convulsion and death. The name *"Sikimitoxin"* is suggested for the new toxic principle to distinguish it from Eykman's Sikimin. from which it differs in its physical and chemical properties, and also in its much higher toxicity.

Properties of Sikimitoxin. It is a feebly acid nitrogen-free body and occurs as a white amorphous powder without definite melting point. When slowly heated, it sinters at 63° C., then gradually increases its volume as the temperature rises, and finally becomes a clear liquid at 135° C. It is easily soluble in cold water, chloroform and alcohol, less so in ether and benzene and insoluble in petroleum ether. When brought into contact with a small quantity of cold water, it becomes at once an oil and then gradually dissolves. Its toxicity is rapidly destroyed by the action of caustic alkalies, and greatly decreased by the prolonged action of boiling water with or without the presence of hydrochloric acid.

It is questionable whether Eykman's sikimin was the original substance present in the seeds, or the resulting product formed by the prolonged action of acetic and hydrochloric acid used in his process of isolation, as Sikimitoxin was found to be sensible towards the action of these chemical reagents.

Details concerning the process of isolation, properties and the toxicity of Sikimitoxin will appear later.

This is a preliminary report.

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Presence of Type Specific Pneumococco-opsonins in Sera of Animals Naturally Resistant to Pneumococcus Infection.

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In a previous communication, Robertson and Sia[1] found that the sera of animals, such as cat, dog, sheep and pig, that are naturally resistant to pneumococcus infection, contained normal opsonins for the pneumococcus, whereas the sera of susceptible animals did not

possess such opsonic power for pneumococci virulent for the species. In the course of that study it soon became evident that the serum from a resistant animal, under proper conditions, could be shown to opsonize pneumococci belonging to any of the various serological groups. The question whether the sera of naturally resisant animals contain a common pneumococco-opsonin for all pneumococci, or separate opsonins for each type of the organism immediately arose. The results of Bull and McKee[2] in demonstrating the existence of separate protective substances in normal chicken serum for each type of pneumococcus, together with the author's findings, reported in a previous paper,[3] on the specific effect of pneumococcus soluble substance on the growth of pneumococci in normal serum-leucocyte mixtures, suggest that the sera of resistant animals may contain separate pneumococco-opsonins, specific for each type of pneumococcus. The present report deals with a study which has in view the elucidation of this point.

In this work, sera from two species of naturally resistant animals were used, namely, cat and pig. The method consisted of absorbing the sera by one of the three fixed types of pneumococcus and then testing the opsonic content of the absorbed sera for all the three types. The percentage of polymorphonuclear leucocytes taking part in phagocytosis was recorded and compared with that of control sera which were similarly treated except that no pneumococci were added.

The results thus obtained were very striking. It was found that the absorbed serum lost all of its opsonins for the particular type of pneumococcus employed in the absorption, while those for the other two fixed types were very little affected. Occasionally, evidence of a certain degree of non-specific adsorption was present, but the reduction was never very great. In almost all instances, the absorbed sera showed a hundred per cent reduction in their opsonic content for the type of pneumococcus used in absorption. Spontaneous phagocytosis was practically absent in all the experiments. This was made possible by frequently passing the organism through mice.

Several other experiments were also carried out in which the serum was absorbed by one type of pneumococcus and later reabsorbed by a second type. The serum thus treated still showed a considerable quantity of opsonins for the third type.

The results, therefore, indicate that there are separate type specific pneumococco-opsonins in the sera of animals, namely cat and pig, which are naturally resistant to pneumococcus infection. These

findings would also support the idea that natural opsonins are specific.

This is a preliminary report.

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