AUSTRALIAN NATURAL HISTORY.

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[*Read before the Royal Society, 5 November*, 1873.]

MAMMALS OF AUSTRALIA AND THEIR CLASSIFICATION.

Part I.—Ornithodelphia and Didelphia.

According to geological evidence, the class Mammalia (animals who develop mammary glands for the nourishment of their young) made their appearance on this earth during the Oolitic period.

The fossils obtained, a few lower jaws and teeth, were referred to the sub-class *Didelphia*, comprising at present a single order, the Marsupialia. These are distinguished from the Monodelphia, or Placentalia, by bringing forth their young in a very rudimentary state, nourishing them in a "marsupium," which is either a regular pouch or a simple skinfold, such as our native cats and antechini develop at the time of parturition. The living species are almost entirely confined to Australia, to the neighbouring islands, such as the Solomons, Timor, the Aru Group, to New Guinea, and to Celebes; in America a single genus still lingers, represented by one northern and about thirty southern species.

The extinct genera found in England, in the Stonesfield slate and Purbeck beds, are of small size, about as large as our Antechini or Phascogales, and generally considered to represent the most ancient form of mammalian life hitherto discovered.

According to the theory of evolution, the *Ornithodelphia* (represented in Australia alone by the order *Monotremata*, the duck-bill or Ornithorhynchus, and the spiny ant-eater or Echidna) should have made their appearance first, but fossil remains of them have not yet been found except in the post-pleiocene deposits of Wellington. Some allowance must be made, however, for the incompleteness of our geological or palæontological record, so that during future and more systematic investigation additional evidence may be looked for.

The discovery of fossil remains in Australia extends over a good many years, bones and teeth of mammals of all kinds have been found and shipped Home in large quantities; palæontologists have examined and reported upon them, but owing to a scanty supply of the skeletons of modern marsupials, the classification of these distinguished men has never been as correct as the owners of the fossils had a right to expect.

The errors which have been made are indeed numerous and varied, the most harmless of creatures have been represented as "the fellest of the fell," animals with all the true characters of

phalangers have been persistently described as allied to the kangaroos—the peculiar short tarsal bones of harmless kangaroos have been explained to be those of great flesh-eaters. New species have been created for the numerous still living bettongs, wallabies, and rat kangaroos, phalangers, dasyures, and thylacines when found fossil; whilst the peculiar character of the old short-footed kangaroos, with their firmly joined lower mandible, their immovable incisors, and their other marked distinctions, have never engaged the attention of foreign investigators. So little are our living animals understood that anatomists have not yet pointed out the peculiar structure of the kangaroo's molar teeth. I allude especially to their fangs or roots. I doubt very much that many men have made the observation that, as far as the grinders are concerned, the bandicoots, but more particularly the rabbit-rat or peragalea, are near relations of the wombats. Three years ago such teeth were lithographed for our Museum catalogue, but they have not been published. It must have struck observant people that, with the exception of the Monotremes (the platypus and ant-eaters) and the dasyures, all our animals have their hind feet constructed on a peculiar and uniform plan, possessing invariably two small conjoined inner toes, much less in size than the rest of the digits. All, with one exception —the Thylacine—have two bones articulated to the lower part of the pelvis. All marsupials, except the native bear and the dactylopsila, have the angle of the lower jaw bent inwards, and all members of the kangaroo tribe have a wide opening at the base of the lower jaw, below the ascending ramus. In all phalangers, bandicoots, and dasyures, this opening is closed, except in the highly herbivorous native bear and wombat, which sometimes have a small foramen remaining. Such a perforation is also present in the very typical Australian form, the Thylacoleo.

The Teeth.

(*Ornithodelphia or Monotremata.*)

The Monotremata, who must be regarded as the most ancient mammals known, possess either horny teeth, such as the Ornithorhynchus, or none at all, like the Echidna. The development of these animals appears to have taken place from the *Sauropsida* (a combination of the two classes of birds and reptiles), and points in the direction of that curious lizard-bird, the *Archæopteryx*. This creature, with its toothed beak, is perhaps the most important missing link ever discovered, and when Australia is better explored we shall perhaps find fossil remains of mammals more reptile or bird like than the Platypus or the Echidna. The Australian antiquated living representatives of the early mammalian type must have been developed at a period more remote than the Oolite, which preserved the supposed marsupial remains of

Phascolotherium, *Triconodon*, and other forms. Some of our living marsupials resemble the Echidna (in the structure of their skull and in their scanty or curiously-arranged teeth), and in this direction the connection between the two lowest orders of mammals must be looked for. I regret to say that the most diligent search for Platypus remains has not yet been successful, but of the Echidna I found three fragments of the humerus and a femur, the latter almost perfect, and indicating a larger kind.

The teeth of the Monotremata consist in the Platypus of four horny plates without roots or fangs, well adapted for crushing the food. The Echidna is toothless, but at the posterior end of the mandibular symphysis there is a small alveolus in each ramus, which appears to me indicative of a rudimentary tooth, perhaps corresponding to a canine. The Myrmecobius (with its peculiar skull, which resembles that of the Echidna, but is well provided with fifty-two very small teeth) and the little Tarsipes, with its irregular dentition, appear to be the nearest relations to the Monotremes.*

(*Didelphia or Marsupialia.*)

The teeth of the marsupials—the peculiar arrangement of some, and the presence of almost toothless genera—point, as already stated, to a probable development from the Monotremes.

When examining the Echidna, with its long spiny tongue, we can easily imagine a kind of connection between this form, the Myrmecobius and the little honey-sucking Tarsipes. Both marsupials possess a bird-like skull and very weak mandibles, both are covered with comparatively coarse hair, and have few or irregular teeth, not touching each other. One, with a nailless thumb, conjoined inner toes, and only one pair of lower incisors, connects the herbivorous marsupials with the Monotremes; the other, with many cutting teeth, without conjoined inner toes, with tuberculated grinders and regular canines, appears to diverge towards the marsupial carnivores. With the platypus no such connection can at present be established. We must not forget, however, that all our efforts at elucidation are comparable to looking for a pin in a bale of hay. The dentition of the two

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* It is still an open question how the young of these Monotremeous animals are conveyed to the mammary glands. The Echidna has two deep pouches, about the size of the new-born young, without nipples; and on two occasions young animals have been found inside, but how they get there we are unable to tell. The general belief that the mother uses her lips in the conveyance is untenable when we consider that the animal is destitute of lips, and has nothing but a stiff beak and paws as clumsy as it is possible to imagine. Year after year passes without a solution of this most important question, and the Echidna will probably have disappeared by the time that a more liberal-minded generation produces men who will devote a little time and some money to the investigation of his interesting problem.

little animals just mentioned is of so exceptionable a character that they cannot well be included in the group with more highly developed teeth. For the sake of arrangement, however, the tarsipes is added to the phalangers and the myrmecobius to the dasyures.

Following the clue thus received, we arrive at the dentition of the aberrant phalangers represented by the genus *Thylacoleo*.

This supposed marsupial lion, believed to have been the "fellest of the fell," was, after all, a harmless creature, which is proved by his weak incisors, small canines, and the highly inflected scoop-like angle of the lower jaw. This animal bruised his food with a formidable premolar tooth, whereof one was developed in each ramus above and below. Cuvier's well-known sentence about the molars of a mammal, explaining its character and position in the system, failed in this instance. A much worn large premolar in the Australian Museum, and an upper pair with perfectly flat grinding surface in Professor Owen's possession—a present from Dr. George Bennett—have probably convinced anatomists that the view I took first of the herbivorous habits of this "lion in phalanger hide" was a perfectly correct one. The incisors are simply large editions of the typical phalanger's front teeth, such as may be examined in the native bear, the yellow-bellied flying phalanger, or the northern dactylopsila or striped phalanger. It would be waste of time to describe them in detail; those gentlemen who take sufficient interest in the matter can get a Phascolarctos or "native bear" skull any day, and those who do not care about it will perhaps feel thankful for being spared the infliction of a long description. The Thylacoleo was just three times the size of a native bear, and if this scale is borne in mind the incisive dentition can be reconstructed without trouble by those interested. The great premolar corresponds to the same tooth of the phalangers, and makes its appearance early. The first molar below is, however, the tooth of a carnivore, and corresponds to that of the Sarcophilus, so does the last tooth above. The last molar, like that of all the marsupial carnivores, stands transversely and across the palate. The second or last molar below is a small tubercular tooth, and quite unlike the last and largest trenchant one in the pouched flesh-eaters. The canine above is an enlarged example of the canine of Bettongia rufescens. The canines found vary, and may be those of several species of "pouched lions." They are placed far into the palate, and are more or less covered by simple, single-rooted, and blunt premolars, the crown of which resemble the head of a common wrought nail.

In the true phalangers the upper canines and premolars, Nos. 2 and 3, are generally well developed, the first premolar being lost in early life.

Below, the Thylacoleo has generally two or three small teeth, sometimes on the inner side of the great premolar, which represents the diminutive canine and premolars No. 1 and No. 2. The shape of these small and functionless teeth is not known, as all the specimens of mandibles in collections show only empty sockets.

Fam. Phalangistidæ.

The phalangers proper, whereof the Thylacoleo is an aberrant form, comprise animals the molar dentition of which is very different in the several genera composing the family. They all possess, however, the six incisors above and two below; their canines are always well developed in the upper jaw, and the molars have tapering fangs or roots. The living genera and species are represented by the genus *Cuscus*, a northern form, in many respects resembling the extinct Thylacoleo; the genus *Dactylopsila*, with greatly developed front cutting teeth and small grinders; the common flying phalangers, or sugar squirrels, of the genus *Belideus*, with small and slightly tuberculated molars; the feather-tailed genus, *Acrobata*, with much developed canines, and with grinders reduced to three above and below in each ramus; the phalangers known as "opossums," of the genus Phalangista, with a powerful third premolar turned more or less outwards, to which (and not to the kangaroo rat premolar) the great tooth of Thylacoleo bears a close resemblance, and the ring-tailed phalangers of the genus *Pseudocheirus* which close the phalanger series proper. These animals, generally called ring-tailed 'possums, resemble in their dentition the aberrant Phascolarctos, or native bear; and in the loosely anchylosed and movable mandibles and the scooped out lower incisors, they approach the kangaroos.

The relationship between the two animals, the great ring-tail flying squirrel and Cook's ring-tail phalanger or opossum, is so close that I am often obliged to look and compare skulls of both, where in other cases it is easy enough to feel without looking to which genus a skull or jaw belongs.

The Thylacoleo alone combines in its dentition, and in the form of the mandibles, characteristics which are found scattered about among the whole Phalanger and Bettong tribe.

Sub-Family *Phascolarctodidæ*.

The presence of a second species of the genus Phascolarctos, lately described by me in the Zoological Society's proceedings, makes it necessary to establish a sub-family for their reception. The dentition of this group is a very peculiar one, being chiefly distinguished by the total absence of canine teeth below, and by

only one premolar (the third) above and below in each ramus. In this respect the native bears approach the kangaroos on the one hand and the gigantic extinct phalangers on the other.

There is also some relationship with the wombats in the shape of several bones, and in the occasional reduction of the upper incisor teeth to four, or even a single pair. The second and third upper incisors are small, and sometimes either missing or lost at an early age. Many individuals examined by me had only two incisors above in each ramus and two below, a fact which I desire to mention, as it may lead to further investigation. The upper grinders of the native bears are very broad, almost square, and provided with four sharp tubercles, the lower ones are more compressed. The undeveloped premolar of certain large extinct phalangers resembles the molars of the native bears, and young individuals of these again possess bones which bear a great likeness to those of full-grown Diprotodons. To this resemblance I shall refer again farther on.

Sub-Family *Diprotodontidæ.*

The Diprotodons were gigantic animals, with teeth constructed on the phalanger type, that is, six incisors above, and a pair below, without canines, the premolar generally present but often shed at an early age, molar teeth with a two-ridged crown divided by a valley and with rims or talons in front; the enamel either rugged and of a worm-eaten appearance or smooth.

These animals form two groups, the Zygomaturi and the Diprotodons proper, and at present they are not well understood by naturalists.

The chief difference consists in the cutting teeth, but as the mandibles and skulls are seldom found together, and as it cannot be proved when so found that the one really belongs to the other, we have been obliged to accept the additional genus Nototherium for certain loose mandibles. Professor Owen claims the only perfect skull of the genus Zygomaturus ever discovered, which was described by the late Mr. W. S. Macleay as belonging to his genus Nototherium—but this claim, as the lawyers say, has been disallowed. 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 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 kangaroo rat.

Genus Nototherium.

The upper teeth of this genus are unknown ; it was founded on certain lower jaws destitute of incisors, but others have since been discovered containing incisive teeth, and these have been added to the genus, so that a definition thereof, according to Owen, stands at present thus—incisors absent, very small, or sometimes very large, compressed, fusiform, and not rounded or tusklike as in the genus Diprotodon.

The molars vary much in shape, but all appear to have tapering fangs or roots. Premolar very small or absent.

Fam. Phascolomyidæ.

This family comprises the wombats, which retain many of the phalanger characters, but are chiefly distinguished by their peculiar continuously growing teeth. The incisors are two above and below, canines not developed, grinders five in each ramus above and below, the first being a premolar. The crown of very younr wombat molars resembles that of the Diprotodons, but this peculiarity is soon lost when the teeth get into use. Their insertion is in this manner that both series when viewed from in frotn would form figures like this)(( ) the upper ones turned outwards, the lower ones inwards. The incisors above are formed like the first pair of the Zygomaturus teeth, whilst the lower ones resemble the Diprodoton tusks—a curious fact, which points to one common progenitor. It is also interesting to notice that the form of the first pair of cutting teeth in the native bear is more like the Diprodoton's upper incisors, whilst the lower teeth are an exact representation of the fusiform Nototherium teeth. Again, the upper ones of the Bettong closely resemble the Zygomaturus incisors, whilst the lower come near the Diprotodon. It is in this manner that our animals are intimately connected with each

other, and characters concentrated in a few extinct species are still scattered about among the recent genera, each retaining some peculiarity from the Thylacoleo, Zygomaturus, Nototherium, or Diprotodon.

Fam. Macropodidæ.

This family comprises the kangaroo tribe, and is another branch or offshoot from the great phalanger family, as I shall presently show. Some of the old fossil kangaroos are chiefly distinguished by having the mandibles closely anchylosed, like the wombats; their lower incisors small, and not fit, owing to the firmness of the jaw, to nip the grass as modern kangaroos do. On this account they probably succumbed in the battle of life at an early period, whilst the co-existing smaller and fleeter species, who could move rapidly from place to place, lived on till the present day. The teeth of the kangaroos have always been in number the same as those of the native bear, with this exception, that the upper canine is seldom developed, and that in one group—the kangaroos proper—the grinding teeth are almost lost as quick in front as they came into place behind. Some extinct kangaroos are also distinguished by their thick premolars, but co-existing with these animals were such already as cannot now be separated from the living red kangaroo (*Macropus rufus*), or the black wallaroo (*Macropus robustus*). The teeth differed as much in shape as they do now. Some exhibited simple lobed grinders, with a connecting ridge; others had these lobes strengthened by fangs or buttresses; others again had teeth like the Diprotodons or Zygomaturi, but all invariably had firmly-rooted grinders, whose fangs expanded below, and thus prevented the perfect and functional molar teeth from being easily lost after death. There is nothing so scarce in collections as a perfect fossil kangaroo grinder, and I refer for particulars to the illustrations of our still unpublished fossil remains. The tribe of kangaroos is connected with the phalangers proper, through the ring-tail phalangers (*Pseudocheirus*) and the great flying phalangers or petaurista (*Petaurista*), animals having incisor teeth which above and below resemble those of the *Macropodidæ*. The upper ones, though very small, are of the same shape as the corresponding teeth in the nail-tail wallabies of the genus *Onychogalea*.

The connection with the bandicoots, the last of the herbivorous family of Marsupials, is effected through the Hypsiprimni, or short-tailed rat kangaroo, which approach nearest in form to the genus *Perameles*.

Fam. Peramelidæ.

The bandicoots bridge over the space between the grass and flesh eating tribes. Though they still retain the peculiar hind feet with the two small inner toes, they have developed already

ten small cutting teeth above and six below; they also retain their three premolars and four molars through life, and they possess sometimes large canines, though their food remains grass and herbs. Their grinders, studded with sharp tubercles, appear admirably adapted for the insectivorous diet on which they are believed to exist, but a close examination reveals the astonishing fact that these teeth are inserted on the same principle as those of the wombat—in one genus at least—and that they have conical roots with a much smaller pair of fangs on the inner side. In the genus *Peragalea*, the one alluded to, the outward appearance of the grinders is perfectly wombat-like, and though a pair of most powerful canines are developed, still the habits of the creatures are almost entirely those of vegetarians, and excrements examined by me seldom showed remains of insects.

Fam. Dasyuridæ.

The number of teeth in this, the "native cat" family, is in one genus almost as in the bandicoots, with the exception of the upper cutting teeth. The bandicoots have five in each ramus above, or ten in all, and the dasyures only eight. The ordinary dasyures are deficient in one premolar tooth in each ramus above and below, and they approach in the form of the first molar the ancient thylacoleo—the animal with which this discourse was commenced, and which now closes the circle of our marsupial families who, apparently very different, are still closely connected with each other, and are probably developed from some remote mammalian form whereof the platypus is the only living representative.

The Bones of Marsupials.

Having discussed the dentition of the order, it is necessary to say a few words about their bones.

The chief distinguishing characteristic of a marsupial animal's skull is the vacuity of the palate, which is, however, not constant. The second is the inflection of the portion of the mandibles situated below the articulating condyle. The broader this inflection the more peaceful the animal. All highly carnivorous marsupials have this process narrow and sharp, all vegetarians broad and hollow. To give an example: The process is deepest in the living wombats, in the extinct Thylacoleo, in the great kangaroos, and the wallabies; it is less deep in the rat kangaroos and bettongs, in the Diprotodon and Nototherium, and in the native bear. The corresponding character is a functional canine tooth in the upper jaw. It may be argued that the gigantic Phalangers, the Nototherium, Zygomaturus, and Diprotodon did not possess such a tooth; but there are no rules without exceptions, and at earlier stages they may have possessed the tooth in question. We only know one or two perfect skulls of aged

individuals, and as the rule holds good as far as recent marsupials are concerned, it may be accepted for them at all events.

The slightly carnivorous bandicoots, and the small phalangers known as flying-squirrels and flying-mice, show a sharp angle like all true flesh-eaters; and though a bandicoot may live on herbs and roots, he will also kill mice and prove his carnivority whenever an opportunity is offered. The rule laid down by some of the earlier comparative anatomists, that the articulating condyle is below the dental line of the ramus in carnivores does not hold good in all cases, and, in a very exceptional form, the Dactylopsila, which is a fruit-eating phalanger, the condyle is as low as in our greatest carnivores. The dental series in a line with the ascending ramus has been pointed out by me as a carnivorous peculiarity; and this position of the teeth in the Thylacoleo, combined with upper canines and molars of a flesh-eater, have induced me to admit that the Thylacoleo was as carnivorous as other phalangers, but certainly not more so, because the broad expanse of the inflected angle—a proof of non-carnivority—neutralizes the other characteristics. The condyle of the most savage of our flesh-eaters—the Tasmanian devil—has a broad upper surface, and not the spindle or roller shape of the true placental beasts of prey.

The last important evidence of marsupiality in the herbivores is the wide foramen at the base of the ascending ramus. This opening becomes smaller in many of the insectivorous phalangers, though it is very much smaller, sometimes absent, in the native bear and wombat.

All marsupials have arm-bones with a rotating motion, except the pig-footed bandicoots. All except the Thylacine have a pair of marsupial bones attached to the lower portion of the pelvis, and all have the pelvic bones very narrow. All except the bandicoots have five well-developed nailed toes to the fore-foot; and the whole tribe except the true carnivores has the peculiar arrangement of the hind toes, that is, two conjoined small digits on the inner side of the foot.

The humerus, though often modified, cannot easily be mistaken in the more common members of the tribe. There is always a strong deltoid ridge, and the supra-condylar foramen is almost always present, except in some small Dasyures, and the gigantic fossil herbivorons species, the Diprotodon, for example. That the hand or manus in all marsupials is provided with five digits, except in the Chæropus, or pig-footed bandicoot, has been mentioned already.

The scapula appears to differ in shape considerably at first sight, but closer examination reveals a certain uniformity of structure. I can do no more at present than draw attention to the corresponding form of this bone in the wombats, the thylacine, and the bandicoots.

All marsupials which have the rotating movement of the lower arm-bones possess clavicles—the exception being the bandicoots. The clavicles of the Diprotodons are exactly like those of the wombat.

It is necessary to state here that the shape of the ulna in the Diprotodons resembles that bone of the elephant, the olecranon process being little developed.

The femur of the terrestrial marsupials, who progress by a succession of leaps, is generally slightly bent; in the wombats (and more or less in the phalangers) it is a remarkably straight bone, very short, the shaft flattened (in the Diprotodon), and the distal portion much expanded. The tibia and fibula in the phalanger tribe enjoy much freedom of motion. The kangaroos have these bones closely attached, and the great Diprotodon had so short a tibia and fibula that I could not make up my mind for years to accept frágments of these bones as belonging really to a tibia. There is no doubt about them any longer, and a restored tibia and fibula in the Museum collection, will convince even the most sceptical.

The *os calcis* or heelbone of the Diprotodon resembles that of the wombat and native bear. The digits were probably very small, but I cannot say more about them at present, though we possess bones which may turn out to be those of the toes of a Diprotodon.

The vertebræ of these great animals resembled again those of the Phascolarctos, or native bear, and the wombat—the first, or atlas, consisting of two parts when young, never joining below, not even in adult subjects, just as the atlas of living phalangers remains permanently open below.

The ribs of the Diprotodon were probably thirteen pair, rather broad, and not unlike those of the wombat. The tail was short, and wombat-like also.

The numerous large bones hitherto discovered are in almost every instance a proof of being those of phalangers, either of the wombats or Diprotodon family, and not a single bone or tooth indicates the existence in Australia of a large carnivore—larger than the Tasmanian Thylacine.

I shall now give a list of the animals hitherto discovered in a fossil state, and arrange them in the following order:—

Fam. Phalangistidæ.

To this family belong all the gigantic fossil mammals. The following genera are represented:—

Genus Diprotodon.

With two described species *D. australis* and *D. bennettii*. The last-mentioned animal has lately been been found by Messrs.

King and Bennett, at Gowrie, in the Darling Downs district. The splendid casts now in the Museum were prepared under my direction. These casts and models represent the four legs of the marsupial giant, named in honor 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.

Genus Nototherium.

A numerous tribe, represented by perhaps twenty or more species.

Genus Thylacoleo.

Several kinds of this Phalanger have been proved to exist, full descriptions of which will shortly be given.

Genus Phascolarctos.
Phalangista.
Belideus.

Fossil remains of these three genera have been found.

Fam. Macropodidæ.

This extensive family was represented by numerous species, many of which are still living. All the short-footed animals with firmly joined mandibles are now extinct, and for these the genus *Halmatutherium* (*Krefft*) has been established.

The fossil Bettongs are identical with still living species.

Fam. Phascolomyidæ.

The wombats were also numerous in olden times, and twenty fossil species at least can be demonstrated.

Fam. Peramelidæ.

The bandicoots are also plentiful in a fossil state. The Peragalea, or rabbit rat, with its peculiar wombat-like grinders, occurs already, and many of these fossil teeth show a continuous growth, like the teeth of all wombats.

Fam. Dasyuridæ.

Common native cats and the Thylacine and Sarcophilus, identical with the animals now inhabiting Tasmania, were common in the Wellington District in particular. Elsewhere their remains are very rare. The Thylacine was the largest of our carnivores.

The teeth in the Museum collection have now been all determined, and there is not one which indicates the presence in former times of animals which could not be referred to any one of the genera enumerated in this paper.

This closes the Ornithodelphia and Didelphia.