Preface

In recent years signs of a current of thinking, which runs counter to the evernarrowing specialization of science, have become increasingly manifest. Scientists in all fields are realizing that containment of activity in traditional or newly invented compartments has no "natural" basis and is distinctively inhibitive to creative thought. The essential interconnection of all disciplined enquiry in all scientific fields is giving rise to a variety of "interdisciplinary" studies. Biomedical engineering is one of these, exploring in an unfettered fashion the interaction of medicine, biology and engineering.

In common with other "cross-linking" studies, the emphasis in biomedical engineering is on the collaborative effort of individuals drawn from different disciplines. This demands from active participants, sophisticated competence in their own field coupled with a readiness to appreciate the systems of thought and technique of the associated fields.

This new "Advances" series is designed to present work of significance ranging from research to clinical and technological applications. The topics which are treated in this volume and other topics which will form the subsequent volumes of the series are selected on the basis of their relevance to more than one discipline and will have arisen in general as a result of inter- or multi-disciplinary effort. Broadly the range to be covered includes:

(i) The study of the "engineering" methods used by nature, with a view to applying their basic mechanisms in man-made engineering constructions.

(ii) The investigation of the "engineering" characteristics of tissue and body and their influence on diagnosis and therapy.

(iii) The applications of technological advances in medicine and biology ranging from artificial replacement of body parts through instrumentation in assisting diagnosis and assessing the results of therapy to computer-based automation.

(iv) Unconventional concepts and techniques which have arisen only because of collaboration and would not have been thought of in context of any one of the constituent disciplines alone.

(v) Any topic additional to the range listed adjudged as of potential value to the disciplines served by the series.

The orientation is essentially applied, conditioned by the creative engineering outlook which regards an effort as complete only when it has been translated into a concept, technique or appliance of practical value. It is hoped that in this way the series may serve as a source of reference and interest initiator to clinician and practitioner, to teacher and researcher and to students at all levels in the disciplines of medicine, biology and engineering.

April, 1971 R. M. KENEDI