following infection, the inflated lobes were studded with tubercles 3 to 4 mm. in diameter; the atelectatic lobes having an occasional pin-point sized tubercle or none at all.

Group II. One dog died 5 weeks following infection, no lobes having been collapsed by that time. The lobes injected presented many tubercles 1 to 2 mm. in diameter. The opposite lung presented no gross tubercle formation. The second dog died 10 weeks following infection and 5.5 weeks after production of atelectasis. The atelectatic lobes (the side of injection) presented no gross tuberculosis. The inflated opposite lung revealed many large tubercles 2 to 4 mm. in diameter. The microscopic appearance confirmed the gross pathology.

Conclusions. In these experiments little difficulty was encountered in producing pulmonary tuberculosis in dogs by the hematogenous route. Definite marked improvement, to a complete cure of the lesion was obtained by the production of massive atelectasis of the region involved. This improvement or cure in one location was brought about while the animal was dying from infection in another part.

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Influence of Vitamin A Deficiency upon Intestinal Permeability for Bacteria.

E. SEIDMON AND LLOYD ARNOLD.

From the Department of Bacteriology and Preventive Medicine, University of Illinois College of Medicine, and Research Laboratories of the Illinois Department of Public Health, Chicago.

White rats were fed a diet of casein, cornstarch, salt mixture, dried yeast and butter. In the vitamin A deficiency series the butter was omitted. There were 18 animals in each series and the feeding experiment lasted for 9 and 10 weeks. After 24 hours' fasting 3 billion *B. typhi murii* were administered by stomach tube. Nine animals were killed in an illuminating gas chamber after one half hour and 9 after one hour in both the normal and the avitaminosis series. Specimens of liver and lung, the spleen and one kidney were removed and macerated in broth. Subcultures were made on Endo and plain agar plates after 3, 6, 9, and 24 hours' incubation. One-tenth cubic centimeter of organ-broth suspension was used for

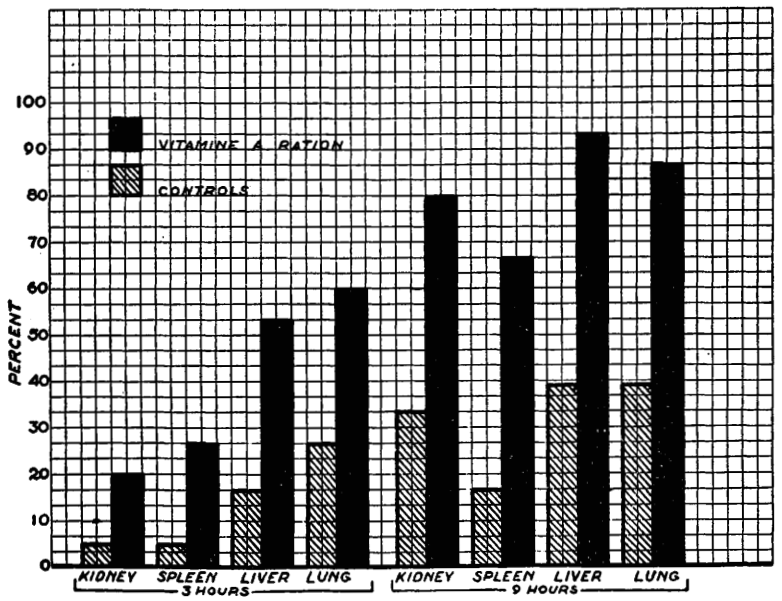

FIG. 1.

Ordinate—% of rats showing presence of *B. murii* in organs.

Abscissa—kidney, spleen, liver and lung macerated in broth and subcultured after 3 and 9 hours' incubation.

Solid column represents vitamin A deficient rats.

Barred column represents normal controls.

subculture. These time intervals were chosen to obtain information upon the relative concentration of the test bacteria in the organs of the animals. The accompanying graph illustrates averages of 18 control and 18 vitamin A deficiency rats at the periods of 3 and 9 hours' incubation of the organ cultures. There are a greater number of animals showing the presence of the test micro-organisms in the organs in the vitamin deficient diet than in the controls at the time intervals of one-half hour and one hour after oral administration. Quantitative studies of the bacteria in the organs will be reported later.