

TABLE II
VISCOSITY OF DNA

DNA concn., g./100 cc.	Solvent	η/η_0 capil- lary	s_0/s		
			BSV	T3	PSL
0.0023	0.3 μ KCl-cacodylate, pH 7	1.1	1.9
.023	0.3 μ KCl-cacodylate, pH 7	1.83	1.06	1.10 ⁵	1.6
.023	1.0 μ KCl-cacodylate, pH 7	...	1.08
.023	0.3 μ acetate, pH 4	1.99	1.10
.094	0.3 μ KCl-cacodylate, pH 7	...	1.21	...	32

^a Solvent was 0.3 μ phosphate, pH 7.

at a rate only slightly less than their rate in solvent. The results to date can be interpreted tentatively on the assumption that the thread-like molecules of DNA form a loose entanglement which permits T3 or BSV to pass through readily but slows down PSL.^{4,5}

More work is in progress to enable a more precise interpretation of the results with DNA and permit an evaluation of the various factors involved in order to test this ultracentrifuge method as a useful measure of viscosity.

(4) The diameters of PSL, T3 and BSV are about 2600, 150 and 300A, respectively.

(5) W. Kuhn, *Makromol. Chem.*, **6**, 224 (1951), has drawn similar conclusions for the structure of rubber based on viscosity determinations using diffusion of foreign particles of varying size.

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OCCURRENCE OF THE L-ARABINOSE UNIT IN SAPOTE GUM

Sir:

In all heretofore known instances when L-arabinose occurs as a component of polysaccharides the

furanoose ring structure prevails. Apparently this is not invariably the case, as is illustrated in sapote gum.¹ This polysaccharide forms slowly in the wounds made in the sapote tree following the flow of latex. It is a heteropolysaccharide composed of D-xylose, L-arabinose and D-glucuronic acid units.² The components resulting from methanolysis of the methyl ether derivative³ have been separated and one of these proves to be methyl 2,3,4-trimethyl-L-arabopyranoside. The free sugar and corresponding lactone have not been obtained in crystalline form, although the latter furnishes a well-characterized amide when treated with methanolic ammonia. The amide has m.p. 103^o⁴ and specific rotation +24^o (c, 1.5 in water at 20). With phenylhydrazine the lactone forms 2,3,4-trimethyl-L-arabonic acid phenylhydrazide, m.p. 156^o⁵ and not depressed upon admixture with an authentic specimen.⁶

When the free sugar is oxidized with nitric acid 2,3,4-trimethyl-L-araboglutaric acid is produced in good yield, identified through the corresponding ester as the crystalline diamide; m.p. 233^o,⁷ specific rotation +42.6^o (c, 3.5 in water at 20^o).

A report of the investigation of sapote gum is planned in a later issue of THIS JOURNAL.

(1) Probably from *Sapotaceae achras*.

(2) E. Anderson, *J. Am. Pharm. Assoc.*, **40**, 623 (1951).

(3) Prepared from the original gum by the Haworth method by four separate methylations with intermediate dialysis and concentration.

(4) J. Pryde, B. L. Hirst and R. W. Humphreys, *J. Chem. Soc.*, **127**, 356 (1925).

(5) F. Smith, *ibid.*, 747 (1939).

(6) Sample kindly supplied by Professor Smith.

(7) E. L. Hirst and G. J. Robertson, *J. Chem. Soc.*, **127**, 362 (1925).

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BOOK REVIEWS

Annual Review of Biochemistry. Volume 20. By J. MURRAY LUCK, Editor, Stanford University, HUBERT S. LORING, Associate Editor, Stanford University, and GORDON MACKINNEY, Associate Editor, University of California. Annual Reviews, Inc., Stanford, California. 1951. ix + 648 pp. 16 X 23 cm. Price, \$6.00.

The burden of maintaining contact with the contemporary chemical literature lies heavily on the teacher and on the investigator. *Chemical Abstracts* has been the traditional medium through which the chemist has kept in touch with affairs in his own particular field of interest. It continues to serve that purpose effectively. The difficulty is to find means to follow and comprehend the changing trends of ideas in areas outside the particular competence of the reader. This need for help in epitomizing the literature has been recognized particularly in the physiological field and has given birth to two new types of journal. One of these may be referred to as the "Recent Advances" type. It consists of the periodical publication of monographs on selected topics which are treated comprehensively and project contemporary ideas against the background of their development. It follows the pattern of Chemical Reviews and serves the same admirable purpose.

The second type of synoptic literature is the "Annual Review." This publication expects the reader to provide his own background for what can be little more than a pre-digest of Abstracts for the period under review. Annual Reviews is a guide to the library stacks rather than an arm-chair companion.

The Annual Review of Biochemistry is the oldest and best known of the Series. During the past 20 years it has given notable service to investigators, teachers and advanced students. Its purpose is evident from a glance at the pages of the 1951 Review. This volume contains 475 pages of text and 123 of bibliography, comprising some 4500 references. There are 23 chapters. The average chapter consists of 20 pages reviewing about 200 original papers. Through this fine sieve few significant contributions are likely to escape. On the other hand, there is little scope for critical analysis in so wide a coverage.

Many of the subjects are reviewed annually. These cover such fields as the Chemistry and the Metabolism of the Carbohydrates, the Fats, the Proteins, the Vitamins, and the Enzymes. The treatment of such recurring themes is inevitably staccato. To follow the trend of ideas the reader must often turn back to preceding volumes. A few reviewers do manage to avoid the compendium approach by reso-