sulting from exposure to the dye, and the Gram positive forms in the controls is actually due to a loss of substance seems likely, though perhaps not definitely proven, from the results of experiments in which the bacterial bodies were weighed before and after exposure to the dye. That the material lost is protein, or at least ammoniacal in character, is proven by the positive ninhydrin tests obtained with the Berkefeld filtrate of a suspension of *B. anthracis* which had been exposed to gentian violet.

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Reciprocal Influence of Concomitant Infections: Syphilis and Vaccinia.

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The influence which one infection may have upon the manifestations of another has been investigated in a number of conditions in connection with a general study of the factors concerned in determining the course and outcome of disease processes. In the case of syphilis and vaccinia of the rabbit, the result of simultaneous inoculations of *Tr. pallidum* and vaccine virus has been studied. Other experiments have dealt with the syphilitic reaction in rabbits immune to vaccine virus, and conversely, with the vaccine reaction in rabbits infected with *Tr. pallidum.*

The Nichol's strain of *Tr. pallidum* and the Noguchi strain of vaccine virus were used; groups of 5 or 10 male rabbits were employed for each series. The syphilitic tissue emulsion was injected in one testicle or intracutaneously on the sheath; the inoculation of vaccine virus was made on the shaved skin of the body by rubbing the infected tissue emulsion into scarified areas, and by intracutaneous injection. In other groups, the syphilitic and vaccine virus emulsions were both injected in the same testicle. Control series of rabbits were inoculated with each of these materials.

The observation period varied from 3 to 5 months. An essential requirement of the work was the frequent examination of the rabbits in order that the syphilitic process in the several groups could be compared. The features of this infection which are especially important for such comparisons are illustrated by the following examples: the incubation period, character and duration of the pri-

mary and metastatic orchitis, the occurrence of scrotal edema, the time of development of generalized lesions, their distribution, number and duration, and the initiation of latency, that is when all manifestations of the disease have healed.

The results of completed experiments and the observations of others still in progress may be summarized as follows:

The character of the syphilitic infection has been markedly affected by the simultaneous inoculation of vaccine virus. With the intracutaneous injection of vaccine virus, the severity of the syphilitic process was greatly increased, as shown in the case of both primary and secondary lesions, but particularly the latter in which an increased distribution, greater size, longer duration and in some series increased incidence, were especially marked. On the other hand, the syphilitic infection which developed after the combined injection of vaccine virus and syphilitic material in the same testicle was modified in the direction of decreased severity. The mildness of the disease in these rabbits as compared with the controls was very striking. An immunity to vaccine virus present at the time of syphilitic inoculation was also associated with alterations in the manifestations of the infection, and in general, the disease was less severe than in the controls. The reaction to vaccine virus under the condition of simultaneous inoculation with syphilitic material will be reported later, but in general, it may be said that it is accelerated and exaggerated. This was also the case in many instances in which syphilitic rabbits were vaccinated.

The interpretation of these results will not be attempted here, but it is obvious that as far as the syphilitic process is concerned, their significance is intimately related to the factors of host susceptibility and resistance as determinants of the course and outcome of this particular infection.

This is a preliminary report.

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A New Dietary Deficiency With Highly Purified Diets.

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In the course of our work on vitamine E it became necessary some years ago to attempt to withdraw all traces of this substance from dietaries. But various workers, including ourselves, have re-