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**Gastric Hypersecretion Following Parturition in a Dog.**

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It has been shown previously<sup>1, 2</sup> that, in the collection of gastric juice from dogs with fundus pouches of the Pavlov type, the combined acidity becomes negligibly small if the secretion be collected in such a way as to minimize its content of mucus or serous transudate. With this elimination of combined acid, the free acidity, as determined in 4 dogs, gave an average value of  $0.157\text{ N} \pm 0.003\text{ N}$ . During the past summer, several more such fundus-pouch animals were prepared, one of them a pregnant dog of 10 kilos body weight. Five weeks after the operation, this animal dropped a litter of 4 healthy pups which she suckled as long as she was permitted to.

For the 2 weeks immediately preceding parturition, the total volume of juice collected from her pouch never exceeded 15 cc. per day—this amount being secreted wholly within 6 to 8 hours after feeding. Beginning with the day of parturition, however, the flow increased very markedly in amount and duration. In fact, except during certain periods of experimentation, the secretion was practically continuous throughout the 24 hours between single daily feedings. For the first 3 weeks of lactation, the average daily volume of juice collected was 150 cc. A number of times the pouch was so full that the pressure forced evacuation with consequent loss of contents. The increase in daily output, therefore, was well over ten-fold. During the sixth week, however, the second week after the pups had been completely weaned, the average daily output had fallen to about 30 cc. and was decreasing further at the time of the accidental death of the dog during the seventh week.

Titration of 66 samples of this hypersecretion juice gave an average value of  $0.157\text{ N} \pm 0.007\text{ N}$  for total acidity—titrating with phenol red to pH 7.1. Combined acidity, measured by the difference between free and total, was negligibly small. The agreement between these and the previously observed normal values is such as to validate the inference already made by other workers from clinical observations, that the acidity of the secretion from the parietal cells is inde-

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<sup>1</sup> Hollander, F., *J. Biol. Chem.*, 1927, lxxiv, xxiii.

<sup>2</sup> Hollander, F., *PROC. SOC. EXP. BIOL. AND MED.*, 1928, xxv, 486.

pendent of the daily output of this product, *i. e.*, of the amount of work these cells do.

Further investigation of this phenomenon is already under way.

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## Agglutination of "Normal" Germ Cells.

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It is widely believed that freshly shed germ cells are relatively constant. In previous studies<sup>1, 2, 3, 4</sup> an extremely wide variation in many characters and characteristics was noted. In the present study agglutination of sperm by egg water, which agglutination lends itself to fairly exact quantitative determination, was studied under very precise experimental conditions.

The sea urchin (*Arbacia punctulata*) was used. These were freshly collected, opened immediately upon arrival at the laboratory, the "best" egg lots selected and immediately tested for the duration of agglutination. Duplicate tests and tests of aliquot divisions of the eggs gave a difference of 0 to 4 seconds, averaging 1 second or 4.5%. This was considered the experimental error.

Thirty series of 3 to 4 females each were studied. When eggs from each female in a series were tested separately, under strictly comparable conditions (including the same sperm suspension), the agglutination time varied very extensively, namely, from 2 to 55 seconds, or 9 to 1300%, with an average of 12 seconds or 142%.

Eggs that gave high agglutination values with sperm from one individual gave consistently high, though not the same values, with sperm from other individuals. Similarly eggs that gave intermediate or low values with one male, gave intermediate or low values with other males.

This wide variation and increase in agglutination time parallels corresponding wide changes in size, color, shape of eggs, loss of jelly, membrane formation, cleavage, etc.<sup>1, 2, 3, 4</sup> The degree of change in any one of these traits measures the extent of overripening of the eggs prior to shedding.

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<sup>1</sup> Goldforb, A. J., *Proc. Nat. Acad. Sci.*, 1917, iii.

<sup>2</sup> Goldforb, A. J., *Carnegie Inst. Publication* 251, 1917.

<sup>3</sup> Goldforb, A. J., *Biol. Bull.*, 1918, xxxiv.

<sup>4</sup> Goldforb, A. J., *Biol. Bull.*, 1918, xxxv.