

LEARNING THE LABYRINTH WITH THE POSITION OF THE CUL DE SAC REVERSED.

	Total No. of Trials.	Total No. of Errors.	Total No. of Steps.	Total Time.
Normal Lamb.	7	4	3254	801 sec.
Cretin Lamb.	4	12	4710	2319 sec.

Tests on the remaining pair were begun two hundred seven days after the operation with the following results:

RELEARNING THE SIMPLE LABYRINTH.

	Total No. of Trials.	Total No. of Errors.	Total No. of Steps.	Total Time.
Normal Lamb.	5	11	2808	911 sec.
Cretin Lamb.	4	5	3312	450 sec.

LEARNING THE LABYRINTH WITH THE POSITION OF THE CUL DE SAC REVERSED.

	Total No. of Trials.	Total No. of Errors.	Total No. of Steps.	Total Time.
Normal Lamb.	8	5	4804	828 sec.
Cretin Lamb.	4	9	3553	1375 sec.

A more difficult problem was then presented to this pair. The position of the cul de sac was alternated during four successive trials per day and twelve trials without error were required for complete learning. Three hundred thirteen days after thyroidectomy the cretin completed the problem in two hundred twenty trials while the normal lamb required but one hundred fifty-six trials.

The expense of this investigation was defrayed by grants from the Heckscher and Sage Research Foundations.

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The characteristic electrocardiogram of the cretin sheep.

By STANLEY ROSS BURLAGE (by invitation).

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In November, 1921, the writer made routine electrocardio-

grams of Dr. Sutherland Simpson's group of experimental cretin lambs and the control normal lambs.

The three leads employed were the same as those used in the usual human electrocardiograms. Soft sheet lead electrodes were bound on the clipped upper leg of the sheep by means of cloth strips wet with saturated salt solution. The lambs stood in the normal position.

A brief review of Dr. Simpson's treatment of the sheep is essential in interpreting the results.

In Group I there were 4 pairs of twin lambs. One of each pair had been operated upon when from 6 to 8 weeks old and both lobes of the thyroid removed. The other was left unoperated as a control.

Two of the operated lambs began to receive thyroxin subcutaneously, beginning 17 to 21 weeks after the operation and lasting until the electrocardiograms were taken. The period of treatment was approximately one month.

The electrocardiograms of the cretins which had received no treatment definitely differed from the normal. In these former the *P* and *Q* waves were either absent or just discernable in all derivations. The *R* and *T* waves were very small; the latter being negative in all cases. This is the normal direction for this final deflection in the sheep electrocardiogram.

In the case of the cretins which had received thyroxin the *P* waves were nearly normal in height in all derivations; there were definite *Q* waves; the *R* waves were increased in height and the *T* waves were larger and positive in direction.

In Group II there were 5 pairs of twin lambs. Of 4 pairs of these twins, one of each pair was completely thyroidectomized when 4 to 6 weeks old. 30 weeks later each of these operated lambs received treatment for 15 weeks and electrocardiograms were taken 28 weeks after treatment was stopped.

The cretin treated with NaI in the feed, and the one treated with thyroxin subcutaneously, showed the typical cretin electrocardiograms. Of the two lambs given thyroid extract in the feed, one showed an electrocardiogram slightly more normal than that of the untreated cretin, and the other presented an almost normal electrocardiogram.

One of the 5th pair of twins was completely thyroidectomized when 23 weeks old. Subcutaneous treatment with thyroxin was begun 13 weeks later and continued for 15 weeks. 28 weeks later the electrocardiograms were taken. They showed a distinct advance toward the normal from the cretin type.

The expenses incurred in these experiments were defrayed by a grant from the Heckscher and Sage Research funds, made to Dr. Simpson.

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Preliminary studies of "posterior paralysis" in swine.

By L. A. MAYNARD.

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A study is in progress of the frequently occurring trouble in swine, commonly referred to as "leg weakness" or "posterior paralysis." Some preliminary observations are here described.

In connection with another experiment, a group of 4 pigs, each about 12 weeks of age, were fed in dry lot for 90 days on a ration consisting of 1 part of yellow hominy feed and 1.4 parts of pasteurized skim milk, together with a mineral mixture made up of charcoal, ground limestone and common salt.

At or near the end of the 90-day period, 3 of the 4 pigs developed symptoms of trouble. A stiffness of the hind legs first became evident. The skin became dry, scaly and covered with large, livid spots. The stiffness increased, accompanied by pain. A swelling of the knee joints was noted in one individual. Finally, paralysis developed in the hind legs of 2 of the animals, they being able neither to rise nor to stand. A rapid loss in weight set in at this stage.

At the close of the 90-day period, the writer changed the diet for 2 of the pigs. One of them, number 122, was unable to rise or stand, was obviously in pain and was losing rapidly in weight; the other, No. 107, was markedly stiff behind but was still able to walk. To the hominy-skim milk ration, was added 4 ozs. of carrots per animal daily. The mineral mixture was replaced by precipitated bone meal, precipitated calcium carbonate and salt.