pacity; but as Todd[3] has shown that serum-free streptolysin is antigenic it seems probable that this lysin would induce antibodies when injected into animals. Only certain strains of hemolytic streptococci produce suitable streptolysin.

Summary. A very satisfactory medium for producing streptolysin and yielding heavy growths of bacteria results from adding filtered sterile salts, buffers, and glucose to beef heart, peptone broth previously sterilized at 100°C.

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Failure of a Mouse Carcinoma Material to Enhance a Mouse Sarcoma.

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It has been shown that an homologous rabbit carcinoma enhancing material[1, 2] failed to enhance a carcinoma of the mouse.[3] Haaland,[4] Leitch,[5] and Casey[3] have demonstrated, however, that a material can be obtained from the same mouse carcinoma (No. 63) which will enhance both the incidence and the growth of the primary tumor when used in conjunction with the tumor inoculation. It seemed desirable, therefore, to determine whether homologous enhancing materials will enhance heterologous transplanted tumors within the same animal species. Since other transplantable rabbit tumors are not available, the experiments were carried out with mouse tumors. In the 2 experiments here reported the enhancing material was obtained from the Bashford mouse carcinoma (No. 63) and its effect was observed in connection with implants of mouse sarcoma (No. 180). Two different batches of preserved (enhancing) material and sarcoma emulsion were used; 60 mice of the Rockefeller Institute strain were employed; in the first experiment, there were 40 females and in the second 20 males. Thirty of these mice were injected with a saline emulsion of Bashford mouse carcinoma (No. 63) tissue which had been preserved anaerobically at 24°F. for 42 days.[3] Two weeks later the entire 60

[1] Casey, A. E., PROC. SOC. EXP. BIOL. AND MED., 1932, **29**, 816.
[2] Casey, A. E., *J. Exp. Med.*, 1933, in publication.
[3] Casey, A. E., PROC. SOC. EXP. BIOL. AND MED., 1933, **30**, 674.
[4] Haaland, M., *Lancet*, 1910, **1**, 787.
[5] Leitch, A., *Lancet*, 1910, **1**, 991.

mice were inoculated into the left groin with 0.09 cc. of an emulsion (10 parts saline, 1 part tumor) of fresh mouse sarcoma (No. 180). Measurements of the local growths were made at 6, 12, and 16 days. The ulceration of many tumors after this time precluded further measurements.

For the sake of clarity the mice treated with the preserved carcinoma material and later inoculated with the sarcoma are called the "experimental" mice, and the mice inoculated only with the sarcoma the "control" mice. At 16 days, 16 of 28 experimental mice (57%) had primary tumors which averaged 0.343 cc. in volume. This compared with 22 primary tumors (73%) among the 30 control mice averaging 0.509 cc. The size of the primary tumors per animal inoculated was 0.196 cc. among the experimental mice as compared with 0.373 cc. among the controls. The results, therefore, show no evidence that the sarcoma was enhanced (there is an insignificant suggestion of an inhibition) and are in marked contrast to the previous results in which the preserved mouse carcinoma material showed distinct evidence of enhancement of the same Bashford carcinoma (No. 63) in 10 consecutive experiments.[3] Further experiments designed to detect and differentiate enhancing materials with a view to their specificity should be attempted.

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Growth Characteristics of Rough and Smooth Acid Fast Bacteria Living in Microculture.

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While studying the growth of a number of acid fast bacteria in microculture a series of micro motion pictures has been made of a strain of organisms pathogenic to frogs. This mycobacterium, *M. ranae 1,* was provided by the Phipps Institute which obtained it several years ago from E. R. Baldwin. Planted at room temperature on the usual media it gives a rich white growth which at first often has the consistency of very thick cream but with age assumes the wrinkled growth more familiar in acid fast bacterial cultures. Both young and old growths are completely acid fast when stained by the Cooper modification[1] of the Ziehl-Neelson technique.

[1] Cooper, F. B., *Arch. Path. Lab. Med.*, 1926, **2**, 382.