

form of representation, namely the full 3-D model, and proposes types of description that can be compared directly with the forms of familiar or indeed unfamiliar objects. Chapter 6 draws all these threads together and closes the main part of the book, but there is a delightful epilogue (chapter 7), which takes the form of a conversation between Marr and an intelligent critic of his ideas (could this be Francis Crick?) and touches on a number of more general issues about the nature of psychological theories. This chapter should be compulsory reading for all psychology students whether or not they are interested in visual perception.

*Vision* will be seen as a milestone in the history of the subject. Even if no single one of Marr's detailed hypotheses ultimately survives, which is unlikely, the questions he raises can no longer be ignored and the methodology he proposes seems to be the only one that has any hope of illuminating the bewildering circuitry of the central nervous system. David Marr's lifework will have been vindicated when neuroscientists cannot understand how it was ever possible to doubt the validity of his theoretical maxims.

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## Stellar Explosions

**Supernovae.** A Survey of Current Research. Proceedings of an institute, Cambridge, England, June 1981. MARTIN J. REES and RAY J. STONEHAM, Eds. Reidel, Boston, 1982 (distributor, Kluwer Boston, Hingham, Mass.). xxiv, 590 pp., illus. \$69. NATO Advanced Study Institutes Series C, vol. 90.

This volume of symposium proceedings, supplemented by the proceedings of IAU symposium No. 101 on supernova remnants, will provide an authoritative and up-to-date survey of this important and fast-developing field.

The first half of *Supernovae* contains a series of papers on theories of supernova formation that provide an almost embarrassing number of ways in which single stars of widely differing masses can explode to become supernovae. Additional mechanisms involve production of supernovae by mass transfer onto white dwarfs in binary systems. What is not yet clear is how the plethora of theoretical supernova models is to be related to the spectroscopic observations that show only two distinct types of supernovae:

Type I, which do not show hydrogen absorption, and Type II, which do.

Observations in the Galaxy and the Magellanic clouds show that there are at least three quite distinct types of young supernova remnants, of which Cassiopeia A, the Crab Nebula, and the remnant of Tycho's supernova of 1572 are the prototypes. It is not at all clear yet how these three types of remnants are related to the two kinds of supernovae that are actually observed.

The excellent discussions in the volume of supernova frequency by Tammann and of the pulsar birthrate by Lyne reduce but do not yet eliminate the apparent discrepancy between these two quantities. (Since about a third of the most recent supernovae have left pulsars one would expect the supernova birthrate to be approximately three times higher than that of pulsars.) It is significant that such a discrepancy between supernova and pulsar rates remains even though Tammann has adopted supernova rates that may turn out to have been somewhat too optimistic. From his rates one calculates that a supernova should occur in M 31, M 33, the Large Magellanic Cloud, and the Small Magellanic Cloud once every 16.3 years, whereas only a single supernova has been seen in these galaxies during the last century.

Finally, a number of authors emphasize the importance of better statistical data on the supernova frequency in distant galaxies. The development of charge-coupled device detectors and of computer-controlled telescopes should enable us to obtain such improved data in the near future. Furthermore, such new observations should allow one to see if the usually overexposed cores of galaxies exhibit a much higher supernova frequency than has so far been suspected.

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## Books Received

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**Asbestos.** Directory of Research and Documentation Centres. Sandro Amaducci, Ed. Reidel, Dordrecht, 1982 (U.S. distributor, Kluwer Boston, Hingham, Mass.). xiv, 390 pp. \$52.

**Asbestos.** Directory of Unpublished Studies. First Edition. Up to July 31, 1981. Sandro Amaducci, Ed. Reidel, Dordrecht, 1982 (U.S. distributor, Kluwer Boston, Hingham, Mass.). xii, 338 pp. \$45.

**Boiling Energy.** Community Healing among the Kalahari Kung. Richard Katz. Harvard University Press, Cambridge, Mass., 1982. xx, 330 pp., illus. \$25.

**CAD 82.** Papers from a conference, Brighton,

England, Mar. 1982. Alan Pipes, Ed. Butterworths, Boston, 1982. xii, 710 pp., illus. \$64.95.

**Directory of Publishing Sources.** The Researcher's Guide to Journals in Engineering and Technology. Sarojini Balachandran. Wiley-Interscience, New York, 1982. viii, 344 pp. \$27.50.

**Documents in Communist Affairs—1981.** Bogdan Szajkowski, Ed. Butterworths, Boston, 1982. xii, 348 pp. \$65.

**Effects of Gaseous Air Pollution in Agriculture and Horticulture.** Papers from a meeting, Sutton Bonington, Eng. M. H. Unsworth and D. P. Ormrod, Eds. Butterworths, Boston, 1982. xiv, 532 pp., illus. \$89.95.

**Electrical and Electronic Clocks and Watches.** J. D. Weaver. Newnes Technical Books (Butterworths), Boston, 1982. vi, 234 pp., illus. \$29.95.

**Fundamentals of Preparative Organic Chemistry.** R. Keese, R. K. Müller, and T. P. Toube. Ellis Horwood, Chichester, 1982 (U.S. distributor, Halsted [Wiley], New York). 150 pp., illus. \$42.95.

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**Generosity and Jealousy.** The Swat Pukhtun of Northern Pakistan. Charles Lindholm. Columbia University Press, New York, 1982. xxxiv, 322 pp., illus. Cloth, \$28; paper, \$14.

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**Linear Orderings.** Joseph G. Rosenstein. Academic Press, New York, 1982. xviii, 488 pp. \$64. Pure and Applied Mathematics.

**Liquefied Petroleum Gases.** Guide to Properties, Applications and Uses. A. F. Williams and W. L. Lom. Ellis Horwood, Chichester, ed. 2, 1982 (U.S. distributor, Halsted [Wiley], New York). xx, 522 pp., illus. \$108.95.

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**Outline of Genetic Epidemiology.** Newton E. Morton. Karger, Basel, 1982. x, 252 pp., illus. Paper, \$49.

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**The Role of Solar Ultraviolet Radiation in Marine Ecosystems.** Papers from an institute, Copenhagen, July 1980. John Calkins, Ed. Plenum, New York, 1982. xvi, 724 pp., illus. \$79.50. NATO Conference Series 4: Marine Sciences, vol. 7.

**Rutland Water—Decade of Change.** Proceedings of a conference, Leicester, England, Apr. 1981. David M. Harper and John A. Bullock, Eds. Junk, The Hague, 1982 (U.S. distributor, Kluwer Boston, Hingham, Mass.). viii, 232 pp., illus. \$54. Developments in Hydrobiology 8. Reprinted from *Hydrobiologia*, vol. 88, No. 1/2.

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