

RATE OF EXCRETION OF COBALT.

Experiments conducted in conjunction with Dr. H. O. Askew, of the Cawthron Institute, have shown that when sheep are drenched with 4 mgm. cobalt only 2 per cent. of the cobalt administered appears in the urine, the remainder, beyond an indeterminate amount stored in the organs, being excreted in the faeces, the greater bulk being excreted during the first forty-eight hours. It follows, therefore, that drenching should be carried out every three or four days in order to maintain the absorption of cobalt at as high a level as possible.

MINERAL-DEFICIENCY.

A series of ash determinations on the bones of sheep of varying ages showed that there is considerable variation in the total ash content of the various bones in the skeleton of the sheep. The ash content of the head of the femur and proximal epiphysis of the humerus was found to be a reliable index of the degree of calcification. The ash values of a series of healthy lambs aged four to nine months indicate that calcification is relatively complete in the lamb at the age of four months.

Bone-ash determinations, when supplemented by blood analysis, are of great assistance in the diagnosis of mineral-deficiency diseases.

CALCULI.

Calculi submitted for identification from the Gore (Southland) area proved to be composed essentially of Xanthin. *Xanthin calculi* are common in the Moutere Hills district, but it is believed that this was the first occasion on which their occurrence had been demonstrated outside the Moutere Hills district in New Zealand.

SALT POISONING IN FOWLS.

From time to time extensive mortalities in fowls have occurred in which there has been reason to suspect poisoning due to common salt. In some cases investigated it has been difficult to incriminate salt owing to the very small amounts recovered from the digestive tract of the birds. Experiments have confirmed Suffran's (1909) findings that the lethal dose of common salt for fowls is about 4 grams per kilo of body-weight.

HÆMATOLOGICAL TECHNIQUE.

The use of corpuscular constants in the classification of blood devised by Wintrobe has been applied to all histological examinations. Some normal variations established are:—

					Sheep.	Rats.
Mean corpuscular volume in cubic microns	..	..	..	..	32-40	40-49
Mean corpuscular hæmoglobin percentage	..	..	..	..	31-38%	31-37%
Total Number of Specimens Analysed.						
Blood—						
Sheep	..	..	..	345	Bone samples ..	.. 44
Cattle	..	..	..	28	Urine samples ..	.. 9
Rats	..	..	..	268	Miscellaneous ..	.. 32
Horses	..	..	..	2		
Pigs	..	..	..	2	Total	.. 743
Fowls	..	..	..	13		

PUBLICATIONS.

The following articles have been published during the year:—
 “The Effect of Feeding Cobalt to Rats” (1936)—S. W. Josland. *N.Z. Journ. Science and Technology*, Vol. 14, No. 5, 298.
 “A Note on the Colorimetric Estimation of Cobalt in Solution by Means of Nitroso-R-salt” (1936)—S. W. Josland and J. W. H. Lugg. *Aust. Journ. of Experimental Biology and Medical Science*, Vol. 14.
 “Total Ash of Sheep’s Bones as an Index to Calcification” (1937)—S. W. Josland. *N.Z. Journ. Science and Technology*, Vol. 18, No. 8, 665.
The following articles are in the press:—
 New Zealand Journal of Science and Technology—
 “The Effect of Feeding Excess Cobalt to Healthy Sheep”—S. W. Josland. (Paper read at Auckland Science Congress, January, 1937.)
 “Rate of Excretion of Cobalt by Sheep after Drenching with Cobalt Chloride”—H. O. Askew and S. W. Josland.