need of vitamin D with Fe. This again confirms our view that the nutritive value of the milk and its daily quantitative intake are factors of importance in Fe metabolism in studies of nutritional anemia in the rat.

We have data to show that the above effects were not due to the Cu content of either our milk or Fe solutions. It would seem that negative reports of the effect of Fe alone upon hemoglobin recovery in anemia studies would be of limited value unless definite assurance is given that the vitamin D content of the milk used is adequate. Work along this line is in progress.

6977 C

Relative Inagglutinability of the Castellani-Sonne Group of Dysentery Bacilli.

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During the summers of 1931 and 1932 five strains of the Castellani-Sonne or Thjøtta type III dysentery bacilli were isolated at the Babies and Childrens Hospital from the stools of 5 children under 5 years of age. All the patients showed a typical course of dysentery infection. Among them one death occurred. It is emphasized here that increasing proof of the prevalence of this type of dysentery apparently is forthcoming. Especial attention should, therefore, be given to the isolation and identification of this type organism.

The organisms were minute, non-motile, gram negative rods, readily acidifying glucose, mannite, maltose, and rhamnose. Lactose was slowly acidified (one to 2 weeks) and the same was true for sucrose. Litmus milk was acidified by all strains and coagulated by 4 strains. Indole was not formed. In broth, marked sedimentation occurred, but there was no pellicle formation. The cultural characteristics of these 5 strains closely corresponded to those observed in 2 typical strains, No. 268 and Sonne B, obtained through the courtesy of Dr. S. A. Koser. Three out of 5 of our strains and the 2 Koser strains clotted milk in 21 days. The same basic reactions were described by Wiseman,[1] Fyfe,[2] Braun and Weil,[3]

[1] Wiseman, W. R., *Lancet*, 1927, **1**, 817; *J. Hyg.*, 1927, **26**, 187.

[2] Fyfe, G. M., *J. Hyg.*, 1927, **26**, 271.

[3] Braun, H., and Weil, A. J., *Centralbl. f. Bakteriol.* (Abt. 1), 1928, **109**, 16.

Koser, Reiter, Bortniker and Swingle,[4] and Soule and Heyman.[5] Rhein,[6] however, failed to find acidification of lactose but this may be accounted for on the basis of insufficient incubation time.

Polyvalent antidysentery sera failed to agglutinate the 5 strains. All agglutinations were performed by incubation in a water bath at 37°C. for 2 hours and overnight in an icebox at 4 to 5°C. The polyvalent sera also failed to agglutinate the new strains by the centrifuge method. It was then decided to immunize rabbits with these strains in order to determine their agglutinability in the presence of homologous sera.

Three rabbits received massive doses of killed and live organisms (a total of four 24-hour slants of pooled strains for each rabbit) over a period of 6 months. Sixteen injections were given, 5 with killed bacteria (heated at 60°C. for from one to 2 hours) and 11 with live organisms. The first 10 doses were injected by the intravenous route; the remaining injections were given intravenously, intraperitoneally, and subcutaneously. During this period of injections, 5 bleedings were made, but the sera failed to agglutinate the organisms when agglutinations were performed in a water bath at 37°C. for 2 hours, or at 56°C. for 4 hours according to Koser, and the suspensions allowed to stand for 24 hours at icebox temperature (4 to 5°C.). The sera also failed to clump Flexner strains W. V, and Y. Complement fixations, however, employing the usual anti-sheep hemolytic system, 2 units of complement, and the 5 strains as antigens, gave the following results: Serum No. 203 gave fixation in as small a dose as 0.0001 cc., serum No. 201 in 0.0002 cc., and serum No. 202 in 0.0004 cc. doses.

It is well known that freshly isolated strains of this organism often fail to agglutinate (Wiseman,[1] Fyfe.[2]). However, the 5 strains have undergone numerous transplantations during the course of almost 2 years and they still fail to agglutinate. Koser[4] further states that it was impossible to prepare satisfactory sera in certain rabbits, although in others satisfactory sera were obtained.

Since all agglutinations failed, it was thought of interest to increase cohesion of the organisms by centrifugation. Serum No. 203 gave complete agglutination in a dilution of 1:640. All the 7 strains including the 2 Koser strains clumped, whereas the control tubes failed to show clumping on resuspension of the organisms. Serum

[4] Koser, S. A., Reiter, D. O., Bortniker, E., and Swingle, E. L., *J. Prev. Med.*, 1930, **4**, 477.

[5] Soule, M. H., and Heyman, A. M., *J. Lab. and Clin. Med.*, 1933, **18**, 549.

[6] Rhein, M., *Compt. rend. Soc. de biol.*, 1933, **112**, 814.

No. 202 gave the same result for 3 strains, but clumping was less marked for the 4 others. Serum No. 201 agglutinated one strain up to 1:640, four others agglutinated from 1:40 to 1:80, and 2 remained negative. Active sera gave larger clumps than inactivated sera.

Summary. Five strains of Castellani-Sonne dysentery bacilli were isolated at the Babies and Childrens Hospital during the summers of 1931 and 1932. The organisms, in so far as they were studied, were culturally and biochemically typical, but they were inagglutinable by their homologous antisera when agglutinations were performed in water baths at 37° and 56°C. and at icebox temperature overnight. However, by centrifugation of the suspension, 2 sera clumped all the 7 strains, while the third serum gave less marked clumping. Complement fixation gave excellent results, and doses of the sera as small as from 0.0001 to 0.0004 cc. fixed the complement in the presence of the strains. However, it is suggested that the centrifuge method of agglutination be used for routine diagnosis of this group of organisms on account of the slow appearance of the differentiating biological characters of the group and because of the relative inagglutinability of the strains by the usual method of agglutination.

6978 C

Effect of Adenylic Acid on Gastric Secretion.*

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Following the isolation of histamine from the pyloric mucosa,[1] it was suggested that histamine might be found in the blood stream after the ingestion of a meat meal. The extraction of quantities of blood for histamine by various methods gave a substance which possessed vasodepressor properties and gave a positive Pauly reaction but was uniformly negative (subcutaneous) in producing a gastric response.

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[1] Sacks, J., Ivy, A. C., Burgess, J. P., and Vandolah, J., PROC. SOC. EXP. BIOL. AND MED., 1931, **28**, 941.