XII. *Evidence of a large extinct Monotreme* (Echidna Ramsayi, Ow.) *from the Wellington Breccia Cave, New South Wales.*

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[Plate 14.]

Amongst the detached bones and fragmentary evidences of Mammals from the above-named locality, submitted to me by Edward P. Ramsey, Esq., F.L.S., who thence obtained them, was a humerus sufficiently complete to yield the following characters. It was of great breadth in proportion to its length, and, through the unusual size and direction of the processes and ridges for muscular attachments, seemed as if the shaft of the bone had been twisted half-way round on its axis.

The head, or proximal articular surface (Plate 14, fig. 1, *a*, and fig. 3), is a transversely elongated convexity, of a narrow ovate shape, with the broader end toward the ectotuberosity, *b*—the direction of such joint being at right angles to that of the feline humerus, in which, as in *Thylacoleo*, the antero-posterior or then-anconal diameter prevails. The non-articular portions of this end of the bone extend for equal distances to the ento-*c*- and ecto-*b*-tuberosities. From the latter is continued the "deltoid" or "anterior bicipital" ridge, *f*, from which, after its course of more than one-third the length of the shaft, it is continued by a lower ridge along the thenal aspect to be lost in the bony bridge overarching the neur-arterial canal, *k*, *o*. From the ento-tuberosity, *c*, is continued the "teretial" or "posterior tricipital" ridge, along the radial border of the humeral shaft to its termination in a special process —the "tricipital," *d*. Moreover, both ento- and ecto-tuberosities are connected together by a low curved ridge or rising which bounds a small portion of the palmar surface of the shaft immediately below the head of the humerus. From the bridge, *k*, is continued a narrow ridge to the ent-epicondylar process, *i*. The distal end of the humerus is continued, ridge-like, from *i* to a process *j* midway between the epicondyles, *h* and *i*,* but bounding the ulnar trochlea, *u*. A notch below the outlet of the

* In anthropotomy the term "condyle," rightly applied to the prominent articular convexities of the "occipital," "mandibular," and "femoral" bones, is transferred from the distal articular prominence of the humerus to the processes for attachment of muscles above the joint-surfaces. I have found it convenient, in comparative osteology, to indicate the homologues of the "external condyle" and "internal condyle" of the human humerus by the terms "ectepicondyle" and "entepicondyle."

neur-arterial canal, *k*, indicates the ulnar trochlea and divides the process, *j*, from the articular tuberosity or condyle, *l*, for the head of the radius. A very small proportion of this condyle is continued upon the anconal surface of the humerus (Plate 14, fig 2); the convexity there changes to a concavity, *u*, for the ulna, and from *e* is continued the ectepicondyle, *h*, as a well-marked outstanding process.

The above partial description, with the annexed figures, of this, perhaps, most modified, after the Mole's, of Mammalian humeri, suffices to show that we have the bone of a Monotreme under comparison, and that it must be referred to the terrestrial and fossorial genus represented at the present time by a much smaller species—*Echidna hystrix* (Cuv.).

The subject of the foregoing description was one of several other remains of phytophagous and insectivorous Marsupials, surpassing, like *Nototherium* and *Phascolonus*, the still existing Kangaroos and Wombats in bulk, and which, from the fractured state and markings of their bones, I conclude were dragged as prey by the sole Carnivore of adequate strength and size, at the remote period antecedent, probably, to the advent of the biped population of Australia. To the hunger of these so-called aborigines for animal food I am disposed to refer the final disappearance of Beasts, of Birds (*Dromornis*, of twice the bulk of the present Emeu, for example), and of Reptiles (of which *Megalania* is an instance), conspicuous by their bulk, and as unable as the Elephants of Africa assailed by Negroes to resist the attacks of Man when impelled by the rage of hunger. Such Kangaroos as were not disabled by their weight from a rapid saltatory flight have survived with the smaller, easily-concealed kinds. A small burrowing Wombat (*Phascolomys*) still survives; its skeleton and dentition have enabled me to interpret the nature and affinities of its huge extinct ally, the Phascolone. So, likewise, the small burrowing ant-devourer, still maintaining an existence, elucidates the affinities of its larger ancient congener.

I had long hoped to receive some fossil evidences of the Monotremes peculiar to Australasia, the lowest modification of the Mammalian class, represented by the aquatic insectivore, the *Ornithorhynchus*, and by the terrestrial kind, *Echidna*, closely resembling the placental ant-eaters.

For some years after the demise of Cuvier, both genera were deemed peculiar to the Australian and Tasmanian dismemberments of the great southern continent; but, of late, a species (*Echidna Bruijnii*)* and a second kind (*Echidna Lawesii*)† have been found living in the northern tract of New Guinea. Both these species somewhat exceed in size the Australian varieties known as *Echidna hystrix* (Shaw), and *Echidna setosa* (Home); but the fossil here described (*Echidna Ramsayi*) shows that a species

* Gervais, "Ostéographie des Monotrèmes vivants et fossiles," Atlas, plates vi. and vii.

† Ramsay, E. P., "Note of a species of *Echidna* from Port Moresby, New Guinea," Proceedings of the Linnean Society of New South Wales, vol. ii., p. 3. A notice by Mr. Krefft has appeared in the 'Annals and Magazine of Natural History' (vol. i., p. 113), of fossil remains ascribed to the genus *Echidna*.

larger than either of those from New Guinea formerly existed in Australia. I cannot conclude without referring to the humerus of a similar exceptional type, but of considerably larger size, which was so associated with vertebral, pelvic, and femoral remains of a Reptilian character as to lead me to refer these fossils to the cold-blooded air-breathing class* under the generic name *Platypodosaurus*. It is noteworthy, in relation to a geographical approach to the present limited and exclusive locality of the modification which brings Mammals nearest to Reptiles, that the Platypodosaurian remains should have been discovered at the southern extremity of the African continent.

As corresponding parts of the humeri of the existing and extinct kinds of *Echidna* are denoted by the same letters in the drawings accompanying the present paper, a "table of admeasurements" need only to be added to exemplify the size-characters, those of the humerus of *Platypodosaurus* being added.

Humerus.	Echidna hystrix.		Echidna Ramsayi.		Platypodosaurus.	
	in.	lines.	in.	lines.	in.	lines.
Length	2	0	3	4	10	6
Breadth of proximal end	1	0	1	9	5	3
„ middle of shaft	0	4	0	10	2	3
„ distal end	1	9	2	9	5	10
Thickness (ancono-thenal) of middle of shaft	0	$3\frac{1}{2}$	0	8	2	6

Plate 14.

Fig. 1. Anterior or palmar view of the humerus, *Echidna Ramsayi*.
Fig. 2. Posterior or anconal surface of the humerus, ib.
Fig. 3. Articular head of the humerus, ib.
Fig. 4. Anterior or palmar view of the humerus, *Echidna hystrix*.
Fig. 5. Posterior or anconal surface of the humerus, ib.
Fig. 6. Articular head of the humerus, ib.

(Parts of the tuberosities *b* and *c* are broken off in the fossil.)

All the figures are of the natural size.

* Quarterly Journal of the Geological Society, August 1880, p. 414, plate xvi., fig. 7.

Fig. 3.

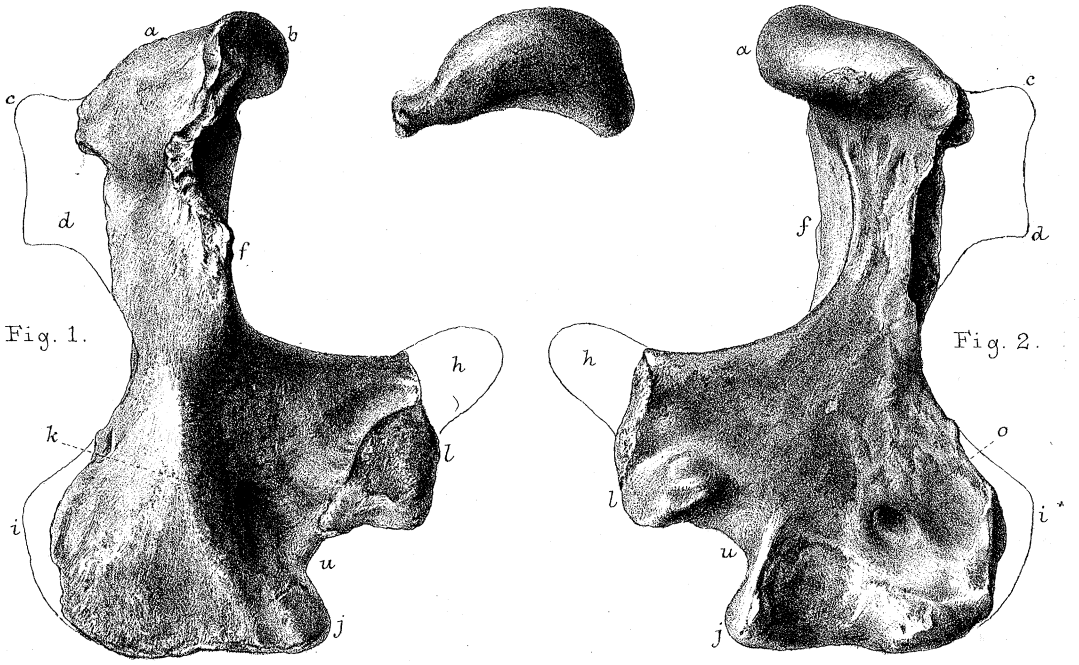

Fig. 1.

Fig. 2.

Fig. 6.

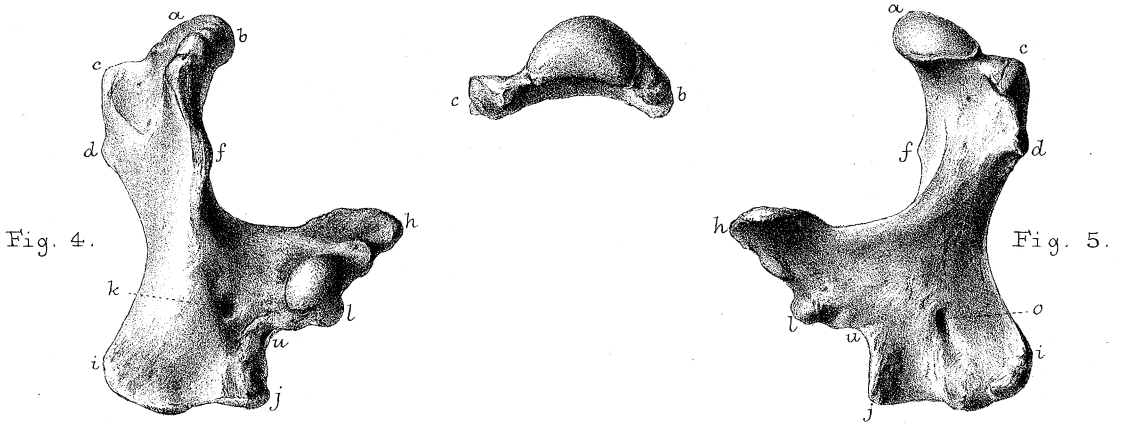

Fig. 4.

Fig. 5.