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The physics of the body will still be largely an unknown territory when the mysteries of high-energy physics have been solved and their solutions have become common knowledge. The greatest mysteries will be in neurophysics. The volume reviewed here is aimed at this difficult area. As a result it is more descriptive than analytical. I would not recommend it as a text for a physics course. Other texts covering the same general area are *Neurophysics*, by Alwyn C. Scott (Wiley-Interscience, New York, 1977); *Electric Fields of the Brain: Neurophysics of EEG*, by Paul L. Nuñez (Oxford U.P., New York, 1981); and *Studies of Mind and Brain*, by Stephen Grossberg (Kluwer, Hingham, Mass., 1982).

The typical medical physicist in the United States is immersed in the various applications of physics to radiology. Only Chapter 6, on new techniques for studying the brain, deals with topics in this conventional area. It describes the techniques of positron-emission tomography and nuclear magnetic-resonance imaging in detail. The modern technique of measuring magnetic signals from the brain, magnetoencephalography, is not even mentioned. Another chapter discusses noise theory in considerable detail but does not relate it to neurophysiological measurements of the brain.

A number of statements in the book are inaccurate or open to question. For example, the authors state that the human brain is convoluted because the skull failed to evolve to a size large enough to contain a smooth brain. The authors give no support for this statement and fail to consider that the convoluted brain may have advantages over a smooth brain. The authors state that an electroencephalogram can be recorded from a single electrode. Because an EEG always records a potential difference between two points on the skull, the reader has to assume that the reference electrode is ignored. The authors' statement that "brain surgery is now used only when the cause of the epilepsy, such as a tumor, must be removed for other reasons" is wrong. Neurosurgery for the treatment of epilepsy that does not respond to other therapy is now accepted practice.

Most of the chapters have about 50 references, but they are not always up to date. In the discussion of the diagnosis of optic neuritis using visual evoked potentials, only one dated reference, from 1972, is given. On the other hand, basic references to old work are sometimes omitted. In the fourth chapter, on chemical and electrical properties of synapses, there is no mention of the Hodgkin-Huxley model of the membrane potential!

The book appears not to have been reviewed by a neurophysiologist. For

example, the statement that there are six domains or lobes in the brain confuses the cortical with the brain-stem structures. The book also indicates that dendrites are passive and do not conduct action potentials, contrary to experimental evidence.

The text does not live up to its purposes, but it still could be a useful reference in a physics or medical library. The reader is cautioned not to believe everything he reads in it, however.

It is a rare department of neurology or neurophysiology that has a physicist on its faculty. Perhaps this book will encourage physicists to enter this important field. Unfortunately, there are probably few jobs waiting for such people.

JOHN R. CAMERON
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new books

Acoustics

Recent Advances in Aeroacoustics. Proc. Int. Symp., Stanford, Cal., August 1983. A. Krothapalli, C. A. Smith, eds. 511 pp. Springer-Verlag, New York, 1986. \$59.00

Astronomy, Cosmology and Space Physics

Astronomy and Astrophysics. M. S. Roberts, ed. 383 pp. AAAS, Washington, D. C., 1985. \$29.50 hardcover; \$17.95 paper. *Articles reprinted from Science*

Atoms of Silence: An Exploration of Cosmic Evolution. H. Reeves. 244 pp. MIT Press, Cambridge, Mass., 1985. \$8.95 paper. *Lay readers*

Build Your Own Telescope. R. Berry. 276 pp. Scribner's, New York, 1985. \$24.95

Cool Stars with Excesses of Heavy Elements. *Astrophysics and Space Science Library 114.* Proc. Colloq. Strasbourg, July 1984. M. Jaschek, P. C. Keenan, eds. 398 pp. Reidel, Boston, 1985. \$54.00

Galaxies, Quasars and Cosmology. *Advanced Series in Astrophysics and Cosmology 2.* Proc. Equatorial Sch., Bogota, February 1984. L. Z. Fang, R. Ruffini, eds. 221 pp. World Scientific, Singapore (US dist. Taylor and Francis, Philadelphia), 1985. \$26.00

Gravitational Physics of Stellar and Galactic Systems. W. C. Saslaw. 491 pp. Cambridge U.P., New York, 1985. \$90.00. *Monograph*

Infinite Vistas: New Tools for Astronomy. J. Cornell, J. Carr, eds. 302 pp. Scribner's, New York, 1985. \$18.95. *Compendium*

Radiotelescopes. Second edition. W. N. Christiansen, J. A. Högbom. 265 pp. Cambridge U.P., New York, 1985. \$59.50. *Text*

Relativistic Astrophysics and Cosmology, Vol. 1. Proc. Sir Arthur Eddington

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Reports on Astronomy. *Transactions of the International Astronomical Union XIXA (Reports 1985)*. R. M. West, ed. 726 pp. Reidel, Boston, 1985. \$69.00

Supernovae as Distance Indicators. *Lecture Notes in Physics 224*. Proc. Wksp., Cambridge, Mass., September 1984. N. Bartel, ed. 226 pp. Springer-Verlag, New York, 1985. \$13.70

The Milky Way Galaxy. Proc. IAU Symp., Groningen, The Netherlands, May-June 1983. H. van Woerden, R. J. Allen, W. B. Burton, eds. 660 pp. Reidel, Boston, 1985. \$69.00 hardcover; \$32.50 paper

The Mystery of Comets. F. L. Whipple. 276 pp. Smithsonian Institution, Washington, D. C., 1985. \$24.95. *Lay readers*

The Universe Next Door: A Complete Guide to Exploring the Skies and Understanding What You See. T. Holt. 408 pp. Scribner's, New York, 1985. \$24.95

Variable Stars. C. Hoffmeister, G. Richter, W. Wenzel. 328 pp. Springer-Verlag, New York, 1985. \$43.00. *Text*

A Random Walk in Relativity and Cosmology. N. Dadhich, J. V. Narlikar, J. Krishna Rao, C. V. Vishveshwara, eds. 236 pp. Wiley, New York, 1985. \$39.50. *Compendium*

Interacting Binary Stars. J. E. Pringle, R. A. Wade, eds. 220 pp. Cambridge U.P., New York, 1985. \$49.50. *Compendium*

The Crab Nebula and Related Supernova Remnants. Proc. Wksp., Fairfax, Va., October 1984. M. C. Kafatos, R. B. C. Henry, eds. 285 pp. Cambridge U.P., New York, 1985. \$39.50

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Actinide/Lanthanide Separations. Proc. Int. Symp., Honolulu, December 1984. G. R. Choppin, J. D. Navratil, W. W. Schulz, eds. 360 pp. World Scientific, Singapore (US dist. Taylor and Francis, Philadelphia), 1985. \$49.00

Advances in Atomic and Molecular Physics, Vol. 21. D. Bates, B. Bederson, ed. 382 pp. Academic, New York, 1985. \$99.00. *Compendium*

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Reference Data on Atoms, Molecules, and Ions. *Springer Series in Chemical Physics 31*. A. A. Radzig, B. M. Smirnov, eds. 463 pp. Springer-Verlag, New York, 1985. \$63.00

The Physics of Ionized Gases. Proc. XII Yugoslav Sum. Sch. Int. Symp., Šibenik, September 1984. M. M. Popović, P. Krstić, eds. 1043 pp. World Scientific, Singapore (US dist. Taylor and Francis, Philadelphia), 1985. \$99.00

The Transfer of Spectral Line Radiation. C. J. Cannon. 541 pp. Cambridge U.P., New York, 1985. \$99.50. *Monograph*

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Modelling of Patterns in Space and Time. *Lecture Notes in Biomathematics 55*. Proc. Wksp., Heidelberg, July 1983. S. Levin, W. Jager, J. D. Murray, eds. 405 pp. Springer-Verlag, New York, 1984. \$25.00

Some Issues Important in Developing Basic Radiation Protection Recommendations. Proc. Mtg., Washington, D.C., April 1984. T. M. Koval, ed. 325 pp. National Council on Radiation Protection and Measurements, Bethesda, Md., 1985. \$19.00

Applications of Physics to Medicine and Biology. Proc. Int. Conf., Trieste, November 1983. Ž. Bajzer, P. Baxa, C. Franconi, eds. 664 pp. World Scientific, Singapore (US dist. Taylor and Francis, Philadelphia), 1984. \$86.00

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A 1983 View of Non-Conventional Energy Sources. Proc. Int. Conf. Sum. Wksp., Miramare-Trieste, Italy, June 1983. G. Furlan, N. A. Mancini, A. A. M. Sayigh, eds. 826 pp. World Scientific, Singapore (US dist. Taylor and Francis, Philadelphia), 1985. \$75.00

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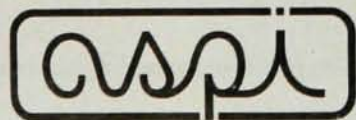
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Theory of Microwave Remote Sensing. L. Tsang, J. A. Kong, R. T. Shin. 613 pp. Wiley, New York, 1985. \$44.90. *Text*

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Techniques of Radiation Dosimetry. K. Mahesh, D. R. Vij, eds. 516 pp. Wiley, New York, 1985. \$29.95. *Compendium*

Videodisc and Optical Memory Systems. J. Isailović. 350 pp. Prentice-Hall, Englewood Cliffs, N.J., 1985. \$32.95. *Monograph*

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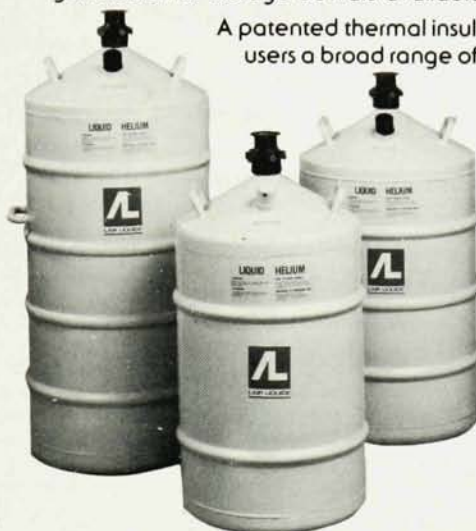
Highlights of Condensed-Matter Theory. Proc. Int. Sch. Phys., Varenna, June-July 1983. F. Bassani, F. G. Fumi, M. I. Tosi, eds. 916 pp. North-Holland, New York, 1985. \$148.25

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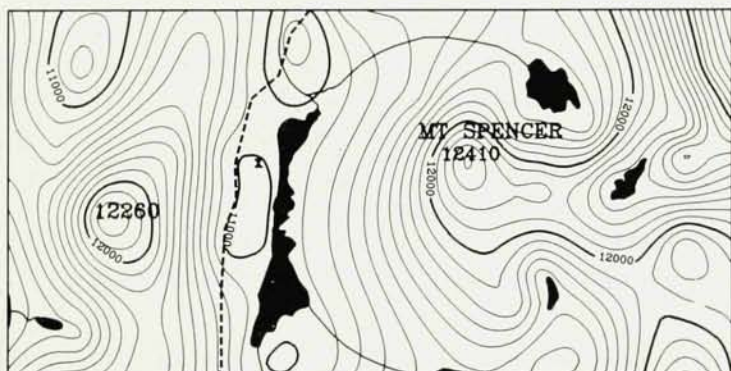
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Polymer Degradation and Stabilisation. N. Grassie, G. Scott. 222 pp. Cambridge U.P., New York, 1985. \$54.50. *Monograph*

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Frontiers in Materials Technologies. *Materials Science Monographs* 26. M. A. Meyers, O. T. Inal, eds. 558 pp. Elsevier, New York, 1985. \$109.25. *Compendium*

International Tables for Crystallography. T. Hahn, ed. 119 pp. Reidel, Boston, 1985. \$120.00

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continued on page 95

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continued from page 82

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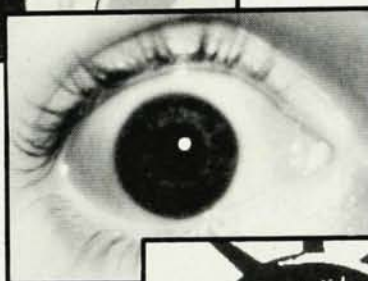
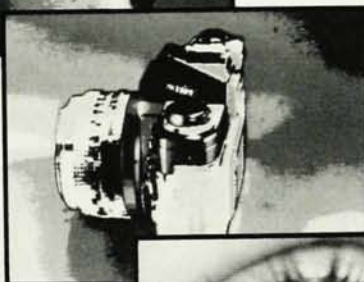
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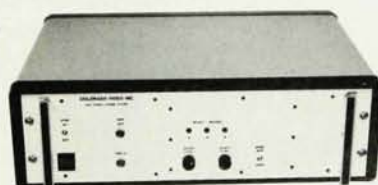
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