

Progrès récents de la Chromatographie, première partie: *Chimie organique et biologique*,
EDGAR LEDERER, Hermann & Cie, Paris 1949, 146 pp., broché, francs français 900.

Nul parmi les chimistes français ne pouvait être plus qualifié que E. LEDERER pour exposer les progrès récents (1939-1949) de cette technique si souple et si fructueuse qu'est la chromatographie. La première partie de son ouvrage, seule parue à l'heure actuelle (Juillet 1950) est plus particulièrement consacrée aux applications des diverses formes de la chromatographie à la séparation des substances qui intéressent le biochimiste et le chimiste organicien. Après avoir brièvement indiqué (Chap. I) les diverses modifications subies par la méthode originale de TSWETT: élution par des solvants appropriés, introduite par REICHSTEIN et ses collaborateurs, analyse frontale, due à TISELIUS et à ses collaborateurs, chromatographie de partage de MARTIN ET SYNGE, chromatographie sur papier de CONSDEN, GORDON ET MARTIN, l'Auteur décrit sommairement (Chap. II) les divers appareils actuellement en usage et indique (Chap. III) la nature des adsorbants utilisés, en donnant la préparation des principaux d'entre eux; il indique également la nature et les principales propriétés des nombreux solvants mis en oeuvre pour les éluions (Chap. IV). L'Auteur discute ensuite (Chap. V), en restant dans le domaine expérimental, les relations existant entre constitution chimique et comportement au cours de la chromatographie, en distinguant entre adsorption vraie, chromatographie de partage et fixation par échange d'ions. Il montre ensuite (Chap. VI) comment on peut réaliser la chromatographie de substances incolores, soit en transformant celles-ci en substances colorées, soit en ajoutant des indicateurs colorés ou des substances fluorescentes à la colonne de l'adsorbant, soit en utilisant la méthode du pinceau. Ayant ainsi passé en revue les diverses modalités de la chromatographie, E. LEDERER en décrit les applications faites au cours de ces dernières années; c'est là (Chap. VII) la partie la plus importante de l'ouvrage: y sont passées en revue les séparations des hydrocarbures, alcools, aldéhydes, cétones, acides organiques, substances azotées, soufrées ou halogénées diverses, colorants synthétiques, sucres, lipides, acides aminés, peptides et protéines, bases puriques et pyrimidiques et nucléosides, pigments naturels, vitamines, hormones, antibiotiques, et aussi la séparation des stéréoisomères. Le Chap. VIII donne quelques exemples des réactions secondaires provoquées par certains adsorbants, réactions qui jouent parfois un rôle important, en particulier dans le cas de l'alumine. L'ouvrage, en tête duquel se trouve une chronologie des grandes étapes de la chromatographie, se termine par une intéressante biographie de MICHEL TSWETT. Des courbes et des tableaux, des figures d'appareils contribuent à la clarté du texte; enfin, une importante bibliographie, comportant près de 600 références, complète l'ouvrage.

Il est étonnant de constater combien en 120 pages l'Auteur a pu condenser de faits essentiels et de descriptions précises. Le travail de E. LEDERER vient ainsi, avec bonheur, prendre la suite d'exposés plus anciens, faits sur la même question et devenus caduques du fait de la rapidité de l'évolution des techniques chromatographiques et de leurs applications. Nul doute que cet excellent ouvrage ne rende les plus grands services aux nombreux chercheurs qui utilisent ces techniques, et qui seront heureux d'avoir ce guide précieux sur leur table de travail.

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Annual Reports on the Progress of Chemistry for 1948, issued by the Chemical Society.
Vol. XLV, London 1949, 379 pp., 25s.

Annual Reports on the Progress of Chemistry for 1949, issued by the Chemical Society.
Vol. XLVI, London 1950, 333 pp., 25s.

Vol. XLV. As usual, this report gives a review of many topics of the day. The chapters dealt with under the heading "Biochemistry" are 1. Introduction (C. RIMINGTON); 2. The function of small molecules in biosynthesis (R. BENTLEY); 3. Partition chromatography (A. J. P. MARTIN); 4. The chemistry of insulin (F. SANGER); 5. The chemotherapeutic approaches to the T.B. problem (G. BROWNLEE). Especially part 2 gives a review of many interesting investigations using the tracer technique. The metabolic activity of glycine, the biosynthesis and metabolism of purines, the biosynthesis of porphyrins, the function of acetic acid and the utilisation of carbon dioxide in biosynthesis are extensively dealt with. The part on partition chromatography treats this subject from a theoretical and from a practical point of view. Use of radio-isotopes, separations effected by paper chromatograms, quantitative analysis of amino-acids, separations of carbohydrates, nucleotides, etc. are discussed. Part 4 gives a review of the chemistry of insulin. It does not deal with the physiological aspects. The relation between structure and physiological activity is, however, discussed. It now seems certain that insulin is a protein composed of amino-acids only, and almost complete analyses

of the amino-acids present have been published. In part 5, the chemotherapeutic approaches to the T.B. problem, the chemical composition of the tubercle bacillus and the biological activity of its components are discussed but also the methods, chemotherapeutic and antibiotic, for the elimination of the parasite; this part composes a review of 217 publications relating to these subjects.

In the chapter on organic chemistry the parts on terpenes (S. H. HARPER) and on the complex chemistry of the alkaloid colchicine (J. D. LOUDON) will certainly interest a biochemist, as will also the part on general methods (B. C. SAUNDERS) in which attention is drawn to many new methods of synthesis.

Vol. XLVI. The chapter on biochemistry is somewhat smaller than in the foregoing volume. W. F. J. CUTHBERTSON discusses the haemopoietic factors folic acids and vitamin B₁₂ and R. A. MORTON carotenoids, vitamin A and visual pigments; in the latter article, the reviewer's attention fell especially on the sections dealing with the biochemical roles of carotenoids and on the biochemical aspects of vision.

The chapter on organic chemistry, however, contains more of biochemical interest. A review is given of general methods (A. W. JOHNSON) available to the synthetic chemist, of long-chain aliphatic compounds (R. E. BOWMAN) in which many compounds of biochemical interest are dealt with, and of vitamin A and related compounds, describing among other things the syntheses of vitamin A and its analogues. H. N. RYDON describes the progress made after 1944 in the field of the amino-acids and A. W. JOHNSON in the field of many important alkaloid groups. M. V. TRACEY presents an interesting essay on proteins which have not been reviewed in these reports since 1937.

This and the foregoing volume are certainly up to the highest standard set by the Chemical Society for these reports and they are a very fine introduction to the modern literature, but only if one is lucky enough to find the subjects of his interest dealt with. For, although their title is *Annual Reports on the Progress of Chemistry*, it is the progress of selected capita which is described. It is, however, understandable that it is no longer possible to describe the progress of the whole of chemistry in a book of this size, and that subjects are chosen which are in the focus of interest. As a result the book remains very readable, which it would not be if it were simply an abstract of the *Abstracts*.

J. VAN ALPHEN (Delft)

Chimiothérapie des Maladies à Bacilles Acido-résistants, by M. CHAMBON, Professeur à la Faculté de Médecine et de Pharmacie de Lyon. 98 pages, 380 Fr., Masson et Cie., Paris, 1950.

In this little volume Professor CHAMBON has summarized recent progress in the chemotherapy of the main pathogenic mycobacteria (alcohol-acid-fast bacilli), i.e. the causative agents of human, bovine and avian tuberculosis, of human and rat leprosy, and of JOHNE'S disease in cattle and sheep. The paratubercle bacilli are excluded because of their doubtful pathogenicity (though attention is drawn to the recent demonstration of the pathogenic nature of *M. smegmatis* in mice). The work is divided into three sections: 1. a very brief résumé of methods of assessment of chemotherapeutic agents in experimental and human mycobacterial diseases; 2. a valuable main section, giving the properties of synthetic drugs and antibiotics which have been claimed to be active *in vivo*, or which hold promise of further development, accompanied by interesting descriptions of the stages leading up to the discovery of some of them; 3. a rather sketchy section on clinical applications, particularly of streptomycin and dihydrostreptomycin, *p*-aminosalicylic acid (PAS), the sulphones, thiosemicarbazones, and calciferol in tuberculosis, and the sulphones and chaulmoogra oil and its derivatives in human leprosy (JOHNE'S disease is dismissed in a few lines since there is still no clinical chemotherapy of proved value).

The skilful presentation of the essentials of the subject in sensible perspective permits this book to be recommended for the interested non-specialist or student; clinical detail is insufficient for it to be a practical guide to the clinician. A few criticisms and suggestions may be made. It would be well to advise discontinuance of the use of rapidly growing strains of so-called tubercle bacilli for *in vitro* testing, since they are probably not true *M. tuberculosis* (p. 4); the effectiveness of 2-butoxy-5-aminopyridine has not been confirmed by recent work (p. 34); the fascinating stages by which the thiosemicarbazones (p. 34) were discovered to be anti-tuberculous might have been included, and their serious toxicity in man would be better discussed in the section on clinical applications; more space might have been allotted to streptomycin-resistance and no mention is made of the recent discovery of its prevention by combination with PAS (p. 64); with a large number of references a few errors usually creep in, but incorrect spelling or incompleteness in the names of authors are irritatingly numerous.

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