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On Ovarian Regeneration in the Albino Rat.**FRANK BLAIR HANSON AND FLORENCE HEYS.***From the Zoological Laboratory, Washington University.*

Numerous cytological papers on germ cell origin have led to the view that the primordial germ cells are not the ancestors of the functional germ cells, although work is not lacking in which the older view is upheld that germ cells form a continuous stream throughout the individual life cycle and from generation to generation.

Davenport,¹ spaying mice, found that, after a lapse of from 8 to 45 weeks, regeneration of the ovary occurred in 64% of his animals. Complete removal of the ovary was claimed, but cytological evidence was not secured in support of this. Macroscopic examination of masses of tissue at or near the site of the operation was the criterion for regeneration of the ovary. Haterius² secured 4 cases of regenerated ovarian tissue in mice out of 76 operations, and attributed these to incomplete ovarian extirpation. Parkes, Fielding and Brambell³ had 121 cases of double ovariectomized mice. After ovariectomy the oestrous cycle (vaginal smear method) ceased. But in 11 cases spontaneous oestrus subsequently occurred, and this was taken to indicate regenerated ovarian tissue. In 8 of these 11 cases the presence of new ovarian tissue was demonstrated histologically.

We are able to add data of a similar nature from the albino rat. Both ovaries were removed from 105 rats and each ovary preserved for sectioning. The animals ranged in age from 10 to 200 days at time of operation. The period allowed for regeneration ranged from 90 to 180 days. There were 8 cases of ovarian regeneration as determined by sectioning the regenerated masses of tissue. The 8 original ovaries removed from these sites of regeneration were then sectioned to determine whether the whole ovary had been removed.

In 2 of the 8 original ovaries incomplete removal was demonstrated cytologically, while in 6 cases extirpation was apparently complete. This gives a regeneration rate of 3.5% in the rat. In the mouse Davenport got 64%; Haterius a little over 5%; and Parkes, Fielding and Brambell 15%.

Our work suggests that the younger the animal when spayed the less likelihood of regeneration. None of our rats under 40 days of age showed regeneration, although rats from 10 to 40 days of age

at time of operation were allowed the longer period (180 days) in which to regenerate. Success in complete removal of the ovary increases as the age at which animals are spayed decreases. This fact leads us to believe that the last word has not yet been said on this subject of mammalian ovarian regeneration, and a further series of experiments based exclusively on very young rats has been initiated.

¹ Davenport, C. B., *J. Exp. Zool.*, 1925, **xlii**, 1-11.

² Haterius, H. O., *Proc. Soc. Exp. Biol. and Med.*, 1927, **xxiv**, 784-786.

³ Parkes, A. S., Fielding, U., and Brambell, F. W. R., *Proc. Roy. Soc., Series B*, 1927, **ci**, 328-354.

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Regurgitation of Duodenal Contents as Factor in Neutralization of Gastric Acidity.

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Considerable work has been done on gastric function, but this has been mainly concerned with the motor activity of the stomach. Comparatively little has been done on the chemical activity, that is, the method of secretion, the nature of the secretory stimulus, and the variations of the reactions of the gastric contents. We have lacked exact methods for investigating these functions. In the past, the test meals, of many kinds, were used. Inasmuch as results with any one type of test meal vary greatly among individuals who are apparently normal, and also vary so much among patients afflicted with a given type of gastric disorder, the uselessness of this mode of examination is evident. A more exact method has been described by Bloomfield and Keefer,¹ who stimulated gastric acidity with 50 cc. of 7% alcohol to which a small amount of phenolphthalein had previously been added. Here, again, is a method in which an attempt is made to gauge the chemical activity by the amount of free HCl secreted. We know that there are many individuals, free from any gastric symptoms, in whom the HCl content of the stomach varies from a hypochlorhydria to an achlorhydria; on the other hand, most individuals with hyperchlorhydria give symptoms which are referable to this condition. It seemed to us, then, that conditions such as these in the stomach, were not due to secretory defects alone, but to a combination of secretory and motor