estrogenic activity in rats than diethylstilbestrol. Further tests are in progress.

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RECEIVED JANUARY 19, 1948

STREPTOMYCIN, VII. DEGRADATION OF O-TETRAMETHYLSTREPTAMINE TO D,L-DIMETHOXYSUCCINIC ACID

Sir:

N,N'-Diacetylstreptamine (1,3-diacetamido-2,4,5,6-tetrahydroxycyclohexane)[1] was converted with dimethyl sulfate and sodium hydroxide to O-tetramethyl-N,N'-diacetylstreptamine (m. p. > 300°; *Anal.* Calcd. for $C_{14}H_{26}O_6N_2$: C, 52.81; H, 8.23; N, 8.81; CH_3O, 39.07. Found: C, 52.99; H, 8.28; N, 8.67; CH_3O, 40.1), which on hydrolysis with hydrochloric acid afforded O-tetramethylstreptamine dihydrochloride (m. p. > 300°; *Anal.* Calcd. for $C_{10}H_{22}O_4N_2 \cdot 2HCl$: C, 39.09; H, 7.87; N, 9.12; Cl, 23.08. Found: C, 38.76; H, 7.71; N, 8.98; Cl, 23.4). The free base (m. p. 83–84°; *Anal.* Calcd. for $C_{10}H_{22}O_4N_2$: C, 51.26; H, 9.46; N, 11.96. Found: C, 51.18; H, 9.38; N, 11.71) was oxidized with neutral potassium permanganate at room temperature. The methyl ester mixture formed from the oxidation products with methanolic hydrogen chloride yielded on distillation several fractions which were treated separately with methanolic ammonia or methylamine. From the lower-boiling fractions there were obtained D,L-dimethoxysuccinic acid diamide (m. p. 266–268° (dec.)[2]; *Anal.* Calcd. for $C_6H_{12}O_4N_2$: C, 40.90; H, 6.87; N, 15.90; CH_3O, 35.2. Found: C, 41.14: H, 6.76; N, 16.19; CH_3O, 35.0) and D,L-dimethoxysuccinic acid di-N-methylamide (m. p. 188–189°; *Anal.* Calcd. for $C_8H_{16}O_4N_2$: C, 47.04; H, 7.90; N, 13.72; CH_3O, 30.4. Found: C, 47.46; H, 8.05; N, 13.96; CH_3O, 30.5). Synthetic specimens of these hitherto undescribed amides, prepared from D,L-tartaric acid, showed the same melting points, undepressed by admixture of the degradation products. The diamide[3] and di-N-methylamide[4] of *meso*-dimethoxysuccinic acid melted at 255–257° (dec.) and 210–210.5°, respectively. The *meso*-diamide strongly depressed the melting point of the diamides derived from streptamine and from D,L-tartaric acid.

If, as appears highly probable, streptamine and streptidine are *meso* compounds, it follows from the above results that the 5-hydroxyl group is oriented *trans* with respect to the 4- and 6-hydroxyl groups (*xylo*-configuration), a spatial arrangement also encountered at the corresponding positions in *meso*inositol. This would limit the number of possible *meso* forms for streptamine to four.

Furthermore, there was isolated from high-boiling ester fractions prior to amidation a compound $C_{10}H_{17}O_6N$ (m. p. 109–110°; *Anal.* Calcd C, 48.57; H, 6.93; N, 5.67; $4CH_3O$, 50.1. Found: C, 48.74; H, 6.87; N, 5.65; CH_3O, 49.2) which should be either the 2,6-lactam of a 2-amino-3,4,5-trimethoxyadipic acid-1-methyl ester, or the 3,6-lactam of a 3-amino-2,4,5-trimethoxyadipic-1-methyl ester.

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RECEIVED JANUARY 19, 1948

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[1] R. L. Peck, C. E. Hoffhine, E. W. Peel, R. P. Graber, F. W. Holly, R. Mozingo and K. Folkers, THIS JOURNAL, **68**, 776 (1946).

[2] All melting points reported are corrected.

[3] W. N. Haworth and E. L. Hirst, *J. Chem. Soc.*, 1858 (1926).

[4] W. N. Haworth and D. I. Jones, *ibid.*, 2349 (1927).

NEW BOOKS

SMALL WONDER—The Story of Colloids. By GESSNER G. HAWLEY. Alfred A. Knopf, New York, N. Y., 1947. 220 pp. Price $3.50.

The author certainly deserves full credit for his courage and, as many parts prove, skill in attempting to explain "to those who have the curiosity but lack the time to study more erudite treatises" what the term "colloid" implies. In his preface he also states, however, that "there is such a thing as having an embarrassment of subject matter" and "it is easy to become bewildered and get lost in it all." That has happened, and it is unfortunate because the reader who takes many of the written words at their face value will not get a more general, but often a wrong, understanding of colloids. This refers specifically to the author's definition of colloids, the history of this branch of science, to the explanation of their electrical properties, to the discussion of how natural rubber is obtained, or synthetic rubber produced.

The discussion of the electron microscope is by far too extensive for a book of this type, so much the more since its use in attempting to pry deeper into the structure of lyophilic colloids is becoming more and more questionable. It would have been far more appropriate to explain to the reader the tremendous developments of ultramicroscopic techniques and what has been achieved by their use.

The author has made a few serious mistakes which must be corrected. Plate XV is a cut-away view of a Sharples *super-* and not ultracentrifuge. The statement that the first periodical given over exclusively to colloid chemistry is the "Journal of Colloid Science," which appeared for the first time in January, 1946, is incorrect; the Germans have had the periodicals "Kolloid Zeitschrift" and "Kolloid-