Additions and Corrections

1975, Volume 18

E. J. Warawa, N. J. Mueller, and Jonas A. Gylys: Quinuclidine Chemistry. 3. β-*cis*-2-(4′-Chlorobenzhydryl)-3-quinuclidinol, a New Central Nervous System Stimulant. Importance of the Benzhydryl Configuration.

Page 73. The first complete sentence in the left column should read as follows. At the highest dose tested in blood pressure studies 2β (5 mg/kg iv) and methylphenidate (4 mg/kg iv) failed to produce a significant effect (>10%) while *d*-amphetamine at 0.1 mg/kg iv caused a 30% increase.

L. J. Schaad, R. H. Werner, Lynn Dillon, Lamar Field, and C. Emory Tate: Linear Regression Analysis of Inhibitory Potency of Organic Disulfides against *Histoplasma capsulatum*.

Page 348. In Table II, the structure for group no. 34 should be $-C(O)C_2H_5$.

Page 349. In Table III, the heading for the right half should be Groups for Outer Positions X_1 and X_4[c].

G. R. Gapski, J. M. Whiteley, J. I. Rader, P. L. Cramer, G. B. Henderson, V. Neef, and F. M. Huennekens: Synthesis of a Fluorescent Derivative of Amethopterin.

Page 527. In the last line of Table I, the K_m values are reversed. The correct values for the K_m, MTX are 1.3 μ*M* (L1210) and 0.35 μ*M* (*L. casei*).

Pannalal Kole, Suprabhat Ray, Ved P. Kamboj, and Nitya Anand: Studies in Antifertility Agents. 11. Secosteroids. 5. Synthesis of 9,11-Secoestradiol.

Page 766. The melting points for compounds 11 and 12 have been interchanged. The melting point for compound 11 should be 146° and for compound 12, 195°.

Book Reviews

Advances in Pharmaceutical Sciences. Volume 4. Edited by H. S. Bean, A. H. Beckett, and J. E. Carless. Academic Press, London. 1974. 444 pp. 16 × 23.5 cm. $35.00.

The volume is made up of four different subject areas that shall be considered individually in this review. The first area is the "Rheology of Pharmaceutical and Cosmetic Semisolids" by B. W. Barry in which the basic theme is that traditional rheological studies of semisolids do not recognize the viscoelastic nature of these systems. Traditional studies assume that semisolids are merely anomolous liquids while the viscoelastic approach treats semisolids as materials having both liquid and solid properties, hence the term viscoelastic. The author develops the viscoelastic approach using soft paraffins and their formulations, ternary systems, and o/w emulsions as examples. Mathematical treatments are not stressed resulting in increased readability, simplicity, and permits space to develop the general concepts involved and the usefulness of the approach. The chapter does require some elementary knowledge of pharmaceutical rheology on the part of the reader. Traditional rheological studies (continuous shear analysis) are covered using well-chosen examples illustrating the nature of rheograms and the information derived from them. Most of the chapter deals with the viscoelastic approach and has sections on the nature of viscoelastic behavior as well as the analysis of semisolid rheology using both creep and oscillatory methods and their mathematical interconversion. The subject is very well developed including a description of instrumentation, experimental procedures, and analysis of data. It is in the analysis of data that one really begins to appreciate the advantages of the viscoelastic approach in that the physical behavior of semisolids can be viewed and possibly explained at a molecule interaction level. The author includes a protocol that he uses when examining semisolids that can be used by academic workers or by a research and development technologist who must meet a production deadline. The application of the viscoelastic approach to biological materials (sputum, blood, synovial fluids) is an exciting prospect for the future although more baseline studies must first be developed.

The second chapter, "Determination of Thermodynamics of Functional Groups in Solutions of Drug Molecules", is written by S. S. Davis, T. Higuchi, and J. H. Rytting. This chapter deals with the concepts and the application of the group contribution approach to pharmaceutical sciences with particular attention to drug activity. The chapter clearly demonstrates the potential of the concept and clearly identifies the significance of thermodynamics in pharmacy. There is a section involving a brief review of equilibrium thermodynamics including a discussion of standard states and the authors' view on the use of the "proper" standard state. Another section deals directly with the group contribution approach including a detailed historical review and the application of the group concept to activity coefficients, solubility, partition coefficients, and other thermodynamic parameters. Partition coefficients are reviewed in particular detail with a discussion and comparison of the approaches made by Hansch and his group with those of Higuchi and his associates. This section as well as others contains numerous listings of group constants. Other sections of the chapter deal with the experimental determination of thermodynamic parameters from which group constants are derived and an extensive collation of group contribution values for the functional groups: methylene, methyl (which can be quite different than the methylene), branching, double bonds, ring compounds, halogens, and various polar groupings. The last large section of the chapter deals with applications of the group contribution approach and hydrophobic interactions to the understanding and prediction of structure–activity relations, drug–receptor interactions, protein conformation, chromatographic behavior, drug metabolism, surface activity (HLB, adsorption, etc.), drug transport, ion pair systems, complexation, and ion-specific electrodes. Hydrophobic interactions are treated briefly while structure–activity relations are considered in detail. It is clear that the authors feel that it is through the application of thermodynamics that a true understanding of drug action will be reached. This is a view not apparently shared by Hansch. The chapter is long (188 pp) and utilizes about 500 references but it is worthwhile reading.

The third chapter, "Radiopharmaceuticals", by D. E. Lovett provides an overview of the use of radiopharmaceuticals. It does not deal with any subject in depth but it can represent a recommended reading for interested persons or students taking a course in radiopharmacy. The first section is introductory containing definitions, rationale for the use of radiopharmaceuticals, types of radiation, methods of production, radiation hygiene, and the relevant contents of the British Pharmacopoeia. The second section covers materials supplied by manufacturers and outlines their use