

TABLE III.

DIFFERENTIAL COUNT OF THE CELLS IN PARS ANTERIOR OF HYPOPHYSIS FROM
A 63-YR.-OLD WOMAN (AUTOPSY NUMBER 21-190—3 HR. POST MORTEM).

Total fields from three different levels 150. Sections 5μ thick. Formalin fixation. Mallory's C.T. Stain.

Cell Types.	All Types Together.	Chromophobes.	Acidophiles.	Basophiles.
Number of cells counted . .	25,658	14,776	8,510	2,372
Percentage	100	57.6	33.2	9.2

ABSTRACTS OF THE COMMUNICATIONS.

WESTERN NEW YORK BRANCH.

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207 (1954)

The effect of thyroidectomy on the intelligence of sheep.

By H. S. LIDDELL (by invitation).

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The procedure followed in attempting to determine the effect of thyroidectomy on the intelligence of sheep has already been described.¹ Four pairs of twin female lambs from three to four weeks old were caused to learn a labyrinth with a single cul de sac and the twin of each pair making the better record was thyroidectomized by Dr. Simpson. Two months later the operated lambs had become typical cretins.

One hundred two days following thyroidectomy one of the cretins, already definitely lethargic, and her normal twin began relearning the labyrinth. The position of the cul de sac was then reversed and the labyrinth was again learned. Learning was taken to be complete at the end of three trials without error; an error being counted whenever the animal entered the cul de sac or turned back along the true path. The number of steps taken

¹ Liddell H. S., PROC. SOC. EXPER. BIOL. AND MED., 1922, xix, 343.

by the animal and the time in seconds were recorded for each trial. The results were as follows:

RELEARNING THE SIMPLE LABYRINTH.

	Total No. of Trials.	Total No. of Errors.	Total Time.
Normal Lamb.....	4	4	472 sec.
Cretin Lamb.....	3	0	173 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.....	6	27	3176	1226 sec.
Cretin Lamb.....	5	34	6016	4821 sec.

One hundred forty-seven days following extirpation of the thyroids another cretin, markedly lethargic, was tested. She was given three trials but was unable to escape from the labyrinth which she had learned before being thyroidectomized. The results of these tests were:

RELEARNING THE SIMPLE LABYRINTH.

		No. of Errors.	No. of Steps.	Time.
Cretin Lamb ...	1st trial	46	3548	Removed in 2 hrs.
	2d "	16	1570	" " 2 "
	3d "	10	1193	" " 1½ "

	Total No. of Trials.	Total Errors.	Total Steps.	Total Time.
Normal Lamb ..	6	8	3116	963 sec.

The other two cretins did not become noticeably lethargic, although they were dwarfed in stature as compared with their twins. Tests were begun on one of these lambs and her normal twin two hundred six days following thyroidectomy. The results were:

RELEARNING THE SIMPLE LABYRINTH.

	Total No. of Trials.	Total No. of Errors.	Total No. of Steps.	Total Time.
Normal Lamb.....	4	4	2452	552 sec.
Cretin Lamb.....	4	3	3548	557 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.....	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.

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In November, 1921, the writer made routine electrocardio-