The Genetic Code. The Molecular Basis for Genetic Expression. By Carl R. Woese. Modern Perspectives in Biology. (Pp. viii + 200; illustrated + tables.) New York, Evanston, London: Harper & Row. 1967.

The Genetic Code. Cold Spring Harbor Symposium on Quantitative Biology, Vol. 31. (Pp. xxii + 762; illustrated + tables. \$15.00.) New York: Cold Spring Harbor Laboratory of Quantitative Biology. 1967.

The Genetic Code by Dr. Woese is an important book meriting close study by students and workers in genetics and molecular biology. We are nowadays all too familiar with the concept of genetic coding. This, and terms such as DNA, m-RNA, t-RNA, are thrust at us from the television screen, in the popular press, and in scientific reviews at various levels of popularity; no book on genetics would now be thought complete without its chapter on *The Code*. In the midst of all this pre-digested pabulum it is refreshing—even startling—to find a serious textbook on the subject.

This book is meant for the student of biology, using the term in its widest sense. Some previous knowledge of the subject is helpful but the reader is never confused, left feeling it is all too difficult, or palmed off with an oversimplification. It is salutary to be reminded that the various nucleic acids are not mere collections of initials but have chemical structures that can be formulated like those of other organic substances, and that this structure can and must be related, in physico-chemical terms, to the specificity for a particular amino acid or amino acid sequence.

The text is clear and stimulating. The main part deals with problems of decoding, translation, and transcription, attempts to solve them, and critical evaluation of the results obtained; an early chapter on the history and the final chapter on the evolution of the genetic code are particularly thought provoking. Each chapter has a short bibliography including references up to 1967. The book is up to date in every respect; to one who cannot find time to keep up with the spearhead papers of the leaders in this field yet finds the review articles insipid and overfamiliar, this book is a godsend.

The *Symposium on the Genetic Code* conforms to the very high standard set by previous volumes in this series. The meeting was held in June 1966, and the 350 participants included the best workers in the discipline. The 88 papers cover such topics as direction of reading, punctuation, nonsense codons, control of gene expression, infidelity of information transfer, and

the origins of the code. One-third of the volume is devoted to the properties and functions of transfer RNA, a recognition of the key role played by tRNA in gene expression. Our knowledge of the structure of tRNA is advancing rapidly, and several papers give complete or nearly complete nucleotide sequences for the tRNAs corresponding to different amino acids. It was only recently discovered that tRNA contains uncommon nucleotides such as thio-uridine and methylated bases on which depends the specificity of the tRNA, i.e. the accuracy with which the code is translated.

The volume has an excellent index.

L. I. WOOLF

The Biology of Human Adaptability. Edited by Paul T. Baker and J. S. Weiner. (Pp. viii + 541; illustrated + tables. 105s.) Oxford: Clarendon Press. 1966.

This book represents the proceedings of a symposium held in Burg-Wartenstein in 1964, and organized by the International Biological Programme and the Wenner-Gren Foundation for Anthropological Research. As Sir Lindor Brown says in his Introduction, the book is a review of present knowledge in the general field of human adaptability. A wide range of topics is covered by the 18 papers in the volume. Studies of growth and physique, of adaptation to extremes of heat, cold, and other physical factors, and of nutritional, anthropological, and genetic characteristics of many of the world's populations are described in broad outline. Contributors have also defined the most important problems requiring early study in their respective fields, and have suggested programmes for this work. It would be optimistic to believe that all their proposals could be implemented in the foreseeable future, but for those who are interested in work in any of the numerous disciplines covered, the book will be invaluable as a source of ideas as well as for reference purposes.

The two most striking general points to emerge are, first, the enormous volume of useful investigation still to be undertaken, and secondly, because of the basic and rapid changes now taking place in many of the world's more primitive populations, the limited time for doing much of this work.

Though most topics are discussed very generally, enough detail is given in many sections to highlight methodological points that need attention in studies of this kind. Sampling is the most obvious example. Though this problem is inevitably more difficult to cope with in