clearly a similarity in the relative occurrence of mongolism in Japan with that in Europe. The incidence cannot be less than 1 in 1000 live births; the risk increases with maternal age only and no effect of birth order or interval between pregnancies could be found. Forssman and Åkesson could find no support for the hypothesis that the operation of recessive genes may be sometimes responsible for Down's syndrome.

The dermatoglyphic analysis by Penrose is presented as a possible means of distinguishing between two similar mongols, one as a result of trisomy-21 and the other trisomy-22. The evidence was unable to support or reject the hypothesis that two similar syndromes might be recognized as one, viz. mongolism, but it led to an intriguing discussion on the possibility of tetrasomy in man. The DNA replication patterns in the 21/22 group of mosaic mongols, as shown by Fraccaro et al., are well presented. They demonstrate also the dangers of interpretation from such autoradiographic investigations. This contribution aroused discussion on the fate of cell lines in mosaic individuals.

The findings of Mellman et al. indicate that there may be a significant shortening of the circulating half-life of granulocytes in mongols. This, in turn, may be the cause for an increase in enzyme activity. An hypothesis that environmental factors, rather than genetic, might be the cause of such granulocyte disturbance is put forward. Finally, there is a very worth-while general discussion (in which appeared the only misprint I detected—the evening primrose, p. 92, is Oenothra lamarckiana).

This is a most readable book containing valuable data.

S. Walker


For the past 15 years the annual appearance of a new volume of *Progress in Biophysics*, in its various guises and under its various editors, has been a significant scientific event. The present editors are to be congratulated on having produced a volume which at least maintains, and may even exceed, the already high standard of this series. They, and the contributors, are to be complimented not only on the choice of subject matter, but also on the remarkably high standard of lucid writing maintained almost throughout this book. For example, it is well recognized that immunology is one of the most difficult subjects to explain to someone who is not himself involved in this branch of science, partly because of the self-contradictory nature of many of the terms used, and partly because of the intricacies of the subject. Yet N. A. Mitchison's essay on 'Recognition of Antigen by Cells' makes fascinating reading and many workers will want to refer to it. Similarly with the equally complex problems of interest to readers of this Journal, of molecular genetics and of genetic transcription. Each is dealt with authoritatively but clearly in two large articles, one by Sibatani on 'Genetic Transcription or DNA-dependant RNA Synthesis' and the other by Silver on 'Molecular Genetics of Bacteria and Bacteriophages'. The former will be welcomed by many who want to understand the experimental basis of DNA-RNA hybrid helixes, of the effect of primer-DNA, of ribosomal, of messenger, and of transfer RNA. In the latter, Silver discusses the processes of transformation, transduction, and conjugation in bacteria and bacteriophage, and then has a thoughtful and valuable section on molecular problems of genetics, including a discussion of double-stranded and single-stranded DNA and of the structure of the gene, of mutagenesis, and of the possible molecular mechanisms underlying genetic recombination. Various models are considered in illuminating detail. This thoughtful essay deserves to be read and to be retained for reference by all geneticists. The short article by Sherbet on 'Cybernetic Interactions in Epigenetics' is disappointing in that it seems mainly to be trying to restate, in terminology which is in current vogue, some of the intricate problems of nucleo-cytoplasmic interactions which must occur during embryological development.

Even workers in other fields of study will be glad to have the excellent reviews of Ambrose on the electrophoretic behaviour of cells, of Finean on the molecular organization of cell membranes, and of Caro on autoradiography by electron microscopy. Each author is outstanding in his own subject. The last chapter to be considered is that by Smith on the organization and function of the sarcoplasmic reticulum and T-system of muscle cells. This, too, is a valuable review; the micro-anatomy is of a high standard, but there is always in biology the suspicion that anatomists and function go ill together. This is seen, in Smith's chapter, by his ignoring all the literature on living, functioning, potentially 'striated' muscle cells in which striated fibrils were shown not to be required for contraction.

The only minor criticism of this valuable book is that the index is too inadequate to be functional.

**Joseph Chayen**


Immunology is yielding one of the most refined methods for the examination of proteins and, therefore, has become of special interest to the geneticist, particularly of it concerns molecular biology. Hence readers of this journal will be interested in these Proceedings of the Federation of European Biochemical Societies. Immunology has progressed from investigating the interaction of toxins and antitoxins to the more searching inquiry as to how an antibody interferes with the biological activity of an antigen at the molecular level. At present such investigations are mostly concerned with the study of enzyme, antibody, and substrate. More