

'reallys' and 'wells' which, if not exactly to my taste, is preferable to the convoluted gobbledegook beloved of so many academic writers.

Even the presence of an appreciative quotation from my own writings in *Murder, Magic and Medicine* does not quiet the feeling that too close a knowledge of a book's topic is a disqualification for a reviewer. The sense of *déjà vu* — or *déjà lit* — colours one's response to a book in a way that perhaps it would not for a reader approaching the subject matter for the first time.

This book's title is a poor guide to its contents. In fact, the book is an overview of ethnopharmacology and the history of natural products, mixed in with brief explanations of nerve conduction, the structure of the heart, neuronal transmission and how the sodium channel and the menstrual cycle work. The text is leavened with canonical quotations from Shakespeare, De Quincey and Coleridge, with the occasional line of Latin to remind us how educational standards have regressed over the past century.

All the stories one expects to find are here, crammed in glorious propinquity: of how the mandrake root screams when disanchored from the earth, how the hunters of the Orinoco tip their arrows with curare, the gustatory risks of fugu, and how absinthe makes the heart grow fonder (or at least more amorous).

The book is an excellent introductory text for those not liable to dizziness as they jump from one culture to another, or one century to the next, and who are able to read about absinthe and kava on the same page without getting confused. It is ideal for high-school students and undergraduates with an interest in the colourful history of pharmacology and a desire to know what causes the growth of the mammary glands in females. Even pharmacologists raised in a scientific culture in which a two-year-old paper is out of date could spend an idle hour or two profitably browsing, and learning that their discipline has roots in more senses than one.

One problem with putting infinity under a bell jar is that detail is lost, and statements are made with a black-and-white certitude that belies reality. And when a book exhales information as a carpet does dust, it is an invitation to carping on the part of the reader. In the discussion of ackee fruit poisoning, there is no mention of the agents involved, the hypoglycins. The reader does not learn that the lethal tetrodotoxin contained within the fugu or puffer fish is made not by the fish itself, but is obtained from its diet, originating near the bottom of the food chain in bacteria. Acetylcholine, we are told, "is undoubtedly the most important neurotransmitter", leaving me

wondering what the criteria of importance are — there are certainly more abundant transmitters. And Napoleon's hair may contain arsenic, but hair readily picks up arsenic from the environment, including soil it may have contacted, so a conclusion that Napoleon consumed arsenic before dying needs tempering.

Many statements in the book invite scepticism. Do addicts really "often describe" crack cocaine as "an orgasm in every cell of one's body"? And where are these "many tribes in contemporary Africa" using extracts of *Datura* for the ceremonial deflowering of pubescent girls? As this example suggests, the book is written from a culturally normative

viewpoint. The author also talks about trial by ordeal in "primitive societies" (also in Africa), without mentioning that such trials were a feature of mediaeval Europe.

If this book encourages the reader to delve more deeply into the relationship between man and natural products, then it will have fulfilled its author's purpose. It is well produced and copiously illustrated. As a source book, however, it suffers from a lack of references. □

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## Memories of the future

John D. Barrow

**Einstein's Dreams.** By Alan Lightman. Pantheon/Bloomsbury: 1993. Pp. 179. \$17, £13.99.

THERE'S not much scientific fiction that's not science fiction. And the best of it is generally an incorporation of particular scientific ideas within a literary setting. Thus one finds the anthropic principle as the centrepiece of a John Updike novel, Borges's short stories incorporating subtleties of time and infinity and less subtle novels about the human consequences of a reversal of time's arrow.

This little book is different. It is written by someone who is primarily a scientist. Although described as a novel, it is really a sequence of short cameos, each offering a vivid impression of a different dream world where the nature of time is deeply strange. In one it is circular, in another there are two times, in another the slowing of clocks in strong gravity fields has made everyone live in the mountains. In other worlds, time is erratic, or the soon expected end of time induces a weird fatalism. Elsewhere there are moving glimpses of a world in which time stands still, or where there is no time at all — merely images. And we visit a world without memory where passions are ever new; a world where time flows backward; and an ephemeral world where life is speeded up and lasts for a single day.

There are dream worlds where time is just an extra sense or where people live forever. This produces a strange division of the population into the "Laters" and the "Nows". The former are the procrastinators who see in their unending futures ample time to do anything they choose. Thus all things can wait. The Nows see the potential to do an infinite number of things, all they can imagine: "they begin early and never go slowly".

But the sociology is curious. Society contains so much experience that it acts as a deadweight upon the accomplishment of anything. "Sons never escape from the shadows of their fathers. Nor do daughters of their mothers. No one ever comes into their own." Sons seek advice from their fathers who seek advice from their fathers and so on. Life is tentative. The unending sequence of verifications required before any project can be completed leads to a world of unfinished projects.

In another dream world, time is a quality not a quantity. Without clocks, calendars and appointments the world is driven by events, ripeness. Everything happens in the fullness of time. There are worlds without futures, worlds where time stops now and then, worlds where the inhabitants are enslaved by worship of the Great Clock; fragmented worlds where the flow of time differs from place to place; and worlds where people live in the past.

Lightman's writing has a telling brevity and precision. His stories are moving and poignant and the result is a unique perception of the ways in which the actual nature of time fashions human relationships and aspirations. This work does not feel like a book by a scientist. It reveals a clear and careful study of human nature. Its simplicity and thoughtfulness are reminiscent of Primo Levi. This is the best work of fiction by a scientist that I have read. It passes some of the tests of classic work: it provokes immediate rereading and a description of it cannot replace the experience of reading it. It's tantalizingly short but lives long in the memory. Take time to read it. □

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