

in the laboratory as a means of preserving red cells of rare blood groups.

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### Toxicity of Aureomycin to Guinea Pigs

SINCE the original studies of Stokstad and co-workers<sup>1</sup>, the growth-promoting effect of aureomycin has been established with several species of animals. So far as we know there are, however, no reports about the effect of aureomycin on guinea pigs. We have used aureomycin in investigations dealing with the synthesis of vitamins in the intestines of rats and guinea pigs. In these experiments it was found that the effect of aureomycin on guinea pigs is quite different from that observed with rats. The same proportional dose which has had a growth-promoting effect on rats appears to be very toxic to guinea pigs.

The diet used for guinea pigs in our experiments consisted of: ground clover-timothy hay 20 per cent, oatmeal 32 per cent, rye-meal 22 per cent, casein 12 per cent, margarine 3.8 per cent, salt mixture (containing 1,000 gm. sodium chloride, 1,000 gm. calcium lactate, 30 gm. ferric citrate, 10 gm. manganese sulphate, 2 gm. copper sulphate and 0.2 gm. potassium iodide) 1.6 per cent, dried brewers' yeast 4 per cent, wheat germs 4 per cent and cod liver oil 0.2 per cent. Vitamin C dissolved in sucrose solution was fed with individual pipettes about 25 mgm. every other day. Crystalline aureomycin hydrochloride was fed at the level of 100 mgm. per kilogram of ration.

The diet containing aureomycin was fed at first to nine guinea pigs weighing 160-210 gm. All the animals began to lose weight on the second day of the experiment, and six out of nine died in ten days. The remaining three survived and even gained weight after the initial loss of weight; but within five to six weeks two of these animals died. In ten control animals not receiving aureomycin, no disturbances were noticed.

In further experiments the aureomycin diet was fed to six adult guinea pigs of average weight 900 gm. All these animals lost weight from the first day of feeding and died in seven to fifteen days. The average loss in weight was 23 gm. a day. A similar loss of weight resulting in death in ten days was observed when aureomycin was injected subcutaneously at the level of 1 mgm. per day to four other adult animals.

Feed consumption of the animals receiving aureomycin either orally or subcutaneously fell practically

to zero soon after the administration of the drug was started. Water consumption, also, was markedly reduced.

A review of the literature shows that aureomycin has been found earlier to be toxic to some other animals, including mice<sup>2</sup>, lambs<sup>3</sup>, steers<sup>4</sup> and dogs<sup>5</sup>. The toxicity of penicillin to guinea pigs has recently been shown<sup>6</sup>. Reasons for these toxic effects have not been clearly established. It has been assumed that harmful effects on the intestinal flora might play an important part. It is scarcely likely, however, that the rapid effect found in our experiments could be due to an unfavourable change in the intestinal flora. The results rather point to a more direct toxic effect of aureomycin on the metabolism of the animal. The suggestion of Loomis<sup>7</sup> that the toxicity of aureomycin is derived from its ability to inhibit aerobic phosphorylation deserves further consideration in this connexion.

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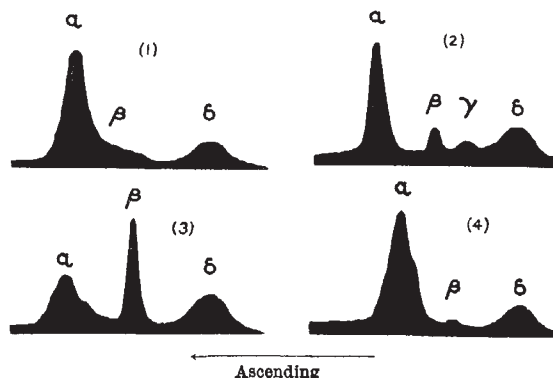
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### A Comparison of the Electrophoretic Patterns of Cow, Goat and Rabbit Casein

DURING the course of some work involving the fractionation of proteins from goat milk, we have found a marked difference between the electrophoretic patterns obtained with goat-milk and cow-milk casein.

The respective patterns are shown in the accompanying diagram (the usual convention of referring to the components as  $\alpha$ ,  $\beta$  and  $\gamma$  in order of their decreasing mobility is adopted). The pattern for cow casein is very similar to that obtained under identical conditions by Hipp, Groves, Carter and McMeekin<sup>1</sup>, whereas that obtained for goat casein under the same



Electrophoretic patterns of: (1) rabbit casein after 150 min.; (2) cow casein after 151 min.; (3) goat casein after 155 min.; (4)  $\alpha$ -fraction of goat casein after 125 min.

Electrophoresis carried out in veronal buffer,  $\mu$  0.1, pH 8.4 (0.05 M with respect to sodium chloride) at 1 per cent protein concentration and at potential gradient 4.3 V/cm.