ers, although definite, are negligible in comparison with those of the streptococcus. Although the examples given in the table are but a fraction of the diphtheroid strains studied, the low degree of fibrinolysis is characteristic for many of them.

The diphtheroids with acid-fast granules, Bovine III (No. 4), and Avian sporoid (No. 5), are known to be in the tubercle cycle, by reason of the inter-transformability existing between them and the tubercle group. Yet they are indistinguishable in their fibrinolytic ability from diphtheroids dissociated from streptococci. A greening streptococcus (Hamilton strain, not in table), and a diphtheroid dissociating from it, both gave the same reaction as the Avian sporoid No. 5. These results are not strictly in accord with the work of Tillett and Garner,[5] *et al.*, who limited the phenomenon of fibrinolysis to hemolytic streptococci and an occasional staphylococcus.

8408 C

Nonspecificity of the Chloride Impoverishing Mechanism of Small Intestine.

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Burns and Visscher[1] have shown that an isotonic solution of a mixture of sodium chloride and some other sodium salt with an indiffusible anion when placed in a loop of the small intestine becomes practically chloride-free in 1½ hours. This movement of sodium chloride, against a diffusion gradient into the blood through the intervention of the intestinal epithelium, resembles the removal of chloride by the kidney tubules from the glomerular filtrate. The intestinal preparation affords a convenient method of studying salt movement which may be of general importance.

As a step in elucidating this mechanism it was decided that the specificity of mechanism should be determined. Sodium bromide was chosen as an example of a salt similar chemically to sodium chloride but not a usual constituent of body fluid. It is the purpose of these experiments to see if, in the presence of an indiffusible

[5] Tillett, W. S., and Garner, R. L., *J. Exp. Med.*, 1933, **58**, 485.

[1] Burns, H. S., and Visscher, M. B., *Am. J. Physiol.*, 1934, **110**, 490.

anion, sodium bromide will diffuse from a certain concentration in the intestinal fluid to the blood where a higher concentration exists.

Dogs were fed 10 gm. of sodium bromide per day for 3 days. At the end of this time about two-thirds of total plasma halides was bromide. Sodium amytal was used as an anesthetic. A loop of the lower portion of the ileum, sufficient in size to hold about 50 cc. of fluid, was tied off, cannulated and flushed with warm saline. The test solution, containing 40 mM/1 sodium chloride, 40 mM/1 sodium bromide and balance to isotonicity of sodium sulphate, was placed in the loop and allowed to remain 1½ hours. Samples were withdrawn at intervals for analysis of chloride and bromide in plasma and intestinal fluid by the electrometric technique of Hastings and Van Dyke.[2]

The results of a typical experiment are shown in Fig. 1. Four such experiments were performed with similar results. The original concentrations of both chloride and bromide in the intestinal fluid are lower than the corresponding concentrations in the plasma. In spite of these concentration gradients both chloride and bromide move from the intestine into the blood. After one-half hour the rates of removal are about the same. The ratios between the con-

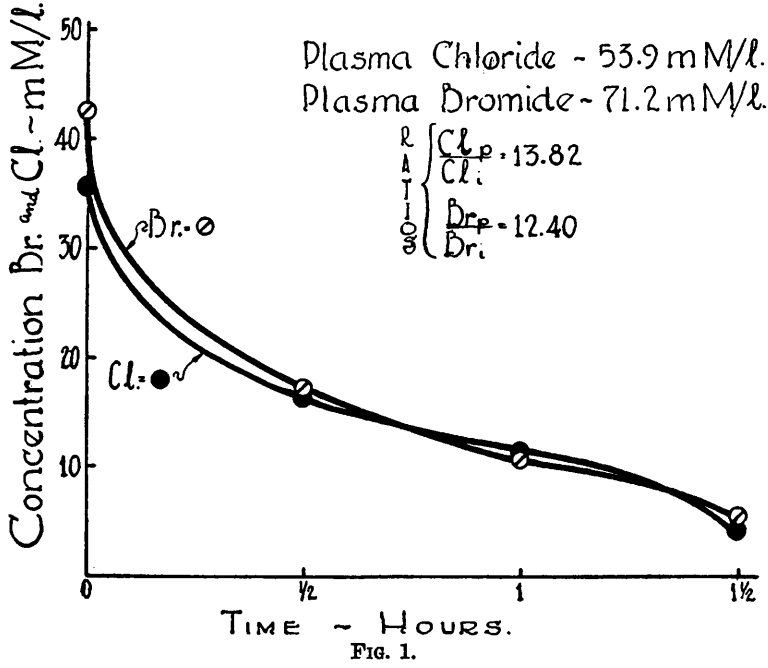

FIG. 1.

[2] Hastings, A. Baird, and Van Dyke, H. B., *J. Biol. Chem.*, 1931, **92**, 13.

centrations of the 2 ions in plasma and intestinal fluid are also approximately equal.

The rôle played by the intestinal epithelium, in this type of salt removal, is not specific for sodium chloride. This, together with the close agreement of the chloride and bromide concentration ratios, points to some physical process rather than a specific chemical one as the mechanism by which the movement is brought about.

8409 P

The Mammary Gland in the Normal Adolescent Male.

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The mammary gland of the human male, though generally dismissed as vestigial, deserves more attention than it has received. Like its counterpart in the female, it is subject to both inflammatory and neoplastic disease. It occasionally increases to such a size that the resulting gynecomastia becomes a medical or surgical problem, and actual lactation has been reported repeatedly.[1] Although the phrase "mastitis adolescentium" occurs in the literature,[2] we have not found any data on the frequency of this condition nor on the behavior of the gland in the normal pubescent boy. Unpublished observations on 49 boys in southern Wisconsin convinced Jung that a certain degree of mammary hypertrophy must be a regular feature of normal pubescence. The present study of a larger series was undertaken partly for the purpose of testing the correctness of this conviction, and was made possible by the generous cooperation of the Department of Public Welfare of the State of Illinois.

One purpose, then, was to obtain data analysis of which would give a chronology of the mammary changes as compared with the other phenomena of puberty. Hence the following observations were made: date of birth; weight; height; bi-iliac diameter; color of hair; amount* of hair on the pubes, in the axillae, on the face (*i. e.*, cheeks, upper lip, and chin), and on the chest; diameter of right areola; height of right nipple above surrounding skin; size* of

[1] Haenel, H., *Münch. Med. Wochensch.*, 1928, **75**, 261.

[2] Kriss, B., *Arch. f. Gynäkol.*, 1930, **141**, 507.