mucosa, even after the entire antrum and small intestine have been removed(6). Ethanol does not stimulate secretion upon contact with the mucosa of the fundus and corpus of the stomach, despite the fact that it is absorbed in the process. Thus the evidence suggests that, in the dog, alcohol can stimulate gastric secretion both by causing liberation of gastrin and, more importantly, by a local effect when it is delivered to the gastric mucosa *via* the bloodstream.

Data presented here indicate that secretin (Vitrum) is not an effective inhibitor of the gastric secretory response to intragastrically administered ethanol. Yet the same preparation of secretin, given to dogs with the same type of pouch, inhibited the response to a meal of meat by 79 to 97%(2). Again in dogs, another brand of secretin (Eli Lilly & Co.) has been reported to inhibit decisively the gastric secretory responses of Heidenhain pouches to food and to perfusion of antral pouches with liver extract(1). Neither brand of secretin inhibited the gastric secretory response to histamine(1,2).

Likewise, acidification of the duodenum is a poor inhibitor of histamine-stimulated secretion from Heidenhain pouches(7) and, as shown here, of the response to alcohol. Yet acidification of the duodenum can inhibit secretion of Heidenhain pouches in response to food(3). Evidently parallels exist between the action of secretin preparations and of acidification of the duodenum on gastric secretion.

In evaluation of data such as these, one must recall that commercially prepared secretin, although in the present instance highly purified, is still an extract of duodenal mucosa that may contain substances other than the hormone secretin. Consequently, one cannot be certain that the substance in commercial preparations of secretin that inhibit gastric secretion is indeed the pancreatic hormone.

Conclusion. Neither secretin (Vitrum) nor acidification of the duodenum is an effective inhibitor of the gastric secretory response of Heidenhain pouches in dogs to ethanol given intragastrically.

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Nucleic Acid Content of Rat Mammary Glands During Post-Lactational Involution.* (28233)

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Failure to withdraw the products of milk secretion causes cellular loss in the rat mammary gland(1,2,3) and phagocytic neutrophiles and lymphocytes are associated with the collapse and degeneration of alveoli(4,5, 6). Deoxyribonucleic acid content of mammary glands generally reflects loss of cells observed histologically during involution(7,8,9), although Slater(10) reported an increase in mammary DNA during the first 48 hours of involution, after which it decreased.

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TABLE I. Nucleic Acid Content of Involuting Mammary Glands of Rats.

Days of involution	No. animals	Body wt (g, mean)	DEEET* (mg, mean)	Total DNA /100 g body wt (mg)†	Total DNA (mg)†	Total RNA (mg)†	RNA/DNA†
1	12	238‡	1869.0	11.56 ± .30§	27.52 ± 1.26§	55.39 ± 2.65	2.01 ± .03
3	12	224	1188.4	9.13 ± .42‖	20.46 ± 1.04‖	21.71 ± 1.12	1.06 ± .03
12	12	214	278.5	3.57 ± .12	7.63 ± .28	4.20 ± .13	.55 ± .02
21	12	216	258.1	2.87 ± .07	6.20 ± .16	3.37 ± .08	.54 ± .01

* Dried, ethanol-ether extracted tissue.
† Mean and standard error of mean.
‡ Body wt corrected for mammary gland milk content.
§ Not significantly different ($P > 0.05$) from 21st day of lactation (Tucker and Reece(14)).
‖ Highly significantly less ($P < 0.01$) than 21st day of lactation (Tucker and Reece(14)).

Since difficulties have been encountered with the diphenylamine test for DNA in mammary glands undergoing involution(11, 12), it was of interest to determine DNA using a technique other than one based on deoxyribose. Ribonucleic acid determinations were made simultaneously to provide information on protein synthesis of the involuting rat mammary gland.

Methods. Six abdominal-inguinal mammary glands were removed from rats 1, 3, 12, and 21 days after a normal lactation period of 21 days. Nucleic acid content was determined as previously described(13).

Results and discussion. The DNA content of 6 abdominal-inguinal mammary glands, per 100 g of body weight, was 11.56, 9.13, 3.57, and 2.87 mg, as involution proceeded from day 1 to day 21. Similar estimates of total DNA in the 6 mammary glands were 27.52, 20.46, 7.63, and 6.20 mg. Neither estimate of DNA at day 1 of involution was significantly different ($P > 0.05$) from that of day 21 of lactation(14). These results are opposed to those of Slater(10). A highly significant decrease ($P < 0.01$) in DNA content occurred by the 3rd day after weaning, indicating cell losses. On the 12th day of involution mammary DNA per 100 g of body weight was similar to that on day 8 of pregnancy, and on the 21st day of involution it was similar to that in sexually mature virgin rats(15). Total DNA on day 12 and day 21 of involution was approximately the same as that found on day 12 and day 8 of pregnancy, respectively(15). Griffith and Turner's(9) preliminary results indicated that mammary involution, after 20 days of lactation, was essentially complete by 10th day after weaning.

The 6 abdominal-inguinal mammary glands contained 55.39, 21.71, 4.20, and 3.37 mg of RNA as involution advanced from day 1 to day 21. Total RNA declined 26.2% twenty-four hours after weaning(14), and this decline preceded any decline in DNA. By day 21 of involution mammary RNA content was similar to that of glands from sexually mature virgin rats(15).

Mammary RNA/DNA ratios were 2.01, 1.06, 0.55, and 0.54 for days 1, 3, 12, and 21 of involution, respectively. The ratio on day 1 of involution represented a 31.9% decline from that on the 21st day of lactation(14). Ratios on day 12 and 21 of involution were less than those at any other stage of reproduction studied(14,15) and these observations were interpreted as indicating that protein synthesis was not occurring for milk production and only small amounts of protein were available for tissue maintenance. Whether the extent of protein synthesis was sufficient to prevent further mammary involution was not determined, but RNA/DNA ratios after 12 and 21 days of involution were identical, yet some further decrease in DNA content occurred during this period (Table I).

Summary. DNA per 100 g of body weight and total DNA in 6 abdominal-inguinal mammary glands one day after weaning did not differ significantly from that of glands on the 21st day of lactation. DNA content decreased significantly 3 days after weaning. On the 21st day of involution mammary DNA per 100 g of body weight was similar to that of glands from sexually mature virgin rats. One day after weaning RNA content decreased 26.2% and on the 21st day of involution it approximated that of glands from

sexually mature virgin rats. RNA/DNA ratio was reduced 31.9% one day after weaning and by the 12th day it was lower than that of glands from sexually mature virgin rats.

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Experimental Influenza in Sheep.* (28234)

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Investigators in Hungary recently reported the isolation of Asian (A_2) influenza virus from an adult sheep suffering with respiratory disease(1). They also described attempts to infect lambs by intratracheal inoculation of egg-adapted strains of A/Swine, A_2, and PR8 virus. The lambs reportedly manifested clinical, pathological, and immunological responses to the inoculation. However, no mention was made of attempts to recover virus from the inoculated animals. Since influenza had not previously been reported in sheep, a limited study was undertaken to determine their susceptibility to artificial infection with Type A influenza isolates.

Materials and methods. Virus. The virus strains A/PR8/34 ($F_{109}E_{4-7}$), A/Swine/Wis/3/57(E_{12})‡, and the A_2 strain isolated from sheep in Hungary, A/Bor/111/60(E_4)§, were used in this study.¶ Stock virus was prepared using standard egg inoculation techniques(2). Infected allantoic fluids no more than 72 hours old were diluted in broth for inoculation of lambs.

Experimental animals. Three male Merino-type and 6 male Suffolk-type lambs, ranging in age from 3 to 10 weeks, were obtained from 2 farms near Ann Arbor, Mich. The lambs were housed indoors and fed on alfalfa hay and antibiotic-free starter ration. All lambs were observed for at least one week prior to initiating the experiments.

Inoculation and observation of animals. Unanesthetized lambs were restrained in an upright position. The trachea was penetrated just below the larynx with an 18 gauge needle, and from 10 to 40 ml of virus-containing broth was given by syringe. Body temperatures were recorded twice daily for 7 days and once daily thereafter for a total of 14 days.

Reisolation attempts. Specimens for attempted isolation of virus were collected from 4 lambs. Nasal swabbings obtained from 2

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‡ A/Swine/Wis/3/57, obtained from R. Q. Robinson, Respiratory Disease Unit, CDC, Atlanta, Ga.

§ A/Borzsony/111/60, obtained from Dr. E. Farkas, State Inst. of Hygiene, Budapest, Hungary.

¶ The letters F and E and numerical subscripts denote the number of passages in ferrets and eggs.