greatly increased fecal excretion in these infants suffering with diarrhea; Table II is an example of a 2½-month-old infant with a severe diarrhea and dehydration. Blood plasma levels and urinary excretion remained low, as noted by Meyer and Robinson.[3]

Summary. Ascorbic acid is excreted in small amounts in the stools of the normal infant studied. Large amounts of orally administered ascorbic acid are excreted in the stools of infants following catharsis and during acute diarrhea. The increased fecal excretion of orally administered ascorbic acid during acute diarrhea in the infant points to its failure of absorption in the intestinal tract, and explains the low blood plasma values and low urinary excretion.

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Does Alcohol Stimulate Gastric Secretion by Liberating Histamine?

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The stimulation of gastric secretion by alcohol is similar to the stimulation by histamine in a number of ways. They both stimulate the secretion of a juice that is highly acid but relatively low in peptic power.[1] The stimulating effect of alcohol, like that of histamine, is much more resistant to the inhibitory effect of atropine than is the usual meal stimulus.[2, 3] Similarly the stimulating effect of alcohol, like that of histamine, is more resistant to the inhibitory effect of fat feeding than is the usual meal stimulus.[3] Such similarities suggest the possibility that these two substances, alcohol and histamine, act upon the stomach by a similar mechanism. There is no known reason to suppose that histamine acts through the mediation of alcohol, while there are some reasons to suppose that alcohol may act through the mediation of histamine. In the first place the general nature of the pharmacological action of alcohol is that of a depressant, so that a bona fide stimulation of gastric secretion is not consistent with its usual effects. In the second place a large variety of

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2 Gray, J. S., *Am. J. Physiol.*, 1937, **120**, 657.

3 Gray, J. S., and Bachrach, W. H., PROC. SOC. EXP. BIOL. AND MED., in press.

substances, such as ether, chloroform, methyl dichloride, glycerol, saponin,[4, 5, 6] etc., have the property of stimulating gastric secretion when introduced into the intestine. These substances, like alcohol, have the common properties of producing hemolysis and altering cellular permeability. Of more interest, a number of them have been shown to be capable of liberating histamine from mammalian tissues.[7] That some or all of these substances may owe their ability to stimulate gastric secretion to their ability to liberate histamine may be implied from the data available. Our interest, however, was directed toward determining whether alcohol could liberate histamine from tissues so that the theoretical conception of alcohol acting by a "histaminergic" mechanism, could have a valid basis.

The isolated lungs of guinea pigs were perfused through the pulmonary artery with Sollmann-Rademaeker's solution according to the method of Feldberg and Kellaway.[8] They were rhythmically ventilated with air throughout the experiment. Two kinds of procedures were employed. Either small amounts of alcohol (5 cc) of 7, 10, 15% (by volume) were injected into the perfusion system immediately proximal to the cannula in the pulmonary artery, or the control perfusion fluid was replaced by perfusion fluids containing 2, 3, 4, 6% of alcohol. By one method the lungs were briefly exposed to alcohol of moderately high concentrations and by the other, to prolonged contact with alcohol of lower concentrations. The perfusates were tested for histamine-like activity upon the guinea pig intestine. In all but one of 10 experiments thus far performed an increase in histamine-like activity has been found in the perfusates obtained after alcohol administration by either method. That the activity of these perfusates is due to histamine is indicated by the following observations. The activity is destroyed by boiling while alkaline, but not when acid. The activity is destroyed by incubation with histaminase.* The stimulating action of the perfusate upon the guinea pig intestine is not prevented by atropine, but is prevented by arginin. While the identification of the active substance in the perfusates as histamine is not absolute, it is certainly very strong.

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5 Ivy, A. C., and Javois, A. J., *Am. J. Physiol.*, 1925, **71**, 604.

6 Ivy, A. C., Lim, R. K. S., and McCarthy, J. E., *Quart. J. Exp. Physiol.*, 1925, **15**, 55.

7 Kellaway, C. H., and Trethewie, E. R., *Abst. J. Exp. Biol. and Med. Science*, 1939, **17**, 225.

8 Feldberg, W., and Kellaway, C. H., *J. Physiol.*, 1937, **90**, 257.

* We are indebted to The Winthrop Chemical Company for the histaminase used in these experiments.

We believe, therefore, that these observations, in conjunction with present known facts regarding the stimulating action of alcohol upon gastric secretion, warrant the theory that alcohol has a "histaminergic" action and that its stimulating action upon gastric secretion depends upon this mechanism.

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Peptone Shock in Fetal Dogs and its Significance in the Metabolism of Histamine.

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It has previously been shown[1, 2] that "peptone" shock in dogs, which is produced by the intravenous injection of proteoses, is accompanied by and due to the liberation of histamine from the tissues of the injected animals. The source of, and the reasons for, the storage of histamine in the tissues are only incompletely understood. It seemed, therefore, of interest to determine whether histamine is present in the tissues of fetal animals, and if it is present, to determine whether it can readily be liberated with resulting shock reactions such as occur in adult animals. The studies of Code[3] indicate that the traces of histamine which are normally present in the blood of dogs occur in the cellular elements and not in the plasma. This would imply that the histamine normally circulating in the blood of a pregnant dog would not be accessible to the fetus. As there is no opportunity for the formation of histamine within the fetus by bacterial decomposition of histidine in the fetal intestine, it may be presumed that any histamine occurring in fetal tissues has been produced by local mechanisms such as histidase.[4]

The skeletal muscle and liver of a 200 g fetus, obtained by Caesarian section, were assayed for histamine by the method of Best[5] and Best and McHenry.[6] The skeletal muscle assayed less than 0.1

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2 Dragstedt, C. A., and Mead, F. B., *J. Pharm. and Exp. Ther.*, 1938, **63**, 400.
3 Code, C. F., *J. Physiol.*, 1937, **90**, 349.
4 Holtz, P., and Heise, R., *Archiv. f. exp. Path. u. Pharm.*, 1937, **186**, 377.
5 Best, C. H., *J. Physiol.*, 1929, **67**, 256.
6 Best, C. H., and McHenry, E. W., *J. Physiol.*, 1930, **70**, 349.