changes in the sixteen years between the two editions. As such, it proceeds in authoritative, measured steps from basic antenna theory to the theory of the modern synthesis telescope. The new edition continues the tradition of its predecessor in providing a graduate-level reference book to the theory of radio astronomy measurements.

However, in those 16 years radio astronomy has undergone a marked metamorphosis, and it would seem that rather more than a revised edition is needed. The changes in radio astronomy have been in technique, viewpoint, and emphasis. This book however radiates an approach which not only smacks of the era of fan-beam interferometers (rather than millimetre VLBI) but also concentrates on hardware solutions to problems which now rate no more than a few lines in some elegant imaging algorithm.

One cannot help comparing this book to ‘Interferometry and Synthesis in Radio astronomy’, by Thompson, Moran, and Swenson (publ. by Wiley). This latter book very much represents the current approach, with detailed discussions of such topics as correction algorithms and quantisation errors, neither of which receive more than a few lines in ‘Radiotelescopes’. On the other hand, ‘Radiotelescopes’ gives a detailed treatment of the performance and illumination of single antennas, whereas this is omitted by Thompson et al. These two books should therefore be regarded as complementary: Christiansen and Högbom give a clear picture of the theory behind the development of radio astronomy, whereas Thompson et al. portray current practice.

In summary, this is not a book I would recommend to the newcomer to radio astronomy who wishes to find out how instruments such as the VLA, MERLIN or the Australia Telescope work, although it will be valuable when trying to understand the ideas behind them. It should, however, be a standard reference work in every astronomical library, to be consulted when excavating to the theoretical foundations upon which radiotelescopes are built.

The Mystery of Comets

Fred L. Whipple, Cambridge University Press 1986 (originally published by Smithsonian Institution Press 1985) 276 pp. $46.00. Reviewed by David Allen

When asked by the editor to review a popular book on comets, I groaned. Haven't we, as 1986 now draws to a close, had enough of comets to sate us for another 76 years? Editors, of course, are selected for their persuasive powers. 'I'll send it over for you to have a look at anyway', quoth he. Two days later, there it was: an attractive little book bearing on its cover one of my three all-time favourite comet pictures (West 1975, by Royer), and the name of Fred Whipple. Now, if you want to know something about comets, there is nobody better to ask than Whipple, the acknowledged world expert on the subject. The men at CUP know their authors!

I read the book. It took me three leisurely evenings, and it was lovely. Fred Whipple has laid out a splendid tale, nicely balanced, beautifully aimed not only at the layman but at people like you and me who thought they'd picked up the gist of it over the last year or two. This is not a book about Halley; it describes what we know about comets in general, how we learnt that much, and what we still don't know. It delves a little deeper into the subject than most of the plethora of books that fell to earth as a result of Halley's latest visit. In fact, I wish I'd read it before writing mine.

I met Fred Whipple once, when I was a raw post-doc. He immediately struck me as somebody interested in people. That impression is heightened by reading this book. Smiling from the pages we find many photographs of contemporary cometary scientists (nobody's smile is more infectious than Ray Newburn's on p. 257). People are mentioned on almost every page, almost as though we are at a reception, and Whipple is pointing them out or introducing them to us. I can picture the embarrassment on Whipple's face, though, over the names he gets wrong. Gerry Neugebauer has been given a middle initial; Steve Larson has had his changed; and Malcolm Hartley is introduced as Marc. A worse fate befell the gentleman who appears as Drommelin (a word that sounds as though it has to mean something); but then maybe Crommelin, had he been alive today, would have welcomed a change to his initials ACDC.

There are a few other totally trivial peccadilloes. Silicate grains produce emission in comets, not absorption as stated; Whipple's reference to the cluster of infrared sources in the Orion Nebula is decidedly garbled; and the captions to two of the colour plates have been interchanged. Only one real problem struck me: Whipple launches into comparing the chemical composition of comets to the Sun, without explaining why. At that early stage in the book, many readers may expect a comparison with the Earth to be more relevant.

So—a nice book. To buy or not to buy? Without hesitation I say don't. As I noted earlier, I wish I'd read this book a couple of years back. When first published by the Smithsonian it was timely and well worth reading. But a lot of water has flowed under the bridge since then. The book is old, too old. Witness, as example, the statement 'If launched in time, the Space Telescope could add an enormous amount of scientific information about Halley's comet during its 1986 apparition.' There must be books in preparation now which, though perhaps not so well written, will tell the 1986 tale of comets rather than the 1984 vintage. The Mystery of Comets contains not one shred of the spacecraft data, and very few of the ground-based observations still being collated by the International Halley Watch. I must be naive in the philosophy of publishing, as I can't for the life of me see why C.U.P. has printed it now. Surely someone could persuade Whipple to revise and update the book as a second edition. If he did, I'd even be prepared to review it.