

## CONTENTS

<b>CHAPTER 1</b>	<b>AMINO-ACIDS</b>	
1	Naturally Occurring Amino-acids	1
2	Chemical Synthesis and Resolution of Amino-acids	3
3	Physical and Stereochemical Studies of Amino-acids	15
4	Chemical Studies of Amino-acids	19
5	Analytical Methods	26
<b>CHAPTER 2</b>	<b>STRUCTURAL INVESTIGATION OF PEPTIDES AND PROTEINS</b>	
I.	Primary Structures and Chemical Modification	
1	Introduction	31
2	The Methodology of Amino-acids Sequence Determination	32
3	Structural Proteins	68
4	Peptides and Hormones	82
5	Enzymes	87
6	Immunoglobulins	104
7	Chemical Modifications of Proteins	108
II.	Secondary Structures	
1	Introduction	112
2	Infrared	114
3	Optical Rotatory Dispersion and Circular Dichroism	115
4	Nuclear Magnetic Resonance	120
5	Hydrogen Exchange	123
6	Conformational Probes	124
7	Theoretical Approaches to Peptide Conformation	127
8	The Conformations of Small Peptides	130
9	Cyclic Peptides	132
10	Polyamino-acids: Studies in Non-aqueous Solution	137
11	Polyamino-acids: Studies in Aqueous Solution	139
12	Copolymers	142
13	Sequential Polypeptides	143
14	The Helix-Coil Transition	145
15	Some Conformation Aspects of proteins	148
16	Recent Applications of Physical Methods to the Study of Protein Conformations	150

III.	X-Ray Analysis	
1	Oligopeptides: Glycylglycine (x-Form)	154
2	Globular Proteins	154
3	Fibrous Proteins: Muscle	172
<b>CHAPTER 3</b>	<b>PEPTIDE SYNTHESIS</b>	
1	Introduction	174
2	Methods	175
3	Syntheses Achieved	201
4	Appendix: List of Syntheses Reported in 1968	205
<b>CHAPTER 4</b>	<b>PEPTIDES OF ABNORMAL STRUCTURE</b>	
1	Introduction	211
2	Cyclic Peptides	212
3	Depsipeptides	219
4	Peptides and Amino-acids linked to Nucleosides and Nucleotides	28
5	Peptide-Carbohydrate Linkages	230
6	Peptide Alkaloids	239
7	Peptides and Amino-acids Conjugated to Lipids	242
8	Amino-acids and Peptides Conjugated to Steroids	245
9	Peptide Analogues	245
10	Miscellaneous	247
<b>CHAPTER 5</b>	<b>THE RELATIONSHIP BETWEEN THE STRUCTURE AND BIOLOGICAL ACTIVITY OF SOME PEPTIDES AND PROTEINS (EXCLUDING ENZYMES)</b>	
1	Introduction	249
2	Immunoglobulin (IgG)	250
3	Insulin	256
4	Oxytocin and the Vasopressins	258
5	The Biological Role of Adenosine-3',5'- monophosphate (Cyclic AMP)	259
6	Hormone Receptors	260
<b>CHAPTER 6</b>	<b>METAL DERIVATIVES OF AMINO-ACIDS, PEPTIDES, AND PROTEINS</b>	
1	Introduction	262
2	Amino-acids	262
3	Peptides	275
4	Proteins	284
5	Metalloproteins	288
	Author Index	294