

daily doses of 0.05 gm. of KI alone by mouth, the total quantities of KI received by these animals being the same as the total quantities given simultaneously with anterior pituitary extracts in the preceding experiment. The effects of the administration of KI alone are also represented on the chart. It is noted that KI, as such, produces a reduction in liver glycogen, but the reduction is less in this case than when KI is given in conjunction with anterior pituitary extracts; even after 12 days' feeding of KI the glycogen failed to diminish in amount to below 1140 mg. %. Whether this reduction is due to a stimulation of the thyroid has not yet been decided. In other species than the guinea pig such an effect has not yet been observed. Thus in white mice, Romeis and Zwehl⁵ found no effect on liver glycogen after administration of sodium iodide. Likewise, Coggeshall and Greene,⁶ using albino rats, were not able to demonstrate a change from the normal in liver glycogen after administration of inorganic iodides.

In neither of our series of experiments did we find significant changes in the blood sugar content.

Conclusions. 1. KI given *per os* previously to and simultaneously with intraperitoneal injections of anterior pituitary extracts of cattle fails to modify the effect of the extracts on the liver glycogen. 2. Oral administration of KI alone may cause a moderate reduction in liver glycogen.

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Deleterious Effects of Local Application of Staphylococcus Bacteriophage.*

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During the study of the therapeutic value of specific bacteriophage in experimental staphylococcus skin infections in rabbits it was observed that certain strains of bacteriophage, instead of promoting the healing, have caused a temporary intensification of the local

⁵ Romeis, B., and Zwehl, T., *Klin. Woch.*, 1925, **4**, 703.

⁶ Coggeshall, H. C., Greene, J. H., *Am. J. Physiol.*, 1933, **105**, 103.

* This work was supported from a grant by the Rockefeller Foundation to Washington University for research in science.

reaction. Suspecting that this effect might have been due to the presence of the "Reynals Spreading Factor" in the bacteriophage lysate, the following experiments were performed.

An 18-hour agar slant culture of non-invasive staphylococci was suspended in 10 cc. of sterile distilled water, diluted with an equal volume of broth, and 1 cc. of the resulting suspension was injected intracutaneously into two sites on each flank of each of the 5 rabbits. The hair on both flanks was removed by means of barium sulphide 2 days previous to injection. The sites of the injections in 4 of the rabbits were covered by wet dressings consisting of a piece of folded gauze on top of which was placed a small pad of absorbent cotton which in turn was covered with gauze. A circular piece of adhesive tape with a hole in the center was used to hold the dressing in place. Through the hole in the adhesive tape the dressings were saturated twice daily with (1) broth (Rabbit No. 356) (2) bacteriophage propagated upon the homologous non-invasive strain of staphylococci (Rabbit No. 358), (3) bacteriophage propagated upon a highly invasive strain (Rabbit No. 357) and (4) autolysate of the invasive strain prepared according to Duran-Reynals,¹ (Rabbit No. 359). The fifth rabbit (No. 354) receiving the injection of the culture served as control, and was left without any dressings.

The dressings were removed once every day and the size of the lesions measured in each case as follows: The outline of the entire area involved in the reaction at each site of infection was traced with India ink on a strip of cellophane laid over the lesion, and subsequently measured with a planimeter. The area of the individual lesions in each rabbit was remarkably constant. The daily measurements of the infected areas thus permitted to compare the evolution of the lesions in the respective rabbits as depending on the nature of the solution applied to the dressing.

Each of the values plotted on Fig. 1 represents the average area in square centimeters of the 4 lesions in each of the rabbits.

Identical findings were obtained in another similar experiment, the results of which are plotted on Fig. 2. In this experiment rabbit No. 361 served as control; the dressings of rabbit No. 360 were saturated with broth, rabbit No. 555 with bacteriophage propagated on a strain of invasive staphylococcus, rabbit No. 356 with bacteriophage propagated on a strain of non-invasive staphylococcus and rabbit No. 547 with autolysate of invasive staphylococcus.

The results of these experiments show that (1) the final healing

¹ Duran-Reynals, F., *J. Exp. Med.*, 1933, **58**, 161.

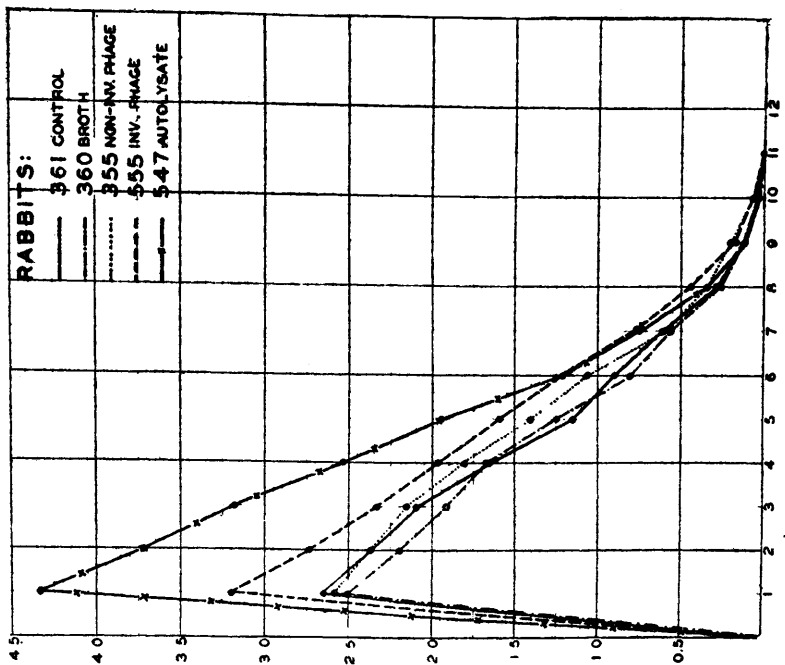


FIG. 2.

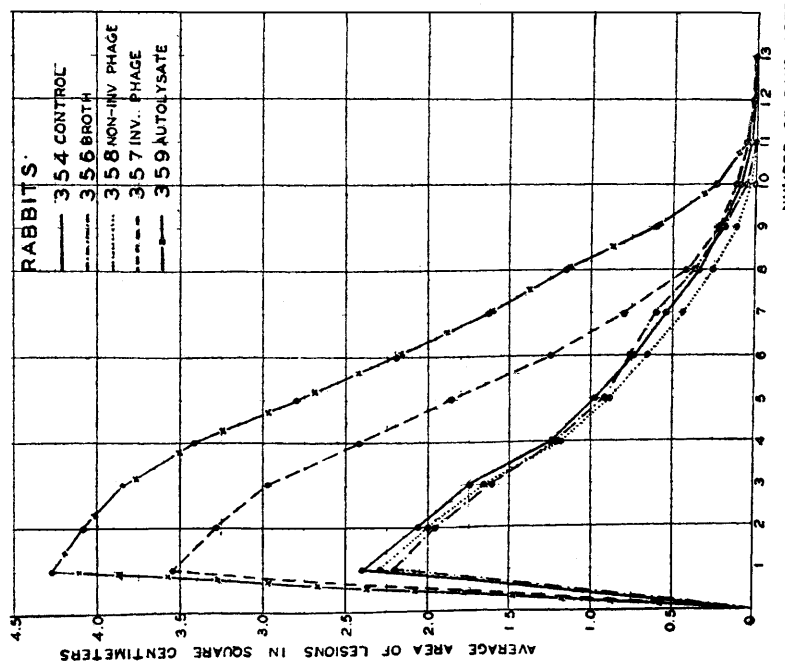


FIG. 1.

of all of the lesions took place at about the same time irrespective of the type of dressing applied, that (2) the "Reynals Factor" markedly enhanced the size of the lesions, that (3) the bacteriophage lysate obtained with the highly invasive strain, presumably containing "Reynals Factor", definitely increased the size of the lesions as compared to the controls, and that (4) the bacteriophage propagated on the homologous non-invasive strain though causing no enhancement, produced no therapeutic effect.

Thus it is apparent that if the culture of staphylococcus used in the preparation of the bacteriophage happens to be of the invasive type the local application of the lysate thus prepared may result in undesirable local reactions.² Similar experiments performed with highly invasive staphylococcus are now in progress, and will be reported subsequently.

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Morphology of Bacillus of Rat Leprosy.*

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Ziehl-Neelson stained sections of tissues prepared by the new freezing and drying technique (Gersh,¹ Bensley and Gersh² and Scott³) show bacilli of smoother outlines and much less granular in consistency than those brought to light by the same stain after fixation in the ordinary way in 10% formalin in absolute alcohol or Regaud's fluid. Since the new and the old methods give such different results with exactly the same material (liver nodules of rats, kindly sent to us by Drs. E. B. McKinley and E. L. Walker) both cannot be equally true to life. The freezing and drying technique involves instantaneous freezing of tissue by plunging into liquid air and dehydration *in vacuo* while still frozen. No fixative is required, no alcohol for dehydration and no xylol for clearing. Bensley and Gersh have great faith in it. They conclude, be-

² King, W. E., Boyd, Jr., D. A., and Conlin, J. H., *Am. J. Clin. Path.*, 1934, **4**, 336.

* Aided by a grant from the Leonard Wood Memorial.

¹ Gersh, I., *Anat. Rec.*, 1932, **53**, 309.

² Bensley, R. R., and Gersh, I., *Anat. Rec.*, 1933, **57**, 369.

³ Scott, G. H., *Protoplasma*, 1933, **20**, 133.