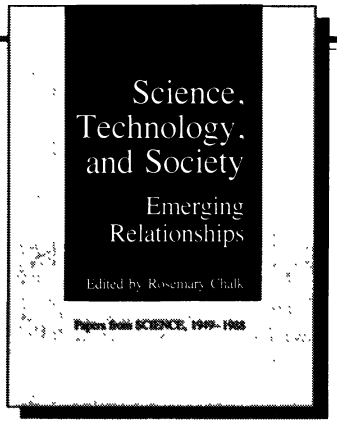
American Association for the Advancement of Science

SCIENCE

30 March 1990 $3.50
Vol. 247 ■ Pages 1521–1612

Science & Society

Books from AAAS



Science, Technology, and Society
Emerging Relationships

Edited by Rosemary Chalk

This volume provides a thorough introduction to the issues concerning the unique relationships among science, technology, and society (STS). It offers 85 articles, editorials, and letters published over the past 40 years in *Science,* the weekly journal of the AAAS.

The material provides a broad overview of the emerging relationships of science, technology, and society in the period after World War II. Contributors include Bertrand Russell, C.P. Snow, Pope John Paul II, and many scholars well known in the scientific literature. The collection reflects a variety of perspectives on science, technology, and society. Provocative essays capture the concerns of leaders in the scientific community who sought to articulate the pressing problems of their times.

The book is a valuable resource for those with a professional interest in STS studies. It is also designed for use as a supplemental text for college or high school courses examining the social context of STS. And it is of interest to lay readers who want to gain an insight into the purposes and values that shape the directions of science.

Topics include: Scientific responsibility; science and freedom; science and ethics; the human side of science; scientists and citizens; science and the modern world; fraud and misconduct in science; professional rights and duties in the health sciences; science and risk; and science and national security.

1989; 262 pp.; softcover; index
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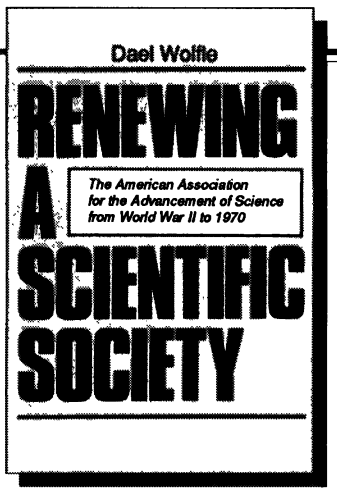


Renewing a Scientific Society
The American Association for the Advancement of Science from World War II to 1970

Dael Wolfle

Dael Wolfle was executive officer of AAAS during the post-war period that saw an unprecedented growth in American science. In this clear and engaging narrative, he describes the Association's role in that growth as well as its internal changes as it sought to serve its four key constituencies: scientists working in all fields of science and technology, students seeking careers in those fields, a public that increasingly needed to understand new technological advances, and opinion leaders whose decisions could influence scientific and technological activities.

Dr. Wolfle also describes the AAAS's work on a wide range of national issues, including development of the National Science Foundation; Cold War concerns about the loyalty and freedom of scientists; questions about the ownership and control of research; efforts to develop an effective science curriculum for all Americans; and issues regarding air conservation, the use of arid lands, the effects of herbicides in Vietnam, and much more.

This book is essential for historians of science, members of scholarly organizations, and everyone who wants to understand the inner workings of a major scientific society.

346 pp.; softcover; index
***#89-14S** - $24.95 (members $19.95)*

Order from: AAAS Books, Dept. SM, PO Box 753, Waldorf, MD 20604. Individuals must prepay or use VISA/MasterCard. AAAS will pay postage on prepaid or credit card orders; for institutional purchase orders add $3.50 postage & handling. Please specify publication number(s) and allow 2-3 weeks for delivery. For shipments to California, add applicable sales tax.

American Association for the Advancement of Science

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

SCIENCE

ISSN 0036-8075
30 MARCH 1990
VOLUME 247
NUMBER 4950

■ **SCIENCE is published weekly on Friday, except the last week in December, and with a supplement in March by the American Association for the Advancement of Science, 1333 H Street, NW, Washington, DC 20005.** Second-class Non-profit postage (publication No. 484460) paid at Washington, DC, and at an additional entry. Domestic individual membership and subscription (51 issues): $75. Domestic institutional subscription (51 issues): $120. Foreign postage extra: Canada $46, other (surface mail) $46, air mail via Amsterdam $85. First class, airmail, school-year, and student rates on request. **Single copy sales:** Current issue, $3.50; back issues, $5.00; Biotechnology issue, $6.00 (for postage and handling, add per copy $0.50 U.S., $1.00 all foreign); Guide to Biotechnology Products and Instruments, $20 (for postage and handling add per copy $1.00 U.S., $1.50 Canada, $2.00 other foreign). Bulk rates on request. **Authorization to photocopy** material for internal or personal use under circumstances not falling within the fair use provisions of the Copyright Act is granted by AAAS to libraries and other users registered with the Copyright Clearance Center (CCC) Transactional Reporting Service, provided that the base fee of $1 per copy plus $0.10 per page is paid directly to CCC, 27 Congress Street, Salem, Massachusetts 01970. The identification code for *Science* is 0036-8075/83 $1 + .10. **Change of address:** allow 6 weeks, giving old and new addresses and 11-digit account number. **Postmaster:** Send Form 3579 to *Science*, P.O. Box 1723, Riverton, NJ 08077. *Science* is indexed in the *Reader's Guide to Periodical Literature* and in several specialized indexes.

■ The American Association for the Advancement of Science was founded in 1848 and incorporated in 1874. Its objectives are to further the work of scientists, to facilitate cooperation among them, to foster scientific freedom and responsibility, to improve the effectiveness of science in the promotion of human welfare, to advance education in science, and to increase public understanding and appreciation of the importance and promise of the methods of science in human progress.

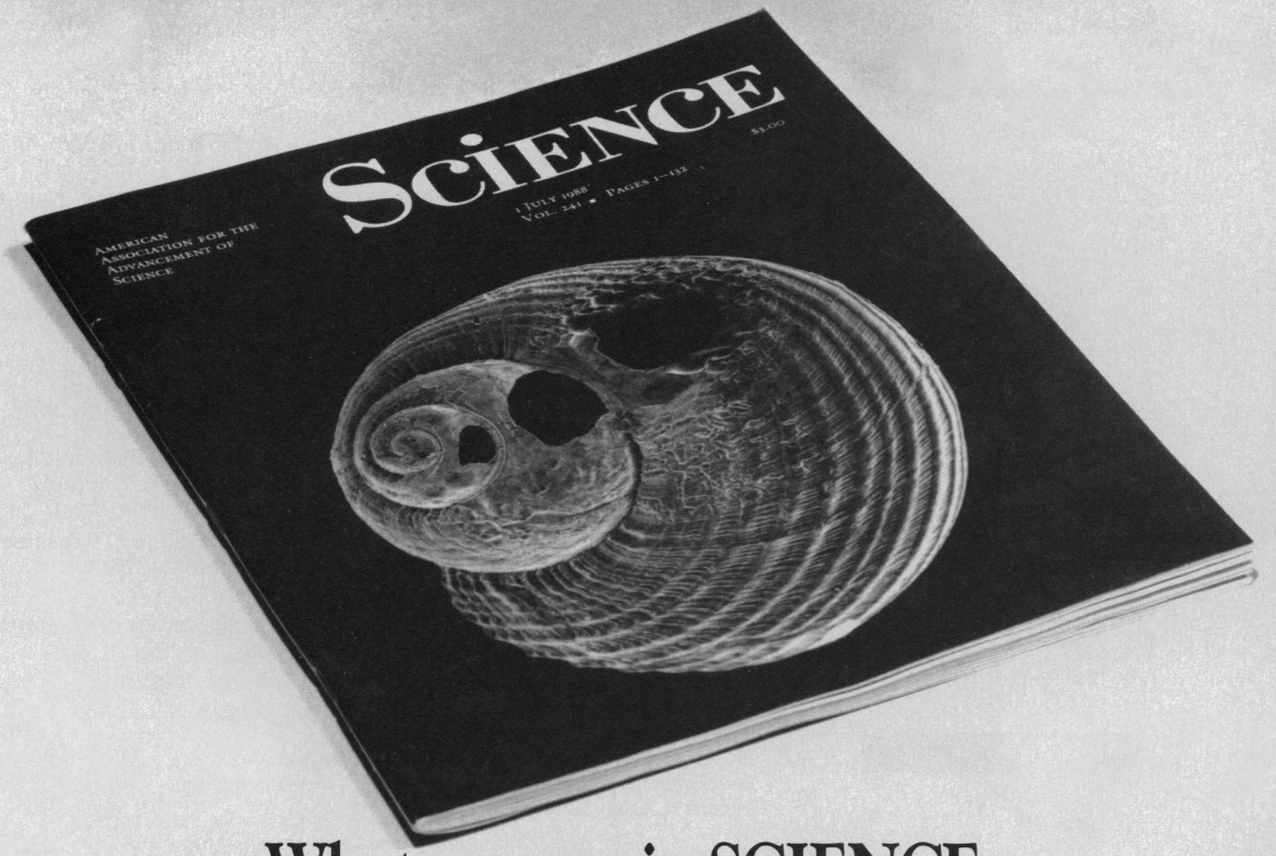
COVER Skull of the earliest known relative of the higher primates (including humans) *Catopithecus browni* from early Tertiary deposits in northeastern Africa. Of probable late Eocene age, this skull shows several characteristics that rank it with the early higher primates of the Old World (Catarrhini). See page 1567. [Dave Leonhard, senior photographer, Audiovisual Medical Photography, Duke University]

Reports

Book Reviews

Author Index to Volume 247 is found on pages I–X
Information for Contributors is found on XI–XII

A company is known by the company it keeps.



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Complex genetic diseases

HEART disease, manic-depression, cancer, Alzheimer's disease, obesity, high blood pressure, and diabetes are some of the targets of molecular genetics research in the 1990s (page 1540). Susceptibility or resistance to these and other diseases appears to be in part dependent on one's genetic makeup, but unlike the comparatively "simple" single-gene diseases (such as cystic fibrosis) more than one gene—probably from three to six genes—may typically be involved. Solving the complex genetics of these diseases is one part of a two-pronged problem; figuring out how to modify the effects of susceptibility genes (for example, altering diet when there is a susceptibility to diabetes or high blood pressure or minimizing exposure to carcinogens in cases of susceptibility to cancer) is the other. Recent approaches, progress, and setbacks in research into the genetics of complex diseases are described by Marx; though difficult, the task of untangling the diverse factors that contribute to multigene diseases is considered worth the effort because of the tremendous personal suffering and public costs now associated with these very common diseases.

Soft x-ray lasers

THE usefulness of x-rays has generally been limited by a lack of sufficiently intense x-ray sources. However, recent advances in soft x-ray laser technology have greatly improved prospects for the development of technologies such as high-resolution imaging of living cells and new forms of microlithography for the electronics industry (page 1553). Soft x-ray lasers were first successfully generated in 1984; they work at wavelengths shorter than 25 nanometers. The thrust of current efforts is to push the technology toward shorter wavelengths (the "water window" region that is important for biologic specimens is between 2.4 and 4.4 nanometers) while concurrently improving the efficiency of existing x-ray lasers and developing low-cost systems. Suckewer and Skinner discuss the physics and technology of soft x-ray lasing and show the type of image that currently can be made of human cells when wavelengths of 18.2 nanometers are used. The development of small-scale high-performance lasers will be fundamental for applying this technology.

Satellite measurements of global temperatures

ASCERTAINING whether the earth's atmosphere has been warming has been difficult. What is needed is a method for measuring temperatures all over the earth on a short (daily) time scale, and this can only be done with satellites. Spencer and Christy now present global temperature data that were obtained with microwave radiometers aboard orbiting NOAA weather satellites (page 1558). The radiometers were originally intended for spot measurements but have been gathering data for 10 years and actually provide global coverage; they measure the thermal emission of radiation by atmospheric oxygen, which, because of its constant concentration in the lower atmosphere, serves as a stable temperature tracer. Although some dramatic temperature changes have been recorded over the short term, no trend toward increased heating of the earth is apparent in the last decade. Since 1979, only one year (1981) was considered an "average" year; the other nine were either cool or warm. Abelson addresses some of the uncertainties that surround the issue of global warming on page 1529.

Primitive anthropoid skull

A crushed but nearly complete skull (see cover) found in the Fayum badlands of Egypt may be the earliest skull specimen known in the anthropoid family line, the line that leads to humans (page 1567). The fossil was recovered from a green shale quarry called locality L-41 from which fossils of other primates, other mammals, birds, and fish have also been recovered. The L-41 fossils are thought to be of Eocene age (greater than 38 million years old) and are thus the most primitive primate fossils so far recovered in the Fayum badlands, which is the world's major recovery site for earliest higher primate fossils. Simons describes the configuration of the skull and features of the skull bones and teeth that identify this specimen as a member of *Catopithecus browni*. *Catopithecus* is a new genus that belongs to the new subfamily Oligopithecinae in the family Propliopithecidae. Although *Catopithecus* has a number of advanced characters, it is a very primitive anthropoid, and features of its dental anatomy appear to link it and other members of its subfamily to the Eocene adapids, which are thought to be the ancestors of modern lemurs and lorises.

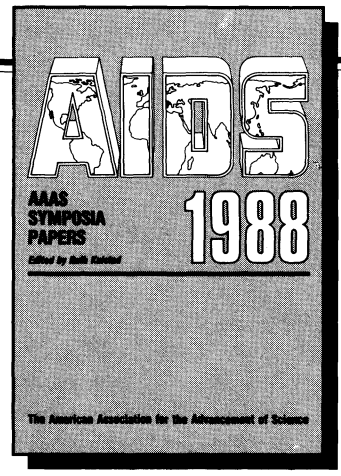
Self tolerance

SELF tolerance is established in an individual's immune system during the time in early development when the thymus is differentiating. "Physiologic combinations" of self peptides and self histocompatibility molecules are presented to potentially reactive cells of the immune system. Cells that react with such combinations are permanently eliminated, but there remain in the body immunoreactive cells that recognize the universe of self peptides and self histocompatibility molecules that were not scrutinized by the developing system. Some of these cells are shown by Schild *et al.* to react with "nonphysiologic" combinations of self peptides (from various common proteins) and self histocompatibility molecules (page 1587). The tested combinations were probably not presented in the right form or in the right amount during thymic differentiation. The converse of self tolerance—autoimmunity—may result when these remaining immunoreactive cells are stimulated by nonphysiologic combinations of self components that perhaps are released from cells or are altered as a result of the disease process.

■ RUTH LEVY GUYER

AIDS

Books from AAAS



AIDS 1988: AAAS Symposia Papers

Edited by Ruth Kulstad
Foreword by C. Everett Koop

This volume contains many of the groundbreaking papers on AIDS presented at the 1988 AAAS Annual Meeting.

The wide variety of the papers presented here reflects the current thinking about AIDS research today—that control over the AIDS epidemic must be achieved through a collaborative, multi-disciplinary effort that includes not only the medical and biological sciences, but the social and behavioral sciences as well.

This fully indexed volume is organized into five major sections: The first explores the epidemiology and natural history of AIDS and the HIV infection both in the United States and internationally. It also looks at the difficulty of predicting the course of the virus—statistical issues; patterns of HIV-1 incubation, infectiousness, and transmission; and approaches to demographic impact modeling.

Section two discusses the social consequences of AIDS as they relate to gender, intravenous drug users, and public policy, and it examines the dilemmas that AIDS presents to the medical community.

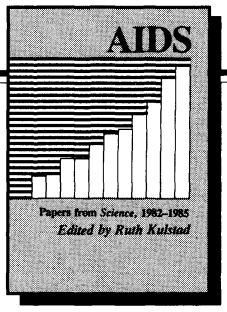
The third section focuses on the AIDS prevention strategies currently employed around the world.

Section four considers the economic, political, ethical and legal issues surrounding the epidemic.

The final section presents several recent medical and biological studies on AIDS and HIV.

AIDS 1988 is a timely, authoritative source of information on the growing body of AIDS research being conducted around the world. It is essential for medical, biological, social, and behavioral scientists, and for everyone who is professionally or personally concerned about the AIDS epidemic.

1988; 478 pp.; softcover
index; 12 appendices
***#88-19S** – $29.95 (members $23.95)*



AIDS: Papers from Science, 1982-1985

Edited by Ruth Kulstad

This collection includes frequently cited research papers and news reports on AIDS that were published in *Science* between August 1982 and September 1985.

Many of the papers relate directly to AIDS research, while others touch on relevant aspects of the immune system. The news stories help to explain the ongoing research, while focusing on some of the sociological questions raised by the disease. The book is arranged chronologically, enabling the reader to trace the history of the AIDS epidemic through September 1985—a history that is of great sociological interest.

This fully indexed collection is valuable not only for the experimental data and conclusions, but also as an excellent bibliographic reference of AIDS work in major journals worldwide.

1986; 654 pp.; softcover
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***#85-23S** – $19.95 (members $15.95)*

Order from:

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Revised 22 December 1989

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Manuscripts should be addressed to the Editor, *Science*, 1333 H Street, NW, Washington, DC 20005. Submit three copies together with a letter of transmittal giving

1) the names and telephone numbers of the authors;

2) the title of the paper and a statement of its main point;

3) three to eight keywords to be used for indexing;

4) the names, addresses, telephone numbers, and fields of interest of four to six persons outside your institution who are qualified to referee the paper;

5) the names of colleagues who have reviewed the paper;

6) the total number of words (including text, references, and figure and table legends) in the manuscript; and

7) a statement that the material has not been published and is not under consideration for publication elsewhere.

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(i) any paper of yours that is in press or under consideration elsewhere and includes information that would be helpful in evaluating the work submitted to *Science*;

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(iii) for review of manuscripts based on crystallographic data, two copies of the coordinates;

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By submitting a manuscript, an author accepts the responsibility that all those listed as authors of a work have agreed to be so listed, have seen and approved the manuscript, and are responsible for its content.

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When the review process is complete, the manuscript and reviewers' comments are discussed by the editors at a weekly space meeting. Manuscripts are evaluated in terms of their technical merit as well as their merit in relation to other papers under consideration. Authors are notified of acceptance, rejection, or need for revision, usually within 6 to 10 weeks. Papers cannot be resubmitted over a disagreement on interest level or relative merit. If the author can demonstrate that a paper was rejected solely on the basis of serious reviewer error, resubmission may be allowed.

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When a paper is accepted for publication in *Science*, it is understood by the editors that (i) any materials and methods necessary to verify the conclusions of the experiments reported will be made available to other investigators under appropriate conditions; (ii) sequence and crystallographic data will be offered for deposit to the appropriate data bank and the identifier code will be sent to *Science*; and (iii) the paper will remain a privileged document and will not be released to the press or the public before publication. If there is a need in exceptional cases to publicize data in advance of publication, the AAAS Office of Communications (202-326-6440) must be consulted.

Selection of Manuscripts

In selecting papers for publication, the editors give preference to those of general significance that are well written, well organized, and intelligible to scientists in different disciplines. An attempt is made to balance the subject matter in all sections of *Science*. Membership in the AAAS is not a factor in selection.

Accepted papers are edited to improve the accuracy and effectiveness of communication and to bring them within the specified length limits. When the author's meaning is not clear, the editor may consult the author by telephone; when editing is extensive, the manuscript may be returned for approval and retyping before the type is set.

Categories of signed papers include: general articles, research articles, reports, letters, technical comments, book and software reviews, perspectives, and policy forums.

General Articles. General articles (up to 5000 words) are expected to (i) review new developments in one field that will be of interest to readers in other fields; (ii) describe a current research problem or a technique of interdisciplinary significance; or (iii) discuss some aspect of the history, logic, policy, or administration of science. Readers should be able to learn from a general article what has been firmly established and what are unresolved questions; speculation should be kept to a minimum.

Many of the general articles are solicited by the editor, but unsolicited articles are welcome. Both solicited and unsolicited articles undergo review.

General articles should include a note giving the authors' names, titles, and addresses; a summary (50 to 100 words); an introduction that outlines for the general reader the main point of the article; and brief subheadings to indicate the main ideas. The reference list should not be exhaustive; a maximum of 50 references is suggested. Figures and tables should occupy no more than one printed page.

Research Articles. A research article (up to 4000 words) is expected to contain new data representing a major breakthrough in its field. The article should include an author note, abstract, introduction, and sections with brief sideheads. A maximum of 40 references is suggested. Figures and tables together should occupy no more than one printed page.

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All letters are acknowledged by postcard; authors are notified if their letters are to be published. Preference is given to letters that do not exceed 250 words. Letters accepted for publication are frequently edited and shortened in consultation with the author.

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Summaries or abstracts. These should include a sentence or two explaining to the general reader why the research was undertaken and why the results should be viewed as important. The abstract should convey the main point of the paper and outline the results or conclusions.

Text. A brief introduction should indicate the broad significance of the paper. The whole text should be intelligible to readers in different disciplines. Technical terms should be defined. All tables and figures should be cited in the text in numerical order.

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Acknowledgments. Gather all acknowledgments into a brief statement at the end of the references and notes.

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Animal welfare. Authors using experimental animals must state that their care was in accordance with institutional guidelines. For animals subjected to invasive procedures, the anesthetic, analgesic, and tranquilizing agents used, as well as the amounts and frequency of administration, must be stated.

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