

However from a genetic viewpoint the Solomon Islands Project has considerable interest since the research reveals evidence of enormous amounts of biological diversity. Friedlander and his co-workers have tried to relate the language diversity to the observed biological variation and in particular to provide insight on the question of the number and patterning of migrations in the settling of Melanesia.

The question revolves around the dichotomy between the Melanesian languages of the coasts belonging to the Austronesian phylum and the diverse Papuan languages of the interior which are called the non-Austronesian languages. Since the Austronesian languages are found outside Oceania, the traditional view is of an initial migration of non Austronesian speakers perhaps as early as 40,000 B.P. followed by at least one immigration of pottery-bearing Austronesian speakers around 4000 B.P.

This view has recently been challenged and there is the suggestion that the source of most Austronesian languages is within island Melanesia with subsequent emigration as far as Madagascar.

These alternative hypotheses can be tested by examination of genetic data. The distributions of blood group polymorphisms are so heterogeneous that they do not provide much clarification. However Froehlich suggests that dermatoglyphic patterns are good phylogenetic markers since fingerprint traits involve the complex interactions of many gene loci and thus they should be less susceptible to stochastic processes. Analysis of the palm prints in particular provide evidence to support an intrusive migration of Austronesian speakers. Indeed of all the biological variables studied, dermatoglyphics most closely reflect patterns of language variation and geographic distance over the eight groups in the survey.

In addition to the genetic studies there are chapters describing the epidemiology, diet and nutrition of the islanders as well as longitudinal changes in anthropometry, blood pressure and Hepatitis B.

A very well presented book, clearly written which should be read by population geneticists as well as human biologists.

NICK MASCIE-TAYLOR

*Department of Biological Anthropology
University of Cambridge*

Plant DNA infectious agents. Th. Hohn and J. Schell (eds). Springer-Verlag, Vienna. 1987. Pp. xiv + 348. Price DM 176,-. ISBN 3 211 81995 9

This book is the fourth in the series Plant Gene Research Basic Knowledge and Application. Like the earlier volumes it consists of reviews of recent advances in plant science by the leading researchers in the field. This volume is a valuable addition to the series and should prove useful to both students and research workers.

The title of the book is misleading since the scope of the material is much broader than it suggests. The

basic theme is transformation and the reviews include plant viruses and *Agrobacterium* transformation which are clearly infective, as well as transposable elements, microinjection and direct gene transfer which are not. The articles vary greatly in style and content but in general the reviews are comprehensive and detached. I particularly enjoyed Gronenborn on Cauliflower Mosaic Virus, Koukolíková-Nicola *et al* on T-DNA transfer, and White and Sinkar on *Agrobacterium rhizogenes*. Several of the articles are technical in emphasis with little biological content. Such reviews are practically useful to and give a good idea of the "state of the art" but are rather uninteresting reading.

Two articles fit poorly into the overall structure of the book (Cornelissen *et al* on plastid transformation and Szabo *et al* on targeting nuclear gene products into the chloroplast). The former is a report of unsuccessful experiments from the laboratories associated with one of the editors (J. Schell). He assumes responsibility for the controversial nature of the article. Despite this disclaimer the report still gives the impression of a "back-door" publication of data which would not be acceptable to refereed journals.

As with most survey works of fast advancing fields this book will quickly become out of date. Even with this reservation it should become a worthwhile reference work for anyone interested in the molecular biology of plants.

I. J. FURNER

*Department of Genetics
University of Cambridge*

Sugarcane improvement through breeding. D. J. Heinz (ed.). Elsevier, Amsterdam, The Netherlands. 1987. Pp. 601. Price £74.40. (*Developments in Crop Science*, 11). ISBN 0 444 42769 4

This book is large, comprehensive, authoritative, well-made and expensive. It is the first (and only) full review of sugarcane breeding and it will be extremely useful, both to specialists (the cane breeders themselves) and to other scientists seeking a general introduction and/or references to the breeding of this marvellous crop. From here on, and for some years, "Heinz (1987)" will be the starting point for the cane breeding literature.

There are fifteen chapters that start with an editorial introduction, treatments of evolution and taxonomy, morphology and anatomy, and cytogenetics; they go on through the mechanics of managing flowering, crossing, seed handling, selection and so forth, to finish the chapters on biotechnology, disease resistance, stress adaptation, data management and the histories of varieties.

Inevitably, perhaps, the quality is rather uneven and there were, I thought, some patches that were less than critical; but these are few and the comprehensiveness, authority and depth of treatment (with large bibliographies) are generally very apparent. The text is well