CCXCIV. A NOTE ON A SYNTHETIC DIET FOR RABBITS.

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THE diet of rabbits normally contains large amounts of cellulose, and the main problem in preparing a suitable synthetic diet is to obtain a palatable form of this constituent. Woodward and McCay [1932] reported the use of regenerated cellulose, and a commercial product, "Diophane",¹ has been used by us throughout. It was first washed thoroughly for twenty-four hours to remove glycerol, then pressed dry and ground as finely as possible. The diet was made up as follows: "Diophane" 300, corn starch 200, caseinogen 120, sucrose 80, butter 100, marmite 90, salt mixture 50 and ascorbic acid 0.1. The salt mixture consisted of sodium bicarbonate 152, magnesium sulphate 80, sodium phosphate 102, calcium phosphate 162, potassium phosphate 280, calcium lactate 390, iron citrate 35, potassium iodide 0.2. It is the mixture used for the rat colony in this department with the addition of 100 parts of sodium bicarbonate. About 3 mg. of ascorbic acid per rabbit per day were allowed. Sometimes it was given separately, but usually it was mixed up with the diet. There was never any indication that the animals suffered from lack of vitamin C. In order to make the rabbits eat the diet, a few special precautions were taken. The diet was added slowly to the bran, on which they had previously been fed, and the animals were made to "eat clean"—that is the food was weighed out each day and only a sufficiency was given. The food was taken away at night. The rabbits had a good appetite in the morning and most of the food was eaten then.

Three adult male rabbits were used at first. Two of these animals were on this diet for one month. They were perfectly well. One gained weight steadily and went up from 1430 g. to 1685 g.; the other fluctuated and finally fell slightly from 1590 g. to 1535 g. The third rabbit refused to eat the diet and lost weight rapidly for ten days, when it was transferred to a normal diet.

An attempt was then made to make the rabbits vitamin B₁-deficient. The vitamin was destroyed by autoclaving the marmite at 130° for 20 min. at p_H 9.5. The two rabbits used in the previous experiment and one other were put on this diet. The same precautions to ensure that the diet should be taken were employed. Further, to prevent any sudden appearance of oedema, the fluid intake was controlled. The normal amount of water taken by these animals varied from 50 to 80 ml. per day. They were given 60 ml. twice a day. The rabbits were kept on the vitamin B₁-deficient diet for 40 days. During this time they were well. All gained in weight from 1680 to 1710 g., 1510 to 1550 g. and 2520 to 2700 g. respectively. The only abnormal sign or symptom noted was polydipsia. The animals nearly always drank up readily their ration of water—which was considerably more than they would normally have taken. They were housed originally in cages with sawdust on the floors. It was thought that either sawdust or coprophagy might be a possible source of vitamin B₁, although there was no

¹ Kindly supplied by "Transparent Paper Ltd.," Bridge Hall Mill, Bury.

direct evidence. Half-way through the experimental period, they were put in cages with wire floors, but this had no effect on their health.

The survival in health of these rabbits on this diet would suggest the possibility that vitamin B₁ is being synthesised in the alimentary canal. Unfortunately circumstances make it impossible to investigate this point further at the moment, but it is thought that a note of this diet would be useful to others doing any nutritional work on rabbits.

REFERENCE.

Woodward and McCay (1932). *Proc. Soc. Exp. Biol. Med.* **30**, 241.