Table 1. Effect of Various Sulphonamides on the Phagocytic Activity of the Reticulo-Endothelial System.

Sulphonamide used	Phagocytic Index (K value) after oral administration	Phagocytic Index (K value) after subcutaneous administration
Sulphaguanidine	20 ± 6·3	15 ± 3·1
Sulphamethoxypyridazine	19 ± 4·5	13 ± 2·2
Sulphamerazine	18 ± 3·7	13 ± 3·6
Acetazolamide	18 ± 2·6	15 ± 4·9
Sulphanilamide	16 ± 5·2	9 ± 4·5
Sulphadimidine	15 ± 2·6	16 ± 2·2
Sulphathiazole	15 ± 4·8	13 ± 3·0
Phthalylsulphathiazole	15 ± 1·4	15 ± 3·3
Succinyl sulphathiazole	14 ± 4·6	15 ± 3·3
6-sulphonilamido-2-4-dimethyl pyrimidine	13 ± 1·7	14 ± 3·1
Sulphapyridine	13 ± 1·4	16 ± 3·0
Sulphisoxazole	11 ± 2·4	13 ± 2·5
Sulphadiazine	10 ± 1·4	10 ± 1·0
Propylene glycol controls	16 ± 2·4	18 ± 4·4

of oral and subcutaneous administration. The low K values for sulphadiazine and sulphisoxazole and the absence of toxic symptoms suggest that these two compounds are mild depressants. These results resemble closely those recorded for antibiotics[3] and suggest that the phagocytes do not play an important part in the action of these drugs. It is more likely that both antibiotics and sulphonamides act directly on invading organisms.

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Effect of Cobaltic Oxide Pellets on the Vitamin B_{12} Content of Ewes' Milk

Evidence that the provision of cobalt-containing supplements to ruminants will increase the vitamin B_{12} content of their milk is conflicting. Harper *et al.*[1] and Moinuddin *et al.*[2] found that cobaltized mineral mixtures given to ewes fed on dry rations significantly increased vitamin B_{12} levels in the milk. Other workers[3], however, have reported that supplementary feeding with cobalt-containing trace element mixtures had no effect on the vitamin B_{12} content of cows' milk when the animals were either stall-fed or grazed on pasture. According to Shrimpton and Duckworth[4] extra cobalt given to grazing ewes either as a drench or in a mineral supplement failed to increase the vitamin B_{12} content of the milk; but it seems doubtful whether any response would have been expected under the particular conditions of their trials.

In the work reported here a flock of pregnant ewes, grazing pastures marginally cobalt-deficient for lambs, was divided into two groups. Ewes in one group were each given a pellet containing 90 per cent cobaltic oxide (described by Dewey *et al.*[5]). Ewes in the second group served as controls. Lambing commenced 3 weeks later and continued for a further 3 weeks. When the lambs were approximately 3 months old and averaged about 50 lb. body-weight, and 5 weeks before weaning, milk samples were drawn from each group of ewes, extracted with cyanide[6], and assayed for vitamin B_{12} using *Lactobacillus leichmannii*[7]. Results are shown in Table 1.

Table 1

Group	No. of Ewes	Vitamin B_{12} (μgm./l.) Range	Mean
Cobaltic Oxide Pellets	15	4·3–19·1	10·3
Control	12	1·0– 4·6	2·5

The mean result for milk from pellet-treated sheep is comparable with mean values found by Harper *et al.*[1] for their cobalt-supplemented groups. Australian workers (O'Halloran, M. W., and Skerman, K. D., private communication) have also examined the effect of pellets on the vitamin B_{12} content of milk from pasture-fed ewes. Their results are similar to ours. It is concluded that continuous supplies of cobalt given in the form of cobaltic oxide pellets to grazing ewes will increase the vitamin B_{12} content of the milk several-fold.

According to Gregory[6], the vitamin B_{12} activity of milk is due almost entirely to cyanocobalamin, a form biologically active for higher animals. Hence it is of interest to consider to what extent ewe's milk will meet the lamb's requirement for the vitamin. On the basis of calculations made by Smith and Loosli[8], the daily requirement of a 50 lb. lamb for vitamin B_{12} given parenterally is about 9 μgm. But for crystalline vitamin B_{12} given orally existing evidence suggests that the daily requirement would not be less than 100 μgm.[8,9] and could be of the order of 300 μgm.[8] Lambs will drink about a litre of milk each day[10]. Thus, assuming that there is no great difference in availability to the animal between crystalline vitamin B_{12} and the bound form occurring in milk[6], it is evident that milk from the cobalt-supplemented ewe will provide only a small fraction of the lamb's total daily requirement for vitamin B_{12}.

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Effects of Carbon Tetrachloride on Kidney and Liver Function in the Sheep

Carbon tetrachloride is often taken as a classical example of a hepatotoxin. However, there is some suggestion[1] that its lethal effect should be attributed to its action on the kidneys.

Five Corriedale adult wethers, between 35 and 42 kgm. body-weight, were drenched with a mixture of 50 ml. carbon tetrachloride and 100 ml. liquid paraffin. Estimations were made of bromsulphthalein clearance, p-aminohippurate synthesis from p-aminobenzoate and plasma concentrations of bilirubin and glutamate oxalacetate tranaminase as indications of liver function, and p-aminohippurate clearance and plasma concentrations of creatinine and urea as indications of kidney function. Methods used are described elsewhere[2].