as they are printed on components and gives addresses of the suppliers. All the chapters are profusely illustrated with hand-lettered line drawings of very good quality.

The shortcomings of this book, such as they are, are the inevitable ones associated with the bias of the authors, all of whom have research interests in various spectroscopies and a strong chemistry background. Thus, the section on optics is over 270 pages long and has over 100 pages of manufacturers listings. The vacuum technology chapter, though, is only about 30 pages long and, while it has an excellent discussion of the basics, it ignores evaporation and sputtering—two of the major uses of vacuum technology. The manufacturers' list here is less than a page, not a generous representation for the wide range of equipment available. Similarly, the chapter on charged-particle optics includes sources, lenses, analyzers, and electron multipliers, but does not even mention electron microscopy. Certainly, the scanning electron microscope is beginning to become a familiar laboratory tool and should be discussed. On the other hand, the quality of the 145-page electronics section indicates that the authors had to sort this out for themselves and took care to pass this hard-won knowledge along. They even discuss grounding, shielding and pickup, topics all too often glossed over.

Anyone who has to build or buy scientific apparatus, especially in an unfamiliar field, will find this an invaluable reference.

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## new books

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**Addendum to an Approach to Rheology through Multi-Variable Thermodynamics.** H. H. Hull. 21 pp. Pittsburgh, Pa., 1982. $4.00

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**Theory of Electromagnetic Waves: A Coordinate-Free Approach.** H. C. Chen. 449 pp. McGraw-Hill, New York, 1983. $35.00. *graduate text*

### Optics and Acoustics

**Bauelemente der Optik: Taschenbuch für Konstrukteure.** H. Naumann, G. Schröder. 599 pp. Hanser Verlag, Munich, 1983. DM 98

**Radiometry and the Detection of Optical Radiation.** R. W. Boyd. 254 pp. Wiley, New York, 1983. $34.95. *reference*

**An Introduction to Optical Fibers.** A. H. Cherin. 326 pp. McGraw-Hill, New York, 1983. $34.95

**Optical Fiber Communications.** G. Keiser. 318 pp. McGraw-Hill, New York, 1983. $35.00. *reference*

**Pitch Determination of Speech Signals: Algorithms and Devices.** W. Hess. 698 pp. Springer-Verlag, New York, 1983. $37.00

**The Acoustic Sense of Animals.** W. C. Stebbins. 168 pp. Harvard U.P., Cambridge, Mass., 1983. $16.50

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**Direct Nuclear Reactions.** G. R. Satchler. 833 pp. Oxford U.P., New York, 1983. $110.00. *reference*

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**Electron Radial Wave Functions and Nuclear Beta-Decay.** H. Behrens, W. Bühring. 626 pp. Oxford U.P., New York, 1982. $98.00 *advanced text and reference*

**Quantum Chromodynamics. An Introduction to the Theory of Quarks and**

**Gluons.** F. J. Ynduráin. 227 pp. Springer-Verlag, New York, 1983. $30.00

**Multiparticle Dynamics 1982.** 13th International Symposium, Volendam, The Netherlands, June 1982. W. Kittel, W. Metzger, A. Stergiou, eds. 1018 pp. World Scientific (US dist. Heyden, Philadelphia), 1983. $58.00

**Selected Papers, 1945–1980, With Commentary.** C. N. Yang. 596 pp. Freeman, New York, 1983. $39.95 cloth, $19.95 paper

**Leptons and Quarks.** L. B. Okun. 361 pp. North-Holland, New York, 1982. $70.25. *graduate text*

**Nuclear Physics.** Y. M. Shirokov, N. P. Yudin. 303 pp. Mir (US dist. Imported, Chicago, 1982). *price not stated*

## History, Philosophy, Society & Government

**Une Politique Industrielle pour La France: Acte des Journées de Travail des 15 et 16 Novembre 1982.** 438 pp. La Documentation Francaise, Paris, 1982. 55 F

**The Montgolfier Brothers and the Invention of Aviation.** C. C. Gillispie. 210 pp. Princeton U.P., Princeton, N.J., 1983. $35.00

**Radioaktive Abfalle: Probleme und Verantwortung.** A. G. Herrmann. 256 pp. Springer-Verlag, New York, 1983. $7.20

**The Nuclear Future.** M. Mandelbaum. 131 pp. Cornell U.P., Ithaca, N.Y., 1983. $19.95 cloth, $5.95 paper

**30 Years' Review of China's Science & Technology (1949–1979).** 313 pp. World Scientific (US dist. Heyden, Philadelphia), 1981. $60.00. *compendium*

**Stargazers & Gravediggers: Memoirs to Worlds in Collision.** I. Velikovsky. 346 pp. Morrow, New York, 1983. $14.95

**Parliamentarians and Science: A Discussion Paper.** K. Fish. 49 pp. Science Council of Canada, Ottawa, 1983. *free*

**Science and Society: Studies in the Sociology of Science.** J. Agassi. 531 pp. Reidel (US dist. Kluwer, Boston), 1981. $39.50

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**Springs of Scientific Creativity: Essays on Founders of Modern Science.** R. Aris, H. T. Davis, R. H. Stuewer, eds. 342 pp. U. of Minnesota P., Minneapolis, 1983. $32.50. *compendium*

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**Last Aid: The Medical Dimensions of Nuclear War.** E. Chivian, S. Chivian, R. J. Lifton, J. E. Mack, eds. 338 pp. Freeman, San Francisco, 1982. $9.95

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