

of the fragment from the pebble stratum than on those in the second specimen from the grey breccia, and that the roots of the teeth in this pebble stratum *Australopithecus* are distinctly longer and more robust. From his extensive range of comparative australopithecine material from Sterkfontein, Mr. J. T. Robinson has been able to assure me that these divergences are within the range of dental variation for *Australopithecus* (*Plesianthropus*) *transvaalensis*. Stoutly and distinctly three-rooted molars are normal for all the Australopithecinae, as is also the presence of a more or less well-defined groove on the lingual aspect of the single palatal (lingual) root.

The significance of the specimen therefore rests at present in its providing the first concrete evidence that an australopithecine type, broadly comparable with *A. prometheus*, was contemporaneous with, and may have been responsible for, the concomitant pebble culture found in this sealed Central Transvaal cavern deposit. Thereby it not only justifies the original nomenclature and simultaneously enhances the hominid status of the Australopithecinae group, but also demonstrates the earliest known direct association of such a primitive human type with that most primitive of all known lithic cultures in southern Africa.

RAYMOND A. DART

Medical School,  
University of the Witwatersrand.  
May 23.

<sup>1</sup> Brain, C. K., van Riet Lowe, C., and Dart, R. A., *Nature*, 175, 16 (1955).

<sup>2</sup> Dart, R. A., *Amer. J. Phys. Anthrop.*, N.S., 7, No. 3, 385 (1949).

<sup>3</sup> Dart, R. A., *Amer. J. Phys. Anthrop.*, N.S., 7, No. 2, 187 (1949).

### Genetic Control of Sodium and Potassium Concentrations in the Red Blood Cells of Sheep

RECENTLY, it has been shown that an examination of the concentrations of sodium and potassium in the red blood cells of sheep enables two types of animal to be recognized within a breed<sup>1</sup>. Sodium concentration varies inversely with potassium concentration, and determination of the latter allows the two types to be distinguished. These two types have been called 'high potassium' (*HK*) and 'low potassium' (*LK*). A large number of repeated examinations of many sheep have been carried out, and in no case has the electrolyte type of any sheep changed from *HK* to *LK* or vice versa.

The percentages of the two types within samples of the Scottish Blackface and Cheviot<sup>1</sup> and other breeds (Evans, J. V., and Mounib, M. S., unpublished results) varied considerably from breed to breed. This suggested a genetic variation which has now been investigated.

Scottish Blackface ewes were mated with rams of three breeds and were typed together with all available progeny. Sodium and potassium were estimated by flame photometer. Whole blood, which had been diluted 1/500 or 1/400 with distilled water, was used. The results are shown in Table 1.

*LK* rams fall into two classes: those leaving both kinds of offspring (Blackface rams (vii)-(xiii)) and those (rams (i)-(vi), the remainder) leaving nothing but *LK* offspring whatever the phenotype of the ewe. *HK* rams when mated to *LK* ewes produced both kinds of offspring, but mated to *HK*

Table 1. RED BLOOD CELL TYPE OF PROGENY FROM MATINGS OF RAMS AND EWES OF VARIOUS PHENOTYPES

Rams			Ewes				
Breed	No	Red blood cell type	<i>LK</i>		<i>HK</i>		Unknown
			<i>LK</i>	<i>HK</i>	<i>LK</i>	<i>HK</i>	
Southdown	(i)	<i>LK</i>	16		7		5
	(ii)	<i>LK</i>	4		11		
Suffolk	(iii)	<i>LK</i>	4		6		
Scottish Blackface	(iv)	<i>LK</i>					6
	(v)	<i>LK</i>	1		2		3
"	(vi)	<i>LK</i>			2		2
"	(vii)	<i>LK</i>	3	2			1
"	(viii)	<i>LK</i>	1		2	2	1
"	(ix)	<i>LK</i>	1		2	1	2
"	(x)	<i>LK</i>	1	1	2	1	1
"	(xi)	<i>LK</i>	1		2	1	1
"	(xii)	<i>LK</i>	2		1	2	1
"	(xiii)	<i>LK</i>					4
"	(xiv)	<i>HK</i>	3	3		4	
"	(xv)	<i>HK</i>	4	7		8	

ewes only *HK* offspring. It appears that *HK* is a recessive character, and *LK* rams may be either homozygous or heterozygous for a gene affecting the electrolyte type of red blood cell. These results do not provide much information on the segregation of the gene, the most informative matings being those of heterozygous *LK* rams with *HK* ewes. Taking only sibships with at least one *HK* member, there are 9 *LK* to 8 *HK* animals. This ratio is biased due to the exclusion of sibships which by chance contained no *HK* members, although sired by a heterozygous ram; but when corrected for this bias, does not significantly differ from the expected 1:1.

In the British breeds of sheep considered here, it appears that the balance between sodium and potassium in the red blood cells can be substantially modified by a single gene difference. It would be of interest to determine the relationship to the intermediate type found by Kerr<sup>2</sup>.

J. V. EVANS

Rowett Research Institute,  
Aberdeenshire.

J. W. B. KING

Agricultural Research Council  
Animal Breeding Research Organisation,  
Edinburgh.  
March 16.

<sup>1</sup> Evans, J. V., *Nature*, 174, 931 (1954).

<sup>2</sup> Kerr, S. E., *J. Biol. Chem.*, 117, 227 (1937).

### 'Homing Instinct' in Sea Trout

LITTLE is known about the 'homing instinct' in sea trout. Lamond<sup>1</sup> gives several interesting examples of sea trout marked and recaptured in successive years in the same tributaries of rivers flowing into Loch Lomond, and Nall<sup>2</sup> has recorded similar results for sea trout in South Uist. There, two sea trout marked in small lochs were recaptured the following year in the lochs in which they had been marked, and another was recaptured after an absence of two years, again in the loch in which it had been marked. In each case the sea trout had turned into a minor stream instead of following the main stream.

While tagging sea trout in some of the spawning burns of the River Dee, Aberdeenshire, during November 1954, six tagged sea trout were recaptured in three of these burns. Each of these was recaptured in the same burn as that in which it had been tagged