

information into knowledge." This is not that book.

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## Introduction to Comets

J. Brandt, R. Chapman

246 pp. Cambridge, New York, 1981. \$45.00 cloth, \$11.95 paper

"Scarfed in a Filmy Bit of It, We'll Whirl On In Our Dance Through Space, Unharmed, and Most of Us, Unheeding." This delightful subheadline from *The New York Times* was referring to the Earth's impending passage through the tail of Halley's comet in May 1910. When it returns in 1986, Halley's comet will again be largely unheeded. This is particularly true in the United States, which has seen fit not to risk scarfing even a space probe in the comet's tail; and since this celebrated member of the solar system will be far to the south at its brightest and best, the US public will be doubly denied the pleasure of witnessing it with any clarity.

*Introduction to Comets* is one of the better entries in a field in which works are rapidly multiplying as Halley quickens its own pace toward perihelion passage on 9 February 1986. Its senior author is one of the world's leading authorities on the processes that take place in the plasma tails of comets. It is thus not surprising that the book should include a description of the enormous accelerations and other curious motions observed in plasma tails, Karl Wurm's 1943 acknowledgment that the traditional concept of repulsion due to solar radiation pressure would not account for the observed accelerations, Ludwig Biermann's introduction of the concept of the solar wind and momentum transfer with the tail of a comet, and Hannes Alfvén's consideration of the role played by magnetic fields in this interaction. There is a detailed examination of the whole cometary phenomenon, from the information obtained from studies of their orbits, through suppositions concerning the structure of cometary nuclei, to the chemistry involved in the formation of the gas coma, and the dynamics of particulate matter released from the nucleus to develop into the dust coma and tail. The authors also discuss various theories of cometary origin and the relationship of comets to other bodies in the solar system. Special chapters are devoted to new observational results from the bright comets of the 1970s and to plans for cometary space missions in the 1980s.

In short, much of the Brandt-Chapman book is an excellent, mathematically rigorous text for the beginning

and advanced student of cometary astronomy. This serious material is curiously intermingled, however, with accounts of less "scientific" studies of comets. Here we can read of the attribution to a comet of an "epidemic of sneezing sickness among the cats of the Rhenish areas of Westphalia," how Edward Emerson Barnard earned enough money to build a house, and just what the Christmas Monster of 1973 was expected to bring. The authors deliberately divided their work into four "perspectives"—the historical, the current, the future and the lay—and they are to be commended for their attempt to bring together in the hoped-for Golden Decade of cometary research all the various ideas ever promulgated on the subject. But it doesn't work. The armchair reader intrigued by the comet lore of chapter 10 is not going to want to wade through the treatment of molecular collisions and vaporizing flux and the integration of Clapeyron's equation on page 131. On the other hand, it is but a disconcertingly small step from the above-mentioned feline sneezes (page 218) to the seemingly serious Hoyle-Wickramasinghe conclusion (page 212) that influenza germs are brought on wings of comets; from the Daumier cartoon on the anticipated breakup of the world in 1857 by collision with a comet (page 220) to Van Flandern's theory of comet formation by planetary breakup (pages 152-154); from the *Book of Joel's* description of heavens filled with "fire and pillars of smoke" (page 218) to Vsekhsvyatskij's views of comet production by volcanic eruptions from Jupiter and its satellites (page 41).

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**Waves and Photons: An Introduction to Quantum Optics.** E. Goldin. 211 pp. Wiley, New York, 1982. \$25.95

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**The Origin and Evolution of Galaxies.** Proceedings of the NATO Advanced Study Institute, Erice, Italy, May 1981. B. J. T. Jones, J. E. Jones, eds. 358 pp. Reidel (US dist. Kluwer, Boston), 1983. \$54.50 cloth, \$24.50 paper

## Geophysics and Planetary Science

**Advanced Automation for Space Missions.** Proceedings of 1980 NASA/ASEE

Summer Study, Santa Clara, Cal. R. A. Freitas Jr., W. P. Gilbreath, eds. 386 pp. NASA, US GPO, Washington, D.C., 1982. *price not stated*

**Electrical Processes in Atmospheres.** H. Dolesalek, R. Reiter, eds. 865 pp. Steinkopff. (dist. Springer, New York, 1982). *price not stated*

**By Jupiter: Odysseys to a Giant.** E. Burgess. 155 pp. Columbia U.P., New York, 1982. \$24.95. *for general readership*

**The Tides of the Planet Earth.** Second Edition. P. Melchior. 641 pp. Pergamon, New York, 1983. \$90.00

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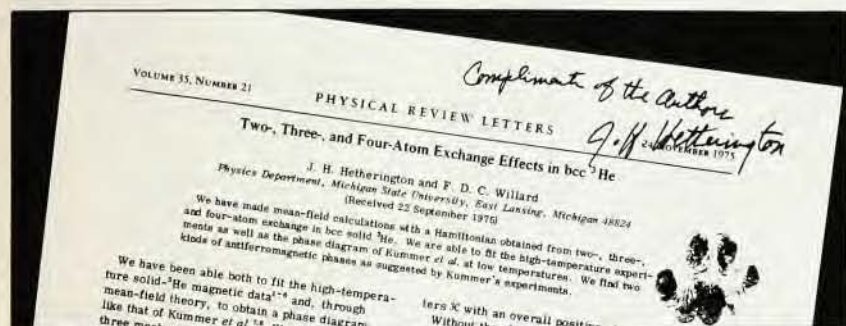
**High School Physics: Notes and Examples.** J. W. McLaughlin. 377 pp. Vantage, New York, 1983. \$12.95

## book notes

### More Random Walks in Science

**R. L. Weber**, 208 pp. Institute of Physics (US dist. Heyden, Philadelphia), 1982. \$19.50 (10% discount for members of AIP societies)

Robert Weber, an associate professor of physics at The Pennsylvania State University until his retirement in 1979, has taken a second "random walk in science." The anecdotes, parodies and cartoons he has gathered together in this anthology make fun of aspects of scientific research, academic life and famous scientists. A few other items are less irreverent but just as much fun. The selections, written by scientists, usually made their first appearances in journals and magazines (including, we are happy to add, this one). The accompanying box contains one of the 200 items. □



Everything about the paper abstracted above is serious except that the second author is a cat (note his signature). Professor Hetherington explains: "I had prepared the paper, now called Hetherington and Willard, and was rather proud of the work, considering it suitable for rapid publication in *Physical Review Letters*. Before I submitted it I asked a colleague to read it over and he said 'It's a fine paper but they will send it right back.' He explained that this is because of the Editor's rule that the word 'we' should not be used in a paper with only a single author. Changing the paper to the impersonal seemed too difficult now that it was all written and typed; therefore, after an evening's thought I simply asked the secretary to change the title page to include the name of the family cat, a Siamese called Chester, sired one summer by Willard (one of the few unfixed male Siamese cats in Aspen, Colorado). I added the initials F. D. in front of the name to stand for *Felis domesticus* and thus created F. D. C. Willard.

"Why was I willing to do such an irreverent thing? Against it was the fact that most of us are paid partly by how many papers we publish, and there is some dilution of the effect of the paper on one's reputation when it is shared by another author. On the other hand, I did not ignore completely the publicity value, either. If it eventually proved to be correct, people would remember the paper more if the anomalous authorship were known. In any case, I went ahead and did it and have generally not been sorry. Most people are amused by the concept; only editors, for some reason, seem to find little humour in the story.

"When reprints arrived, I inked F. D. C. Willard's paw, and he and I signed about

10 reprints which I sent to a few friends. Two of these reprints had some later consequence. One official at NSF keeps one in his office, and when the conversation lulls with one of his visitors he takes it out and tells the story. Since most of his visitors are seeking funds, I presume they all think it very funny if he does.

"I had always secretly hoped that Willard would get some kind of invitation to speak on his work. I later learned that he probably would have received such an invitation had it not been for one of the 'signed' reprints. The reprint was sent to a young French physicist. He was in a meeting choosing invitees for the LT-15 conference, when someone suggested that they 'invite Willard, he never seems to get invited anywhere.' The young physicist said he was not sure, but he thought Willard might be a cat. He brought the reprint to the next meeting and passed round the copy, which said 'Compliments of the authors' followed by our two signatures. It may or may not be significant that I did not receive an invitation to that conference either.

"The paper in *Recherche* [114, September 1980, page 972] signed by F. D. C. Willard occurred after some disagreement among the authors about the details presented in that popularization. Willard, being already published in the field, seemed a reasonable pseudonym for the authorship—no one could blame a cat for getting a few details wrong! We can also note that his time spent learning such excellent French explains his rather sparse publication record.

"The story has now been told many times and my wife can add that she sleeps with both authors!"