keys, rodents, marsupials, birds, amphibians, fish, protostomes, sponges, fungi, plants, Archaea, and, finally, Eubacteria. At each of these 'rendezvous', the joining branch is displayed together with a time estimate and a description of the biology of the newly arrived pilgrims. The title of the book alludes to Chaucer's 14th century *Canterbury Tales*, which recounts a pilgrimage to the English town. Along the way, the pilgrims are encouraged by their host to wile away the time by each telling a tale. In *The Ancestors's Tale*, Dawkins plays host to the increasingly numerous organisms on their pilgrimage from the present to the past. The real charm of the book lies in the tales he puts into their mouths, beaks, and probosces.

These are lucid essays that take the reader through the great ideas in evolutionary biology. For example, the gibbon's tale explains the reconstruction of phylogenies, following the genealogy of 24 different manuscript versions of the *Canterbury Tales*. The mouse's tale takes issue with the popular analogy between the genome and an organism's 'blueprint', and clarifies that it is misleading to think of a genome as a description of its host organism. The lamprey tells a tale of gene duplication in general and of globin duplication in particular. It is a thought that needs some getting used to, that the human alpha-haemoglobin gene is much more closely related to the chimp alpha-haemoglobin than it is to the human beta-haemoglobin.

The peacock's tale is, of course, about sexual selection and it challenges the reader to contemplate why we are naked (hairless) apes, walking on two legs with heads often too big for our own good. The fruit fly gracefully shows off its developmental master genes, the Hox genes. Originally discovered in the fruit fly, these have now been found in almost all animals, including mammals. The velvet worm's tale is about the radiation of all extant animal forms during the 'Cambrian Explosion' some 500 million years ago, which wasn't so explosive after all. In the epilogue to this tale, Dawkins treats us to a succinct account of the so-called molecular clock hypothesis, which posits that genes accumulate mutations at a roughly constant rate. And on the pilgrimage goes, until it is finally joined by the Eubacteria. There, the tale is by *Thermus aquaticus*, the bacterium which contains a DNA polymerase known to molecular biologists as Taq polymerase. This heat-stable enzyme is the basis of the polymerase chain reaction, with which any region in a genome can be amplified million-fold, thereby greatly facilitating a wide range of genetic engineering tasks.

Until quite recently, Luke's backward approach to genealogy has largely been confined to evolutionary biologists. In picking it up, Dawkins has found a new plot to the oldest story around. It is this originality, combined with the playful but precise descriptions of many of the best ideas in contemporary biology, that makes this book a joy to read.

Details

Publisher: Orion Publishing Group

Publication year: 2004 (hardback) or 2005 (paperback)

ISBN: 0297825038 (hardback) or 0753819961 (paperback)

DNA interactive

Reviewed by Dean Madden, National Centre for Biotechnology Education at the University of Reading, UK

This award-winning yet inexpensive educational DVD contains numerous short interviews with scientists, many of them Nobel laureates, who have played a major role or continue to work principally in human molecular biology. There are also computer animations showing key techniques and processes. Video clips are grouped in several ways to facilitate their use, e.g. by theme or by interviewee. The material is aimed mostly at 16- to 19-year-old biology students.

Many, if not most, of the clips have been culled from a five-part Channel 4/PBS television series made to coincide with the 50th anniversary of the discovery of the DNA double helix. That series of five 50-minute programmes, *DNA – The story of the pioneers who changed the world*, is available on two DVDs from the production company, Windfall Films Ltd.

The most spectacular and impressive sequences in *DNA interactive* are undoubtedly the molecular animations showing DNA replication, coiling and protein synthesis. These were created by Drew Berry at the Walter and Eliza Hall Institute in Melbourne, Australia. Coupled with the possibility of choosing the level of sophistication of the accompanying spoken commentary, these superb clips form an extremely useful addition to teaching resources.

Other animations taken from the television series vary in quality, and

some, such as that showing simple DNA replication, are clearly intended for a different, general audience. Indeed, the voiceover indicates the DVD makers' recognition of the replication clip's shortcomings – the DNA molecules consist simply of bases with no sugar-phosphate backbones. Some of the other explanations are disappointing, such as that of DNA microarrays, which really leaves the viewer none the wiser.

The principal feature of the *DNA interactive* DVD is its interviews with scientists who were and are at the forefront of molecular genetics. Where else could you find Francis Crick, James Watson, Maurice Wilkins, François Jacob, Benno Müller-Hill, Sydney Brenner, Paul Berg, Wally Gilbert, Herb Boyer, Stanley Cohen, Kary Mullis, Alec Jeffreys, Svante Pääbo and the other creators of molecular genetics talking about their work? It is a shame that the DVD was not produced five or ten years ago, before several of the pioneers of molecular biology had died.

Be warned that many of the DVD's 200 clips are little more than short 'sound bites', and that to be used effectively in an educational context, they would require supporting materials. Fortunately, the producers have realised this: there is a complementary website at the Dolan DNA Learning Center which presents a great deal of additional, highly valuable, educational material.

Details

PAL, Region 2 version

Dolan DNA Learning Center

Windfall Digital, London, UK

Publication year: 2003

ISBN: 0971058822

Sponsors

The *DNA interactive* project was funded mainly by the Howard Hughes Medical Institute. Additional funding came from the Alfred P. Sloan Foundation, Channel 4 television and the University of North Carolina, Chapel Hill.

Ordering

The PAL DVD with English commentary may be ordered direct from Windfall Digital, 1 Underwood Row, London N1 7LZ, UK: www. windfalldigital.com

An NTSC, Region 1 DVD with an American voice-over is also available to educational institutions at a discounted price, directly from the Dolan DNA Learning Center: www.dnai.org

Information on *DNA – The story of the pioneers who changed the world* can be found on the Windfall Films Ltd website: www.windfallfilms.com

Note that a Region 1 DVD may not play on some European DVD players, or may require that you reset the region on your computer's DVD player. Often the region coding can only be changed a limited number of times, after which it is necessary to wipe the computer's hard drive. It is therefore advisable to purchase a DVD with the correct region setting (1 = USA; 2 = Europe).

Resources

The complementary website at the Dolan DNA Learning Center can be found at www.dnai.org. Registration is required to access teachers' resources.

The Elements of Murder: A History of Poison

by John Emsley

Reviewed by Tim Harrison, University of Bristol, UK

When is a chemistry textbook not a chemistry textbook? The answer to this riddle is *The Elements of Murder: A History of Poison*. Most people would think that a book about the toxicity of the elements arsenic, antimony, mercury, lead and thallium would be fairly heavy going, but this book reads more like a novel than a chemistry text.

The book gives a great deal of information on the history of the use of these materials, the concentrations of toxic metals in the human body and in a variety of foods, and the effects of these elements on the body. However, this book is much more than that. John Emsley's work is full of the interesting snippets of information that would switch on the most disinterested of school students on the last lesson on a sunny Friday afternoon. It is a 'must read' for any chemistry teacher who wants to enthuse and excite his or her students and is not afraid to stray from the more orthodox chemistry curriculum.

Included throughout are many nuggets of information that would