problems raised are philosophical rather than scientific, but he still hopes for a psychopathology based on science.

Fancher affirms that it was the Second World War that in the United States gave a huge impetus to the idea of mental illness, because so many potential recruits to the armed forces were rejected as mentally unfit. In addition, "around 850,000 soldiers were diagnosed with mental problems". The war emcouraged the proliferation of mental-health professionals. It also wrongly encouraged the belief that such 'experts' could define the boundaries between mental health and illness. Psychoanalysis became the dominant 'culture' in psychiatry, partly because of the promotional effectiveness of Karl and William Menninger, who founded the Menninger Clinic and School of Psychiatry based on Freudian ideas, and partly because of the influx of psychoanalysts who fled Europe to escape Hitler. In the 1950s it was impossible to gain a senior position in psychiatry in the United States unless one had undergone psychoanalytic training. Today the opposite is the case. Freud has been so discredited within psychiatry that psychiatrists in training in the United States know nothing about him. The rise and fall of psychoanalysis is a fascinating chapter in social history. Fancher is of course right in dismissing Freud's claim to be a scientist, but this is nothing new. I think he is also right in writing: "The greatest legacy of psychoanalysis is its highly developed art of listening for what is not being said, for self-deception that is being perpetrated, and for the wishes and terrors that patients cannot own honestly."

At the opposite pole to psychoanalysis is behaviour therapy, supposedly based on sound psychological principles that are ultimately derived from Pavlov. Hans Eysenck, the leading critic of psychoanalysis in the United Kingdom, promoted behaviour therapy as a scientifically based treatment for a variety of psychological problems supposed to be the pathological result of faulty conditioning. Behaviourists believe that whatever has been learned can be unlearned. Some of the techniques employed by behaviour therapists have undoubtedly been effective in a very limited field; but, as Fancher demonstrates, behaviour therapy has nothing to offer many of the patients seeking psychotherapy. B. F. Skinner of Harvard, one of the most famous behaviourists of modern times, wished to abolish "the man defended by the literature of freedom and dignity" and wrote that a "scientific analysis of behavior dispossesses autonomous man and turns the control he has been said to exercise over to the environment". The behaviourist picture of human nature is quite inadequate.

Fancher devotes a fair amount of space to Beck's 'cognitive therapy', which is based on the hopeful notion that if you can alter the ways in which people think about themselves they will become better adjusted. It is indeed the case that people who are prone to depression see the world through dark glasses, expecting the worst, denigrating themselves and reinforcing their pessimistic outlook by taking account only of events and opinions that fit in with it. But, as Fancher points out, many depressives have long histories of failure at love and work and have failed to get what they want from life. "In the last fifteen years, a substantial body of data has accumulated showing that depressives are actually much more accurate than nondepressed persons in their appraisal of themselves and their circumstances."

Biological psychiatry assumes that mental illness arises from malfunction of the brain and is largely genetically determined. Clinical appraisal of a case of depression in a modern psychiatric outpatient clinic will generally revolve around two questions. First, which label from the *Diagnostic and Statistical Manual of Mental Disorders* fits the case in question? Second, which is the best drug to use to lift the depression? Fancher is as scathing about the inadequacy of the assumptions underlying biological psychiatry as he is about all other psychiatric methods.

Yet here he is, practising as a psychotherapist. How does he justify it? Outcome studies have demonstrated that between about two-thirds and four-fifths of patients benefit from therapy, whatever the method employed. In considering verbal therapies, Fancher does not make enough of the uniqueness of the psychotherapeutic situation. In what other personal encounter do people have the opportunity to talk about themselves at infinite length without fear of interruption or rejection? Perhaps simply airing one's difficulties, and expressing one's miseries, makes them easier to cope with? One of my teachers said that he had treated a patient who visited three times a week for a year. During the whole of that time the therapist said nothing whatso-ever. At the end of the year the grateful patient pronounced himself cured. □

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Hyping up the letdown gene

Mike Stratton

Breakthrough: The Quest to Isolate the Gene for Hereditary Breast Cancer. By Kevin Davies and Michael White. *Macmillan: 1995. Pp. 370. £16.99. To be published in the United States by Wiley.*

THE race to isolate the gene for susceptibility to breast cancer (*BRCA1*) was one of the most publicized medical stories of the past few years. Huge media and public interest was generated by the fact that breast cancer is a tragically common disease which most people have encountered at some time or another through their family or friends. Along the way, this interest was stoked up by frequent tantalizing rumours that the gene had been isolated, by the distinctive personalities of many of the main characters in the plot and by the many complex accessory issues, particularly the potential for commercial exploitation of the gene sequence.

Kevin Davies and Michael White tell the *BRCA1* story and use it as a starting point for a wide trawl through the epidemiology, psychology, sociology and politics of breast cancer. They chart the way in which the disease has become an important political issue in the United States. Development of breast cancer by prominent American women (particularly presidents' wives) contributed to a transformation in public awareness that provided a new focus for the American women's movement after its many successes in re-orienting society's attitudes in the workplace. The emergence of professional lobby groups with expertise in media management converted '1 in 9' from a statistic (the proportion of women in the United States who develop breast cancer) to a powerful recriminative chant against the lack of success (and, some would charge, lack of effort) of the medical and scientific establishments in fighting breast cancer.

Non-American readers may find this a strange and rather fascinating landscape. Some scientists will remain sceptical about whether public pressure for advancement necessarily influences progress on intractable problems of the natural world (and will be able to quote precedents). The authors generally refrain from comment, conducting a usually balanced argument in the form of quotations from the parties involved. But this call for change has undeniably channelled more resources into breast-cancer research, and the authors illustrate the way in which an increasing number of scientific and medical issues have ceased to be the private concern of health professionals but have become subject to the consumer demands of a vocal and critical American marketplace.

Breakthrough is informative and meticulously documented. But it also aspires to be a dramatic narrative written in a popular literary style that conveys the excitement and tension of the period and describes the fluctuating fortunes in the

race. To my mind, however, there is a flaw in the plot. Isolation of *BRCA1* was an extraordinary technical *tour de force*, a major medical advance and perhaps the last great all-out battle of the big gene-cloning empires. Yet when the sequence was released, there was a palpable sense of anticlimax, a feeling that comes through in the book. It was as if the culprit in a crime novel turned out to be someone who nobody had heard of and who lacked any obvious motive. There were few surprises, the principal one being the rather disappointing discovery that *BRCA1* does not seem to be frequently involved in common, sporadic breast cancer. Moreover, it became clear that *BRCA1* is not the only culprit and that at least one more breast-cancer gene is involved. So the isolation of *BRCA1* recedes into what it always was: an important step in a progressive increase in knowledge about a terrible disease. A breakthrough — certainly. The Breakthrough — perhaps not.

Breakthrough is part of a wave of books that caters to the increasing public interest in science and medicine. Some of the more detailed accounts of the gene mapping and medical management may be hard going for the general reader and the more hard-headed may wish to skip the potted biographies of the main protagonists. Nevertheless, as an all-embracing account of the current state of breast cancer, the book has something for everyone, from the previously uninformed reader to the breast-cancer specialist. □

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Children's Books

Nature plans to publish on 16 November a supplement in which children's books and software will be reviewed. The supplement will cover new publications for children of all ages.

Publishers are invited to send suitable material for consideration, taking note of the following criteria:

- Only books and software issued in 1995 will be considered;
- Books and software dealing with any aspect of science, technology, medicine, natural history or the environment are eligible (including encyclopaedias, dictionaries and games), although school curricula texts are excluded;
- The main language used must be English;
- If possible, cross-platform software (both Macintosh and PC) should be provided.

Publications for review should be sent immediately, together with details of price and availability, to Peter Tallack, Book Review Editor, *Nature*, 4 Crinan Street, London N1 9XW, UK (tel: +44 (0)171 843 4567; fax: +44 (0)171 843 4596/7; e-mail: p.tallack@nature.com).

Science in the dock

John Buckleton

Science and the Detective: Selected Reading in Forensic Science. By Brian H. Kaye. *VCH: 1995. Pp. 388. DM68 (pbk); DM148 (hbk).*

Interpreting Evidence: Evaluating Forensic Science in the Courtroom. By Bernard Robertson and G. A. Vignaux. *Wiley: 1995. Pp.240. £24.95.*

FORENSIC science is a broad topic, and modern books on the subject are typically highly specialized, usually written by several different authors. Not so *Science and the Detective.* The author, a physicist with an interest in lexicography, aims to interest the lay public as well as the legal community and other concerned professionals.

Although the volume is studded with fascinating case anecdotes, these are often described only briefly, and what details there are often betray a lack of a proper understanding of the subject. The numerous definitions of terms, on the other hand, are tiresomely lengthy and painfully precise. The word 'autopsy', for instance, is traced back to its Greek roots and is then immediately followed by the definition of 'biopsy' in a section almost as long as the discussion of whether Anna Anderson was indeed Anastasia, as she claimed. In particular, the aspects of forensics involving physics are in many cases over-emphasized. The discussion of fingerprints, for example, has a long section on laser luminescent enhancement whereas the uniqueness of fingerprints is naively accepted in just a couple of paragraphs, with scant regard paid to the quality of the prints. There is merely passing mention of the concept of a point, with reference to the 16-point rule only, and little discussion of the relevance of such rules, despite the fact that they constitute the largest single field in forensic science.

The book cannot even be used as a 'forensic dictionary': it is not set out for this purpose, nor is it accurate enough. For instance, the section on shoe prints is confusingly entitled "Foot prints". For good reasons, however, practitioners in the field deliberately make a distinction between the two kinds of prints: one connects to a shoe, the other to a suspect.

The book is also remarkably behind the times. There is a description of old methods of glass examination but no mention of the modern temperature-variation methods widely used since the 1970s; in the short section on DNA, only the obsolete multilocus technique is illustrated; and for all the suspense, readers do not even learn the answer to the Anna Anderson mystery, although the solution has recently been published.

By contrast, *Interpreting Evidence* will appeal to both lawyers and forensic scientists. It has a serious message and is not light reading. The authors are prominent workers in the fascinating yet neglected field of forensic interpretation. This, their first book on the subject, is an important attempt to bring clarity to a confusing area.

The authors rightly contend that lawyers and forensic scientists must communicate in the same language if miscarriages of justice are to be avoided. The stumbling-block lies, they argue, in the lack of understanding of Bayesian inference, first outlined in 1763 but brought to the attention of the forensic community in the 1970s and 1980s by workers such as Ian Evett and Dennis Lindley. This philosophy is now applied widely by the forensic community in parts of Europe and New Zealand yet largely ignored in the United States and Australia.

IMAGE UNAVAILABLE FOR COPYRIGHT REASONS

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Hands on forensics: technicians check DNA fingerprints.

Bayesian inference follows from simple laws of probability and directs the tutored mind to ask the relevant questions, in this case with respect to legal trials but also more generally in all decision-making. Even in countries applying the approach, there is considerable scope for improvement in both scientists' and lawyers' understanding of Bayesian logic.

Forensic evidence, such as DNA, can provide answers to such questions as: "What is the probability of this DNA match if the sample did not come from the suspect?" But courts are more interested in questions such as: "What is the probability that this DNA sample came from the suspect?" The authors demonstrate why these are different questions and explain how to proceed from one to the other.

The book contains many actual case examples such as the O. J. Simpson and the Birmingham Six trials, all worked through in such a way that the authors' points are irrefutable. One must hope that their work is widely read and understood by everyone to whom forensic evidence is important. □

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