ported by the results of this study. 2. On the basis of observations made on 30 human beings with variable exposures to lead it is concluded that the amount of lead to which an individual is exposed may be estimated with reasonable accuracy by analysis of the hair for this metal.

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Gonad-Stimulating Abilities of Male and Female Rat Pituitary Glands.*

A. A. HELLBAUM AND R. O. GREEP.

From the Department of Physiology, University of Oklahoma School of Medicine, and Biological Laboratories, Harvard University.

Functional differences in the hypophysis of male and female rats have been demonstrated through the use of gonadal transplants. Goodman[1] obtained only follicular growth in ovaries transplanted into the anterior chambers of the eyes of adult males, while corresponding implants into female rats resulted in the production of corpora lutea. Pfeiffer[2,3] confirmed and extended the experiments of Goodman in finding that ovarian grafts in the anterior eye chambers of normal males or males whose testes had been removed and reimplanted ectopically, showed only follicular growth. Evans, Simpson and Pencharz[4] found that transplants of fresh pituitary tissue from normal male rats produced a purely follicular response in the ovaries of immature females. On the other hand, Lipschütz and Reyes[5,6] reported that male hypophysis induced luteinization in 100% of the immature female rats, whereas no lutein tissue developed with the use of female hypophysis.

Since the ovarian response to pituitary implants is determined to a considerable extent by active secretion of the gland after implantation, the present report concerns the ovarian stimulation induced

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2 Pfeiffer, C. A., *Am. J. Anat.*, 1936, **58**, 195.

3 Pfeiffer, C. A., *Anat. Rec.*, 1937, **67**, 159.

4 Evans, H. M., Simpson, M., and Pencharz, R., PROC. SOC. EXP. BIOL. AND MED., 1935, **32**, 1048.

5 Lipschütz, A., and Reyes, G., *Compt. rend. Soc. de biol.*, 1932, **109**, 1330.

6 Lipschütz, A., *Quart. J. Exp. Physiol.*, 1935, **25**, 109.

TABLE I.
Effects of Normal Male and Female Rat Pituitary Glands on Ovarian Response of Normal 21-day-old and Hypophysectomized Immature Rats.

Donors			Test rats				
				Ov. wt and No. of rats showing			
				Follicles only		Corpora lutea	
Age	Sex	No.	Total No. Rats	No. of Rats	Ov. wt Range (mg)	No. of Rats	Ov. wt Range (mg)
Tested on normal immature female rats.							
25 days	M	15	3	3	41-74		
40 "	M	9	3	3	36-44		
2 mo.	M	6	3	3	42-63		
3 "	M	16	8	6	33-46	2	52-64
4 "	M	6	3	3	32-39		
6 "	M	12	6	3	54-74	3	88-109
12 "	M	8	4	4	17-53		
18 "	M	10	5	4	27-71	1	112
25 days	M	14	2			2	106-108
2 mo.	M	12	3			3	76-118
3 "	M	11	3			3	77-88
6 "	M	8	2			2	134-152
4-12 mo.	F	49	11			11	17-49
Tested on hypophysectomized immature female rats.							
4-18 "	M	98	15	14	15-48	1	37
4-18 "	M	24	2			2	67-83
25 days	M	30	1			1	93

Ovaries of control immature rats weighed an average of 12.5 mg; those of hypophysectomized rats averaged 5 mg.

by the relative amounts of gonadotropic factors present at a given time. Acetone dried powder of rat pituitary glands was injected at different dose levels and the ovarian response determined. The hypophyses of 127 male rats of various ages, as shown in Table I, were tested in 45 female rats 21 days of age, while those from 152 other males were tested on 18 hypophysectomized immature female rats. Similarly the effect of 49 adult female pituitaries was noted in 11 normal 21-day-old recipients.

The ovaries of 31 of the 45 normal rats injected with male rat pituitary powder weighed less than 75 mg and corpora lutea were found in only 2 instances. With the administration of pituitary powder from a greater number of males the ovarian responses exceeded 75 mg and luteinization occurred in every case. Of 18 hypophysectomized test rats injected with male pituitaries, the ovaries of all but 3 showed only follicular stimulation; the 3 hypophysectomized animals whose ovaries contained corpora lutea were injected with a greater number of male pituitaries and the ovaries weighed 67, 83 and 93 mg. It thus seems that the hypophysis of the normal

male rat is relatively deficient in, but not free of, the luteinizing factor. The pituitaries of 49 adult females induced luteinization in every instance irrespective of the magnitude of the ovarian enlargement.

Experiments now in progress indicate that castration qualitatively alters the activity of the gonadotropic complex of the hypophysis in rats. A pituitary gland no longer under the influence of the testes shows an increase in the luteinizing factor, which becomes definitely evident about the 20th day after gonadectomy. The concentration of the luteinizing factor becomes such that from the 1st to the 11th month after the operation, injection of pituitary powder from these animals produces heavy luteinization in ovaries of normal and hypophysectomized test rats in every instance. In time, however, the luteinizing capacity is again diminished and the pituitary glands become devoid of this factor even at high dosages.

Conclusions: Assays of male and female rat hypophyses were made by injecting acetone dried glands into normal and hypophysectomized immature female rats. Male hypophyses stimulated follicular development only, unless large amounts of the desiccated glands were administered. The hypophyses of adult female rats induced luteinization at all dose levels.

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Respiratory Effects from the Passage of Polarizing Currents Through the Medulla Oblongata.*

HAYDEN C. NICHOLSON AND SIDNEY SOBIN.

From the Physiology Laboratory, University of Michigan, Ann Arbor.

In a series of experiments now extending over several years we have been attempting to investigate the site and functioning of the central respiratory mechanism by exposing the posterior portion of the floor of the fourth ventricle and studying the effects of local cooling of that region and the effects of the application of certain drugs to it. It was felt that additional information might be gained by studying the effects of the passage of polarizing currents through this part of the brain stem for it seemed likely that if too great

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