

levels makes it possible to assume that the reactivity of the genetic material is highly dependent on the chemical environment, for example, as determined by water content. Perhaps this polarizability can be increased by addition of particular substances and cause the reactive groups to be even more reactive towards radiomimetic agents. This problem is under investigation.

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ANTHROPOLOGY

The Olduvai Giant Hominid Tooth

THE giant molar tooth found by Dr. L. S. B. Leakey¹ in Bed II at Olduvai Gorge in Tanganyika was reported by him^{1,2} to be a lower deciduous second molar of a hominid, possibly related to *Sinanthropus* and *Homo heidelbergensis*. This interpretation has been questioned by a number of workers including G. H. R. von Koenigswald³ of Utrecht and John T. Robinson⁴ of Pretoria, who conclude that the tooth is rather a permanent upper molar, probably Australopithecine.

I am in agreement with the views of the last two authors on all but one point, that is, the contention that it necessarily is a permanent tooth. Its size certainly places it in the range of the Australopithecine permanent molars (including those of *Zinjanthropus*), but several things make it difficult to rule out the deciduous grouping.

Beyond a doubt the root system is that of an upper molar. There are three roots, two obviously buccal and the large lingual one extending palatally in the typical fashion which required that it had the accommodations of the maxillary alveolus rather than the restrictions of the mandibular bony support. The cast of the tooth, available to me through the courtesy of Dr. K. P. Oakley of the British Museum (Natural History), suggests also that the roots may have been in the process of resorption from the influence of the developing permanent tooth which nestled above and between them. This may be questioned, though, by the fact that lack of wear suggests that the tooth is not old enough to be in the resorptive stage. The spreading disposition of the roots with the markedly constricted neck of the tooth strongly suggests a deciduous character.

The occlusal surface of the Olduvai tooth is long and narrow, as outlined by the tips of the cusps.

Table 1. LENGTH AND BREADTH OF UPPER MOLARS

	MD lg	BL br	M ₁ MD lg	M ₁ BL br	M ₂ MD lg	M ₂ BL br
Olduvai tooth	15	14				
<i>Zinjanthropus</i>			15.5	18.0	17.0	21.0
<i>Australopithecus crassidens</i> Swartkrans 89 (av.)			14.6	15.0		
<i>Australopithecus crassidens</i> Swartkrans 27 (av.)			14.0	13.2		

This is a feature seen mainly on deciduous teeth, although it does occur on the permanent ones but much less frequently. The strong development of the metacone also speaks in favour of this being a deciduous rather than a permanent tooth.

Robinson's points on the relative position of the buccal and lingual cusps, the intercuspal crest and the accessory cusps in the fovea, are valid. So is his argument against the heavily worn deciduous canine belonging to the same individual from which the molar came. Von Koenigswald used an index based on mesio-distal crown lengths to compare the tooth sizes in *Homo*, *Australopithecus* and the Olduvai specimen. He felt that the value of 214 for the latter placed it definitely within the range of *Australopithecus*, which had indexes of 148 and 187 as contrasted to 117 and 153 for *Homo*. The tooth dimensions of *Zinjanthropus boisei* (from Bed I in the same gorge)⁵ were not available to him at the time. The difference in size between anterior and posterior teeth in *Zinjanthropus* is so considerable that applying von Koenigswald's index to the permanent first molar of the latter and the Olduvai deciduous canine⁶ gives a value of $228 = \left(\frac{15.5}{6.8} \times 100 \right)$. An Olduvai deciduous

second molar would be expected to be smaller than this, and hence comes closer to the measurement of the giant Olduvai tooth being discussed. Thus, the argument of size and proportions favours rather than discounts the identification of the Olduvai molar as a deciduous tooth.

In my opinion, therefore, the Olduvai molar could very well be a left maxillary deciduous second molar.

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PSYCHOLOGY

Senile Dementia and Cerebral Oxygen Uptake measured on the Right and Left Sides

IN a recently concluded work¹ on cerebral oxygen uptake in the aged, an unexpected result was that uptake values based on blood drawn from the left internal jugular vein were more closely related to mental function than were values based on right jugular blood. Five normal aged men and nine male