

Looking for clues

Murderous Methods: Using Forensic Science to Solve Lethal Crimes

by Mark Benecke

Columbia University Press: 2005. 304 pp.
\$24.95

Anthony Busuttill

Judging by what we see in the media, the public seems to have an insatiable appetite for reading about murder. This is especially true for serial murders or ones that are particularly heinous and perverse, or where attempts were made to conceal the crime. People like to exercise their 'little grey cells' and try to solve the crimes themselves.

In *Murderous Methods*, Mark Benecke refers to a multitude of homicide cases, some more recent than others. He explains how the evidence was collected and critically discusses how the case came to be solved.

Benecke's pedigree is impeccable: he has a vast knowledge of forensic science, involving such activities as facial reconstruction, forensic anthropology, thanatology (the description and study of death and dying) and fingerprint comparison. He has been involved personally in, or has carefully studied, some *causes célèbres*, both in his native Germany and worldwide, including the Lindbergh kidnapping and the O. J. Simpson case.

This strange mélange of cases is an unorthodox contribution to the literature on forensic science. I suspect that the book is really aimed towards the interested and experienced lay reader, rather than a scientific audience, given the author's close association with the media and his failure to delve to any significant depth into the scientific background of the investigation.

The book is anecdotal rather than didactic. It does not address any particular theme, and the five chapters do not appear to be obviously interlinked. The cases it discusses are all genuine, with no romanticized, intricate or intriguing plots of the sort you would find in a best-selling thriller, but they serve to demonstrate the deviousness and perverse cruelty of human nature. The author also regularly diverts the reader's attention to para-forensic subjects, such as the embalming of Lenin's body, the possibility of life after decapitation, the rate and manner of decomposition of a human cadaver, and so on.

Benecke dispels the myth that all you need to solve crimes is sophisticated DNA profiling, some expensive imaging and magnification equipment, and a team of scientists slaving away in a laboratory. In truth, it often requires meticulous and painstaking police sleuthing, the laborious collection of evidence, careful interviews of witnesses, the application of common sense and principles of logic, and close adherence to the tenet that nothing is quite



Stopping the rot: a combination of chemicals and frost helped to preserve Lenin's corpse.

what it seems. Only when the evidence has been carefully collected, sifted and collated can the case be presented for judicial scrutiny.

The book explores the judicial systems of mainland Europe, with special emphasis on Germany, which is perhaps the cradle of science-based investigation of crime. Germany has an inquisitorial legal system, in which the judges seek to determine the facts of the case. This is different to the adversarial system used in Britain, and other countries linked to Britain, in which the judge acts as an impartial referee between two opposing parties, with one side attempting to demolish the case presented to the court by the other side. This aspect is

not discussed as openly in other similar books.

Murderous Methods was originally published in German in 2004, and in this English version the narrative is wooden and in places slightly incomprehensible. The few illustrations, although authentic, are poorly reproduced and add little value. Most of the references at the end are not to scientific journals or books, but to general literature, although they are reasonably extensive. Overall, however, the book is a good read, being interesting, varied and eloquent — but it is not for the faint-hearted. ■

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Turning to fraud

Intuition

by Allegra Goodman

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Jennifer Rohn

The writer Allegra Goodman is not a scientist, but she certainly could have fooled me. Her latest novel, *Intuition*, brings back the sights, sounds and smells of a dozen years at the lab bench, stimulating emotions I had forgotten I'd experienced. In lieu of direct research experience, Goodman consulted several scientists in her family and also shadowed some researchers at the Whitehead Institute in Cambridge to produce an exacting portrait of the rise and fall of a cancer-biology lab.

When flailing postdoc Cliff stumbles on a potentially big result, joint lab head Sandy Glass appropriates it as fodder for a sorely needed new grant. This goes against the better wishes of his scientific partner Marion Mendelssohn,

whose more scrupulous approach is respected but has done the lab few favours. The premature result is coaxed into a *Nature* paper, and fame and funding soon follow. But when fellow postdoc Robin, who also happens to be Cliff's lover, suspects that the finding has been faked and accuses him, the close-knit lab begins to unravel.

The story is set in the 1980s, the same decade as the 'Baltimore affair', in which a researcher, Margot O'Toole, accused her boss, Thereza Imanishi-Kari, of fraud and set off a national furor. Yet the story still resonates today: the recent South Korean stem-cell scandal also involved too-good-to-be-true results, lab whistleblowers and the downfall of a mediagenic scientist, Woo Suk Hwang. But *Intuition* diverts our attention from the bare facts to psychological motives: what might make a successful researcher extend that little bit further into the realm of fudging? You

begin to feel that the unthinkable can become at least explainable.

Cliff's alleged fraud is not of the audacious variety epitomized by physicist Jan Hendrik Schön, whose deception led to the retraction of a string of papers in high-profile journals. It is much more interesting, involving cosmetic acts so unconscious that we never know for certain whether they have even taken place, a circumstance that may prevail in many cases of fraud. Aspects of Cliff's data "were so compelling that in his mind they outweighed everything else. He had sifted out what was significant, and the rest had floated off like chaff." Almost unwittingly, the lab colludes. Infected by Sandy's reckless ebullience, Marion throws caution to the wind: "Doubt had been her scientific ally, the whetstone for her sharpest emotions. Now she struggled against doubt as if it were merely an emotion, and not also a kind of intelligence."

Despite its deft illumination of laboratory

wrongdoings, *Intuition* has a more serious message about modern science as a career: far from fulfilling, it is actually psychologically damaging. Scientific similes subtly reinforce this: a Chinese postdoc wears his nonchalance "like safety glasses"; Sandy shoots a wounding look "like liquid nitrogen"; Robin is hurt to be "treated like hazardous material, to be isolated and manipulated with gloved hands".

And postdoctoral angst? It's all here: the dead-end project bestowed with misguided fanfare by a new mentor; fear of being scooped; fear of having to leave the bench to teach; fear of irreproducible results; fear of running out of funding. As early as the first chapter, Cliff's despair "began to melt and pool inside him" until "he was no longer desperate, but simply demoralized and depressed — emotions entirely accepted, even expected, in the lab". Of another postdoc, we learn that patience, diligence, sarcasm and pessimism "all protected

him from failure and hurt". Science is a "dirty game", a "cosmic joke".

Although the book ends in redemption, the aftertaste is still bitter. The scientists have lists of amusing definitions ("experiment: a series of humiliations"), leave warning notes on refrigerators, and engage in postdoctoral banter; such playful antics are astutely observed and very funny, but in the end cannot mitigate the fundamental darkness. All the negative things described in the book ring true, although their concentration in one lab seems to artificially inflate the difficulties of the profession and blunt its periodic joys. Yet in the end, negative aspects make good reading; any 'lab lit' novel set in a world as technical as molecular biology must dwell on obstacles to keep the pages turning. And turn they most certainly do. ■ Jennifer Rohn resides in London, UK. She is a former molecular virologist and is now the editor of LabLit.com.

The zenith of Islamic science

An exhibition in Britain explores a rich scientific heritage.

Philip Ball

"It is sad to relate that no great invention has come for many hundred years from Muslim countries." Comments such as this, from former Archbishop of Canterbury George Carey in 2004, are part of the subtext for *1001 Inventions*, an exhibition on view at the Manchester Museum of Science and Industry until 4 June, which describes contributions to science and technology that have sprung from the Islamic world.

Mechanical engineer Salim Al-Hassani explains in his accompanying book, also titled *1001 Inventions* (Foundation for Science Technology and Civilisation, 2006), that the exhibition was motivated by the perception of a hiatus in Western science and technology lasting well over a thousand years. While many traditional histories of science jump from Archimedes in the third century BC to Gutenberg in the fifteenth century AD, it was during this intervening period that Islamic culture and science reached its zenith (itself an Arabic astronomical term).

The exhibition is particularly timely given the recent tensions between the Western and Islamic worlds. But there has also been a resurgence of interest among Muslim scholars in the evolution of Islamic belief and its relation to the philosophical and scientific traditions of European culture.

There will be few surprises for scientists



Vaults like this one at Isfahan in Iran may have led to the Gothic rib vault.

among the plethora of inventions and discoveries on display. Common scientific words such as alcohol, algebra and alkali are a constant reminder of the debt that contemporary science owes to the Persian and Arabic scholars of the sixth to the eleventh century AD. But it is a debt that receives little public acknowledgement — Western schools, deplorably, still teach of this being the 'dark ages'. As an educational resource the exhibition is impressive. Indeed, even enthusiasts of science history are likely to find something here they did not know: Ibn al-Jazari's exquisite water clock, perhaps, or Ibn al-Mosuli's cataract operations.

The danger is that by trying to redress the imbalance, the exhibition claims too much and clarifies too little. Bald statements of priority, such as that the Gothic rib vault originated in the mosques of Toledo and

Cordoba, or that the European university stems from the organization of Muslim scholarship, are striking but, without any sense of the historical progression, it is like saying that Charles Babbage invented the Apple Mac. The claim that Jabir ibn Hayyan was the founder of chemistry, and the assumption that this eighth-century Muslim scholar was the author of the entire Jabirian alchemical corpus, ignores a great deal of careful scholarship.

The impression that Islamic science sprang up of its own

accord is misleading too — not enough is said about how (or why) it helped to preserve the knowledge of classical and Hellenistic Greece. Nor does the exhibition provide much sense of how this learning found its way to the West, a story of cross-cultural exchange that was all the more remarkable for coinciding with the Crusades.

Perhaps this is too much to expect of an exhibition aimed largely at a younger audience. But it is a shame that it fails to address the crucial question of why Islamic pre-eminence in science ended just before the European Renaissance. That is, after all, the point to which Carey was alluding (if not in the most helpful language), and it is one that Muslim scholars are now keen to debate. It would do the riches of Islamic culture no favours to pretend the question does not exist.

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