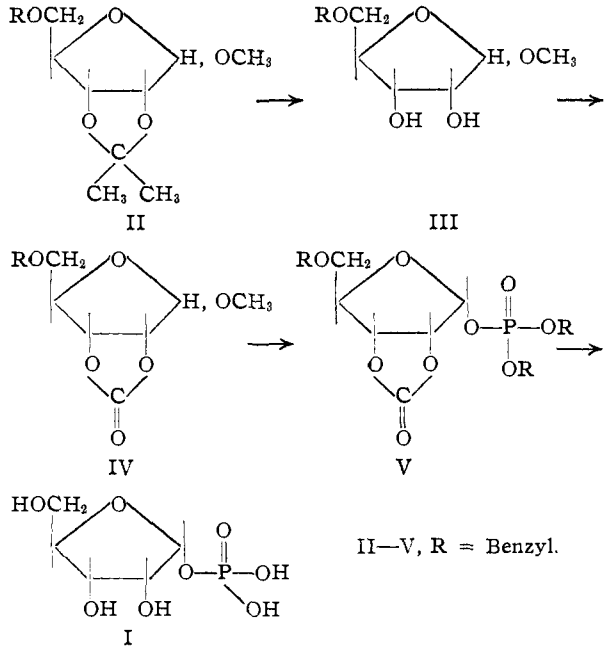

ether, 59°, $[\alpha]^{20}D$ −54.5° (*c* 1.06 in ethyl alcohol) *Anal.* Calcd. for $C_{14}H_{16}O_6$; C, 59.5; H, 5.7. Found: C, 59.9; H, 5.8. The crystalline product was converted by treatment with hydrogen bromide–acetic acid to an oily bromide which was directly treated in benzene with one equivalent of triethylammonium dibenzylphosphate to give presumably V. Hydrogenolysis of this product in the presence of palladium-charcoal catalyst, followed by mild alkaline treatment, gave α-D-ribofuranose-1-phosphate which was isolated as the barium salt in 60% yield (based on the crystalline carbonate, IV). The dicyclohexylammonium salt, prepared by passing a solution of the barium salt through a column of Amberlite IR-120-cyclohexylammonium form, was crystallized from a methyl alcohol–ether mixture. *Anal.* Calcd. for $C_{17}H_{37}O_8N_2P \cdot H_2O$: C, 45.74; H, 8.81; P, 6.94. Found: C, 45.38; H, 8.82; P, 7.4; $[\alpha]^{20}D$ +40.3° (*c* 2.37 in water).[7] In lability to acid, behavior on paper chromatograms and reaction with dicyclohexylcarbodiimide,[1] the synthetic sample was identical with the enzymatically-prepared samples of ribose-1-phosphate. Incubation of the synthetic sample with fish muscle phosphorylase in the presence of hypoxanthine gave rise to the corresponding riboside, inosine.

It is clear that the crystalline methyl 5-benzylribofuranoside 2,3-cyclic carbonate offers a promising route to the synthesis of α-D-ribonucleosides as well as other ribose phosphates.[8,9] These synthetic possibilities are under investigation.

We wish to thank the National Research Council of Canada, Ottawa, for the financial support of this work and Dr. D. R. Idler for the microanalyses.

(7) Dr. D. H. Hayes in a private communication stated that a crystalline sample of dicyclohexylammonium ribose-1-phosphate prepared enzymatically had $[\alpha]^{22}D$ +53° (*c* 0.519 in water). We are grateful to Drs. Hayes and Kalckar for a sample of their material.

(8) H. Klenow, *Arch. Biochem. Biophysics*, **46**, 186 (1953).

(9) A. Kornberg, I. Lieberman and E. S. Simms, *J. Biol. Chem.*, **215**, 389 (1955).

BRITISH COLUMBIA RESEARCH COUNCIL G. M. TENER
UNIVERSITY OF BRITISH COLUMBIA R. S. WRIGHT
VANCOUVER 8, B. C., CANADA H. G. KHORANA

RECEIVED DECEMBER 22, 1955

BOOK REVIEWS

Some Aspects of the Crystallization of High Polymers. BY G. SCHUUR, Member of the Staff of the Rubber-Stichting. Rubber-Stichting, Oostsingel 178, Delft, The Netherlands. 1955. 82 pp. 15.5 × 24 cm. Price, Five Dutch florins.

This short book (82 pages) is essentially a review paper of certain aspects of crystallization phenomena in high polymeric systems. The five chapters are concerned with: a general introduction; formation, structure and melting of spherulites; mechanism of crystallization; continuity of the crystal lattice, particularly in oriented and stretched polymers; rate phenomena and the melting range. The author refers frequently to papers published up to and including 1954, making this booklet quite up to date.

In addition to a thorough discussion of the published work on those topics selected, this book contains an appreciable amount of original material by the author. It is well organized and written. This reviewer was particularly taken by the beautiful microphotographs of spherulites taken with polarized light. The diagrams showing the growth of these spherulites are unusually clear.

This book is recommended to the attention of those interested in the crystal properties of high polymers. It is not at all complete, since the author addressed himself only to "some aspects," particularly those dealing with the natural rubber systems. For example, there is not a detailed discussion of the excellent, recent work on the crystalline high polymers. Therefore, within the limits which the author has set for himself, he has done an excellent job.

POLYTECHNIC INSTITUTE OF BROOKLYN
BROOKLYN 1, NEW YORK HARRY P. GREGOR

Dielectric Behavior and Structure. Dielectric Constant and Loss, Dipole Moment and Molecular Structure. BY CHARLES PHELPS SMYTH, Professor of Chemistry, Princeton University. International Chemical Series, Louis P. Hammett, Ph.D., Consulting Editor. McGraw-Hill Book Company, Inc., 330 West 42nd Street, New York 36, N. Y. 1955, x + 441 pp. 16.5 × 23.5 cm. Price $9.00.

In 1931, Professor Smyth gave us a book on dielectric constant and molecular structure, which provided a very timely and useful survey of a rapidly growing field of work. Since then there has been great progress in which he and his pupils have taken a leading part. He has now placed us further in his debt by writing a completely new book covering not only the original topic but also several others which have developed collaterally and concurrently.

It is now possible to write a more or less definitive book. Basic theory is not likely to develop very rapidly. The methods of applying dipole moment measurements to the elucidation of chemical problems are now standard; and much the same is true of the methods of using other properties