There was no evidence of a toxic effect of the glyceraldehyde additions.

The average caries experiences of the groups of white rats and cotton rats fed racemic glyceric aldehyde in the ration or in the drinking water, and of comparable control groups are presented in Table I. In the white rat, the consumption of a purified caries-producing ration supplemented with 0.5% of dl-glyceric aldehyde in the dimeric form did not influence the average number of carious molars, the average number of carious lesions, nor the average extent of tooth substance affected by the carious processes. Likewise, the consumption of water containing 0.2% dl-glyceric aldehyde as the monomer throughout the experimental period of maintenance on the purified ration did not alter the caries experience of both species.

Discussion. The results of the above experiments and of those reported previously[2] indicate the inability of racemic glyceric aldehyde, as the dimer or as the monomer, to alter the initiation and rate of development of carious lesions in experimental animals maintained under the conditions of these studies. These observations are in contrast to those which indicated the strong ability of glyceric aldehyde to inhibit acid production in incubated saliva. For a number of years, dental investigators in several laboratories have suggested that compounds which were able to inhibit acid production in incubated saliva or in incubated cultures of *Lactobacillus acidophilus* would have a similar inhibitory effect on the initiation and development of tooth decay in experimental animals and human beings. In view of the divergent results between *in vitro* studies and animal experiments with racemic glyceric aldehyde, the above generalization does not appear to be valid. Careful examination of suggestive *in vitro* findings by suitable *in vivo* procedures with caries-susceptible laboratory animals and later with human subjects is necessary to establish the exact value of any compound or treatment for caries prevention. The striking gross and histologic similarity between experimentally produced carious lesions in the Norway rat[4] and in the cotton rat[5] to the naturally occurring lesions in human teeth is indicative of the validity of these two species for the evaluation of *in vitro* inhibitors prior to clinical application.

Summary. The addition of 0.5% of dl-glyceric aldehyde to a caries-producing ration or of 0.2% dl-glyceric acid to the drinking water did not reduce the initiation nor the rate of development of carious lesions in caries-susceptible white rats and cotton rats.

4 Sognnaes, R. F., *J. Nutrition*, 1948, **36**, 1.
5 Shaw, J. H., *J. Nutrition*, 1949, **38**, 275.

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Symbiotic Growth of Pleuropneumonia-like Organisms with Bacterial Colonies. (17423)

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A symbiotic relationship among bacteria was first described by Grassberger.[1] He observed that in the vicinity of colonies of various bacteria, particularly *Staphylococcus aureus, Hemophilus influenzae* grew as satellite colonies on blood agar. It is now well known that the staphylococci synthesize necessary growth factors required by *Hemophilus influenzae* which are not contained in the medium.

A similar symbiotic relationship has been observed with the pleuro pneumonia-like organisms (PPLO). In the course of our work

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1 Grassberger, R., *Z. f. Hyg.*, 1897, **25**, 453.

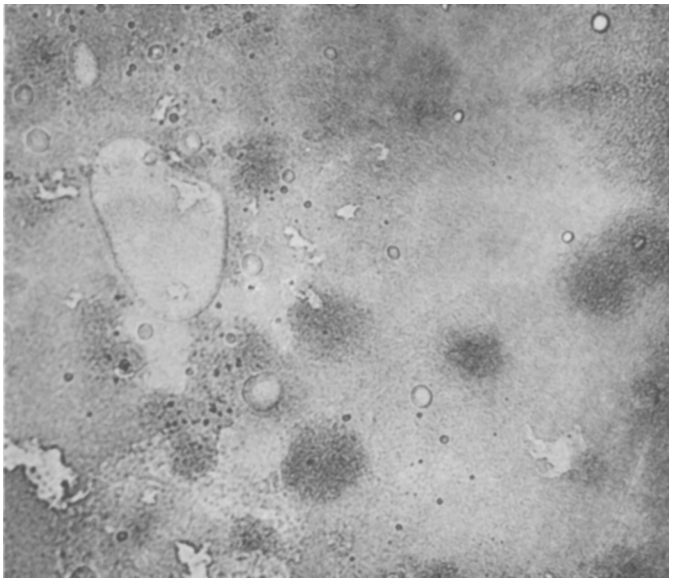

FIG. 1.
PPLO colonies, strain No. 17 from cervical secretion, growing under *Staphylococcus albus*. When the agar block containing the staphylococcal and PPLO colonies was stained by the method of Dienes, the entire bacterial growth took the blue due. After a short time the staphylococcal colonies reduced the dye leaving the intensely stained PPLO colonies as distinct islands. 130 ×.

with these organisms a gram-positive coccus occurred as a contaminant on a beef heart infusion agar plate (without ascitic fluid) which had been inoculated with the PPLO. The PPLO were noticed directly underneath the bacterial colonies. The gram-positive cocci were identified as *Staphylococcus albus*. An attempt was then made to determine whether this phenomenon would occur with other PPLO strains, many of which had been isolated from clinical sources. The PPLO were never observed to grow on heart infusion agar medium containing Bacto-beef heart 5.0%, Bacto-peptone 1.0%, NaCl 0.5%, and agar 1.5% unless ascitic fluid or blood serum was added. The entire areas of beef heart infusion agar plates without ascitic fluid were inoculated with the different strains of PPLO by streaking the surfaces with agar blocks containing the L type colonies. Inoculation of the staphylococci was accomplished by making one streak across each of the plates after the inoculation with PPLO. After five days incubation aerobically at 37°C nine of fourteen strains from human sources and one strain from a rat grew underneath the staphylococcal colonies. In the isolated areas where there were no staphylococcal colonies the PPLO did not grow. This experiment was repeated using a strain of *Proteus vulgaris*. All 15 strains of the PPLO grew and, as was the case with the staphylococcus, only underneath the bacterial colonies. In neither case were any structures similar to the L type colonies observed in growths of the *S. albus* and *P. vulgaris* on the medium which was not inoculated with PPLO.

The colonies of PPLO were detected by direct microscopic examination of the plates at a magnification of approximately 100X. Their identity was verified by cutting out blocks of agar and staining the growths by the method of Dienes. Photographs of two stained preparations are reproduced as Fig. 1 and 2.

This report is made for possible usefulness to those interested in cultivating the PPLO from clinical materials or to those interested in the metabolism of this little-understood

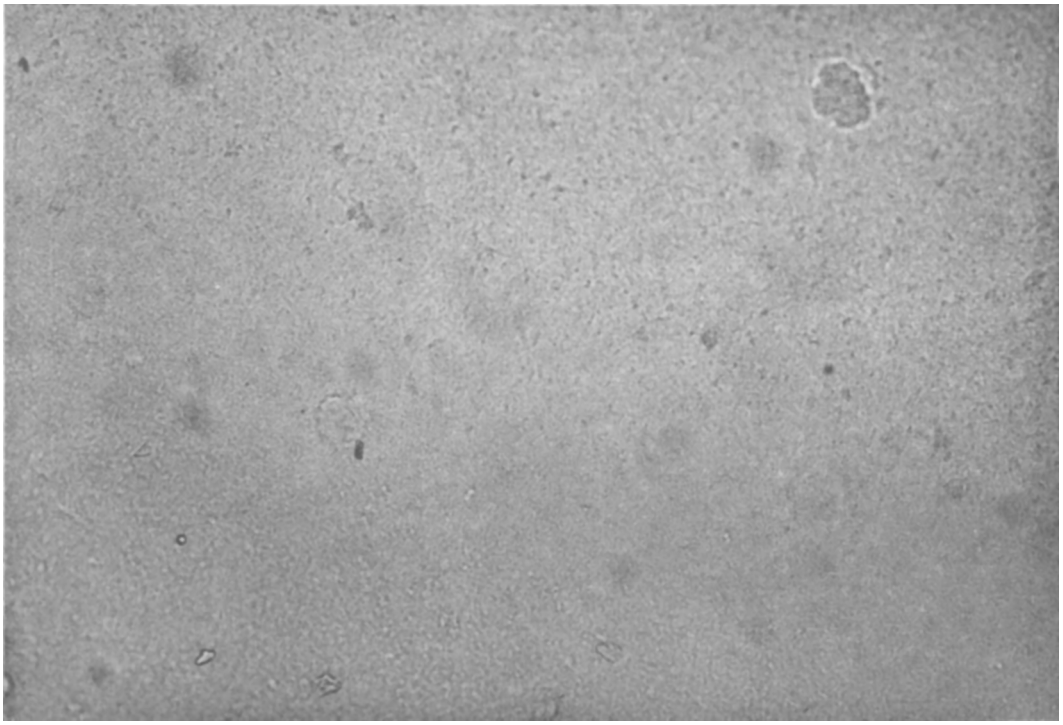

FIG. 2.
PPLO colonies, strain No. 36 from prostatic secretion, growing under *Proteus vulgaris*. When an agar block containing the growth of the two types of organisms was stained as described for Fig. 1 the PPLO colonies, with this strain, appeared as small darkly stained areas.

group of microorganisms.

Summary. Nine of 14 strains of PPLO of human origin and one strain of rat origin were observed to grow on beef heart infusion agar without ascitic fluid or serum only in symbiosis with *Staphylococcus albus* and all 15 strains grew in symbiosis with *Proteus vulgaris*.

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A Simple, Quantitative Method for Titration of Trypsin and Trypsin-Inhibitors.* (17424)

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In recent years the interest of an increasing number of investigators in the mechanism of fibrinolysis[1] and related phenomena, and especially in the role played by the activators and inhibitors of natural plasma proteases in the complicated process of blood coagulation,[2-5] has led to improved procedures for

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1 Christensen, L. R., *J. Gen. Physiol.*, 1945, **28**, 363.

2 Ferguson, J. H., *Science*, 1943, **97**, 139.

3 Tagnon, H. J., *J. Lab. and Clin. Med.*, 1942-43, **27**, 1119.