

spring books

estimated at \$6–8 billion, with annual operating costs of \$300 million. By comparison, reducing the pressures on the ecosystem, allowing it once more to provide high-quality water, was estimated to cost \$1.5 billion. And this was the course of action chosen.

But as the authors say, "... our most important capital is natural capital: biodiversity ... *this* is the capital of the real world. The currencies based on financial capital derive from the life-support systems and products generated by biodiversity. We know full well that humanity has chosen to operate in a world of financial capital. The way to proceed, therefore, is first to recognize the true worth of the two kinds of capital and then to organize the human economy to preserve both. The value of financial capital is accepted by most people; the value of natural capital is only starting to be recognized."

This book has a limited remit: to demonstrate to the lay reader that the natural world is already supporting our species in ways unknown to many of us, and that many other useful products and services await discovery if we look for them in the right way. The destruction of biodiversity is damaging the life-support systems on which we depend, and cutting off our options for the future. By using a huge range of examples, Beattie and Ehrlich get the point across very effectively. ■

E. J. Milner-Gulland is at the T. H. Huxley School of Environment, Earth Science and Engineering, Imperial College London, London SW7 2BP, UK.

Murder most putrid

Maggots, Murder and Men: Memories and Reflections of a Forensic Entomologist

by Z. Erzinçlioğlu
Harley Books: 2000. 256 pp. £13.95

Mark Benecke

Here is that rare thing, a good popular book on forensic entomology that is also an illuminating read on forensic science itself and on the art of being an expert witness. Zakaria Erzinçlioğlu (a.k.a. Dr Zak), a forensic entomologist for more than 20 years, covers not only the wonderful world of insects as a tool in forensic investigations, but also the Tertiary geological period, O'nyong-nyong disease, Napoleon Bonaparte, human behaviour, maggot therapy and Sherlock Holmes.

Starting from the statement that "a dead human body is a magnificent and highly nutritious resource", mostly for invertebrates, Erzinçlioğlu sets off on a fascinating trail that takes in both forensic entomology and the nature of forensic evidence. The insect evidence in two of his cases perfectly illustrates the fact that, although much can be ignored at a crime scene, it is important not to overlook vital evidence, or even its absence. In one case, the presence of winter gnats at the crime scene was a plain indication that the victim had died in winter. In another case, however, the presence of minute black scav-

enger flies (which start to breed earlier in the year than other flies) could not be interpreted correctly without recognizing the *absence* of blowfly maggots. If death had occurred in summer, blowfly maggots would have out-competed the tiny scavenger flies. The victim must therefore have died in the spring, when blowflies are not active.

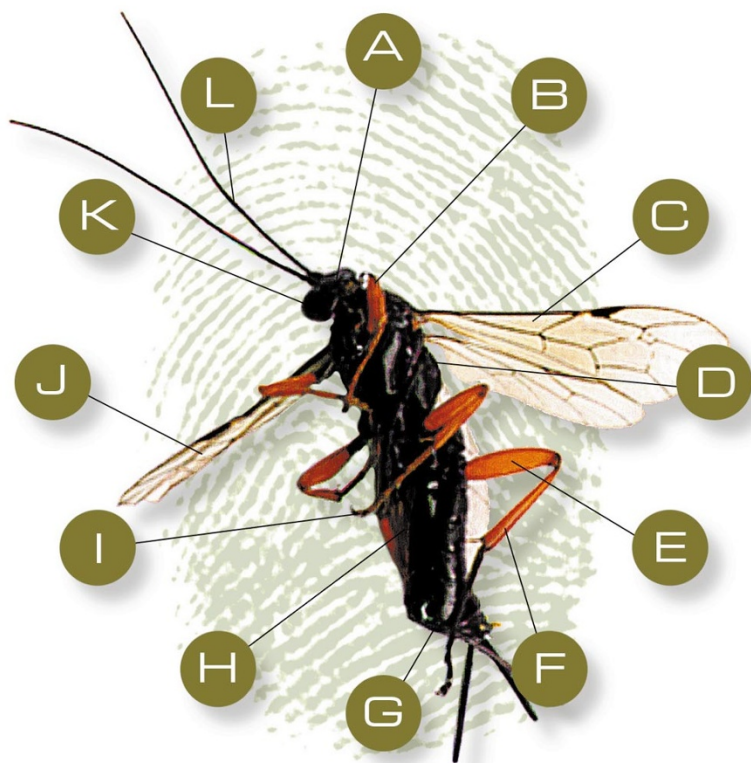
In contrast to the everyday work of most natural scientists, forensic scientists, especially the few who work at crime scenes, have to accept that controlled experimental conditions must frequently remain a dream. The complexity of influences in real-life situations can only be simulated by a large number of laboratory experiments, for which there may be no time. To highlight this problem, Erzinçlioğlu discusses the scientific method itself. Because physical evidence from a crime scene can often only be interpreted, instead of delivering an obvious absolute truth, Erzinçlioğlu warns against the danger of going too far. To avoid this trap, a forensic expert not only needs experience but must also have a clear idea of which questions can be answered by a particular investigative method and which cannot.

Case-work can be thrilling, but is also a personal challenge. As Erzinçlioğlu authentically describes, one has "to visit the seediest of dwellings at the most unsocial of hours", carry out "post-mortem examinations late at night" and be "ferociously cross-examined by hostile barristers in court". He shares with the reader the mind-broadening knowledge he has gathered from working in such conditions, and which is the forensic scientist's reward.

Only a mixture of deep specialist knowledge (in Erzinçlioğlu's case, the biology and anatomy of flies and their maggots), lots of enthusiasm and curiosity, up-to-date knowledge of neighbouring disciplines and a touch of singularity can make a scientist into a 'real forensic', and Erzinçlioğlu is a prime example. In his discussions of the nature of justice he has already ruffled some feathers, for he points clearly to unpleasant and often neglected aspects of the justice system, such as incompetent defence consultants who muddy the waters and the fact that forensics in Britain apparently now has to operate according to 'free market' rules.

The energy and efforts of scientists such as Erzinçlioğlu have put forensic entomology back into routine use — as long as a forensic entomologist is available. A special issue of *Forensic Science International* on forensic entomology is due later this year. So buy this book and enjoy the author's witty, wise and comprehensive thoughts on forensic entomology and forensics in general. Also, try not to steal the lovely black-and-white drawings by Michael Roberts as slides for your future forensic presentations — if you can. ■

Mark Benecke is Director of International Forensic Research & Consulting, Postfach 250411, 50520 Cologne, Germany.



DAVID NEWTON