ment, and present state of the search to understand what makes the sun and similar stars behave the way they do.

**Robert W. Noyes**
*Harvard-Smithsonian Center for Astrophysics, Cambridge, MA 02138, USA*

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## Other Books of Interest

**Haldane's *Daedalus* Revisited.** KRISHNA R. DRONAMRAJU, Ed. Oxford University Press, New York, 1995. xvi, 147 pp. $29.95 or £19.95.

Early in 1923 J. B. S. Haldane, age 31, recently arrived in Cambridge to take up a readership in biochemistry, read to The Heretics club a paper that was then slightly expanded and published as the first of many slim volumes in the publisher Kegan Paul's new series To-day and To-morrow. Within two years *Daedalus, or Science and the Future* had been followed by Bertrand Russell's *Icarus, or the Future of Science*, F. C. S. Schiller's *Tantalus, or the Future of Man*, Mrs. Bertrand Russell's *Hypatia, or Woman and Knowledge*, and some ten other volumes, including Haldane's own *Calinicus, a Defense of Chemical Warfare*. Haldane was a physically large man (he dwarfs his chief, Frederick Gowland Hopkins, next to whom he sits in the 1930 photograph of the Cambridge Biochemistry Department that forms the frontispiece to this volume), one who had distinguished himself also by exceptional bravery in the Great War, and he delighted in holding unconventional opinions and in expounding them loudly and publicly. But *Daedalus* was the first of the many occasions on which he would do so formally—before a formal audience and in print. This, and the distress it caused Jack's "Liberal" father, the professor of physiology at Oxford—and the evident delight it caused his mother—we learn from the editor's introduction to this reprinting of the work. A student of Haldane's in the late 1950s when Jack—now "J.B.S."—went to live in India, the editor has subsequently made continuing efforts to memorialize him. And indeed the man and the Oxbridge-Bloomsbury intellectual milieu in which he moved were remarkable. Julian Huxley was one of his closest friends, and *Daedalus*'s central prognostication—that within a century world civilization would be dramatically transformed by a eugenic program based upon a technology of in vitro fertilization and fetal development—became the premise of Aldous Huxley's *Brave New World* (1932). A republication of *Daedalus* draws its appeal from the present justice of one-half of Haldane's 1923 thesis, namely, that the era of physical technology was at its end and that of biological technology just beginning. This volume includes brief essays by M. F. Perutz, Freeman Dyson, Yaron Ezrahi, Ernst Mayr, E. A. Carlson, D. J. Weatherall, and N. A. Mitchison, focusing chiefly on the ill repute into which eugenics fell, and in which it remains. In this respect the most substantial essay is Weatherall's, which considers the present biomedical situation, while in respect of acuity, originality, and an empathetic sense for J.B.S.'s stance on technology and society. Dyson's ten pages stand out.

J. B. S. Haldane. [From the dust jacket of *Haldane's* Daedalus *Revisited*]

**Paul Forman**
*Smithsonian Institution, Washington, DC 20560, USA*

## Vignettes: Technological Advance

Back in the days when science fiction was unsophisticated, a standard way to make people uneasy was to introduce the subject of carnivorous plants. The idea of a vegetable preying on animals has an eerie flavor, like the conceptions of cartoonist Charles Addams. When the plant has spiked jaws that grab hold of attractive human blonds, a reader or viewer is—or was, in the old, naïve days—reliably stirred.

. . . Today the thought of plants eating people is a little less disturbing. Science fiction and special movie effects have exposed us to such shattering concepts that a maiden being eaten by anything is taken pretty much in stride by even the prepubescent public.

—*Archie Carr*, in *A Naturalist in Florida: A Celebration of Eden* (Yale University Press)

A recent spate of stories announces that guns will soon kill more people than do cars, the present number-one cause of injury-related deaths. The two graphs are projected to cross each other in the mid-1990s when, it's to be imagined, some safety-engineered car will function just long enough to participate in a drive-by shooting.

—*John Allen Paulos*, in *A Mathematician Reads the Newspaper* (BasicBooks)

**The Physicists.** The History of a Scientific Community in Modern America. DANIEL J. KEVLES. Harvard University Press, Cambridge, MA, 1995. xlix, 489 pp. Paper, $17.95 or £14.25. Reprint, 1978 edition.

Since its first publication in 1978 Daniel Kevles's *The Physicists* has maintained its preeminence as a historical account of physics in the United States from the 19th century to the 1970s, notable particularly, in the words of *Science*'s reviewer at the time, for its "forthright presentation of the public posture of the [physics] community" (*Science* **199**, 525 [1978]). The book was reissued in 1987 by Harvard University Press with a new preface in which the author reflected both on the position physics enjoyed as essential to the national (principally defense) interest and the growing public distrust of science following on the Vietnam war. Now the book has been reprinted a second time. The preface to the earlier reprint was written just after President Reagan had endorsed the Superconducting Supercollider; the preface to the new one is a 34-page essay on the death of that venture. In it Kevles briefly recapitulates the circumstances that led to the special prestige of high-energy physics and sets forth the scientific considerations underlying the proposal to build the huge accelerator, then provides a narrative account of its fortunes, summarizing the activities of

and arguments marshaled by its supporters and opponents inside and outside science and recounting the political maneuverings and legislative actions by which the project was launched and eventually canceled. Not only the obvious budgetary considerations but considerations of international competitiveness, quasi-religious associations, and claims regarding spin-off figure in his account. Writing in 1987, a time he characterized as a "prosperous calm," Kevles observed that a theme of his book is that "in good times as well as bad, the relationship of physicists to the American democracy has been marked by special tensions." Now, he concludes, "Physics in the United States has been irreversibly incorporated into the conventional political process, making it a creature of political democracy, its fortunes, like those of other interest groups, contingent on the outcome of the fray."

*Katherine Livingston*

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**Fifty Years of Antimicrobials**. Past Perspectives and Future Trends. P. A. HUNTER, G. K. DARBY, and N. J. RUSSELL, Eds. Published for the Society for General Microbiology by Cambridge University Press, New York, 1995. xii, 376 pp., illus. $115 or £60. From a symposium, Bath, UK, April 1995.

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Among the events of World War II that are being painfully revisited in this 50th anniversary year there is at least one that might give some cause for general satisfaction, the advent of antibiotics. *Fifty Years of Antimicrobials* is in part a commemoration of that advance (and also of the founding in 1945 of the Society for General Microbiology). The work begins by reprinting a 1946 lecture by Alexander Fleming, delivered just at the point when penicillin was becoming available for general use. Fleming begins by describing the means of local chemotherapy (antisepsis) available before the advent of penicillin. By the time Fleming began his career Lister's techniques of antisepsis had been rather displaced by the adoption of aseptic procedures and were used only sparingly because of their toxicity. The war of 1914–18 again made sepsis a major medical problem. Fleming describes treatments that were used at that time, especially one involving instillation of sodium hypochlorite (Dakin's fluid), which according to his observations owed its efficacy as much to its ability to drain wounded tissue as to direct antisepsis, and recounts studies of the interactions of such chemicals with leucocytes, including what to him was "the most important series of experiments I have ever done," determining the range of concentrations at which the substances were effective. He then proceeds to discuss Ehrlich's Salvarsan, "the first real success in the chemotherapeutic treatment of a bacterial disease," and the development of sulfonamides before passing quickly over the development of penicillin, streptomycin, and other antibiotics to comment on research needs of the time. The remaining 14 papers in the book are largely focused on current issues. A number are concerned with specific categories of antibiotics: non-azole antifungals for use in humans (Hunter), beta-lactam antibiotics (Rolinson; Cohen and Aharonowitz), fungicides for the protection of plants (Russell *et al.*), quinolones (Chu and Shen), antimalarials (Pudney), natural antibiotics produced as secondary metabolites (Demain), virus insecticides (Bishop *et al.*), antiviral nucleoside analogues (Darby), antiprotozoal drugs (Croft), and antiseptics and disinfectants, or "biocides" (Russell and Russell). Other papers (Zähner and Fiedler; Ryley; Kerr and Lacey) address more general questions regarding the continuing need for development of new antibiotics. Among the factors that figure in the answers are the persistence of certain tropical diseases, the emergence of previously unknown diseases or of resistant strains of known pathogens, and environmental and demographic stresses.

*Katherine Livingston*

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## Books Received

**Adolescence**. A Developmental Transition. 2nd ed. Douglas C. Kimmel and Irving B. Weiner. Wiley, New York, 1994. xvi, 620 pp., illus. $57.95.

**Alzheimer's and Parkinson's Diseases**. Recent Developments. Israel Hanin, Mitsuo Yoshida, and Abraham Fisher, Eds. Plenum, New York, 1995. xx, 724 pp., illus. $149.50. Advances in Behavioral Biology, vol. 44. From a conference, Chicago, Nov. 1993.

**Analytical Electrochemistry**. Joseph Wang. VCH, New York, 1994. xii, 198 pp., illus. $59.95.

**Backarc Basins**. Tectonics and Magmatism. Brian Taylor, Ed. Plenum, New York, 1995. xxvi, 524 pp., illus., + plates. $95.

**Calculating the Secrets of Life**. Applications of the Mathematical Science in Molecular Biology. Eric S. Lander and Michael S. Waterman, Eds. National Academy Press, Washington, DC, 1995. xiv, 285 pp., illus. $39.95.

**Deep Continental Structure of India**. A Review. T. M. Mahadevan. Geological Society of India, Bangalore, 1994. xvi, 569 pp., illus., + plates. $60 or Rs 600. Memoir 28.

**Electric and Magnetic Fields**. From Numerical Models to Industrial Applications. André Nicolet and R. Belmans. Plenum, New York, 1995. xii, 376 pp., illus. $105. From a workshop, Leuven, Belgium, May 1994.

**Field Guide to the Palms of the Americas**. Andrew Henderson, Gloria Galeano, and Rodrigo Bernal. Princeton University Press, Princeton, NJ, 1995. x, 353 pp., illus., + plates. $75.

**The Golden Helix**. Inside Biotech Ventures. Arthur Kornberg. University Science, Sausalito, CA, 1995. xiv, 287 pp., illus. $28.50.

**Histology of the Nervous System of Man and Vertebrates**. S. Ramón y Cajal. Oxford University Press, New York, 1994. 2 vols. xl + x, 1611 pp., illus. $195. History of Neuroscience, no. 6. Translated from the French translation (1909–1911) of the original Spanish (1899–1904) by Neely Swanson and Larry W. Swanson.

**Inventing the Universe**. Plato's *Timaeus*, the Big Bang, and the Problem of Scientific Knowledge. Lus Brisson and Walter Meyerstein. State University of New York Press, Albany, 1995. viii, 193 pp., illus. Paper, $14.95. SUNY Series in Ancient Greek Philosophy. Translated from the French edition (Paris, 1991).

**Jupiter**. The Giant Planet. Reta Beebe. Smithsonian Institution Press, Washington, DC, 1994. vi, 250 pp., illus., + plates. $29.95. Smithsonian Library of the Solar System.

**The Laboratory Quality Assurance System**. A Manual of Quality Procedures with Related Forms. 2nd ed. Thomas A. Ratliff, Jr. Van Nostrand Reinhold, New York, 1993. vi, 259 pp. Loose leaf, $69.95.

**Mass Spectrometric Study of the Vaporization of Oxide Systems**. 2nd ed. V. L. Stolyarova and G. A. Semenov. J. H. Beynon, Ed. Wiley, New York, 1994. xii, 434 pp., illus. $130. Translated from the Russian edition (Moscow 1990).

**Negro Business and Business Education**. Their Present and Prospective Development. Joseph A. Pierce. Plenum, New York, 1995. xxx, 338 pp., illus. $45. Plenum Studies of Work and Industry. Reprint, 1947 ed.

**PSA 1994**. Vol. 1. David Hull, Micky Forbes, and Richard M. Burian, Eds. Philosophy of Science Association, East Lansing, MI, 1994. xxxii, 464 pp., illus. $22; paper, $20. From a meeting, New Orleans, LA, Oct. 1994.

**Scientific Methods**. Conceptual and Historical Problems. Peter Achinstein and Laura J. Snyder, Eds. Krieger, Malabar, FL, 1994. viii, 160 pp. Paper, $19.50. Open Forum Series. Based on a seminar, Baltimore, 1992.

***Thermus* Species**. Richard Sharp and Ralph Williams, Eds. Plenum, New York, 1995. xiv, 233 pp., illus. $75. Biotechnology Handbooks, vol. 9.

**Topics in the Constructive Theory of Countable Markov Chains**. G. Fayolle, V. A. Malyshev, and M. V. Menshikov. Cambridge University Press, New York, 1995. vi, 169 pp., illus. $44.95.

**Toxic Metals in Soil-Plant Systems**. Sheila M. Ross, Ed. Wiley, New York, 1994. xvi, 469 pp., illus. $125.

**Transformation of Plants and Soil Microorganisms**. Kan Wang, Alfredo Herrera-Estrella, and Marc Van Montagu, Eds. Cambridge University Press, New York, 1995. xx, 176 pp. + plates. $84.95. Plant and Microbial Biotechnology Research, 3.

**Transportation and Energy**. Strategies for a Sustainable Transportation System. Daniel Sperling and Susan A. Shaheen, Eds. American Council for an Energy-Efficient Economy, Berkeley, CA, 1995. xviii, 305 pp., illus. Paper, $32. ACEEE Books on Energy Policy and Energy Efficiency. From a conference, Pacific Grove, CA, Aug. 1993.

**Vaccine Design**. The Subunit and Adjuvant Approach. Michael F. Powell and Mark J. Newman, Eds. Plenum, New York, 1995. xlvi, 949 pp., illus. $145. Pharmaceutical Biotechnology, vol. 6.

**Visions of the Future**. Art, Technology and Computing in the Twenty-First Century. Clifford A. Pickover, Ed. St. Martin's, New York, 1994. xxviii, 212 pp., illus. $29.95; paper, $16.95. Reprint, 1992 ed.

**The War of Desire and Technology at the Close of the Mechanical Age**. Allucquère Rosanne Stone. MIT Press, Cambridge, MA, 1995. xii, 212 pp. $22.50.

### Publishers' Addresses

Below is information about how to direct orders for books reviewed in this issue. A fuller list of addresses of publishers represented in *Science* appears in the issue of 26 May 1995, page 1220.

**Cambridge University Press,** 110 Midland Ave., Port Chester, NY 10573-4930. Phone: 800-872-7423; 914-937-9600. Fax: 914-937-4712.

**Harvard University Press,** Customer Service, 79 Garden St., Cambridge, MA 02138. Phone: 800-448-2242; 617-495-2577. Fax: 800-962-4983; 617-495-8924.

**Oxford University Press, Inc.,** Order Dept., 2001 Evans Rd., Cary, NC 27513. Phone: 800-451-7556; 919-677-0977. Fax: 919-677-1303.