chloride, a control and a treated rat were killed. Thereafter, at least one control and one treated animal were killed each day over a period of 5 or 6 days. Immediately after the animals were killed, a portion of each liver was placed in formalin solution and later sectioned for microscopic studies.

Sections from the livers of the control rats showed extreme fatty degeneration and necrosis while the livers of the protected animals, with very few exceptions, were only slightly damaged. Even in these rats, the amount of degeneration did not approach that of the least damaged corresponding controls. Over 50 pairs of rats have been used in these acute poisoning experiments.

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Non-Effect of Estrogenic Hormones on Mammary Gland of Hypophysectomized Guinea Pig.*

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It was reported[1] that the mammary gland duct system of immature hypophysectomized albino rats failed to develop when dosages of 25 to 500 I. U. per day of the estrogenic hormone (progynon-B) were injected. To determine whether our results represented a species difference or applied generally, the study has been extended to other species, including the guinea pig, mouse, rabbit and cat. The present paper will present the observations with guinea pigs.

Since our work was begun two conflicting reports upon the subject have appeared. Nelson[2] reported mammary development in four male hypophysectomized guinea pigs, treated with 40 R. U. of oestrone daily, comparable to that observed in normal guinea pigs. It is not clear from his report whether he refers to the growth of an extended duct system or to a lobule-alveolar system, but as estrogenic hormone normally stimulates the growth of the lat-

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1 Reece, R. P., Turner, C. W., and Hill, R. T., PROC. SOC. EXP. BIOL. AND MED., 1936, **34**, 204.

2 Nelson, W. O., PROC. SOC. EXP. BIOL. AND MED., 1935, **33**, 222.

TABLE I.

Non-effect of the Estrogenic Hormone on the Mammary Glands of Hypophysectomized Male and Female Guinea Pigs.

			Estrogenic Hormone.		Observations	
Animal No.	Sex	No. Days of Injections	Kind	Daily Dose I.U.	Nipples	Gland
G35-12	F	40	Theelin (aqueous)	100	Well developed	No duct growth
G35-1	F	32	Progynon-B	100	,, ,,	,, ,, ,,
G35-3	F	65	,, ,,	150	,, ,,	,, ,, ,,
G35-4	M	25	,, ,,	1000	,, ,,	,, ,, ,,
G36-12	F	20	Theelin in oil	50	,, ,,	,, ,, ,,
364	M	30	,, ,, ,,	50	,, ,,	,, ,, ,,
362	F	30	,, ,, ,,	50	,, ,,	,, ,, ,,
363	M	25	,, ,, ,,	25	,, ,,	,, ,, ,,
365	M	20	Oestroform-B	50	,, ,,	,, ,, ,,
			Incompletely Hypophysectomized			
G35-14	M	25	Progynon-B	100	,, ,,	Complete hyperplasia of lobule-alveolar system
G35-15	M	30	,, ,,	100	,, ,,	Complete hyperplasia of lobule-alveolar system
G35-16	F	35	Theelin (aqueous)	100	,, ,,	Complete hyperplasia of lobule-alveolar system
G35-13	M	30	,,	100	,, ,,	Complete hyperplasia of lobule-alveolar system

ter in intact guinea pigs[3] it is assumed that complete development was observed. On the other hand, Lyons and Pencharz[4] observed nipple development in 4 hypophysectomized male guinea pigs after 2 months of progynon-B injections almost equal to that which they obtained in 6 normal male animals under similar treatment, yet there was only a limited growth of ducts in the hypophysectomized animals in comparison to functional alveolar development found in the injected intact males.

A total of 9 young male and female guinea pigs have been injected immediately after hypophysectomy with varying amounts of the estrogenic hormones, theelin,‡ both aqueous and in oil and the benzoate of dihydrotheelin (estroform-B and progynon-B) for periods varying from 20 to 65 days. While these injections stimulated extensive development of the nipples even in the male, the mammary duct system failed to grow (Table I). In 4 additional animals, which upon postmortem examination were found to be incompletely hypophysectomized, similar treatment showed the growth of an extensive lobule-alveolar system. These observations confirm and extend the findings of Lyons and Pencharz.

Conclusion: While the growth of the nipples of the hypophysectomized guinea pig may be stimulated with the estrogenic hormones, theelin and the benzoate of dihydrotheelin, neither the ducts nor the lobule-alveolar complex of the mammary gland responded even to long continued administration. It would thus appear that the inability of the estrogenic hormone to stimulate the growth of the mammary gland parenchyma in the absence of the hypophysis is probably not a species difference.

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[3] Turner, C. W., and Gomez, E. T., *Mo. Agr. Exp. Sta. Res. Bul.*, 206, 1934.

[4] Lyons, W. R., and Pencharz, R. I., PROC. SOC. EXP. BIOL. AND MED., 1936, **33**, 589.

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