areas of epidemiology of congenital abnormalities and routine screening. DNA analysis, cytogentic and biochemical disorders, special techniques (two sections, including a review of in vitro fertilization, economic and ethical issues, and service provision. In the latter section there is a detailed description of the financial and operational basis of the system in the Netherlands (G. Galjaard). Here, perhaps, an opportunity was lost to appraise this critically and speculate in the light of the radical changes now threatening our working practice in Britain. In the provosts there are detailed discussions of heterozygote screening for cystic fibrosis, cardiac ultrasound scanning, and the karyotyping of chorionic villi; there are also thoughtful essays on psychological, economic, and ethical aspects of prenatal diagnosis (the latter contains a memorable rebuttal of George Steiner's airing on television of the argument that prenatal diagnosis would have deprived us of Beethoven, in the author's words, Steiner's 'ode to joy'). Finally, there are several reviews which draw attention to new techniques such as preimplantation diagnosis and magnetic resonance imaging.

Given the list of distinguished authors, sustained excellence in content was assured, but for me an additional bonus was the sheer ease with which the book could be read from cover to cover. The editors are to be congratulated on this count, also for getting the book published so promptly and for providing us with edited transcripts of the discussions which followed papers. Many interesting points emerge from these discussions, for example, a scientist wonders how couples can be made anxious by a negative test result, the psychologist argues that the process of prenatal testing causes anxiety in women who do not realise they are at risk (presumably we are dealing with low risks here), and later on in the book a professor claims that in his region it takes four or five weeks to get an amnioncensis result and he spends 20 to 25% of his time on the telephone to patients justifying the delay! Now, if you are itching to discover who the people are or where they work, then you'll just have to read the book. At £6.50 it is perhaps only painlessly affordable to an obstetrician; perhaps your local library might be persuaded to purchase an extra copy for those who work in the laboratory. The contents of this book certainly qualify as essential, extremely pleasurable reading for everyone whose clinical work is in the field of antenatal diagnosis.

JOHN TOLMIE


A curious title for a book chosen for review in *Journal of Medical Genetics? In content, only 23 pages out of the 294 of text touch on topics of clinical relevance (the haemoglobinopathies and thalassaemia) and, apart from malaria in this context, there is barely a mention of any other genetic or otherwise. No justification is necessary, for the book is fascinating as well as informative, and will leave the clinician whose primary concern with DNA is diagnostic very aware of many other uses to which modern techniques can be put. The sheer physical difficulties of the colonisation of the Pacific islands, of surviving and making a landfall in primitive canoes after hundreds or thousands of miles of ocean, challenge the imagination.

The technical advances of genetics in recent decades, that have been used in this book to trace colonisation routes, are parallel if different types of achievement.

Increasing knowledge in the last couple of centuries of the islands and their peoples stimulated enquiries in many disciplines – biology, ethnology, oceanography, oral history – and, in the opening chapter, Bellwood summarily reviews the evidence other than genetic: artefact, pottery, dentition, fossil remains, linguistics, archaeology. Here the only criticism is one of regret at the omission of any mention of the classic work of early investigators, for example, Te Rangi Hiroa; other than to Cook's exploratory and Wilson's missionary voyages at the end of the 18th century and the maverick Heyerdal in 1952, the earliest reference is 1962, by which time the general outlines of the colonisation of the Pacific had become clear. But this chapter is by way of an hors d'oeuvre to the main work of appraisal of genetic data. Each of the next three chapters is devoted to a particular set of polymorphisms.

Kirk, with his characteristic thoroughness, reviews the data on red cell antigens, serum protein, and enzyme systems for the blood groups he is familiar with, with the widely used polymorphic systems, but also shows the utility of the very rare antigens unique to this region. For the proteins he deals comprehensively with 24 polymorphic systems, draws attention to others for which there are few or no data, and incorporates previously unpublished results.

In chapter 4, HLA class I and II antigen distributions in Pacific populations are reviewed in detail for the serologically defined HLA-A, B, C, and DR antigens. Restriction fragment length polymorphisms in class I genes have not yet been explored in Oceania, but those of class II, the RFLPs associated with DR and DQ, are given detailed treatment since they show an unexpected heterogeneity among Pacific populations. The linkage disequilibrium among the several loci not only show many haplotypes that are unique in Oceania but give an extra dimension to the definition of population affinities, adding to those described by gene frequencies alone. The principal surprise is that the molecular data show greater diversity among groups than serological studies predict, but that such a small segment of the human genome provides such an accurate summary of the history of the colonisation of the Pacific.

The complement components (chapter 4) are less informative, since several are less polymorphic, with fewer available alleles or more extreme frequencies, though again there are alleles unique to the Pacific. There are few data on the major histocompatibility complex (chapter 5), but then chapter 6 on mitochondrial DNA and chapter 7 on nuclear DNA of the globin gene region clearly the potential for DNA markers in population studies. They show once again the extreme position of the highlanders of Papua/New Guinea, characterised by low frequencies of single genes such as K, and the striking difference between highland and coastal New Guinea populations. In Melanesia the distribution of high frequencies of α deletions as well as β shows a clear relationship to malarial endemivity, the two commonest α deletions being either rare or absent outside Oceania. In Polynesia no haemoglobinopathies and no β thalassaemia had been reported, but the DNA analysis of the globin gene clusters shows clear evidence of ancestry from south-east Asia (high frequencies of the Kp1 restriction enzyme haplotypes) and with Melanesia (a particular α deletion). On their journeys out from south-east Asia the ancestors of the Polynesians seem to have acquired genes from other Melanesians and via whom they passed. The Micronesians also show affinities with south-east Asia but less, though unequivocal, genetic evidence of some Melanesian ancestry is also present.

The final chapter draws together the material in the previous chapters. Though each deals with only a small proportion of the human genome, all produce conclusions that are surprisingly but satisfyingly consistent, and provide substantial support for the general interpretation from archaeological and linguistic evidence. The new DNA techniques obviously provide more refined genetic analyses than was previously possible. Apparent phenotypic similarities sometimes mask subtle differences at the DNA level, as shown for the HLA-DR antigens. The coding regions of DNA that are less subject to the evolutionary forces of selection provide an additional source of variation. Closely related markers sometimes permit an analysis of haplotype frequencies and linkage disequilibrium relationships, are indicators of population affinities more useful than most single variants. Yet the more traditional serological techniques make a most important contribution, because larger sample sizes are possible.

This is a book to be recommended. Maintaining the high standards of the series in which it appears (Research Monographs on Human Population Biology), this book is highly professional and informative. It is, moreover, philosophically satisfying as a reminder of what man can be capable of, ourselves today with our sophisticated modern techniques and our earlier forebears without them.

D F ROBERTS


Many doctors and their colleagues shudder at the thought of genetic statistics and this introduction to the subject should both reassure and educate them. It was designed for those who come across genetic risks, either in a clinical situation or in a laboratory setting. The text is simple, clear, and accurate. Risks for dominant disease are calculated together with the subjects of reduced penetrance, variable expression, and gonadal mosaicism; those for autosomal recessive diseases together with gonadal mosaicism; those for X linked diseases with discussion of different mutation rates in the two sexes and gonadal mosaicism. Empirical risks are given when theoretical risks are uncertain. Example of risks for the Melanesian populations through figures and lucid calculations, and once the reader has understood the basic argument, a further question is asked to test his/her understanding. Are the risks for a couple already has two healthy children? How do the risks change if the couple are first cousins instead of second cousins? The