



Introduction to comets

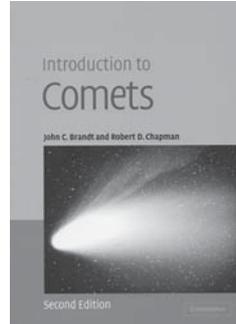
by John C. Brandt & Robert D. Chapman

Cambridge University Press, 2004. Pp viii + 441. ISBN 0-521-80863-4, £75.00 (hbk); ISBN 0-521-00466-7, £35.00 (pbk).

The first edition of this book was published back in 1981 and its cover featured a superb picture of Comet West in the dawn twilight. Given everything that has happened in cometary research over the last 20 years, it is surprising that Cambridge have only just published the second edition. This welcome revision brings the book up to date and it now features one of Herman Mikuz' excellent pictures of

Hale-Bopp on the cover. It is also a lot heavier than the original!

This is not an observing manual. It won't tell you how to estimate comet magnitudes or photograph their tails. What it does do, and it does this very well, is explain the science behind comets in a way that can be understood by the educated layperson. Sufficient maths is given for those who wish to understand the subject in more depth but it is not necessary to follow the details to get a lot out of this book. If you are inclined to follow



up a particular subject of interest you will appreciate the list of references at the back. This extends over 33 pages and it provides a really comprehensive source of information on cometary science. Many of these references are now available online or they can be obtained fairly easily from central libraries.

The authors start with a historical overview of the development of cometary science. They then discuss developments in cometary physics, and most of this chapter has been rewritten since the first edition. Remember that this was published well before Halley's return in 1986 when CCDs were rare and we had never seen a cometary nucleus directly. I have scanned through my first edition and I cannot find a single CCD image in the whole book! In contrast this second edition has many of them, ranging from the recovery image of 1P/Halley taken by Danielson & Jewitt from Palomar in 1982 to the *Deep Space 1* image of the nucleus of 19P/Borrelly taken in 2001.

The middle part of the book concentrates on discussion of the nucleus, coma and tails. The authors have succeeded in writing a very comprehensive introduction to these topics which can be read on a number of different levels depending on ability and interest. My only criticisms are directed towards the end of the book where the chapter on future cometary research has largely been overtaken by events. This is not really the authors' fault since it is notoriously difficult to keep up with the forever changing schedules of spacecraft in a printed book. I was surprised however, that they included a detailed description of the *Contour* mission even though that spacecraft was lost well before the book was published.

Some of the comet photographs have not reproduced very well and a number of the pictures are too small for my liking, but this isn't a major problem since the book is all about the science of comets rather than their appearance. So much has happened since 1981 that this second edition is almost a complete re-write, but the authors have managed to maintain the same attention to detail that was apparent in the original. This book is not intended as an observing guide but if you want to get a basic understanding of the science behind these enigmatic objects you should get yourself a copy. I don't think that there are any better books available for the general reader.

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Nick James is the Papers Secretary of the BAA, and an Assistant Director of the Comet Section. In his professional life he leads a team implementing the latest spacecraft tracking and telemetry receivers in the ESA ground station network.

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