DNA FINGERPRINTING: AN OVERVIEW


This text is a collection of 46 papers presented at the Second International Conference on DNA Fingerprinting, held at Belo Horizonte, Brazil, in November 1992. DNA fingerprinting is no longer only the banding pattern produced on a Southern blot by one of Alec Jeffreys' "multilocus probes," but it has grown to include a variety of procedures, such as single locus profiling, oligonucleotide probing, and PCR-based technology using specific or arbitrary priming.

DNA fingerprinting includes applications in phylogenetics and population genetics, in gene mapping, in investigations of chromosomal organization and mutational phenomena, and in forensic and parentage testing. The book covers the theoretical and practical aspects of these applications. Some of the papers included may not fit A. J. Jeffreys' definition of DNA fingerprinting, but they are quite good and relevant to the broader theme of genomic variation. A.-C. Syvänen et al.'s application of solid-phase minisequencing to identification of forensic samples is one example. Another is the paper on the use of RAPD on mRNA to map genes differentially expressed among tissues by M. McClelland and colleagues.

Although the editors have chosen exciting papers, there are editorial lapses. For example, the main data presented by B. Budowle and K. L. Monson at the meeting was omitted from their paper discussing the forensic significance of various reference population databases for estimating the rarity of variable number of tandem repeat loci profiles. Thus, from what is presented, it is hard to evaluate their conclusion that sub-group variation within races is insignificant for forensic applications. The book's organization is curious, with later sections organized (more or less) systematically: plants (except beets), microorganisms and parasites, invertebrates, fishes and birds, and mammals (including the beets).

Recurrent themes are sounded: G. Brockmann and colleagues map quantitative traits in selected mouse lines, and G. Dolf and colleagues explore similar questions in domestic chickens. C. Y. Miyaki and colleagues work out the basics of paternity testing in raptors and parrots to aid in captive breeding programs and the apprehension of smugglers. Several papers cover the use of traditional fingerprinting and RAPDs for studying strain diversity and systematic relationships in parasites, including Schistosoma spp. and Trypanosoma spp. The emphasis on parasites and endangered species represent a First World technological approach to Third World problems.

By far, the best covered topics are human-population structure, parentage testing, and forensic applications. Nearly one third of the book is devoted to these universal questions and problems. The most unusual subject is covered by C. Brandt-Casadevall and colleagues in a chapter entitled Isérables: A Bedouin village in Switzerland? They ask whether the people of an isolated Swiss village can really be descendants of the "Garazzins" (a nomadic desert people). Can a romantic local legend stand up to the scrutiny of modern genetics? Sorry, it cannot.

The weakness of books like DNA Fingerprinting is that they age too quickly in a rapidly changing field. This book's strength is its breadth of coverage, which gives it lasting value as a reference.

RICHARD BOROWSKY
Department of Biology
New York University
Washington Square, NY 10003

A SCIENTIFIC QUEST


Being first is a big deal. And scientists no less than others want their chance to shine. Somehow though, the scientific community is contradictory in its attitudes about ambition.

As an outsider looking in, I have always been struck by the behavioral expectations of the research community. A modest self-confidence in keeping with the quality of the data at hand is socially acceptable. But to imagine success aloud, to appear more than moderately optimistic about one's potential, is somehow unseenly without the prior possession of a major scientific prize. A premium is placed on collegiality, necessary for the advancement of science as a whole. The appearance of being too competitive—the definition being rather subjective—creates upsetting eddies. It is a tricky balancing act given that a competitive nature may be as necessary as intelligence for an individual to reach a first in science.

Larry Thompson, a correspondent for the Medical News Network, captures these scientific cultural expectations with a refreshing bluntness in Correcting the Code, which chronicles one team's quest to be the first to conduct an approved gene-therapy experiment. In September 1990, W. French Anderson (now at the University of Southern California) and his research team at the National Heart, Lung and Blood Institute in Bethesda, Maryland, with much media fanfare, delivered into a patient named Ashanthi Vinodani DeSilva white blood cells, genetically improved descendants of white blood cells that had been taken from her earlier. The child had inherited two defective copies of the gene for the enzyme adenosine deaminase (ADA). When this enzyme fails, the metabolic backlash destroys T-cells, basically shattering the immune system and shortening lifespan. Anderson, Michael Blaese,