investigation of the antigens contained in a larger group of normal *A. cloacae* cultures.

The present investigation has shown that it is not only possible but wholly feasible to classify paracolon aerobacter cultures of the *A. cloacae* type by means of antigenic analysis. It would appear premature to establish an antigenic schema for this group though data summarized in Table V suggest such a system could be devised.

In the future when organisms of the *A. cloacae* type are encountered, especially if associated with disease, it would seem desirable that such bacteria should be antigenically typed. Such a procedure should increase the probability of determining the pathogenic properties of this group.

Summary. 1. Paracolon aerobacters represented by biotype 32011 and related cultures were subjected to antigenic study and comparison. 2. A single biotype was found to be extremely heterogeneous in respect to its thermostable somatic antigens. 3. The occurrence of phase variation in the flagellar antigens of this group is reported and H antigenic relationships are determined. 4. It is pointed out that the antigenic system of classification can be profitably utilized in further investigation of this group.

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Heidenhain Pouch Secretory Response as Affected by Gastrojejunostomy to the Main Stomach.* (19813)

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Gastrojejunostomy has waned in popularity as a surgical procedure for the cure of peptic ulcer during the past 2 decades. Gastrojejunostomy was formerly advocated as a means of neutralizing the gastric secretion. We have not found any reports in the literature dealing with a quantitative study of the acid secretory response of the gastric mucosa to this procedure. We therefore undertook the following experiment.

Method. A Heidenhain pouch was produced and drained externally by a water tight nylon cannula in each of 5 healthy mongrel dogs. Following recovery from the anesthesia (intravenous Nembutal), the dogs were placed in individual cages in a special room. Fresh water was provided at all times. Milk and soft food were given for the first 3 or 4 postoperative days and, thereafter, the dogs were given a single daily feeding of 100 g cooked

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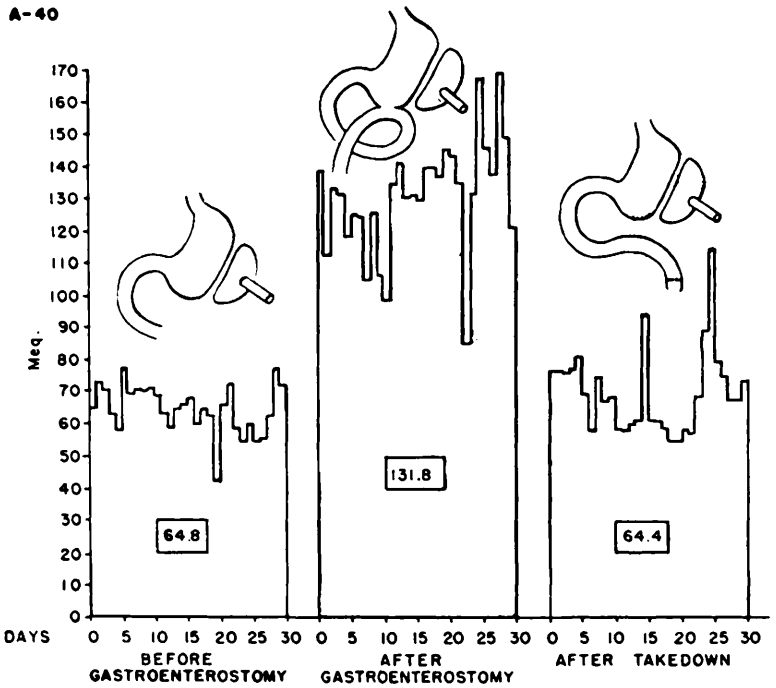

FIG. 1. Twenty-four hr free HCl output of a Heidenhain pouch in a representative dog during a 30-day control period and during similar periods following gastrojejunostomy to the main stomach and subsequent to take-down of the gastrojejunostomy.

horse meat, 500 g canned dog food, and 100 g condensed milk. A daily record was kept of the activity, general condition, appetite, zest, total food consumed, and regurgitation of food. Reingestion of regurgitated food was prevented by coarse mesh false bottoms in the cages. Twenty-four hour collections of pouch secretion were begun after full recovery from the operation—usually 2 or more weeks post-operatively. Rubber bags attached to the cannulas by threaded connectors were used for this purpose. Secretions were discarded if the animal was ill, refused food, or regurgitated. All specimens were examined, measured, titrated, and the data recorded daily. Body weights were recorded weekly. Total sodium and potassium contents of the secretion were determined by flame photometry at intervals and found to be well below the daily intake of these elements. After a continuous period of 4 weeks of constant collection, the animals were subjected to a short loop, antecolic, isoperistaltic gastrojejunostomy situated at the most dependent portion of the stomach, about 6 to 7 centimeters proximal to the pylorus, at about the upper margin of the antrum. The stoma was 4 cm in length. Collections were recommenced after recovery was complete as mentioned above, and the collection cycle repeated. Patency of the stoma was demonstrated radiologically after administration of barium sulfate. Two of these animals were subjected to take-down of the gastrojejunostomy after a month of collection and again secretory data were obtained for 30 or more days.

Results. A significant increase in free HCl output from the Heidenhain pouch occurred in each dog after gastrojejunostomy. This varied from 98% to 225% in individual animals, the average increase for the group being 142%. The free HCl output was proportional to the volume of secretion. There was no appreciable change in combined HCl output from the pouch. Gastrojejunostomy take-down in 2 of the dogs resulted in a reduction of HCl output from the pouch to the pre-gastrojejunostomy level in one dog as shown in Fig. 1, and in the other to a daily secretory level somewhat higher than the pre-gastro-

TABLE I. Average Daily Values of Free HCl Secretion from Heidenhain Pouches Expressed as mEq. Before and After Gastrojejunostomy to the Main Stomach and After Gastrojejunostomy Take-Down.

Dog No.	mEq. free HCl/day — Before gastrojejunostomy	After gastrojejunostomy	% rise	mEq. free HCl/day after gastrojejunostomy take-down	% drop
A-67	29.6	95.3	225	—	—
39	31.7	84.3	172	—	—
83	35.7	70.7	98	—	—
40	64.8	131.8	103	64.4	51
C-10	14.2	43.2	204	25.3	41
Avg	35.2	85.1	142	—	46

jejunostomy figure, but much lower than that obtained during the gastrojejunostomy period. These data are summarized in Table I.

Discussion. The mechanisms responsible for this phenomenon are not definitely known to us at this time. We realize that the Heidenhain pouch differs from the normal stomach, but the former is an accurate indicator of the response of the parietal cells to humoral influences.

It is clear from the foregoing that gastrojejunostomy in some way is responsible for an increased output of HCl by the parietal cells. This could represent a compensatory response of these cells to intragastric neutralization of HCl to beyond physiologic limits —the "rebound phenomenon." Storer *et al.* (2) have shown that complete intragastric regurgitation of alkaline duodenal juices will cause a rise in Heidenhain pouch secretion of 100% or more. The possibility of increased antral stimulation due to repetitious passage of food through a normally patent pylorus and back into the stomach via the afferent loop of the gastrojejunostomy also may exist in some instances. Undoubtedly, in the main stomach the various neutralizing factors will tend to keep the concentration of free HCl at lower levels than obtain in the pouch. It seems reasonable to assume that the increased acid production may not always be neutralized and may play a part in the frequent failure of gastrojejunostomy as a treatment for peptic ulcer.

Conclusion. Under the conditions of this experiment, gastrojejunostomy of the main stomach of Heidenhain pouch dogs results in a significant rise in free HCl secretion from the pouch.

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Localization of the Enzymatic Block in Kidneys of Rats Treated with Fluoroacetate. (19814)

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Recent experiments have indicated that a "fluorotricarboxylic acid" formed from fluoroacetate inhibits each of the reactions of the aconitase enzyme *in vitro*(1). This finding would appear to explain the accumulation of citrate in the tissues of animals treated *in vivo* with fluoroacetate(2,3) as well as its accumulation and failure to be oxidized *in vitro* when fluoroacetate is present in reaction mixtures otherwise adequate for citrate oxida-

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