

later than that, in 1965, he would say that he didn't mean by sin "the deaths that were caused as a result of our work. I meant the sin of pride. We had the pride of thinking we knew what was good for man."

Such comments, reaching beyond Rhodes's book, leave continuing questions about Oppenheimer: What did he actually believe and feel? Was Oppenheimer perhaps so convoluted he did not know or would not say? Perhaps, often confused about self, he chose further to conceal it—an enigma who out of defensiveness and pride further wrapped himself in a second enigma. For at Trinity, we know from his *only* words recorded there, he spoke of the successful test's having "somewhat restored... my faith in the human mind." Did he also, as he *later* claimed, think during this first atomic explosion of the words from the Bhagavad-Gita, "I am become Death, the destroyer of worlds"? Frank Oppenheimer believed his brother said something less lofty: "It worked." I. I. Rabi recalled much later that Oppenheimer, right after the blast, came in and "his walk was like *High Noon*... this kind of strut. He'd done it."

In late September 1945, Oppenheimer and his three associates held their last formal meeting as the Scientific Advisory Panel to put together recommendations on postwar nuclear policy. Because Rhodes apparently never used the files of Lawrence and Compton, he did not discover that these four men, in the aftermath of Hiroshima, gave startling advice on the H-bomb. Summarizing their sentiments in a secret memo on 27 September, Compton informed Washington: "We feel that this development [the H-bomb] should not be undertaken primarily because we should prefer defeat in war to victory obtained at the expense of the enormous human disaster that would be caused by its determined use."

Such moral counsel did not prevail. Nor, amid the developing cold war, did Lawrence, Compton, Fermi and possibly Oppenheimer desire by 1947-48 to adhere to such advice. In ways more subtle than Rhodes understands, the making of the A-bomb helped build the jagged path that led nine years later to the H-bomb.

BARTON J. BERNSTEIN
Stanford University

NEW BOOKS

Biophysics

From Clocks to Chaos: The Rhythms of Life. L. Glass, M. C. Mackey. Princeton

U.P., Princeton, N.J., 1988. 248 pp. \$45.00 *hc* ISBN 0-691-08495-5; \$13.95 *pb* ISBN 0-691-08496-3. *Monograph*

The Timing of Biological Clocks. *Scientific American Library* 19. A. T. Winfree. Scientific American Books (Freeman), New York, 1987. 199 pp. \$32.95 *hc* ISBN 0-7167-5018-X. *Lay readers*

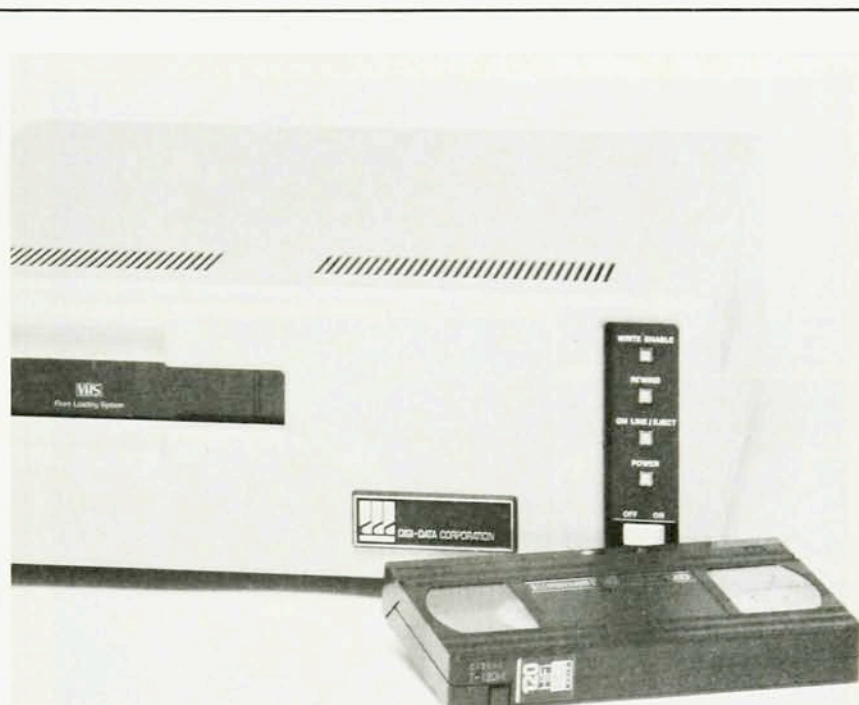
Condensed Matter Physics

Anderson Localization. *Springer Proceedings in Physics* 28. Proc. Symp., Tokyo, August 1987. T. Ando, H. Fukuyama,

eds. Springer-Verlag, New York, 1988. 376 pp. \$65.50 *hc* ISBN 0-387-19122-4

Chemical Physics of Intercalation. *NATO ASI Series B: Physics* 172. Proc. Inst., Castera Verduzan, France, June 1987. A. P. Legrand, S. Flandrois, eds. Plenum, New York, 1987. 517 pp. \$95.00 *hc* ISBN 0-306-42831-8

Condensed Matter Theories, Vol. 3. Proc. Wksp., Oulu, Finland, July 1987. J. S. Arponen, R. F. Bishop, M. Manninen, eds. Plenum, New York, 1988. 401 pp. \$89.50 *hc* ISBN 0-306-42829-6



2.5 Gigabytes Unattended Backup

Digi-Data's GIGASTORE™ provides 2.5 Gigabytes of data storage on a single T-120 VHS video cartridge. That permits backup of your largest disk drive on off-hours without an operator.

Utilizing true read-after-write coupled with very powerful error correction, GIGASTORE gives you an unsurpassed error rate of 1 in 10^{23} bits. In addition, you get a high speed search capability not available in most 9-track drives.

GIGASTORE can be provided with an interface for DEC computers, such as VAX and Micro Vax, for operation under VMS. It is also available with an IBM PC interface, operating under MS/DOS.

Call Digi-Data, an organization with a 25 year history of manufacturing quality tape drives, at (301) 498-0200.

™GIGASTORE is a trademark of Digi-Data Corporation



DIGI-DATA CORPORATION

8580 Dorsey Run Road
Jessup, MD 20794-9990
(301) 498-0200
Telex 87-580

... First In Value

In Europe contact: Digi-Data Ltd. • Unit 4 • Kings Grove • Maidenhead, Berkshire
England SL6 4DP • Telephone No. 0628 29555/6 • Telex 847720

Circle number 53 on Reader Service Card

Electromagnetism

Fields and Electrodynamics. P. B. Visscher. Wiley, New York, 1988. 544 pp. \$36.00 *hc* ISBN 0-471-82884-X. *Student text*

Fundamentals of Waves and Oscillations. K. U. Ingard. Cambridge U. P., New York, 1988. 595 pp. \$89.50 *hc* ISBN 0-521-32734-2; \$34.50 *pb* ISBN 0-521-33957-X. *Text*

Introduction to Antennas. M. S. Smith. Springer-Verlag, New York, 1988. 128 pp. \$35.00 *hc* ISBN 0-387-91323-8. *Text*

Megagauss Technology and Pulsed Power Applications. Proc. Conf., Santa Fe, N. M., July 1986. C. M. Fowler, R. S. Caird, D. J. Erickson, eds. Plenum, New York, 1987. 879 pp. \$115.00 *hc* ISBN 0-306-42574-2

Single-Mode Fibers: Fundamentals. Springer Series in Optical Sciences 57. E.-G. Neumann. Springer-Verlag, New York, 1988. 530 pp. \$89.90 *hc* ISBN 0-387-18745-6. *Monograph text on dielectric waveguides*

Topics in Millimeter Wave Technology, Vol. 1. K. J. Button, ed. Academic, San

Diego, Calif., 1988. 375 pp. \$99.50 *hc* ISBN 0-12-147699-5. *Compilation*

Topics in Millimeter Wave Technology, Vol. 2. K. J. Button, ed. Academic, San Diego, Calif., 1988. 255 pp. \$99.50 *hc* ISBN 0-12-147700-2. *Compilation*

Physical Electronics

Advances in Thermal Modeling of Electronic Components and Systems, Vol. 1. A. Bar-Cohen, A. D. Kraus, eds. Hemisphere, New York, 1988. 469 pp. \$90.00 *hc* ISBN 0-89116-689-0. *Compilation*

Cooling Technology for Electronic Equipment. Proc. Symp., Honolulu, Hawaii, March 1987. W. Aung, ed. Hemisphere, New York, 1988. 838 pp. \$125.00 *hc* ISBN 0-89116-731-5

Photo-Electronic Image Devices. *Advances in Electronics and Electron Physics* 74. Proc. Symp., London, September 1987. B. L. Morgan, ed. Academic, London, 1988. 508 pp. \$61.00 *hc* ISBN 0-12-014674-6

Photonics: Maintaining Competitiveness in the Information Era. Natl. Acad. P., Washington, D. C., 1988. 99 pp. \$11.95 *pb* ISBN 0-309-03940-1. *Report*

Power Electronics and Motor Control. W. Shepherd, L. N. Hulley. Cambridge U. P., New York, 1987. 473 pp. \$89.50 *hc* ISBN 0-521-32155-7; \$29.95 *pb* ISBN 0-521-31283-3. *Text*

Solid State Devices: A Quantum Physics Approach. D. de Cogan. Springer-Verlag, New York, 1987. 154 pp. \$24.00 *hc* ISBN 0-387-91290-8. *Text*

Texts and Popularizations

Classical Mechanics of Particles and Rigid Bodies. K. C. Gupta. Wiley Eastern, New Delhi, India (Wiley, New York), 1988. 645 pp. \$24.95 *hc* ISBN 0-471-20958-5. *Text*

Experiments in Physics. C. Siddons. Basil Blackwell, Oxford, U. K., 1988. 170 pp. £8.95 *pb* ISBN 0-631-90069-1. *Younger students; workbook*

Introduction to the Structure of Matter: A Course in Modern Physics. J. J. Brehm, W. J. Mullin. Wiley, New York, 1989. 912 pp. \$37.60 *hc* ISBN 0-471-60531-X. *Student text*

Modern Physics for Science and Engineering. M. L. Burns. Harcourt Brace Jovanovich, San Diego, Calif., 1988. 619 pp. \$35.00 *hc* ISBN 0-15-562351-6. *Student text*

A Potpourri of Physics Teaching Ideas. D. A. Berry, ed. Am. Assoc. Phys. Teachers, College Park, Md., 1988. 363 pp. \$18.00 *pb* ISBN 0-917853-27-X. *Reprints from The Physics Teacher*

Wondering About Physics... Using Spreadsheets to Find Out: Investigations in Physics. D. I. Dykstra, R. G. Fuller. Wiley, New York, 1988. 122 pp. \$12.25 *pb* ISBN 0-471-63174-4. *Student workbook*

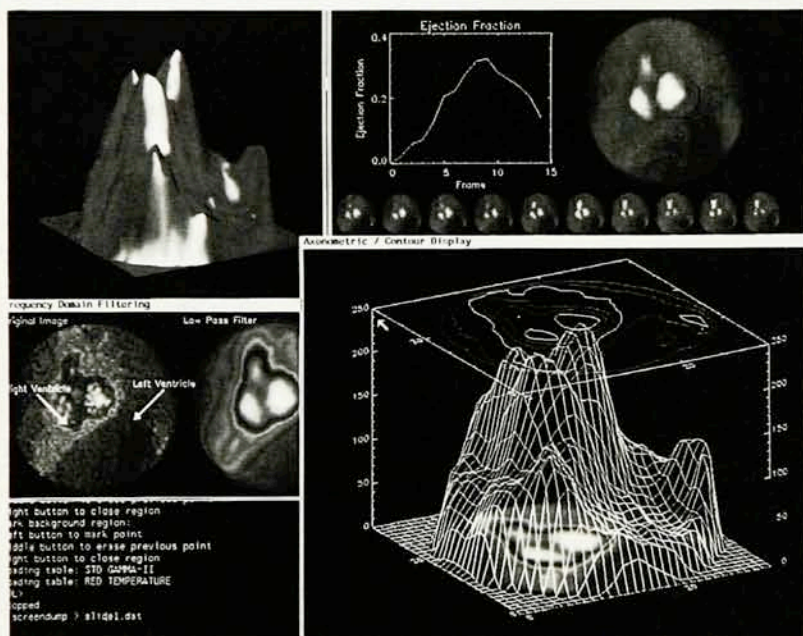


Image produced using Sun version of IDL

IDLTM INTERACTIVE SOFTWARE FOR SCIENTIFIC RESEARCH

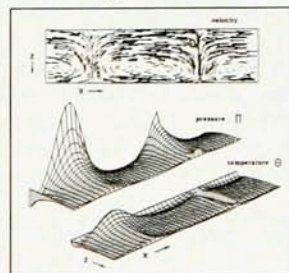
IDL takes you there. It is the ideal tool for your advanced research—a completely interactive analysis and visualization package for the physical sciences. IDL combines data analysis, reduction, scientific graphics, and image processing in a fast, powerful, easy-to-use system. Solve problems rapidly with IDL's efficient, array-oriented language and comprehensive library of procedures—optimized for handling large data sets on today's computers and workstations. IDL is used by innovative researchers at the most prestigious institutions around the world. IDL is compatible with VAX®/VMS® and is now available in a new enhanced version for Sun® Workstations.

Take IDL on your next exploration. Call or write:

RSI RESEARCH SYSTEMS, INC.

2021 Albion St. Denver, CO 80207 (303) 399-1326

VAX/VMS are registered trademarks of Digital Equipment Corporation. Sun Workstation is a registered trademark of Sun Microsystems, Inc.



Circle number 54 on Reader Service Card