dence. Disposed to the waggish himself — he attempts to trick the reader by coyly misattributed quotations; his favourite word is “whimsical”; he often refers delightedly to Frank L. Baum’s Oz stories — he would clearly welcome a deity whose disposition is similar. Perhaps, he hopefully suggests, the universe is “a vast cosmic jest fabricated by a god who had no motive except to amuse himself and his friends”. This cosy concept is discouraged, though, by memories from Gardner’s fundamentalist education: God only laughs four times in the Bible; on each occasion, he is chortling over the fate of the damned.

Moving from the Old Testament to the new physics, jumbling quarks and quirks, Gardner’s book is a weird blend of sophisticated cerebration and psychological naivety. In approach, it can be callow, full of sleeve-tuggings and leg-pullings. Being button-holed — “But wait! . . . Perhaps, dear reader . . .” — is a recurrent experience. Ratiocination roguishly

collapses into an exaggerated throwing up of hands: “Is it true? Don’t ask me. How could I possibly know? I put it forth whimsically”. As much a wise guy as a “whys” man, Gardner can be alienatingly facetious — yet this doesn’t stop his book from often being genuinely funny. Reverent gazings at the after-life co-exist with a sharp eye for the here and now. Political fatuities are savoured. And Gardner likes to pounce sardonically on Christian crassnesses — from the contemporary childishness of the born-again, carolling out that “Matthew 24 is Knocking at the Door” to medieval implements for uterine baptism of embryos. Oddly, a book introduced as simply “about what I believe and why” is at its keenest when debunking the bizarre beliefs of others. □

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Who got where when

Nicholas Wade

Exploring the Earth and the Cosmos.

By Isaac Asimov.

Crown/Allen Lane: 1982.

Pp.352. \$13.95, £8.95.

ACCORDING to the dustflap of this book, Isaac Asimov’s two-hundredth book was published in 1979. The present work is doubtless his 210th, a fact that must make any reviewer lay aside, at least for a few seconds, the pose of omniscient scorn his kind is obliged to affect. A writer who has published 200 popular books is certainly a master of his craft, like it or not.

Exploring the Earth and the Cosmos is a craftsmanlike compendium of the history of geographical and extraterrestrial exploration. It is taut with pertinent facts, lucidly and deftly presented. It tells you the temperature of the planet Mercury, the distance to Alpha Centauri, the height of many great mountains and the depths of many profound abysses. It relates, with Guinness Book of Records exactitude, who got where first.

In this connection, Asimov may perhaps be a little too clement to the claims explorers make. He cites Admiral Peary as the first man to reach the North Pole, and since *Encyclopaedia Britannica* does likewise, he shall not be faulted for that. The astronomer Dennis Rawlins, however, showed in a book of 1973 that there is strong reason to doubt the good Admiral ever went near the pole. Since explorers tend to have few independent witnesses, but patrons and a public to satisfy, their claims often merit some scepticism.

It is here perhaps that Mr Asimov’s relentless march of facts begins to provoke

a twinge of fatigue in the reader. At some point people become more interesting than things to even the most hardened misanthrope. Someone had to be first to the North Pole; who cares if it was Admiral Peary or Eeyore? But if Admiral Peary was spinning a yarn, that’s a story that can be sat up for. Similarly the Venetian master Titian is earnestly cited for his longevity, but Titian was not the first to let his anticipation of a pension outweigh his appetite for factual exactitude. Modern scholars believe he was born in 1488, not 1477 as Titian and Asimov declare.

Expansion of physical horizons is the theme that threads the book together. Mr Asimov concludes by noting that “there are other horizons that have expanded — magnetic intensity, viscosity, angular momentum, etc — but those I have present are sufficient to show humanity at its most magnificently human . . .” The observation evokes the image of someone swimming through molasses in a 5 tesla field at 33g, which would surely be as fine a testament as any to the human side of humanity. The weakness of the book is that Mr Asimov’s interest in facts is inexhaustible, his attention to motive exiguous. Yet without motive, who would ever leave home to go exploring either Earth or cosmos?

Inclusion of the details that interest historians, however, would have extended the book beyond any reasonable scope. Mr Asimov’s aim was to distill the quintessence of fact, and he has succeeded excellently. Yet the book is probably one that more people will find useful as a work of reference than will read for pleasure. □

Nicholas Wade is an editorial writer on the New York Times and co-author of Betrayers of the Truth (Century, 1983), an analysis of fraud in science.

Smoothing the flow of data

T.A. Kletz

How to Write and Publish a Scientific Paper, 2nd edn.

By Robert A. Day.

ISI Press: 1983. Pp.180. Hbk \$17.95; pbk \$11.95.

MANY who have to read scientific papers, reports and memoranda, published and unpublished, will have sympathized with the chairman of a recent Inquiry, who wrote in his report, of the written evidence he had received, “Turgid and indigestible as some of it was, the Assessor and I read it, though often with little profit”. Many scientific and technical reports are badly written. (Is this why so few technologists seem to read books for pleasure? Does the garbage they have to read put them off all reading?) I therefore turned hopefully to the new edition of Day’s book. Could I recommend it to colleagues, past and present? It is well-written, it was a pleasure to read (I must get my tenses right), it contains many amusing anecdotes, but a better title would be ‘All you need to know about writing a scientific paper except what words to use’ or ‘How to make life easier for editors’.

This book covers choice of title, the abstract, the manuscript, the diagrams, layout of tables, references, proof-checking, ordering reprints and other such matters but only two short chapters deal with the actual choice of words. The author claims that if you organize the paper properly it will write itself, but this is not so. You could follow all his advice (except for the two chapters I have mentioned) and produce an unreadable paper; you could ignore all his advice and produce a paper that is a pleasure to read and which influences its readers, even though the tables take up more room than they need and the references are a mess. In fact, Day like many editors, almost forgets that it is the content that makes a paper and not the layout.

There is no reason why authors should not follow his advice and make his life easier — it is sloppy to have references arranged inconsistently, for example — but readers are (we hope) more numerous than editors and it is therefore more important to make their life easier by developing a clear style, particularly if you are writing for a wider public. Fellow workers in your field may persevere; others will not.

Day paints a picture of the editor as a man martyred by authors who will not follow his advice. As an author I do not quite see it that way; it is me (or my papers) that are afflicted. I could quote many examples of editors who have changed what they did not understand, shortened