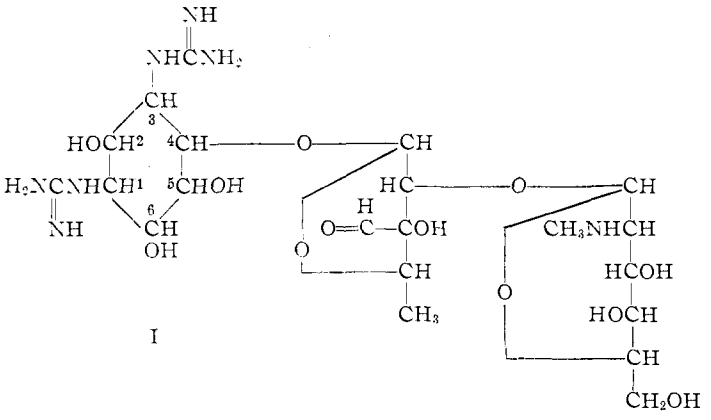
STREPTOMYCES ANTIBIOTICS. XIV. THE POSITION OF THE LINKAGE OF STREPTOBIOSAMINE TO STREPTIDINE IN STREPTOMYCIN

Sir:

A degradative series of reactions has now yielded information on the linkage of streptobiosamine to streptidine in streptomycin.



I

Reaction of streptomycin with benzoyl chloride and pyridine yielded benzoylated streptomycin (mol. wt., calcd., 1727. Found, 1625 ± 10%), which was cleaved to heptabenzoylstreptidine, m. p. 256–258°, (calcd., C, 69.15; H, 4.77; N, 8.49. Found, C, 69.28; H, 4.96; N, 8.77). Stepwise treatment of heptabenzoylstreptidine gave mesylheptabenzoylstreptidine, m. p. 241–242° (S, calcd., 2.99. Found, 2.46), iodoheptabenzoylstreptidine, m. p. 153–154° (I, calcd., 11.54. Found, 11.83), heptabenzoyldesoxystreptidine (m. p. 198–199°), pentabenzoyldesoxystreptamine (m. p. 298–299°), and N,N′-dibenzoyldesoxystreptamine, m. p. 287–289° (calcd., C, 64.85; H, 5.99. Found, C, 64.72; H, 6.21).

Treatment of N,N′-dibenzoyldesoxystreptamine and N,N′-dibenzoylstreptamine under comparable conditions with periodate led to the consumption of one and two moles of periodate, respectively. Work on the characterization of the oxidation product from the desoxy compound is in progress.

These data are in agreement with the attachment of streptobiosamine only at carbon atom 4 of streptidine as shown in formula I for streptomycin.

Other workers[1] have recovered streptidine after treatment of streptomycin with excess periodate. This they interpreted as strongly indicating that streptobiosamine is attached to streptidine at carbon 5, although carbon 4 could not be entirely disregarded.

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(1) Carter, Loo and Skell, *J. Biol. Chem.*, **168**, 402 (1947).

NEW BOOKS

Modern Chemistry. By A. J. BERRY, M.A. The Macmillan Company (Cambridge University Press), 60 Fifth Avenue, New York 11, N. Y., 1946. 240 pp. 14.5 × 22 cm. Price, $2.50.

In the preface to this book the author points out that since most works on the history of chemistry deal with the subject as a whole, the treatment of the more recent discoveries tends, of necessity, to be somewhat abbreviated. The purpose of the present book is, therefore, "to focus attention on the development of some of the newer branches of chemical science." In order to achieve this end the purely chronological method of approach has been avoided and a number of aspects of chemistry, in which progress has been rapid during the past fifty years, are chosen for detailed consideration. A separate chapter, "nearly self-contained and independent of the others," is then devoted to an essay on the history of each of these subjects. The choice of topics has been determined by the author's teaching experience, and the titles of the chapters are as follows: Classical Atomic Theory; Electrochemistry; Stereochemistry; Radioactivity; Elements, Isotopes and Atomic Numbers; Some Experimental Studies of Gases; Some Problems of Solutions; Some Essential Features of Chemical Change; and A Retrospect.

It should be stated at the outset that the title "Modern Chemistry" is something of a misnomer, but the subtitle, "Some Sketches of Its Historical Development," gives a much better idea of the content of the book. Nevertheless, it is the opinion of the reviewer that there are few chemists who could not read this book with profit and even pleasure. It is true that there are certain matters, chiefly of opinion, which are open to argument. This is especially the case in the assignment of credit for particular discoveries or advances; for example, Kohler is not mentioned in connection with the resolution of allene derivatives, neither is there any reference to Compton or to Eldridge in the account of the experimental verification of Maxwell's law of the distribution of velocities, nor to Müller in the section on the passivity of metals. But these points are relatively minor and should not affect the essential value of the book. In the view of the present writer, the chief weakness of this work lies in the fact that it so frequently fails to state the most recent point of view, as, for example, in connection with the theory of solutions, reaction rates, the mechanism of the Kolbe reaction, strengths of acids, steric hindrance, the starch–iodine complex, acids and bases, as well as in several minor respects.

The author claims that the material has been "treated in a manner so as to be acceptable to anyone who is endowed with a moderate stock of chemical knowledge." However, to appreciate this book adequately, it is desir-