one region may be transferred to adjacent and possibly to more remote regions and still exercise a protective function.

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Non-Specific Activation of the Alcohol Soluble Antigen of Tubercle Bacillus.

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In a previous publication[1] it was found that the addition of commercial lecithin and alcoholic heart extract increased the potency of an alcohol extract of the tubercle bacillus as an antigen in the complement fixation reaction about ten times. The potency of certain preparations derived from the alcohol extract was increased about 100 to 200 times. Further work on this subject, although it is not yet completed, revealed the following characteristics.

An alcohol or ether extract of the tubercle bacillus and the preparations representing different stages of the purification of them, as described in our first paper[2] are activated with the addition of lecithin only if they are mixed with the lecithin in alcoholic solution and diluted together. The addition of saline suspension of lecithin to the saline suspension of the specific substance has no activating effect. Contrary to this, the preparations described later in these PROCEEDINGS[3] are activated whether the lecithin is added to the alcohol or to the saline solution of the preparations. The different behavior of the two classes of preparations toward lecithin is due, probably, to the circumstance that the substances later mentioned contain the specific substance nearly or entirely separated from the lipoids and are water soluble. In the experiments described in the first publication we examined in saline solution only the substances belonging to the second group showing strong activation, and we did not observe that the others are not activated in saline suspension.

With the bacterial substances of the first class, which are acti-

vated only if mixed in alcohol solution with lecithin further work was done in two directions. The effect of an increasing amount of lecithin was studied, and a marked optimum was found. The potency was increased about sixteen times with 0.004 to 0.002 mgm., about 4 to 8 times with 0.009 mgm., and only twice with 0.0005 mgm. With 0.00025 mgm. no activation was present. Then the effect of different substances other than lecithin was studied, namely, petrolatum jelly, hog fat, stearic and oleic acid, the mixture of the acids in different proportions with the hog fat and petrolatum, and benzoin of sumatra.[4] The fatty acids were examined because our lecithin preparations contained a considerable amount of free acids, and the benzoin because it favors, according to several authors, the specific precipitation of alcoholic bacterium extracts. The cholesterin had previously been studied. Only the petrolatum jelly has shown a slight activation (four times). The admixture of the others in different proportion to the specific substance was without any effect. Only further work can decide whether the activating effect of commercial lecithin and alcoholic organ extracts is due to the phosphatids contained in them or to some concomitant substance, and whether the mechanism is mainly physical or chemical. That the addition of different substances to the alcohol solution of the specific substance, which influence largely the properties of the saline suspensions, and which has had practically no effect on the activity of the antigen, is in contrast to the usual conception that the potency of the alcohol soluble antigens for the complement fixation reaction is influenced to a great extent by the physical properties of their suspension. In the case of the alcohol soluble antigen of the tubercle bacillus no evidence was found for such an influence.

The activation of the preparations belonging to the second group, which are activated also by a saline suspension of lecithin, has not yet been further studied.

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