

LIST OF PROPOSED FOREIGN MEMBERS 1944:

X OSWALD THEODORE AVERY (b. 1877) X

Oswald Theodore Avery may be described as the senior American bacteriologist. He has been a member of the Rockefeller Institute for many years and has published numerous papers on a variety of subjects.

In 1913, with his colleague Dochez, he started a long study of the antigenic structure of the Pneumococcus by familiar serological methods. This in itself would not have led to any important access of knowledge had he not been interested in chemistry. In 1920, for instance, he was working on the bacterial decomposition of fats, and in 1921 he demonstrated the existence of two "vitamins" necessary for the growth of the influenza bacillus.

In 1923 he interested Heidelberger and a number of other chemists in the chemical differences between Pneumococci of different antigenic structure. From this work, subsequent work of his collaborators and that of many followers, a new field in serology has been opened up.

Very briefly, in the first paper his team described a complex polysaccharide which they had obtained from Pneumococci of the "smooth" pathogenic variety. This substance was responsible for the well-known reactions between Pneumococci and antiserum in the test tube. It was not, however, antigenic in the sense that its injection into animals did not produce antibodies. The polysaccharide (1925) was not specific to the Pneumococcus but was identical with similar substances in yeast or gum arabic which also reacted in the test tube with anti-pneumococcal serum. Though the polysaccharide was not antigenic, it could be coupled (1929) with other substances, for instance horse serum globulin, and then became antigenic and (1931) even capable of protecting animals, injected with it, from a fatal dose of Pneumococci. Finally (1933), it was shown that chemical components of horse serum globulin which produced this effect were acetyl groups, since acetylation of the polysaccharide rendered the latter antigenic.

Rec. 12/7/44

Avery's work originated in an organized attack on respiratory diseases in which he was the leader. The developments noted above were directly due to his stimulus and actual collaboration. He is, in fact, responsible for the introduction of chemical methods into the study of antigenic structure.

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P.G.F.
(Paul Fil des)