The migration of the dyes with the solvent front was practically the same in solvent systems of identical components but of various concentrations.

Our experiments proved that, on using Whatman No. 1 filter paper with both the ascending and the descending technique, certain dyes (such as Crystal Violet, Rhodamine GGH, Rhodamine ZS, ethanol-soluble Nigrosine, Malachite Green, Sudan III) are suitable for marking front lines of nearly all the solvents used in paper chromatography.

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[1] T. MÜNZ, *Naturwissenschaften*, 41 (1954) 553.

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BOOK REVIEWS

Gas Chromatography (A Symposium held under the auspices of the Analysis Instrumentation Division of the Instrument Society of America, August 1957), edited by V. J. COATES, H. J. NOEBELS AND I. S. FAGERSON. Published by Academic Press Inc., New York, July 1958, 313 pp. Price $ 10.00; after October 1st, 1958, $ 12.00.

In a paper given at this Symposium, A. J. P. MARTIN pointed out: "the present position of gas chromatography... seems to be the rapid application of well-known methods to an infinity of problems", and the other 26 papers amply supported this statement. It is extremely valuable to hold formal and informal discussions between experts and beginners and also persons who may have only just realised the great potentialities of Gas Chromatography. This book provides a record of the papers presented and the formal discussions after each paper.

The papers can be divided into five main groups:

(i) Considerations of the Theory of Gas Chromatography,

(ii) The Application of Gas Chromatography Instrumentation in the Laboratory,

(iii) The Analysis of High Boiling Materials by Gas Chromatography,

(iv) The Application of Gas Chromatography to the Purification of Chemicals, and

(v) Gas Chromatography Instrumentation for Continuous Automatic Analysis.

Three papers in particular may be mentioned for their probable influence in the future. The first by GOLAY is entitled "Theory and Practice of Gas-Liquid Partition Chromatography with Coated Capillaries". The technique described will probably become widely used for the achievement of very high resolution or very short analysis time, provided that a small sample and a sensitive detector are used. The second paper by PHILLIPS on "Gas Chromatography Instrumentation for the Laboratory" describes the use of metal salts, *e.g.* zinc stearate, as column liquids. Highly specific retardation of solutes can be achieved with these metal salts and this principle can be applied to many analytical problems. These studies should be of interest as a model for work at

very high column temperatures (above 500°) for which purely inorganic metal salts may soon be used as column liquids. The third paper by FELTON on "A Novel High Temperature Gas Chromatography Unit" describes a simple and low-cost apparatus which can be operated under vacuum or pressure at over 500°, and which should be extremely useful for the analysis of high boiling liquids and solids.

This book has a comprehensive bibliography of 442 references to the middle of 1957, but it is unfortunate that in the interval between the completion of the bibliography and the present date there are now double the number of references. The book contains some considerations and recommendations on Standard Nomenclature for Gas Chromatography, and has author and subject indexes, the latter of which is too rarely found in books of this type.

The printing and illustrations are of a good standard but there are a number of small errors which should have been corrected at an early stage, *e.g.* p. ix, gas-lipid; p. 30, ref. 11, Grob not Grab; etc.

The book can be recommended not only to specialists for its useful details of new developments but also to beginners who will benefit from careful reading of many of its papers.

C. J. HARDY (Harwell)

La chromatographie, par L. SAVIDAN. Monographies Dunod, Paris, 1958, 109 pages, 32 figs., 70 références.

Cette petite introduction à la chromatographie débute par un exposé théorique relativement important (¼ de l'ouvrage), suivi d'une description succinte des procédés de partage sur colonne et sur papier, ainsi que des appareils nécessaires.

Les applications de la chromatographie en chimie organique et en chimie minérale sont ensuite effleurées dans deux courts chapitres (contenant 45 références bibliographiques au total).

Cet ouvrage est trop peu documenté pour être utile au praticien. Seuls, des étudiants désirant s'initier aux principes de la chromatographie tireront parti de sa lecture. On peut d'ailleurs regretter que l'auteur n'ait pas songé à indiquer, pour ceux de ses lecteurs qui désireraient continuer plus avant l'étude des techniques chromatographiques, quels sont les traités complets qui font actuellement autorité dans ce domaine.

E. D.

NEW BOOKS

Preparation of Single Crystals, by W. D. LAWSON AND S. NIELSON. (Butterworths, London, and Academic Press, Inc., New York, 1958), 255 pages, price 45 s.

Steric Effects in Conjugated Systems, edited by G. W. GRAY. Proceedings of a symposium held at the University, Hull, 15–17th July 1958, by the Chemical Society. (Butterworths, London, and Academic Press, Inc., New York, 1958), price 30 s.