Preface

This book is a collection of chapters examining various facets of the formation of three-dimensional structure in proteins. While it is true that the coauthors all have expertise in their own areas, we have not attempted to write the definitive, comprehensive work. Instead, we have tried to show, in rather brief summaries, our individual views and broad perspectives on a few facets of this problem. I suspect that we all share the view that folding is a critical, early function in the life history of a protein. The reader is not likely to learn here the exact definition of a protein domain, or the final word on folding mechanisms, or whether a large fraction of temperature-sensitive mutants are folding mutants. These problems and many others are under active investigation, and we hope to convey to our readers some sense of why these are important questions and to provide a biological and chemical context for such questions.

The present volume has grown out of a symposium at the meeting of the AAAS in Washington, D.C., January, 1982. The colloquium itself was organized by Jonathan King, who selected the group of speakers. When the AAAS Publications Office made inquiries about the possibility of publishing the proceedings, Jonathan forwarded the inquiry on to me, with some words of encouragement. My first reaction was that there are already too many publications of proceedings of meetings. On some reflection, however, it occurred to me that this might be turned into an opportunity to bring together a number of really diverse facets of the protein folding problem. I suggested to the AAAS that I was thinking of adding chapters to expand the range of topics beyond those presented in the symposium. They liked the idea. Tack Kuntz and Sherman Beychok were agreeable to my suggestion that they write chapters relating to their own areas of recent research. It also occurred to me that here would be

the place to reprint a paper by H. R. Crane, first published in 1950. I have long admired this paper for its clear presentation of important general arguments about biological structures and assembly processes. So much of what Crane logically inferred, before the facts were known, has proven correct. The paper deserves to be much better known. I had also thought to have a chapter on kinetic analyses of folding, but the recent review of that topic by Baldwin and Kim (Annu. Rev. Biochem. 51, 1982) has diminished that need.

I am grateful for the cooperation and patience of the coauthors, whose only reward was the opportunity to write introductions to their topics for nonspecialist readers. I also greatly appreciate the encouragement and assistance of Joellen Fritsche of the AAAS Publications Office. The secretarial skills and patience of Mrs. Betty Painter were invaluable in this enterprise.

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