



AMATEUR astronomers not only hunt for comets (see below); they also flock to sites around the world to observe eclipses. This photograph of an annular eclipse is from *Chasing the Shadow* by Joel Harris and Richard Talcott, an observer's guide to solar eclipses through to the year 2020. Kalmbach, \$18.95 (pp. 160, pbk).

Debris from space

Don Yeomans

The Quest for Comets: An Explosive Trail of Beauty and Danger. By David H. Levy. Plenum: 1994. Pp. 280. \$23.95.

SPENDING long lonely nights searching for new comets is a surprisingly competitive pursuit and only the most persistent succeed. Experienced observers spend an average of 200 search hours per discovery. But the rewards are great. Not only will a newly discovered comet be available for scrutiny by other astronomers, but the name of the discoverer is attached to the comet from then on. There is a certain immortality in having your name associated with an object that will normally outlive you by several million years.

David Levy is one of the more successful comet hunters, and his engaging writing style and love for his science is contagious. Using historical and personal anecdotes, he explains why he devotes much of his life to pursuing the subtle light of the elusive comets. Because comets are thought to be the least-altered debris remaining from the formation of the outer Solar System four-and-a-half billion years ago, these bits of ice and dust are eagerly studied by planetary scientists. The thread that runs throughout his story concerns the violent collisions of comets with our Earth and Moon as well as with other planets and their moons. Collisions with the early Earth may have spread a veneer of carbon-based molecules and water on the Earth's surface, providing the mixture that allowed life to form. Subsequent cometary collisions with the Earth prob-

ably destroyed large numbers of species and allowed the more hardy species (such as us mammals) to develop further.

The author is at his best when telling the many historical and personal anecdotes that fill this small volume. Comets have been discovered by mistake and have frequently been mistakenly discovered. One comet hunter gave a precious cometary discovery to a friend and another, we learn, found his wife in the classified ads. Much of the book consists of anecdotal accounts of the lives of Levy's current partners in cometary pursuit, Gene and Carolyn Shoemaker. Gene's recollections of the first attempts to explore the Moon during the Explorer, Surveyor and Apollo spacecraft programmes are memorable, as is the evolution of Carolyn from a homemaker to a world-class astronomer. Her cometary findings will soon surpass the record of 37 discoveries made by the early nineteenth-century French astronomer Jean Louis Pons.

One of Carolyn's more recent discoveries, the bizarre comet Shoemaker-Levy 9, was made in March 1994. This comet has split into 21 separate fragments and, rather than orbiting the Sun, they are all in temporary orbits about Jupiter. If we could count each fragment as a separate comet, then Pons's record has already fallen. On the other hand, the suicidal fragments will soon disappear forever when they hit Jupiter during the week of 16–22 July 1994. Using this comet and others as examples, the author has provided us with a personal, well-written narrative on his quest. □

Don Yeomans is in the Jet Propulsion Laboratory, California Institute of Technology, Pasadena, California 91109. USA.

Growth of biological thought

Jane Maienschein

A History of the Life Sciences. Second Edition. By Lois N. Magner. Dekker: 1994. Pp. 496. \$59.75.

It is difficult to tell for whom this book is intended. Lois Magner sees the volume as useful for a one-term introductory course as well as for general readers and teachers. Yet the price precludes its use as a course textbook, and the choice of publisher makes it fairly inaccessible to a general audience. Perhaps it is best assessed against Magner's stated objectives: to provide a panoramic view of the forest of concepts and methodologies of the life sciences, while also pausing to examine particular trees in an effort to stimulate interest from historians and biologists.

Magner writes in a lively style that makes the individual examples accessible and amusing. We learn, for example, that the Enlightenment physician and philosopher La Mettrie attended "a feast given in his honour by a grateful patient. Immediately after eating an enormous quantity of a truffle pastry, La Mettrie fell ill and died. The cause of death was unclear, but Voltaire pronounced it a great occasion since, for once, the patient had killed the doctor". Or of T. H. Huxley: "Physicians told Huxley that his ailing bride was unlikely to live another 6 months; this estimate proved to be wrong by about 50 years". Such stories bring the individuals alive and help to make history more fun. The facts also accord with the best available scholarship, providing reasonably 'accurate' accounts. The trees are presented in focus and with attention to detail.

Yet details, as Magner realizes, do not alone make history. In trying to present the larger themes, she is less successful. The first four chapters cover familiar ground in the history of science but include too much detail. No coherent story emerges, so that the newcomer is left feeling that there was a lot going on but with no clear understanding of what it all means. It seems unlikely that this section will inspire biologists, and there are already excellent histories of science presenting the same ideas and individuals to historians or more general readers. Magner has read the literature and provides good reading lists, but the lack of footnotes or annotations means that readers will find it difficult to follow up particular points. But for the initiated the chapters provide a useful reference survey.

The remaining six chapters are devoted to particular subjects or disciplinary areas (generation, physiology, microbiology,