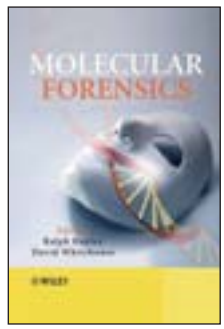
Ralph Rapley and David Whitehouse (eds.): Molecular Forensics

A Superintendent Named DNA

A laudably wide-ranging attempt to present the current state of affairs in forensic science. Unfortunately, the result is neither fish nor fowl.



There are two men who once lived in Leicestershire, Central England, who have an exceptionally close association with genetic fingerprinting. One of them is Colin Pitchfork, a baker who raped and murdered two girls in the 1980s. The other is Richard Buckland, then a 17-year-old adolescent who confessed to the crimes (despite being innocent). Pitchfork was the very first person to receive a conviction based on DNA fingerprinting evidence. He was banged up for life in 1988. Buckland, however, became the first person ever to be cleared of murder by DNA fingerprinting evidence.

In both forensic masterstrokes, the British professor and Lasker Award laureate, Sir Alex Jeffreys, took on a key role. In DNA (or genetic) fingerprinting, Jeffreys discovered a method which revolutionised paternity and relationship testing as well as, in the biological sciences, taxonomy and the study of populations of wild animals.

The ingenious method was used, for example, to reunite children with their families in immigration cases (or to eliminate kinship in similar situations) and to identify the bones of a drowned old man in Brazil as those of Nazi war criminal, Josef Mengele.

Genetic fingerprinting's widest influence, however, was in forensics and criminalistics – and not just for catching offenders. Since the 1990s nearly 200 people have been freed using post-conviction DNA testing in the United States.

The state of technology

Ralph Rapley of the University of Hertfordshire, UK, and David Whitehouse, a Consultant Biotechnologist and Research Fellow from the London School of Hygiene and Tropical Medicine, have produced a book on the current state of DNA testing, typing and profiling, as well as on controversial ethical topics like DNA databases. The book, entitled *Molecular Forensics*, contains a collection of review articles and is (at €129 for a hardcover copy) pretty pricy for 244 pages. Is it worth it? Certainly not.

Why?

Well, that's quite simple. First of all the publisher declares that the book is intended both *for students taking courses within the Forensic and Biomedical sciences and also […] for practitioners in the field looking for a broad overview of the subject.*

The all-purpose textbook?

A book for beginners that also caters for professional forensic scientists? Doesn't sound reasonable to this sceptical reviewer. In fact, *Molecular Forensics* is not a bit helpful for experts. If professionals aren't well schooled in fields like mini- and microsatellite DNA typing analysis (chapter 5), SNPs (chapter 6) and mitochondrial analysis (chapter 8) they *aren't* experts. For actual forensic experts, the book's content is far too sketchy, even trivial. On the other hand, students are in for a struggle when trying to understand a complex theme like laser microdissection with the poor information delivered on the six pages of chapter 10.

The sparse illustrations are black and white (with the exception of eight pages of color plate), as if they were home produced by the authors themselves. The cover (a death mask behind a stylised DNA helix) attracts interest but the book's scanty contents cannot fulfill its promise.

Not only are the illustrations unsatisfying but the texts are too. They are not detailed and are, in fact, little more than summaries. Even worse are the texts' numerous embedded references, which make sentences almost unreadable. As a case in point let's quote the following passage (taken from chapter 7, *The X chromosome in forensic science: past, present and future*):

The analysis of tri-, tretra- and penta-STRs has become widespread in forensic medicine and STRs located on autosoms (Brinkmann, 1998; Urquhart et al., 1994) were used long before application of Y-chromosomal (de Knijff et al., 1997; Jobling et al., 1997; Kayser et al., 1997a, 1997b; Roewer et al., 2001) and X-chromosomal STR markers. Although the existence of ChrX STRs, i.e. HPRTB (Hearne and Todd, 1991; Edwards et al., 1992) and ARA (Edwards et al., 1992; Sleddens et al., 1992) and DXS981 (Mahtani and Willard, 1993), was reported relatively early, the desire to use such markers as tools for forensic application came up later.

Whew! Everything clear? A good read? If you think so, go and spend 129 euros without hesitation. The book won't disappoint.

Weanée Kimblewood

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The life of a forensic scientist is far more thrilling than *Molecular Forensics* would have you believe.