**Peptides: Design, Synthesis and Biological Activity**. Channa Basava and G. M. Anantharamaiah (eds). Birkhauser, Boston–Basel–Berlin. 1994. pp 308. Price not available.

Almost a century has passed since Emil Fischer recognized the polypeptide nature of proteins and, together with Theodor Curtius, described the first chemical synthesis of peptides. After a long lull in the early decades of this century, the introduction of the benzyloxycarbonyl (Z) protecting group by Max Bergmann and Leonidas Zervas in 1932 and Vincent du Vigneand's triumph over oxytocin marked the high points of peptide research. The 1950s saw the introduction of dicyclohexylcarbodiimide as a condensing agent by John Sheehan, marking the beginning of a heroic phase of solution phase synthesis, involving painful building of long sequences by many stages of protection, deprotection and coupling. Peptide chemistry of the 1950s and 1960s was characterized by immense experimental labour, drudgery which was unrelieved by the perceived intellectual challenges of synthesizing more irregular organic molecules. Unsurprisingly, peptide research moved further from the centre-stage of organic chemistry by the end of the 1960s, to become a quiet backwater at the interface of organic chemistry and biochemistry.

The explosive growth of biological research in the last two decades, the recognition of the enormous diversity of the biological actions of peptides, the invention of the solid-phase synthesis strategy by Bruce Merrifield and the development of immensely powerful analytical and structural methods has led to a spectacular renaissance of peptide research in recent years. In India, there were relatively few practitioners of peptide synthesis 25 years ago, with the groups of M. M. Dhar and K. B. Mathur at the Central Drug Research Institute, Lucknow, and K. M. Sivanandaiah at Bangalore University ploughing a lonely furrow. The latter group has contributed most significantly to developing synthetic methodology and in applying novel methods to a range of biologically active sequences. Sivanandaiah's research over a period of a quarter of a century is a shining example of how even difficult research can be accomplished with the most modest facilities. The volume under review is a tribute to Sivanandaiah's dedication and is testimony to the high quality of students who passed through his laboratory. The editors, who were both students at Central College, have done a marvellous job in assembling an international cast of authors, providing a timely volume, covering a range of topics central to contemporary peptide research.

Appropriately, the section of peptide synthesis and methodology opens with an overview by Arno Spatola on catalytic transfer hydrogenation, a reaction introduced into peptide chemistry by Sivanandaiah and his collaborators in the 1970s. The other contributions in this section address the topics of synthesis of natriuretic peptides (Yajima), cyclic peptides on solid phases (Barany), enzymatic synthesis of growth-hormone-releasing factor (Felix) and glycopeptides (Kunz).

The section on peptide design has some outstanding contributions: bioelastic materials (Urry), synthetic models for apolipoproteins (Segrest and Anantharamaiah) and *de novo* engineering of antigenic peptides (Kaumaya and Stevens). Edwin Blalock describes the controversial molecular recognition theory, for designing complementary peptides using antisense sequences, in an article which should stimulate much future research. Peptide hormones and other biologically active sequences constitute the last two sections of the book. Contributions include studies on oxytocin antagonists (Hruby), calcitonin (Channa Basava), $Ca^{2+}$–hormone interactions (Anantharamaiah), peptide binding to lipids and membranes (Epand) and regulation of HIV gene expression by the viral proteins Tat and Rev, probed using synthetic peptides (Khan).

Overall, there is a nice blend of topics in this well-produced book, which should please most peptide chemists and, of course, Prof. Sivanandaiah, for whom this is a *festschrift*. A criticism, which is probably applicable to many multiauthor volumes, is that there is considerable unevenness in the contributions. The longer articles make their points but some short contributions have little scientific value. The index could have been better, but the volume is small enough (300 pages) to allow browsing around for interesting titbits. For those who worry about the decline of research in Indian Universities, the present volume should provide relief since its genesis is in the excellent work carried out at Central College.

P. BALARAM

*Molecular Biophysics Unit*
*Indian Institute of Science*
*Bangalore 560 012, India*

Edited and published by Prof. S. Ramaseshan and Prof. P. Balaram, Current Science Association, Bangalore 560 080.
Typeset by R D Typesetters, Bangalore 560 010. Printed by Lotus Printers, Bangalore (Ph: 3380167).