while practically no growth occurred. The Eh of the sulfanilamide-culture remained at this elevated level and bacteriostasis persisted; the Eh of the control culture remained elevated for 5 hours, but by the 25th hour it had fallen 170 mv, and profuse growth had occurred.

Summary. 1. Potentiometric measurements are reported of the electrode potentials of cultures of hemolytic streptococci growing in 25% horse-serum neopeptone-water with and without sulfanilamide. 2. The Eh of aërobic control cultures remained elevated until after active multiplication was well advanced, then rapidly fell about 50 mv. The Eh of aërobic sulfanilamide-cultures remained elevated much longer, but when bacteriostasis ceased, it also fell. 3. With a very large inoculum the Eh fell no more than with a small inoculum, but the change occurred many hours earlier. 4. The addition of cysteine or catalase, or the exclusion of air with vaseline not only lowered the potential of both control and sulfanilamide-cultures, but also definitely reduced the bacteriostatic effectiveness of sulfanilamide. 5. In the presence of 1% glucose, the Eh of both control and sulfanilamide-cultures remained elevated, and sulfanilamide was effective as a bacteriostatic agent. 6. Sulfanilamide bacteriostasis is accompanied by an elevated electrode potential; normal growth by a rapidly falling potential.

10351 P

Effects of Light and Darkness on Activity of the Pituitary of the Rat.*

VIRGINIA M. FISKE. (Introduced by Frederick L. Hisaw.)

From the Biological Laboratories, Harvard University.

The effect of light on the time at which sexual maturity is attained and on the sexual cycle of a polyestrous mammal has been studied by Browman[1] and by Hemmingsen and Krarup,[2] but the nature of the change in the secretory activity of the pituitary responsible for these phenomena is as yet incompletely understood. It was with this

* Supported in part by a grant from the Rockefeller Foundation administered by Frederick L. Hisaw.

1 Browman, L. G., *J. Exp. Zool.*, 1937, **75**, 375.

2 Hemmingsen, A. M., and Krarup, N. B., *Det. Kgl. Danske Videnskabernes selskab.*, 1937, **18**, 7.

aspect of the problem in mind that the following work was undertaken.

Immature female rats were kept in darkness, in the ordinary laboratory light, and under continuous lighting from the twenty-first day of life. The rats were examined daily for vaginal introitus. The rats came into sexual activity most quickly when kept in the light, least quickly when kept in the dark (Table I). Fifty rats placed in a dark room and an equal number under light from birth, rather than when twenty-one days old, failed to give results which differed significantly from those just reported.

TABLE I.
Age at Which Vaginal Introitus Occurred in Rats Kept in the Light, the Laboratory, and in the Dark.

No. of rats	Treatment	Age at which first vaginal rupture appeared	Age of last rats to show vaginal rupture	Age at which 50% of rats had ruptured vaginas
50	Light	39 days	54 days	45 days
50	Laboratory	42	69	51
50	Darkness	46	90	61

As soon as the vaginal membrane of the rats kept in darkness or under continuous illumination was found to be ruptured, the rats were examined by means of vaginal smears for changes in the estrous cycle. Rats kept in the light were found to have prolonged periods of estrus and somewhat lengthened periods of diestrus whereas the animals kept in the dark were continually fluctuating between estrus and diestrus and showed longer periods of metestrous smears than the normal rat (Table II).

Pituitaries from females kept in light or in darkness for 100 days

TABLE II.
Duration and Number of periods of Estrous (E), Diestrous (D), and Metestrous (M) Smears Exhibited by 50 Rats Kept in the Light or Dark Over a 60-day Interval.

Length of period, days	Dark Room			Light Room		
	E	D	M	E	D	M
1	100	99	112	31	47	76
2	63	40	46	31	39	7
3	22	15	23	47	28	3
4	11	6	9	31	17	0
5	2	3	4	22	19	1
6	1	3		2	8	
7		2		4	6	
8				1	5	
9				1	5	
10				1	1	

were tested for their LH and FSH content by the injection of such material, following crude extraction, into 21-day-old male and female rats. It was found that the pituitaries from the females kept in the light were the more potent in producing ovarian development, whereas the pituitaries from females kept in the dark were the more potent in producing seminal vesicle growth. These results indicate that the pituitaries of females kept in the dark produce more luteinizing hormone than do those of the females kept in the light.

A study of the ovaries of females kept in the light or dark for 175 days also indicated an increased LH secretion in the dark, the ovaries being larger and heavily luteinized under such conditions, whereas those from animals in the light were almost entirely follicular.

Males kept in the light from the twenty-first day to the one hundred and seventy-fifth day of life differed from males kept in the dark for the same period in that the pituitaries, testes, and seminal vesicles of the former were larger, the pituitaries being almost twice as large, the testes 30% heavier, while the seminal vesicles were 3 times as large. The pituitaries of these animals have not yet been tested for LH and FSH.

From the results here presented it appears that the balance of the 2 gonadotropic hormones is changed under varying light conditions.

10352

Effect of Prolonged Passage in the Chick Egg on the St. Louis Encephalitis Virus.

MARGARET G. SMITH. (Introduced by Leo Loeb.)

From the Department of Pathology, Washington University School of Medicine, St. Louis, Mo.

Cultivation of the virus of St. Louis encephalitis on the chorio-allantoic membrane of the chick embryo was reported by Harrison and Moore,[1] who carried one strain through 7 passages and another through 10. The titer of the virus in the chorio-allantoic membrane was not determined. They also demonstrated the presence of the virus in the brain, liver and spleen of the chick embryo, but did not determine the titer of the virus in these organs.

[1] Harrison, R. W., and Moore, E., PROC. SOC. EXP. BIOL. AND MED., 1936, **35**, 359; *Am. J. Path.*, 1937, **13**, 361.