problems such as drug degradation, microbiological growth (2), protein dilution (3), and lipolysis (4).

5. When spiking the buffer side is desirable, establish the time to equilibrium for the system with the smallest expected α value. The smallest α values do not always occur with healthy adult plasma. For example, the interaction of cationic drugs with α_1-acid glycoprotein increased in certain disease states and under various stress conditions (5, 6). When spiking plasma under these conditions, the apparent α value would be smaller than the true equilibrium value, whereas the opposite would occur when spiking the buffer side.

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Received March 17, 1982.
Accepted for publication May 24, 1982.

BOOKS

REVIEWS

The Peptides. Analysis, Synthesis, Biology. Vol. 4. Edited by ERHARD GROSS and JOHANNES MEIENHOFFER. Academic, 111 Fifth Ave., New York, NY 10017. 1981. 309 pp. 15 × 23 cm.

The first three volumes of *The Peptides* were devoted to the methodology concerning the synthesis of peptides. The fourth volume is the first of several volumes planned, according to the editors, dealing with the analytical aspects of peptides. The fourth volume eminently succeeds in reaching the high standards set for it by its predecessors.

The six chapters are divided evenly among the physical and chemical methods for peptide–protein-structure determination. Of those concerned with the physical methods, the first two focus on the crystal structure analysis by X-ray studies. In the first chapter, I. L. Karle discusses the crystal structures of linear and cyclic peptides containing 2 to 15 peptide units. Several useful generalizations are mentioned; for example, "4 → 1 H-bonds begin to appear in cyclic hexapeptides" and "the possibility for several different conformations assumed by the same compound arises starting with the cyclic heptapeptides." The author has made liberal use of tables and figures, which also list pertinent references.

J. Gunning and T. Blundell present in Chapter 2 a crystal structure analysis of the larger peptide hormones. The crystal structures of insulin (A-chain, 21 residues; B-chain, 30 residues), glucagon (29 residues), and the pancreatic polypeptide (36 residues) have been determined. On the basis of the known homology with the amino acid sequence of insulin, the structures of proinsulin and relaxin have been proposed and are discussed.

The chiroptical method for the determination of the absolute configuration of α-amino acids and small peptides is the topic of Chapter 3 by V. Toome and M. Weigle. The chiroptical properties of both the free α-amino acids and of the free oligopeptides, as well as of their metal complexes and chromophoric derivatives, are discussed.

In the fourth chapter, S. Stein describes the technique of peptide and protein-analysis at the picomole level employing HPLC and fluorescence spectrophotometry. The combination of HPLC and fluorescence detection raises the possibility of determination of peptides and proteins in tissues and organs of individual animals. This combination of techniques has also been employed for the determination of the amino acid sequence.

Chapter 5, by J. R. Benson, P. C. Louie, and R. A. Bradshaw, deals with the single-column amino acid analysis of peptides. For the purpose of discussion, the authors have divided the amino acids into four categories according to whether they are (*a*) normally found in proteins, (*b*) formed *in vivo* from the first group by post- or cotranslation, (*c*) formed by chemical modification from Group 1, or (*d*) nonprotein amino acids. Several protocols are given for the separation of these amino acids.

R. A. Laursen in Chapter 6 probes in exquisite detail the solid-phase sequencing technique, which would help overcome problems (such as overlap, increased-background, amino-terminal blocking) experienced with the Edman method.

Both the editors and the authors are to be congratulated for the excellence of this volume, which is a must for those concerned with any and all aspects of proteins and peptides, and for those contemplating a start in this area of research.

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Medicinal Chemistry VI (Proceedings of the 6th International Symposium on Medicinal Chemistry). Edited by M. A. SIMKINS. Wiley, 605 Third Ave., New York, NY 10016. 1979. 477 pp. 16 × 24 cm. Price $94.00.

Medicinal Chemistry VI is a collection of papers presented at the 6th Internation Symposium on Medicinal Chemistry held in Brighton, England in 1978. They were chosen for this volume by the members of the Society for Drug Research and cover a wide range of interests, many being a blend of chemistry, biology, biochemistry, and medicine. The majority of the papers are based on disease states while others discuss theoretical concepts relating to substrate–receptor interactions or predicting activity of molecules based solely on structure.

This volume is divided into plenary lectures and symposium papers. The plenary lectures are given by Dr. Linus Pauling, who speaks of "orthomolecular medicine," a new concept in treating diseases, which he defines as the achievement and preservation of the best of health and the prevention and treatment of disease by using substances (right molecules in the right amounts) that are normally present in the body; professor Sir John Cornforth provides the reader with a greater awareness of