C_3 epimer of ergosterol. In the paper (Heilbron, Moffet and Spring[4]) of which the note cited is an abstract, the conclusion reached is that ergosterol and lumisterol differ in configuration around C_{10} and that "no information is available concerning the relative orientation of the hydroxyl groups and the C_9-hydrogen atoms of the two sterols."

Again, contrary to the statement of Weizmann, Bergmann and Hirshberg, Windaus and Dimroth did not *demonstrate* that the secondary hydroxyl group is not influenced by irradiation but include in their paper the following statement: "Einen Anhaltspunkt dafür dass sterische Änderungen an der Hydroxyl-gruppe an C_3 vor sich gehen, haben wir nicht gefunden; wir halten diese Annahme für unwahrscheinlich."[5]

NOTE BY THE EDITOR.—Dr. Bergmann has written to the Editor that he regrets that the statement of Dr. Spring relative to the photo-isomerization of ergosterol was misunderstood and therefore inaccurately quoted in the article referred to.

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[4] Heilbron, Moffet and Spring, *J. Chem. Soc.*, 411 (1937).

[5] "We have found no experimental evidence that rearrangement of the hydroxyl group on C_3 occurs spontaneously, and we believe that such a change is unlikely."

THE UNIVERSITY OF MANCHESTER F. S. SPRING
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RECEIVED AUGUST 9, 1938

THE REDUCTION OF α-HALOGENATED KETONES: THE SYNTHESIS OF *dl*-PSEUDOEPHEDRINE

Sir:

The great advantage of aluminum isopropylate in the reduction of aldehydes and ketones lies in its specificity for the carbonyl group, side reactions such as condensation and the like being either absent or negligible. Lund [*Ber.*, **70**, 1520 (1937)] has shown this with certain ketones with primary bromine in the α-position. This reduction without removal of the α-halogen has now been tested with α-bromo ketones which have β-hydrogen available for a loss of halogen acid. The results with open chain ketones containing secondary α-bromine show that removal of bromine, and reduction to the bromohydrin, occur in about equal amounts. Thus α-bromopropiophenone with aluminum isopropylate forms the bromohydrin in about 35% yield (b. p. 73–75° (0.1 mm.)), which in turn with methylamine yields a mixture of isomeric hydroxyamines, one of which is *dl*-pseudoephedrine, m. p. 116.5–117.0°; the hydrochloride, m. p. 162–163° (over-all yield from the bromo ketone, 10%). This was identified by comparison with an authentic sample, m. p. 116.5–117.2°, mixed m. p. 116.5–117.0°, prepared from *dl*-ephedrine kindly supplied by Dr. E. H. Volwiler, Abbott Laboratories, Chicago, Illinois, and by Dr. R. H. Manske, the Canadian National Research Council, Ottawa. Contrary to expectations, no *dl*-ephedrine was found.

Cyclic secondary α-bromo ketones, and open chain tertiary α-bromo ketones, such as 2 bromocholestanone, and α-bromoisobutyrophenone, respectively, yield products almost entirely free of bromine. This work is being continued with other types of halogenated ketones.

DEPARTMENT OF CHEMISTRY PHILIP G. STEVENS
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RECEIVED NOVEMBER 21, 1938

NEW BOOKS

Tabellen und Vorschriften zur quantitativen Analyse. Gravimetrie, Elektroanalyse, Probierkunde der Edelmetalle und Gasanalyse. (Tables and Directions for Quantitative Analysis, Gravimetric, Electroanalysis, Assay of the Noble Metals, and Gas Analysis.) By W. D. TREADWELL, Professor in the United Technical Institute in Zurich. Verlagsbuchhandlung Franz Deuticke, Helferstorferstrasse 4, Wien, Germany, 1938. xii + 284 pp. 126 figs. 17.5 × 25 cm. Price, RM. 9.

The author states in the preface that his object is to present in the shortest possible form a selection of proved methods of analysis in order to make it possible for the analyst already acquainted with the fundamentals to do his work more easily. The reviewer cannot imagine any publication in which could be found more information concerning analytical chemistry contained in less than 300 pages. Here is evidence showing extreme energy on the part of the author in collecting valuable data concerning, and proved directions for determining, more than the usual list of cations and anions. It also shows his skill in collating such material in a very logical manner. About 275 references to original literature are given.

In the interest of economy of space the author has collected in one chapter the description of the common oper-