Southern African Field Archaeology 2:53-55. 1993.

REPORT ON HUMAN SKELETAL REMAINS FROM ROOIBERG (TRANSVAAL)*

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* Accepted for publication January 1993

ABSTRACT

A human skeleton from the Rooiberg area is described. The skeleton is that of a juvenile, about 8-9 years of age. Marked enamel hypoplasia is present in the form of linear defects. The age at formation of these defects varies between 1,9 and 4,6 years. This is consistent with published results, since the period around weaning is often associated with nutritional deficiency and high susceptibility to disease.

INTRODUCTION

The Rooiberg tin mining complex is situated in the Transvaal, about halfway between Warmbaths and Thabazimbi. A human skeleton was accidentally discovered here in a footpath. No information on the exact location or mode of burial is available. The skeletal material consists of most of the cranium, mandible and parts of the diaphyses of both tibiae and femora as well as a humerus (Fig. 1). It is stored at the Anatomy Department, University of Pretoria (UP 7).

Other skeletal finds from this area include the one described by Dart (1924), and those three described by De Villiers (in Hall, 1981). De Villiers concluded that one of the male skeletons (burial I) displayed signs of malnutrition, due to the presence of long bone flattening (Lisowski 1968). Morris (1987), however, showed that flattening of the tibial shaft is a common feature in local population groups. All these skeletons were described as being of Negro origin.

RADIOCARBON DATING

The dating was done by Dr J. Vogel of the CSIR. A date of 300 ± 60 BP (Pta-5894) was obtained, with a most probable calibrated date of AD 1648. A log found in the pre-historic mine dated to the 15th century (Vogel 1970, GrN-5138). Four other dates from this complex of sites (Pta-2845, -2847, -2849, -2850) are published in Hall (1981), ranging from AD 1470 to AD 1760 (calibrated). The date for this skeleton of 300 ± 60 BP, places it within the second phase, stone wall tradition of the Late Iron Age (Hall 1985).

Researchers, for example Maggs (1976) and Lye & Murray (1980), have indicated that the archaeological sequence went back a long period of time. It is thus possible that the people living in the Rooiberg area at the time were ancestral to modern populations. One could thus suggest, on cultural evidence, that this child was of Sotho/Tswana origin.

AGE

Aging was done according to formation and eruption of teeth (Ubelaker 1989, El Nofely & Işcan 1989). Both upper and lower, central and lateral incisors as well as all the first permanent molars are erupted and in occlusion; thus the age was determined as 8-9 years. Since these are the remains of a juvenile, no attempt at sexing was made.

TEETH

The teeth show marked attrition. Tartar is present on the first left upper deciduous molar. Enamel hypoplasia in the form of horizontal grooves is present on both first permanent molars, left canine, right lateral incisor and left first premolar in the maxilla and on all the lower incisors and left permanent canine (Fig. 2). These hypoplasias are deficiencies in enamel thickness resulting from systemic disturbances (stress) during the secretory phase of amelogenesis (Goodman & Rose 1990). Most of the hypoplasias in archaeological material are caused by acute episodes of malnutrition or febrile diseases, while defects due to hereditary anomalies and localised trauma are rare. Due to the inability of enamel to remodel, and their regular ring-like development, these defects provide a permanent chronological record of stress during the formation of tooth crowns. Sciulli (1977) found that agriculturalists had a higher frequency of severe enamel hypoplasia on deciduous teeth.

Sarnat and Schour (1941) were the first researchers who focused on the chronometric potential of enamel hypoplasias. Most of the current research to determine the individual age at defect formation rests on the

Fig 1. The skull and mandible.

Fig. 2. Enamel hypoplasias on the mandibular teeth.

standard established by Massler, Schour and Poncher (1941). In our study we used the regression formulae published in Goodman and Rose (1990) which are based on the mean crown heights of Massler *et al.* and Swärstedt (1966). The distance from the cemento-enamel junction (CEJ) to the linear enamel hypoplasia (LEH) was measured on each tooth, and the age at formation calculated. The results are shown in Table 1. Only the permanent teeth displayed LEH.

Ages at formation of the defects vary from 1,9 to 4,6 years with an average of 3,1 years. This result is consistent with other published results in which it was found that these abnormalities tended to form around 2 to 4 years of age (Saul & Hammond 1974, Corruccini, Handler & Jacobi 1985). Post-weaning stresses might be responsible for this peak (Corruccini *et al.* 1985, Hillson 1979), since a child is most susceptible to diseases during this period.

Table 1: Age determination at the formation of LEH.

		Distance*	Age (in years)
Maxilla:			
Lateral incisor	(right)	4,1 mm	2,9
Canine	(left)	2,5 mm	4,4
Premolar 1	(left)	4,1 mm	4,0
Molar 1	(left)	3,6 mm	1,9
Molar 1	(right)	3,4 mm	2,0
Mandible:			
Central incisor	(left)	2,7 mm	2,8
Central incisor	(right)	2,2 mm	3,0
Lateral incisor	(left)	3,1 mm	2,7
Lateral incisor	(right)	2,3 mm	3,0
Canine	(left)	3,2 mm	4,6

*From CEJ to LEH

CONCLUSION

The teeth of this child, aged 8-9 years, display distinct enamel hypoplastic defects. These lines were formed between 1,9 and 4,6 years of age, probably due to episodes of malnutrition and acute disease in the post-weaning period.

ACKNOWLEDGEMENTS

We would like to thank Dr J.C. Vogel for providing the radiocarbon dating, and Mr M. Loots for the photographs. We are also grateful to Prof M. Henneberg for his encouragement.

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