shown that, with regard to the last extinct (pliocene) kinds, as with the existing kinds of mammalia, particular forms were assigned to particular provinces, and what was still more interesting and suggestive, *that the same forms were restricted to the same provisions at a former geological period as they are at the present day.*

OWEN, R. (1859)—On some outline-drawings and photographs of the skull of the *Zygomaturus trilobus*, Macleay (*Nototherium*, Owen?). *Q. Jl geol. Soc. Lond.* 15 : 168-76, pls 7,8.

- OWEN, R. (1859)—On a collection of Australian fossils in the Museum of the Natural History Society at Worcester; with descriptions of the lower jaw and teeth of the *Nototherium inermis* and *Nototherium mitchelli*, Owen; demonstrating the identity of the latter species with the *Zygomaturus* of Macleay. *Q. Jl. geol. Soc. Lond.* **15**: 176-86, pl. 9.
- OWEN, R. (1859)—Palaeontology. Pp. 91-176 in *The Encyclopaedia Britannica, or dictionary of arts, sciences, and general literature*. 8th ed. Vol. 17. Edinburgh, Adam and Charles Black.
- OWEN, R. (1859)—On the fossil mammals of Australia.—Part I. Description of a mutilated skull of a large marsupial carnivore (*Thylacoleo carnifex*, Owen), from a calcareous conglomerate stratum, eighty miles S.W. of Melbourne, Victoria. *Phil. Trans. R. Soc.* **149**: 309-22, pls 11-15.
- OWEN, R. (1860)—*Palaeontology or a systematic summary of extinct animals and their geological relations*. Edinburgh, Adam and Charles Black, xv, 420 pp. 2nd ed. (1861), xvi, 463 pp.
- OWEN, R. (1866)—On the fossil mammals of Australia.—Part II. Description of an almost entire skull of the *Thylacoleo carnifex*, Owen, from a freshwater deposit, Darling Downs, Queensland. *Phil. Trans. R. Soc.* **156**: 73-82, pls 2-4.
- OWEN, R. (1868)—*On the anatomy of vertebrates*. Vol. 3. *Mammals*. London, Longmans, Green, x, 915 pp. [The title *Comparative anatomy and physiology of vertebrates* is printed on the outside of the cover of this work.]
- OWEN, R. (1870)—On the fossil mammals of Australia.—Part III. *Diprotodon australis*, Owen. *Phil. Trans. R. Soc.* **160**: 519-78, pls 35-50.
- OWEN, R. (1870)—[New South Wales Parliamentary Paper] *Wellington Caves. (Further letter from Professor Owen, relative to exploration of.)*, p. 1. Republished, 1871, in *New South Wales. Votes and Proceedings of the Legislative Assembly during the session of 1870-71, with the various documents connected therewith* **4**: 1185. Republished, 1882, in [New South Wales Parliamentary Paper] *Exploration of the caves and rivers of New South Wales. (Minutes, reports, correspondence, accounts.)*, p. 14. Republished, 1882, in *New South Wales. Votes and Proceedings of the Legislative Assembly during the session of 1882, with the various documents connected therewith* **5**: 564 (also numbered 14). [Additional information concerning the 1882 Parliamentary Paper is given above under Krefft, G. (1882).]
- OWEN, R. [In Anon.] (1871)—On the fossil mammals of Australia. Part VI. Genus *Phascolomys*, Geoffr. *Nature, Lond.* **5**: 133. Republished, 1872, *Proc. R. Soc.* **20**: 66, 7.
- OWEN, R. (1871)—On the fossil mammals of Australia.—Part IV. Dentition and mandible of *Thylacoleo carnifex*, with remarks on the arguments for its herbivory. *Phil. Trans. R. Soc.* **161**: 213-66, pls 11-14.

- OWEN, R. [In Anon.] (1872)—On the fossil mammals of Australia, No. VIII [sic]. : Genus *Phascolomys*; species exceeding the present in size. *Nature, Lond.* 5 : 503,4.
- OWEN, R. [In Anon.] (1872)—On the fossil mammals of Australia.—Part VII. Genus *Phascolomys*; species exceeding the existing ones in size. *Proc. R. Soc.* 20 : 306.
- OWEN, R. (1872)—On the fossil mammals of Australia.—Part V. Genus *Nototherium*, Owen. *Phil. Trans. R. Soc.* 162 : 41-82, pls 2-11.
- OWEN, R. (1872)—On the fossil mammals of Australia.—Part VI. Genus *Phascolomys*, Geoffr. *Phil. Trans. R. Soc.* 162 : 173-96, pls 17-23.
- OWEN, R. (1872)—On the fossil mammals of Australia.—Part VII. Genus *Phascolomys*; species exceeding the existing ones in size. *Phil. Trans. R. Soc.* 162 : 241-58, pls 32-40.
- OWEN, R. [In Anon.] (1873)—On the fossil mammals of Australia.—Part VIII. Family Macropodidae; Genera *Macropus*, *Osphranter*, *Phascolagus*, *Sthenurus*, and *Protemnodon*. *Nature, Lond.* 7 : 255.
- OWEN, R. [In Anon.] (1873)—On the fossil mammals of Australia.—Part VIII. Family Macropodidae: Genera *Macropus*, *Osphranter*, *Phascolagus*, *Sthenurus*, and *Protemnodon*. *Proc. R. Soc.* 21 : 128.
- OWEN, R. [In Anon.] (1873)—On the fossil mammals of Australia. Family Macropodidae. Genera *Macropus*, *Pachysiagon*, *Leptosiagon*, *Procoptodon*, and *Palorchestes*.—Part IX. *Proc. R. Soc.* 21 : 386,7.
- OWEN, R. (1874)—On the fossil mammals of Australia.—Part VIII. Family Macropodidae: Genera *Macropus*, *Osphranter*, *Phascolagus*, *Sthenurus*, and *Protemnodon*. *Phil. Trans. R. Soc.* 164 : 245-87, pls 20-7.
- OWEN, R. (1874)—On the fossil mammals of Australia.—Part IX. Family Macropodidae; Genera *Macropus*, *Pachysiagon*, *Leptosiagon*, *Procoptodon*, and *Palorchestes*. *Phil. Trans. R. Soc.* 164 : 783-803, pls 76-83.
- OWEN, R. (1876)—On the fossil mammals of Australia.—Part X. Family Macropodidae: mandibular dentition and parts of the skeleton of *Palorchestes*; additional evidences of *Macropus titan*, *Sthenurus*, and *Procoptodon*. *Phil. Trans. R. Soc.* 166 : 197-226, pls 19-31.
- OWEN, R. (1877)—*Researches on the fossil remains' of the extinct mammals of Australia; with a notice of the extinct marsupials of England*. London, J. Erxleben. Vol. 1 (Text). xv, 522 pp., 1 pl. Vol. 2 (Plates). 9 pp., 131 pls.
- OWEN, R. (1877)—On a new species of *Sthenurus*, with remarks on the relation of the genus to *Dorcopsis*, Müller. *Proc. zool. Soc. Lond.* 1877 : 352-61, pls 37,8.

- OWEN, R. (1880)—Description of a portion of mandible and teeth of a large extinct kangaroo (*Palorchestes crassus*, Ow.) from ancient fluviatile drift, Queensland. *Trans. zool. Soc. Lond.* **11** : 7-10, pl. 2.
- OWEN, R. (1882)—Description of portions of a tusk of a proboscidian mammal. (*Notelephas australis*, Owen.). *Phil. Trans. R. Soc.* **173** : 777-81, pl. 51.
- OWEN, R. [In Anon.] (1883)—On *Sceparnodon ramsayi*, a fossil mammal from Australian Pleistocene deposits. *Nature, Lond.* **29** : 165.
- OWEN, R. (1883)—On the affinities of *Thylacoleo*. *Phil. Trans. R. Soc.* **174** : 575-82, pls 39-41.
- OWEN, R. [In Anon.] (?1883)—Evidence of a large extinct monotreme (*Echidna Ramsayi*, Ow.) from the Wellington Breccia Cave, New South Wales. *Proc. R. Soc.* **36** : 4. [For a note on the year of publication of this work see p. 29 of this *Index*.]
- OWEN, R. (1884)—Description of teeth of a large extinct (marsupial?) genus, *Sceparnodon*, Ramsay. *Phil. Trans. R. Soc.* **175** : 245-8, pl. 11 (numbered 12 in error).
- OWEN, R. (1884)—Evidence of a large extinct monotreme (*Echidna Ramsayi*, Ow.) from the Wellington Breccia Cave, New South Wales. *Phil. Trans. R. Soc.* **175** : 273-5, pl. 14.
- OWEN, R. [In Anon.] (1885)—On the premaxillaries and scalpriform teeth of a large extinct wombat (*Phascolomys curvirostris*, Ow.). *Abstr. Proc. geol. Soc. Lond.* no. 476 : 1,2. [See p. 60 of this *Index* concerning the date of publication of this work.] Republished, 1885, *Nature, Lond.* **33** : 94. Republished, 1886, *Ann. Mag. nat. Hist.* (5) **17** : 289,90.
- OWEN, R. (1886)—On the premaxillaries and scalpriform teeth of a large extinct wombat (*Phascolomys curvirostris*, Ow.). *Q. Jl geol. Soc. Lond.* **42** : 1,2, pl. 1.
- OWEN, R. [In Anon.] (1887)—On fossil remains of *Echidna Ramsayi* (Ow.). Part II. *Proc. R. Soc.* **42** : 390.
- OWEN, R. [In Anon.] (1888)—On *Thylacopardus australis*, Owen. *Nature, Lond.* **39** : 215.
- OWEN, R. (?1888)—Description of the skull of an extinct carnivorous marsupial of the size of a leopard (*Thylacopardus australis*, Ow.), from a recently opened cave near the 'Wellington Cave' locality, New South Wales. *Proc. R. Soc.* **45** : 99. [Title only. We do not know if the year of publication of the part, no. 274, which contains p. 99 is 1888 or 1889.]
- OWEN, R. (?)—*Owen Collection—Drawings*, folio 446, "plates" a, b. [See p. 90 of this *Index* concerning these "plates"; we do not know if the drawing of a tooth on "plate" a is by Owen or if the date "4.3.75" inscribed on that "plate" refers to both the drawing and the information which is written for the tooth on "plates" a and b.]

OWEN, R. (1894)—*The life of Richard Owen by his grandson the Rev. Richard Owen, M. A. with the scientific portions revised by C. Davies Sherborn also an essay on Owen's position in anatomical science by the Right Hon. T. H. Huxley, F.R.S. Portraits and illustrations.* London, John Murray. Vol. 1. 15 & 409 pp. Vol. 2. 8 & 393 pp.

PLANE, M. D. (1967)—Two new diprotodontids from the Pliocene Otibanda Formation, New Guinea. *Bull. Bur. Miner. Resour. Geol. Geophys. Aust.* no. 85 : 105-28.

PLANE, M. D. (1967)—Stratigraphy and vertebrate fauna of the Otibanda Formation, New Guinea. *Bull. Bur. Miner. Resour. Geol. Geophys. Aust.* no. 86 : 1-64, pls 1-6.

PLANE, M. D. (1969 *MS. date*)—Letter from M. Plane to W. D. L. Ride, dated January 23rd, 1969, in the archives of the Western Australian Museum [containing collecting data for the holotypes of *Kolopsis rotundus* Plane, *Kolopsoides cultridens* Plane, *Protemnodon buloloensis* Plane and *Protemnodon otibandus* Plane].

PRITCHARD, G. B. [B.G. sic] (1939)—On the discovery of a fossil whale in the older tertiaries of Torquay, Victoria. *Victorian Nat.* 55 : 151-9.

QUILTY, P. G. (1966)—The age of Tasmanian marine Tertiary rocks. *Aust. J. Sci.* 29 : 143,4.

RAMSAY, E. P. [In Anon.] (1880)—Untitled. *The Sydney Morning Herald*, no. 13286, October 30th, 1880, p. 5, col. 4. [Extract containing the original description of *Sceparnodon stephensii* republished below.]

The monthly meeting of members of the Linnaean Society of New South Wales was held on Wednesday night, at the rooms, Free Public Library; the vice-president, Mr. W. J. Stephens, M.A., being in the chair.

Mr. Ramsay exhibited a tooth of a fossil marsupial, allied to *Diprotodon*, for which he proposed the name of *Sceparnodon*, or adze-tooth, from the adze-like character of the upper incisors, with the specific name after the vice-president *Stephensii*;

RAMSAY, E. P. [In Anon.] (1881)—Notes and exhibits. *Proc. Linn. Soc. N.S.W.* 5 : 495.

RAMSAY, E. P. (1882)—In [New South Wales Parliamentary Paper] *Exploration of the caves and rivers of New South Wales. (Minutes, reports, correspondence, accounts.)*, pp. 1-52, 37 plates (18 entitled Australian fossil remains). [Additional information concerning the Parliamentary Paper is given above under Krefft, G. (1882).]

RAMSAY, E. P. (1885)—Appendix II [untitled]. Pp. 29-46 in [New South Wales Parliamentary Paper] *Australian Museum. (Report of the Trustees for 1884.)*, pp. 1-46. Parliamentary Paper republished, 1886, in *New South Wales. Votes and Proceedings of the Legislative Assembly during the session of 1885-6, with the various documents connected therewith* 4 : 453-98 (also numbered 1-46).

- RAMSAY, E. P. [In Anon.] (1885)—Untitled. *The Sydney Morning Herald*, no. 14878, December 1st, 1885, p. 10, col. 4. Republished, 1885, *Abstr. Proc. Linn. Soc. N.S.W.* for November 25th, 1885, p. vii. Republished, 1886, *Zool. Anz.* 9 : 88. Republished, 1886, *Proc. Linn. Soc. N.S.W.* 10 : 761.
- RIDE, W. D. L. (1956)—The affinities of *Burramys parvus* Broom a fossil phalangeroid marsupial. *Proc. zool. Soc. Lond.* 127 : 413-29, pls 1,2.
- RIDE, W.D.L. (1956)—A new fossil *Mastacomys* (Muridae) and a revision of the genus. *Proc. zool. Soc. Lond.* 127 : 431-9.
- RIDE, W. D. L. (1960)—The fossil mammalian fauna of the *Burramys parvus* breccia from the Wombeyan Caves, New South Wales. *J. Proc. R. Soc. West. Aust.* 43 : 74-80.
- RIDE, W. D. L. (1964)—A review of Australian fossil marsupials. *J. Proc. R. Soc. West. Aust.* 47 : 97-131.
- RIDE, W. D. L. (1967)—On *Sceparnodon ramsayi* Owen, 1884 : the selection of a lectotype, the clarification of its type locality, and on its identity with *Phascolonus gigas* (Owen, 1859). *Rec. S. Aust. Mus.* 15 : 419-25.
- ROGER, O. (1879)—Liste der bis jetzt bekannten fossilen Säugethiere. *KorrespBl. zool.-miner. Ver. Regensburg* 33 : 70-92.
- ROGER, O. (1887)—Verzeichniss der bisher bekannten fossilen Säugethiere. *Ber. naturw. Ver. Schwaben* 29 : 1-162. [Sauropsidelphia republished below.]

A. Sauropsidelphia.

1. Ordn. Monotremata, Kloakenthiere.

Echidna gigantea, Krefft. Post-Pliocän von Australien.—Krefft, Ann. Mag. nat. hist. 1868. 1. pag. 113.

Ech. Ramsayi, Owen. Post-Pliocän von Australien.—Owen, Phil. Trans. R. Soc. London. V. 175. 1885. pag. 273. Pl. XIV.

- ROGER, O. (1894)—Verzeichniss der bisher bekannten fossilen Säugethiere. *Ber. naturw. Ver. Schwaben* 31 : 1-40. [Monotremata republished below.]

1. Unterklasse. Eplacentalia.

1. Ordnung. Monotremata, Kloakenthiere.

(Ornithodelphia, Blainv. Prototheria, Gill.)

Echidna gigantea, Krefft. Pleistocän von Australien.—Krefft, Ann. Mag. Nat. Hist. 1868. pag. 113.—Owen, Phil. Trans. Roy. Soc, London. V. 175. 1885. pag. 273. Pl. XIV.—Syn.: *Ech. Ramsayi*, Owen.—*Proechidna Oweni*, Krefft.—

- ROGER, O. (1896)—Verzeichniss der bisher bekannten fossilen Säugethiere. *Ber. naturw. Ver. Schwaben* 32 : 1-272.

- ROLLESTON, C. (1845 *MS. date*)—Copy of letter from C. Rolleston to the Colonial Treasurer, dated May 26th, 1845. Commissioner of Crown Lands Darling Downs Letter Book 1843-48 : 58. *Mitchell Library manuscript*

A1764⁻². [Published below.] [The copy of the letter is unsigned but we are satisfied that the letter is from C. Rolleston; for the localities of Stations mentioned in the copy of Rolleston's letter see Leichhardt, L. (1847)—*Journal of an overland expedition in Australia . . .*: map.]

26th May 1845

Colonial Treasurer

I do myself the honor to transmit herewith a Return of persons occupying Crown Lands in this District

I have &c

| No. | Names | Stations |
|-----|------------------------|-----------------|
| 1 | Aberdeen Company | Rosenthal |
| 2 | —Same— | Goomburra |
| 3 | —Same— | St. Ruth |
| 4 | Bell Thomas | Jimba |
| 5 | Campbell Colin. | Glengallan |
| 6 | Campbell Tertius Robt | Jondaryan |
| 7 | Collins Thomas | McIntyre Brook |
| 8 | Crawford & Hodgson | Eton Vale |
| 9 | Dennis Henry | Lower Condamine |
| 10 | Farquharson Archd. F | Strathmillan |
| 11 | Gammie George | Tarrajarra |
| 12 | Gore St George R | Yandilla |
| 13 | Gordon William | Toolburra |
| 14 | Hicks Henry P | Peels Plains |
| 15 | Hughes & Isaac | Stanbrook |
| 16 | —Same— | Westbrook |
| 17 | King Joseph | Haldon |
| 18 | Leslie Walter & George | Canning Downs |
| 19 | McLeod Colin | McIntyre Brook |
| 20 | Marsh Mathew H | Maryland |
| 21 | Pike John | Pikedale |
| 22 | Pinnock Philip | Ellangowan |
| 23 | Robinson Joseph P | Clifton |
| 24 | Same | Canal Creek |
| 25 | Rolland & Taylor | Tumaville |
| 26 | Ross Hugh | Lower Condamine |
| 27 | Ross Neil | Gladfield |
| 28 | Russell & Brooks | Cecil Plains |
| 29 | Sibley James | Haldon |
| 30 | Whitting Joshua J | Peels Plains |

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Dear McCoy

Could you give me some particulars of the fossil bones I sent you in May last collected by Brown from the earthy deposits on the banks of the Loddon. Portions of the jaws of Wombat & *Diabolus* were amongst them. The $\frac{1}{4}$ sheet within which they were found is about to be published, and I would like to insert a "note" by you respecting them: also the names if determined of the small fresh water shells found with them.

Yours sincerely
Alfred R C Selwyn

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Saturday, Octr 1. Ground so saturated by last night's rain as to render it impossible to move out.

Sunday, Octr 2. Remained in camp.

Monday, Octr 3. Proceeded to Clifton a station of the Messrs Gammie, situated on Kings or Whitting's Creek, and distant about 15 miles from the camp. Examined the creek for a distance of three miles below the station, and found therein a few fossil bones. Returned at dusk to the house, where I found Mr. Wyatt, the superintendent of the Messrs. Gammie, and at his invitation supped and slept there.

Tuesday, Octr 4. Examined the creek upwards for about 8 miles, and found therein some interesting fragments of bones—among them a portion of a lower jaw entirely new to me. This part of the Downs is exceedingly well watered by long reaches in the creek, and some very deep water-holes.—Returned to the camp by crossing the range and running down the Emu creek.

Wednesday, October 5. Remained at the camp, engaged in sorting & packing bones.

Thursday, Octr 6. Went to Mr. Hodgson's (Eaton Vale-[sic]) respecting meat for the camp. Remained to dinner, and subsequently slept there, at Mr. H's kind invitation, the weather having become very boisterous.

Friday, Octr 7. Returned to the camp, having on the way called on Mr. Bagot. The wind blew so hard as to render it impossible to do anything in the tent.

Saturday, October 8. Removed the tent to a spot under the shelter of a sloping bank on the side of the creek, and commenced writing up my report.— Received the long wished for map from the Surveyor-General's office when I found to my regret that it did extend north of the Condamine. Its delay is accounted for by its having been directed to Coolah instead of Warrialdra.— I also received a letter from James Taylor, of Morpeth, informing me that the new tent, &c, had been sent to Quinn's on the Namoi river; that he had now ordered it back, and on its arrival would send it per steamer to Moreton Bay.

Sunday, Oct 9. Engaged in examining and describing the new jaw found on King's creek. I think of provisionally naming it *Schizodon* from the shape of its anterior molar.—In plate 51, of the 2d. vol. of Sir Thos Mitchell's Narrative (edition of 1839) I find figures of incisors (Nos 4. & 5.) and of molars (Nos 10 & 11) which I have no doubt belonged to the same animal as did the jaw found by me.

Monday, Oct 10. Still in camp on Hodgson's creek—the weather being so boisterous as to render it impossible to do anything beyond making an occasional excursion in search of bones.— I am informed by Mr. Bagot that there is good coal at Goggs station, situated about 60 miles down the Condamine.

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- WOODS, J. T. (1960)—The genera *Propleopus* and *Hypsiprymnodon* and their position in the Macropodidae. *Mem. Qd Mus.* **13** : 199-212.
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- WOODWARD, B. H. (1909)—Extinct marsupials of Western Australia. *Geol. Mag.* (decade 5) **6** : 210-12.
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ADDENDUM

New names and works published since 1968.

New taxa are proposed in the following works published since 1968.

- BARTHOLOMAI, A. (1971)—*Dasyurus dunmalli*, a new species of fossil marsupial (Dasyuridae) in the Upper Cainozoic deposits of Queensland. *Mem. Qd Mus.* **16** : 19-26, pl. 1. [Family Dasyuridae: *Dasyurus dunmalli* Bartholomai, 1971.]
- MARTINEZ, C. R. & LIDICKER, W. Z. (1971)—Description of a new genus and species of fossil rodent from Australia. *J. Mammal.* **52** : 775-81. [Family Muridae: *Paraleporillus* Martinez and Lidicker, 1971; *Paraleporillus stirtoni* Martinez and Lidicker, 1971.]
- TURNBULL, W. D. & LUNDELIUS, E. L. (1970)—The Hamilton fauna. A Late Pliocene mammalian fauna from the Grange Burn, Victoria, Australia. *Fieldiana, Geol.* **19** : 1-163 (including pls 1-31). [Family Petauridae: *Pseudocheirus marshalli* Turnbull and Lundelius, 1970; *Pseudocheirus stirtoni* Turnbull and Lundelius, 1970. Family Phascolarctidae: *Pseudokoala* Turnbull and Lundelius, 1970; *Pseudokoala erlita* Turnbull and Lundelius, 1970.]
- WAKEFIELD, N. A. (1972)—Studies in Australian Muridae: Review of *Mastacomys fuscus*, and description of a new subspecies of *Pseudomys higginsii*. *Mem. natn. Mus. Vict.* no. 33 : 15-31, pl. 3. [Family Muridae : *Pseudomys higginsii-australiensis* Wakefield, 1972.]

Other works of importance¹.

- BARTHOLOMAI, A. (1970)—The extinct genus *Procoptodon* Owen (Marsupialia: Macropodidae) in Queensland. *Mem. Qd Mus.* **15** : 213-34, pls 16-21.
- BARTHOLOMAI, A. (1972)—Presidential address : aspects of the evolution of the Australian marsupials. *Proc. R. Soc. Qd* **83** : v-xviii.
- FRANK, R. (1971)—The clastic sediments of the Wellington Caves, New South Wales. *Helictite* **9** : 3-26.
- GILL, E. D. (1972)—The Dunolly fossil wombat. *Victorian Nat.* **89** : 64-6.
- MAHONEY, J. A. (1971)—Mammalia. Pp. 151-67 in Fletcher, H. O.: Catalogue of type specimens in the Australian Museum, Sydney. *Mem. Aust. Mus.* **13** : 1-167. [A lectotype and paralectotype are incorrectly attributed on p. 161 to *Sceparnodon ramsayi* Owen, 1883; and the locality Large Cavern, Wellington Caves should be given for the holotype of *Macropus titan* Owen, 1838 on p. 155.]
- SCHRAM, F. R. & TURNBULL, W. D. (1970)—Structural composition and dental variations in the murids of the Broom Cave fauna, Late Pleistocene, Wombeyan Caves area, N.S.W., Australia. *Rec. Aust. Mus.* **28** : 1-24, pls 1-3.
- WAKEFIELD, N. A. (1972)—Palaeoecology of fossil mammal assemblages from some Australian caves. *Proc. R. Soc. Vict.* **85** : 1-26, pls 1-3. [Lectotypes are selected for *Perameles wombeyensis* Broom, 1896, *Pseudocheirus antiquus* Broom, 1896, *Palaeopetaurus elegans* Broom, 1895, *Potorous tridactylus antiquus* Broom, 1896 and *Macropus (Halmaturus) wombeyensis* Broom, 1896.]
- WOODBURNE, M. O. (1969)—A lower mandible of *Zygomaturus gilli* from the Sandringham Sands, Beaumaris, Victoria, Australia. *Mem. natn. Mus. Vict.* no. 29 : 29-39.
- ZIEGLER, A. C. (1971)—A theory of the evolution of therian dental formulas and replacement patterns. *Q. Rev. Biol.* **46** : 226-49.

¹The *Current Literature* sections of Australian Mammal Society *Bulletin* vol. 2, no. 7 (May, 1970) and no. 8 (December, 1971) should be consulted for further recent works on Australian and New Guinea fossil mammals. Publication of the *Bulletin* ceased with vol. 2, no. 8. It will be succeeded by a new journal entitled *Australian Mammalogy*.

ALPHABETICAL INDEX TO SCIENTIFIC NAMES

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2. Other names, such as non-available names, names of taxa other than mammals, or mammal names not based upon fossils, are referred to pages where they occur.

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