When can you see fireballs and whom should you contact if you spot one? When is it best to hunt for comets and meteors and whereabouts? How do you gauge the size of the coma in the head of a comet and estimate its degree of condensation? Clear and easy to use, this guide shows you how to make successful and valuable observations and records of comets, asteroids, meteors, and the zodiacal light. For each topic the historical background and current scientific understanding support a wealth of observational techniques.

Comet observers are shown techniques for search and discovery. They can learn how to make visual estimates of brightness and size, and how to make photographic studies of cometary heads and tails. Asteroid hunters will find a ‘life list’ of quarry and guidelines on how to search for these objects and then how to photograph or electronically image them. Fruitful photographic and electronic methods for studying meteors and meteor showers are provided. Visual and photographic techniques show you how to examine the often elusive zodiacal light. The more adventurous are provided with advanced techniques on how to make successful astrometric, spectroscopic, and electronic observations. This is rounded off with an invaluable list of centers world-wide to contact with your details of unusual sightings.
Observing Comets, Asteroids, Meteors, and the Zodiacal Light
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Observing Comets, Asteroids, Meteors, and the Zodiacal Light

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and

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Dedication

For Janet, who has had to share me with Astronomy, and Aaron, Shanna, and Jordan too, and for my parents Joe and Sophie, who guided, encouraged, and supported me.

With love from Steve

For my brother Richard, my sister Joyce and her husband Larry, and my brother Gerry and his wife Audrey, who know so well what Astronomy means to me.

With love from David
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Authors’ notes

‘Debris of the solar system,’ we thought, had a rather nice ring to it. A single volume with a discussion of the observing possibilities of four seemingly unrelated but complex areas – comets, asteroids, meteors, and the dust tepees familiarly called the zodiacal light – was, for its authors, a highly desirable project.

This book has its genesis in two ideas. The first was a pair of observing manuals we wrote for the Astronomical League and the Association of Lunar and Planetary Observers called Observe: Comets and Observe: Meteors. In the years since their publication we thought that although these areas are really very different, requiring diverse skills and procedures, comets and meteors as objects in space are so related that a single book about them would be an interesting challenge. Adding asteroids and the zodiacal light to the project followed naturally.

The second idea, that we do this book together, was not a challenge at all. Since we met each other ten years ago, our mutual passion for the subject has kept our friendship brisk and our planning for the book lively and entertaining.

For two people who don’t live that far apart we always joke about the distances we have to travel to visit each other. One precious memory is of sitting together at a conference in Heidelberg while Uwe Keller of the Max Planck Institute of Aeronomy displayed the very first clear image of the nucleus of Halley’s Comet. As we looked transfixed at what the Giotto spacecraft had photographed, we saw for the first time that this comet was a place, a world, with depressions and a mountain on its land. But during another meeting, this time in Canada, we became so engrossed in a back-of-the-hall conversation about the latest comet that someone asked us to leave the lecture we were supposed to have been paying attention to!

We hope that the following pages will help to clarify a difficult and elusive subject. We have included numerous references throughout the text so that you, whether you are a beginner or an expert, will have further opportunities to expand your knowledge and practice. We have deliberately tried not to put our different writing styles into a melting pot, and you will no doubt find that the writing for much of the visual observing sections, which are Levy’s forte, has a different style from the thoughts expressed in the sections on photo-
Authors' notes

tography, spectroscopy, and the analysis of data, areas which are Edberg's strength.

And although we have made every effort to clean up any errors, we are aware that this is a subject with several points of view, and that others will disagree with some of what we say. For example, many good meteor observers feel that observing in groups is far less desirable than observing individually. We know this is a point of contention. Nevertheless, we have devoted a considerable amount of space in the 'Meteors' chapter to describing how to observe meteors effectively as observing teams. Our main justification is that observing that way is fun, and fun is ultimately what amateur astronomy is all about.

Now as to the errors: if you find one, each author blames the other for it.

Stephen Edberg
David Levy
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