

demonstrated with various albumose fractions some of which were precipitable only to a very slight degree by the immune sera. Such tests are presented in Table II. Cross tests with albumoses from pig serum proved that the precipitation reactions as well as the inhibition effect are distinctly specific.

TABLE II.  
Inhibition Tests.

To 0.2 cc. of a 1:500 dilution of 5% sheep heteroalbumose, 0.1 cc. of saline (control) or albumose solutions tested for inhibition in the concentrations indicated was added, then 2 drops of immune serum.

Concentration of albumose solutions added	Reading after	Hetero-albumose	Fraction D 1	Fraction D 3	Control
0.25%	2 hr.	tr.	0	fftr.	+ ±
	overnight	tr.	fftr.	±	++
0.125%	½ hr.	fftr.	0	0	+
	2 "	tr.	fftr.	tr.	+ ±
	overnight	±	ftr.	±	++

It may be mentioned that the inhibition phenomenon was observed with albumoses which were readily dialyzable through colloidion membranes.

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**Influence of Ovarian Grafts upon Immature Castrate Rats.**

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Hohlweg and Dohrn<sup>1</sup> recently reported the induction of precocious sexual maturity in immature castrate female rats through the implantation of infantile ovarian tissue 3 weeks after oophorectomy. In connection with some experimental work on the anterior pituitary the writer had occasion to confirm and extend their observations.

Ten to 14 day old females, each with litter mate controls both normal and castrate, were gonadectomized and allowed to run for approximately 21 days. Two immature ovaries were then implanted intramuscularly in the experimental animals, the donor age varying from 9 to 35 days. At the time of vaginal opening the animals were sacrificed and grafts and pituitaries were prepared for histological study. The results are summarized in Table I.

<sup>1</sup> Hohlweg, W., and Dohrn, M., *Klin. Wochenschr.*, 1932, **11**, 233.

TABLE I.  
Effect of ovarian transplantation on time of sexual maturity.

Litter	Age at transplanta- tion, days	Age of transplants days	Time of vaginal opening		
			Experimental days	Unoperated controls days	Castrate controls days
1	35	14	42	59	—*
2	35	35	78**	53	82, 70
3	34	22	46	61	—*
			50		
4	37	32	41	45	—*
5	35	30	41	51	76
6	36	16	46	53	92
7	34	30	42	42	67
			65**		
8	37	14	46	61	73
			47		
9	34	14	73**	53	73
10	33	24	41	56	68
			43		
11	32	9	42	64	—*
12	32	9	42	52, 54	67
13	34	18	42	57	82

\* No castrate control.

\*\* Transplant unsuccessful.

It will be seen that in every instance in which the ovarian grafts proved successful the experimental animal matured considerably earlier than its litter mate controls, as evidenced by vaginal canalization and by an oestrous smear. When the experimental animal failed to mature precociously, histological examination of the grafts revealed absence of ovarian tissue. Moreover, in unsuccessful cases, the experimental animal and the castrate controls matured at about the same time—considerably later than the unoperated control. Results show also that the experimental animals usually matured within 7-10 days, despite the fact that the age of ovaries employed for transplants varied from 9 to 35 days. In 2 instances (Litters 4 and 7) the normal animals matured too early to render results of any significance.

It appears probable from these data that the castration pituitary stores sex hormone which is liberated under the influence of the transplanted ovaries, causing the latter to mature precociously. It has been adequately demonstrated (Engle,<sup>2</sup> Evans and Simpson<sup>3</sup>) that the castration pituitary in the adult rat is more potent physiologically than the normal gland.

Despite the fact, however, that sexual maturity characterized the experimental animals the anterior pituitaries displayed a marked

<sup>2</sup> Engle, E. T., *Am. J. Physiol.*, 1929, **88**, 101.

<sup>3</sup> Evans, H. M., and Simpson, M. E., *Am. J. Physiol.*, 1929, **89**, 371.

castrate condition. Thus the anomalous situation presents itself of a precociously matured rat, in oestrus at time of sacrifice, possessing what appears to be a typical castration pituitary. The most obvious interpretation appears to be that, although the implanted gonads effected a release of secretion from the pituitary, the time interval before sacrifice was not sufficient for the gonads to induce correction of the castrate picture. None of the grafts were allowed to remain over 16 days. Thus the time required for a complete return to normal would appear to lie between 16 and 30 days, Haterius and Nelson<sup>4</sup> having reported a complete correction to have occurred at the latter figure. This point is now being studied in animals carrying grafts over a longer period.

Successful grafts were characterized by the presence of enormous cystic follicles, the walls of which were becoming markedly luteinized. In some instances very large luteal masses were present, comparing very favorably with the histological picture of ovaries from animals subjected to anterior lobe administration.

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### Experimental Poliomyelitis: Evidence of Early Involvement of Central Nervous System.

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The epidemic of poliomyelitis in New York and New England in 1931 presented an opportunity for controlled studies<sup>1, 2</sup> to determine the value of convalescent and other immune serums, administered in the preparalytic stage of the disease. In these reports the authors were unable to present statistical evidence that such serums were of value, either in reducing the death rate or in preventing paralysis. Since experience with virus diseases indicates that little is to be expected from the use of immune serums, once the disease has become established in the organism, it becomes important to determine the extent of involvement, particularly of the central nervous system, in the preparalytic stage of poliomyelitis.

<sup>4</sup> Haterius, H. O., and Nelson, W. O., *J. Exp. Zool.*, 1932, **61**, 175.

<sup>1</sup> Kramer, Aycock, Solomon and Thenaby, *N. Eng. G. of Med.*, 1932, **206**, 432.

<sup>2</sup> Park, William H., *Transactions Assn. Physicians*, 1932, **47**, 123.