comprehensive bibliography which provides ready access to more detailed material.

The second chapter, which certainly could have been better presented, deals with the biogenesis of the penicillins and cephalosporins and includes useful sections on penicillin acylases and the "semisynthetic" penicillins and cephalosporins. Particularly poor features, so far as students are concerned, are the complete lack of stereoformulae and the portrayal, in Figs. 2, 3, 5 and 7, of sequences of biochemical conversions solely by use of the names of the compounds involved. The presentation of formulae with individual asymmetric centres labelled D or L is no substitute for proper stereoformulae in the portrayal of absolute configuration, and structural formulae are essential for instant appreciation of chemical changes. Closer attention could have been given to analogy in organic chemistry of the reactions involved in the biosynthesis of the penicillins and cephalosporins, and the statement that cephalosporin P appears to be of steroidal nature in terms of a 1957 reference reveals a lack of breadth in literature coverage.

A better presentation is evident in the third chapter which covers the biogenesis of the tetracycline group. Here, as in the fourth chapter which deals with the biosynthesis of streptomycin, with very little mention of antibiotics chemically similar to streptomycin, stereoformulae are given, and due attention is paid to possible reaction mechanisms in the biogenetic pathways.

The fifth chapter seems completely out of place in this work, for it is concerned with a broad review of polyacetylene biogenesis with no apparent relevance to any specific antibiotics. Moreover, the introductory text which states that polyacetylenes have two main taxonomic loci in higher plants, of which only one is mentioned by name, is poorly married to Table 1 which shows four major loci, with the result that only an expert botanist could gain much from the discussion of the distribution of acetylenic compounds in Nature.

The sixth chapter, which deals with the macrolide antibiotics, is perhaps the best chapter in the book, with a good balance between biochemistry and reaction mechanism.

In summary, the book is rather uneven, and while it will serve as a valuable source of references in the library to workers in various biological fields it does not appear to be a book to inspire private purchase by graduate students or university staff members.

M. MARTIN-SMITH

OBITUARIES

Dr S. B. Challen

STEPHEN BENJAMIN CHALLEN died at his home in Havant, Hampshire, at the age of 42. Educated at Queen Elizabeth's School, Blackburn, and the Blackburn Technical College, he served his pharmacy apprenticeship during the Second World War, and graduated from the University of London School of Pharmacy in 1947. After two years national service with the Royal Air Force he was appointed assistant lecturer at the School of Pharmacy and subsequently became a lecturer in 1951. He spent a year as visiting professor of pharmacognosy at the University of Saskatchewan and was appointed head of the School of Pharmacy at Portsmouth College of Technology on April 1, 1964.

Dr Challen was a pioneer in pharmacy education and was secretary, president and organizing secretary of the British Pharmaceutical Students' Association, and associated with the formation of the International Pharmaceutical Students' Federation. He had gained in 1952 a special degree in botany by part-time study; and his researches on the chemical constituents of plants and the retention of pesticides on leaf surfaces reflected his interest in botany. His achievement in revitalizing the Portsmouth school and developing Council for National Academic Awards degrees and strong research groups represents his major work, and the future of the school based on the firm foundation which he laid will provide his best memorial. His death is a sad loss to pharmacy and to pharmaceutical education in particular.

W. DAVEY

Professor Richard S. Schweet

RICHARD S. SCHWEET was killed in an air crash on April 3, 1967, at the age of 48.

He graduated BS at City College, New York, in 1938, and MS at Iowa State College in 1941. After military service during the Second World War he continued his research studies and graduated PhD in 1950. For the next two years he was a research fellow with D. E. Green at Wisconsin where he studied the properties and functions of pyruvic oxidase. He then moved to California Institute of Technology where he worked in the laboratory of H. Borsook, holding a senior fellowship from 1953 until 1958. During this period he initiated his studies on protein biosynthesis which he actively pursued until his premature death. In this field, which has moved forward extremely rapidly during the past decade, Schweet made many major contributions and was consistently at the forefront of ideas.

In 1958 he reported studies in which the soluble system for incorporation of amino-acids into RNA was resolved into an activating enzyme fraction and an RNA acceptor. His experiments supported the earlier proposal that there is a specific activating enzyme for each amino-acid and provided evidence that there is a specific RNA acceptor for each amino-acid. This was an important point in establishing that soluble RNA fulfilled the role of an adaptor molecule.

Later in the same year Schweet (with H. Lamfrom and E. Allen) reported the synthesis of haemoglobin in a cell-free system prepared from rabbit reticulocytes. This system provided the first example of the cell-free synthesis of a known soluble protein and its use has facilitated the elucidation of many aspects of protein synthesis. Studies, in collaboration with J. Bishop and J. Leahy (in 1960), using the reticulocyte cell-free system led to the conclusion that the peptide chain is synthesized sequentially from the amino terminus.

In 1960 Schweet went to the University of Kentucky Medical Center as full professor in the new department of biochemistry headed by Dr G. W. Schwert. There, with a series of collaborators, he studied many aspects of protein biosynthesis, including the role of transfer RNA, the steps involved in the transfer of amino-acids from amino-acyl RNA into protein, the functioning of polyribosomes and the action of various inhibitors of protein synthesis.

In 1964 Schweet published (with R. Arlinghaus and J. Shaeffer) important evidence showing that peptide chain growth occurs by the alternate action of two transfer enzyme fractions. The first fraction, requiring guanosine triphosphate, appears to function in the binding of amino-acyl RNA to the ribosome and the second (peptide synthetase) catalyses the formation of the peptide bonds as each amino-acid is added sequentially to the chain.

During 1965 Schweet left the department of biochemistry to become chairman of a new department of cell biology, and much of his time during the past two years was devoted to that venture. He served on grant reviewing committees for the National Institutes of Health and it was in this role that he undertook the fatal flight to Colorado. In the scientific world he will be especially missed by those who had the pleasure of collaborating with him and learning from him, and who thereby shared his warm friendship.

A. R. WILLIAMSON