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A NEW GIANT HYRACOID FROM THE LIMEWORKS QUARRY, MAKAPANSGAT, POTGIETERSRUS

By J. W. Kitching

ABSTRACT

In this paper a new genus and species of giant hyrax from the Limeworks Quarry, Makapansgat, Potgietersrus, is described. This new hyrax is 1½ times larger than the largest specimen thus far extracted from any Pleistocene deposit in Africa. The name *Gigantohyrax maguirei* gen. et sp. nov., is proposed.

INTRODUCTION

During July, 1960, Mr B. Maguire, in charge of the excavations at the Limeworks Quarry, brought to the Institute a block of Upper Phase 1 or *Cercopithecoides*-breccia, in which was embedded approximately two-thirds of a very large *Hyrax* skull, as well as the mandible of a young cercopithecid. Only the right tooth row and a cross section through the brain case of the *Hyrax* were visible, the back of the skull having been destroyed during blasting operations.

More recently a second specimen was discovered in a block of breccia which has been in the collection of the Institute since 1958. This block is also from the Upper Phase 1 or *Cercopithecoides*-breccia and also contained an almost complete skull and lower jaw of a cercopithecid.

When the hyracoids were fully prepared from the matrix they turned out to be the largest of their kind ever to be extracted from any Pleistocene deposit anywhere in Africa.

Before the discovery of these two giant specimens it was generally accepted that only two species of *Procavia*, *P. transvaalensis* and *P. antiqua*, occurred in the dolomite caves of South Africa.

Gigantohyrax maguirei gen. et sp. nov.

Figures 39 and 40

The type (M8230) of this new genus is based on the well preserved anterior two-thirds of the skull discovered by Mr Maguire in 1960. The palate, both tooth rows and the incisors are in an excellent state of preservation.

The paratype (M8234) is an almost complete and reasonably well preserved skull, with the snout portion and dentition damaged.

The largest hyracoid hitherto known from the dolomitic cave deposits of South Africa is *Procavia transvaalensis* from the caves near Krugersdorp, a species which also occurs at the Limeworks Cave deposits at Makapansgat.

Churcher (1956) has shown that *Procavia transvaalensis* is 1½ times larger than the largest living *Procavia capensis*. *Gigantohyrax maguirei* in turn is 1½ times

larger than *Procavia transvaalensis*. Table 1 gives a comparison of basal length and jugal breadth between *Procavia capensis*, *P. transvaalensis* and *Gigantohyrax maguirei*, as well as the percentage ratio. Measurements are given in millimeters.

TABLE 1

Species	*Basal length*	*Jugal breadth*	*Percentage Basal length: Jugal breadth*
Procavia capensis	81·5	48·0	169·7
P. transvaalensis	125·2	73·6	170·1
Gigantohyrax maguirei (Type)	—	125·8	—
Gigantohyrax maguirei (Paratype) ..	200·00	124·0	161·2

In *Gigantohyrax maguirei* most of the cranial bones are fused. There is no trace of an interparietal (M8234). In both *Procavia transvaalensis* and *P. capensis* the interparietal is distinguishable from the parietal and supraoccipital; sutures are clearly visible. If an interparietal is present in *Gigantohyrax*, it has become compressed beyond recognition within the well developed, fairly broad, sagittal crest formed by the prominent temporal ridges. The latter also form very outstanding borders between the frontal and parietal bones, a feature which is inconspicuous in *P. transvaalensis* and mostly absent in *P. capensis*.

The parietal and supraoccipital bones in *Gigantohyrax* also seem to be in the process of fusing, as it is difficult to trace any sutures between them; sutures are only faintly visible in places. This fusion may be the result of the strong development of the occipital crests. In *P. capensis* these sutures are always clearly visible.

The frontal bones in *Gigantohyrax* are slightly raised close to the midline, or alternatively depressed in the direction of the orbits, and in this respect it agrees with *P. transvaalensis*. The marked thickening of the frontals along the supra-orbital borders of the orbits in the new genus is much less conspicuous in *P. transvaalensis*, and absent in *P. capensis*.

The position of the infraorbital foramen in *Gigantohyrax* is above the centre of P^3 and in this respect it agrees with *P. transvaalensis*. In *P. capensis* this foramen is situated above the posterior root of P^3.

The anterior edges of the nasal bones in *Gigantohyrax* are in the same vertical plane as the premaxillae, while in *P. transvaalensis* and *P. capensis* the nasals terminate farther back.

In *Gigantohyrax* the palatine-maxillary suture in the secondary palate is roundly curved, whereas in both *P. transvaalensis* and *P. capensis* it is invariably square.

The postorbital bars in *Gigantohyrax* are short, thick and solidly fused. By contrast the postorbital bars are longer, much more delicate, and invariably there is a gap between the jugal and parietal in both the living and the extinct species of *Procavia*.

In living hyraxes the complete dental formula is $1\frac{1}{2}$: $C\frac{1}{2}$: $P\frac{1}{2}$: $M\frac{1}{2}$, with

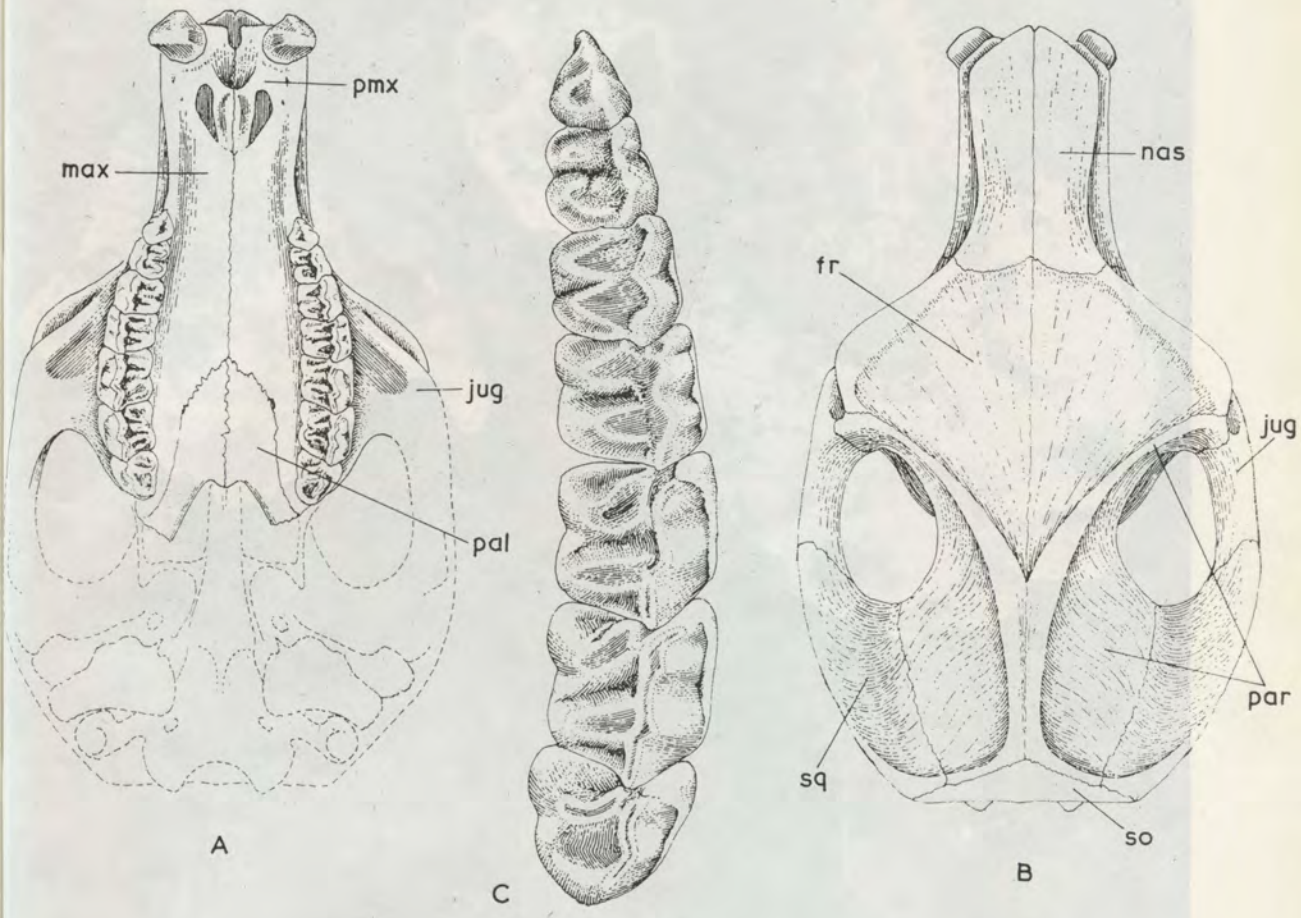

FIGURE 39

A—Ventral view of the type of *Gigantohyrax maguirei* (M8230), with the posterior region outlined according to the paratype and the modern *Procavia capensis*. X $\frac{1}{2}$.
B—Dorsal view of the paratype (M8234), with the snout restored after the type. X $\frac{1}{2}$.
C—Right dental row of the type. X $1\frac{1}{2}$.
Abbreviations: fr—frontal; jug—jugal; max—maxillary; nas—nasal; pal—palatine; par—parietal; so—supraoccipital; sq—squamosal.

the tooth rows converging slightly anteriorly. The two extinct forms agree in these respects, but in the new genus, while the massive hypsodont teeth also agree in crown patterns, there is hardly any wear, in spite of the otherwise fully mature appearance of the skull. For detailed tooth measurements see Table II.

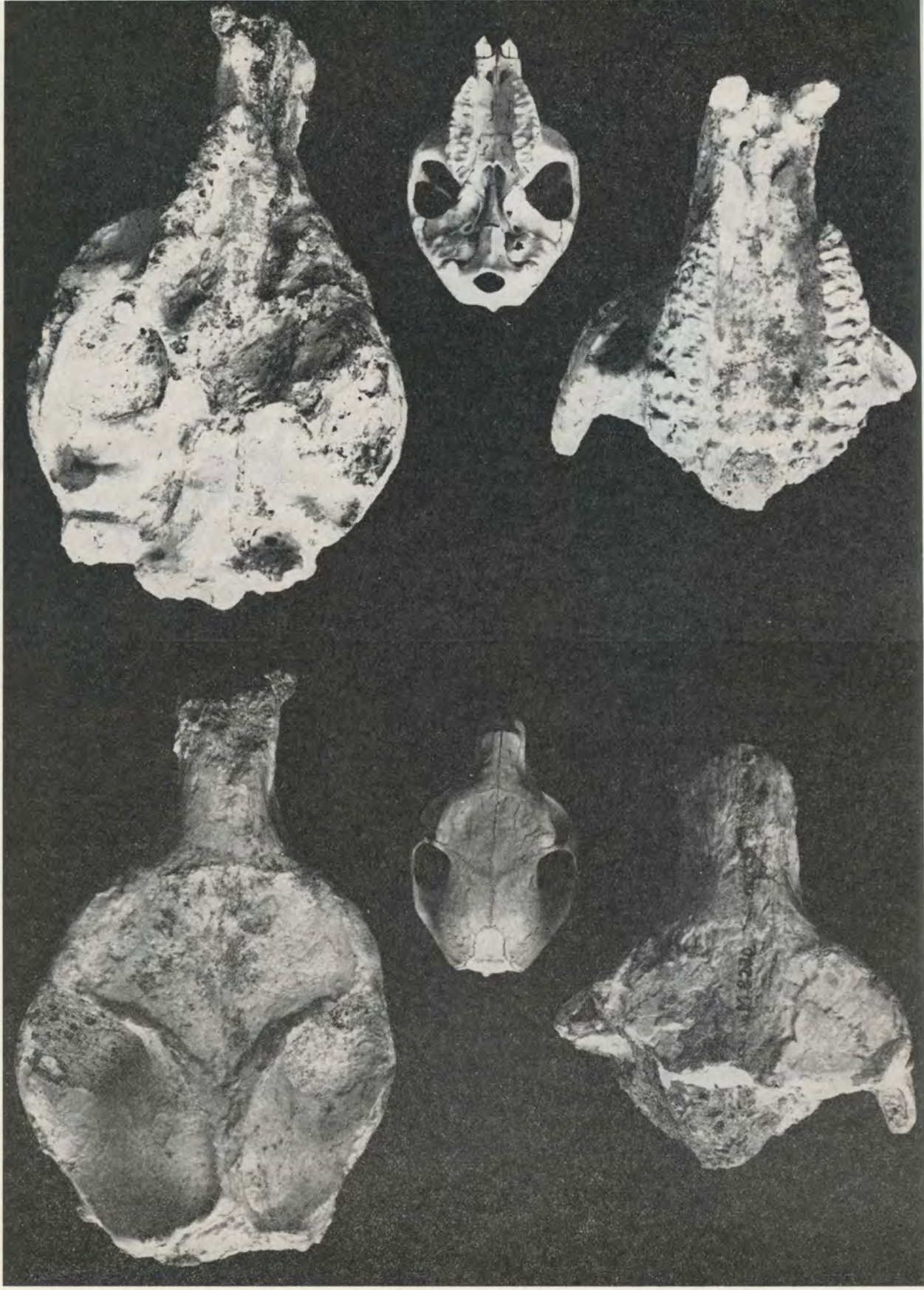

FIGURE 40

TABLE II

Measurements of upper cheek teeth of *Procavia transvaalensis*, "*Procavia obermeyerae*" (synonym of *P. transvaalensis*) and *Gigantopithecus maguirei*.

Dimensions	*P. transvaalensis* (Churcher 1956)	"*P. obermeyerae*" (Churcher 1956)	*G. maguirei* (M8230)
P^{1-4} Length	—	6	38·5
P^{2-4} Length	—	—	30·00
M^{1-3} Length	26·5	28·6	40·00
P^1 Length	—	—	8·5
Breadth	—	—	7·0
P^2 Length	—	—	9·3
Breadth	—	—	9·2
P^3 Length	7·2	7·2	11·9
Breadth	—	7·0	11·7
P^4 Length	—	8·5	12·2
Breadth	8·0	8·6	13·4
M^1 Length	—	9·8	15·5
Breadth	9·2	8·8	14·3
M^2 Length	9·8	9·7	15·7
Breadth	9·9	—	15·4
M^3 Length	10·0	9·3	15·2
Breadth	9·7	—	15·1

The incisors in *Gigantohyrax* are massive and short. Their sockets form marked ridges on the external surfaces of the premaxillae and maxillae, exaggerating as a result the depressions below them in the region of the diastemata.

The new genus also differs from both the *Procavia* species in that the gap between the upper incisors is greater than the width of one incisor.

With the addition of this new genus to our hyracoid records we are faced with the peculiar phenomenon that these three forms, the extinct new genus and the two previously recorded species of *Procavia* (*P. transvaalensis* and *P. antiqua*) in their three greatly different sizes, populated the Makapansgat cave area simultaneously during the period of the deposition of the Upper Phase I breccias.

ACKNOWLEDGMENTS

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Above: Ventral views of the paratype (left) and the type (right) of *Gigantohyrax maguirei*, compared with the modern *Procavia capensis* (centre).

Below: The same skulls in dorsal view. All skulls x $\frac{1}{2}$.

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