We are unable to offer a definite explanation regarding the cause of the doubling of the neural tube and notochord and of the other curious malformations mentioned above. However, they may be due to mechanical disturbances in development caused by a displacement of mitotic figures, by the injury and possible killing of certain cells, or by the intense stratification of materials which results in an upset of the processes of development. On the other hand, it seems equally plausible from the work of Spemann and his collaborators that centrifuging in the many cell and early gastrula stages may have affected the composition or organization of the "inductors" or organizing centers resulting in a disturbance of the normal inductive process.

7607 C

Morphological Comparison of Anterior Pituitaries of Normal Castrated Female Rats and Those Receiving Injections of Pregnancy Urine Extracts.*

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It has been reported by Severinghaus[1] and Wolfe, Ellison and Rosenfeld[2, 3] that while injections of extracts of pregnancy urine result in marked changes in the anterior pituitaries of normal female rats, such extracts are without action on the anterior pituitaries of castrated female rats. In our previous reports[2, 3] detailed data were not given; in this report we wish to present quantitative data which demonstrate that the anterior pituitaries of non-injected castrated female rats (both mature and immature) are morphologically indistinguishable from those of female rats receiving injections of extracts of pregnancy urine.

Sixty-five virgin mature and 31 immature female rats were cas-

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1 Severinghaus, A. E., PROC. SOC. EXP. BIOL. AND MED., 1934, **31**, 593.

2 Wolfe, J. M., Ellison, E. T., and Rosenfeld, Louis, *Anat. Rec.*, 1934, **58**, 93 (supplement).

3 Wolfe, J. M., Ellison, E. T., and Rosenfeld, Louis, *Anat. Rec.*, 1934, **58**, 94 (supplement).

TABLE I.

Period of castration	Percentage of Cells	Frequency Distribution: Controls Mature	Controls Immature	Experimentals Mature	Experimentals Immature	Mean and Standard Deviation (Percent): Controls Mature	Controls Immature	Experimentals Mature	Experimentals Immature
	Eosinophiles								
	30.0-34.9	2	2	4	2				
	35.0-39.9	8	10	7	11	Mean 36.5	Mean 38.4	Mean 37.5	Mean 38.3
	40.0-44.9	—	3	4	3	S. D. 2.0	S. D. 2.9	S. D. 3.6	S. D. 2.8
	Basophiles								
	5.0- 6.9	1	—	2	—				
15-day	7.0- 8.9	3	—	6	—				
	9.0-10.9	4	—	7	—	Mean 9.4	Mean 16.0	Mean 8.7	Mean 16.1
	11.0-12.9	2	1	—	—	S. D. 1.8	S. D. 2.4	S. D. 1.3	S. D. 1.4
	13.0-14.9	—	5	—	3				
	15.0-16.9	—	4	—	9				
	17.0-18.9	—	4	—	4				
	19.0-20.9	—	—	—	—				
	21.0-22.9	—	1	—	—				
	Chromophobes								
	35.0-39.9	—	—	—	—				
	40.0-44.9	—	5	—	4				
	45.0-49.9	—	9	2	11	Mean 55.0	Mean 46.1	Mean 53.8	Mean 46.5
	50.0-54.9	5	1	8	1	S. D. 2.5	S. D. 2.9	S. D. 5.2	S. D. 2.6
	55.0-59.9	5	—	4	—				
	60.0-64.9	—	—	1	—				
	Eosinophiles								
	35.0-39.9	2	—	15	—	Mean 43.0	—	Mean 40.0	—
	40.0-44.9	6	—	9	—	S. D. 3.5		S. D. 3.2	
	45.0-49.9	5	—	2	—				
	Basophiles								
30-day	9.0-10.9	1	—	3	—				
	11.0-12.9	—	—	10	—				
	13.0-14.9	6	—	11	—	Mean 14.9	—	Mean 12.9	—
	15.0-16.9	4	—	2	—	S. D. 2.01		S. D. 2.2	
	17.0-18.9	2	—	—	—				
	19.0-20.9	—	—	—	—				
	Chromophobes								
	35.0-39.9	6	—	2	—				
	40.0-44.9	5	—	4	—	Mean 40.9	—	Mean 47.1	—
	45.0-49.9	2	—	14	—	S. D. 3.5		S. D. 4.2	
	50.0-54.9	—	—	6	—				

The quantitative data are arranged in statistical form. The frequency distribution, the mean and the standard deviation of the various groups are indicated.

trated. The mature females were sacrificed at 15 and 30 day intervals after operation. Forty-one of these rats received from 25 to 75 units of an extract of pregnancy urine† daily throughout the 15 day castration period or for the last 15 days of the 30 day castration period in those rats which were sacrificed after 30 days. All immature rats were between 25 and 30 days old at operation, and were sacrificed 15 days after operation. Sixteen received 25 units of pregnancy urine extract daily for the entire period; 15 littermate sisters served as controls.

At autopsy the pituitaries were weighed and fixed in Regaud's fluid. Serial sections of all glands were cut. Complete cell counts were made on 5 sections from each of the 90 glands. A total of 331,056 cells were counted.

The quantitative results of these studies are presented statistically in Table 1. (Frequency distribution, means and standard deviations are given). Analysis of this table reveals that the percentages of the various cell types in the anterior pituitaries of the injected rats were almost identical to the percentages of these cells in the anterior pituitaries of the control rats castrated for a similar period of time. Morphologically the anterior pituitaries of the injected rats and those of the controls appeared identical. From the results of these experiments we feel justified in concluding that extracts of pregnancy urine are without action on the anterior pituitaries of castrated female rats.

7608 C

Comparative Quantitative Effects of Castration in Mature and Immature Female Rats.*

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Ellison and Wolfe[1] have reported that in the anterior pituitaries of castrated mature female rats there is an increase in the percentages

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[1] Ellison, E. T., and Wolfe, J. M., *Endocrinology*, 1934, **18**, 555.