

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

Science serves its readers as a forum for the presentation and discussion of important issues related to the advancement of science, including the presentation of minority or conflicting points of view, rather than by publishing only material on which a consensus has been reached. Accordingly, all articles published in *Science*—including editorials, news and comment, and book reviews—are signed and reflect the individual views of the authors and not official points of view adopted by the AAAS or the institutions with which the authors are affiliated.

Editorial Board

1971

THOMAS EISNER	NEAL MILLER
AMITAI ETZIONI	BRUCE MURRAY
EMIL HAURY	JOHN R. PIERCE
DANIEL KOSHLAND, JR.	MAXINE SINGER

1972

ALFRED BROWN	FRANK PRESS
JAMES F. CROW	FRANK W. PUTNAM
THOMAS KUHN	WALTER O. ROBERTS
ELLIOTT W. MONTROLL	

Editorial Staff

Editor

PHILIP H. ABELSON

<i>Publisher</i>	<i>Business Manager</i>
WILLIAM BEVAN	HANS NUSSBAUM

Managing Editor: ROBERT V. ORMES

Assistant Editors: ELLEN E. MURPHY, JOHN E. RINGLE

Assistant to the Editor: NANCY TEIMOURIAN

News and Comment: JOHN WALSH, ROBERT J. BAZELL, DEBORAH SHAPLEY, ROBERT GILLETTE, D. PARK TETER, EDWARD P. JONES, JOE PICHIRALLO, CONSTANCE HOLDEN, SCHERRAINE MACK

Research Topics: ALLEN L. HAMMOND

Book Reviews: SYLVIA EBERHART, KATHERINE LIVINGSTON, MARLENE GLASER

Cover Editor: GRAYCE FINGER

Editorial Assistants: MARGARET ALLEN, ISABELLA BOULDIN, BLAIR BURNS, ELEANORE BUTZ, RONNA CLINE, BARBARA GUARÍN, CORRINE HARRIS, OLIVER HEATWOLE, ANNE HOLDSWORTH, ELEANOR JOHNSON, MARSHALL KATHAN, MARGARET LLOYD, DANIEL RABOVSKY, PATRICIA ROWE, LEAH RYAN, LOIS SCHMITT, BARBARA SHEFFER, RICHARD SOMMER, YA LI SWIGART, ALICE THEILE, MARIE WEBNER

Membership Recruitment: LEONARD WRAY; *Subscriptions:* BETT SEEMUND; *Addressing:* THOMAS BAZAN

Advertising Staff

<i>Director</i>	<i>Production Manager</i>
EARL J. SCHERAGO	BONNIE SEMEL

Advertising Sales Manager: RICHARD L. CHARLES

Sales: NEW YORK, N.Y. 10036: Herbert L. Burkland, 11 W. 42 St. (212-PE-6-1858); SCOTCH PLAINS, N.J. 07076: C. Richard Callis, 12 Unami Lane (201-889-4873); MEDFIELD, MASS. 02052: Richard M. Ezequille, 4 Rolling Lane (617-444-1439); CHICAGO, ILL. 60611: John P. Cahill, Room 2107, 919 N. Michigan Ave. (312-DE-7-4973); BEVERLY HILLS, CALIF. 90211: Winn Nance, 111 N. La Cienega Blvd. (213-657-2772)

EDITORIAL CORRESPONDENCE: 1515 Massachusetts Ave., NW, Washington, D.C. 20005. Phones: (Area code 202) Central office: 467-4350; Book Reviews: 467-4367; Business Office: 467-4411; Circulation: 467-4417; Guide to Scientific Instruments: 467-4480; News and Comment: 467-4430; Reprints and Permissions: 467-4483; Research Topics: 467-4455; Reviewing: 467-4440. Cable: Advancenci, Washington. Copies of "Instructions for Contributors" can be obtained from the editorial office. See also page xv, *Science*, 25 June 1971. ADVERTISING CORRESPONDENCE: Room 1740, 11 W. 42 St., New York, N.Y. 10036. Phone: 212-PE-6-1858.

The Supernatural Department

The American university department has served science well. It has been a congenial unit, fostering esprit among its members and becoming the strongest unit in academic politics. The department has permitted more flexibility and innovation in both teaching and research than were possible under the Germanic model of a single professor, and a retinue of assistants, in each field. Together with an isomorphic structure of scientific and scholarly societies, meetings, and journals, it has administered the reward systems for young scientists to encourage them to apply a reductionist approach to problems that lie close to the front of their departmental interests. Reductionism has advanced science—Nobel Prizes are awarded for the best of such work—and has effectively prepared future faculty members for appointment to departments that carry on the traditions under which they were educated.

But new conditions have arisen. Reductionism is not the only way to advance science. Most doctorates of the next two decades will not be employed by universities similar to those in which they earned their degrees; the majority will enter other kinds of work for which a different education preparation may be more suitable. The department has lived a useful life, but the time has come to honor its history and achievements with a ceremonial and sentimental retirement party.

In terms of public interest, the most urgent problems do not fit into departmental boundaries. Those multiplex problems require synthetic as well as analytic studies and call for close collaboration of scholars from several disciplines—disciplines as far apart as genetics and law, or engineering and sociology.

In terms of science itself, the successes of reductionism have undermined some disciplinary boundaries. The corresponding departmental walls are no longer comfortable boundaries but have become barriers to the collaboration of scholars whose specialized knowledge and techniques defy traditional compartmentalization.

In terms of student interests, departmental boundaries are as much a nuisance as an aid to intellectual and vocational identification. Even at the Ph.D. level there is much field switching. In round numbers, 20 percent of American doctorates have moved out of their degree fields by 5 years after the doctorate. By 15 years, the percentage rises to 30, and by 25 years, to 40.*

In terms of the university's ability to improve its own programs and to adapt constructively to the financial, political, and other pressures beating upon it, a strong case can be made that the principal centers of curricular, research, and planning responsibility should be fewer in number and broader in interest than the department.

For all these reasons—public interest, scholarship, students, and university organization—the university now needs divisions larger than the department, divisions that will accommodate a variety of subgroups, long-lived and short-lived; pure, applied, or mixed; interdisciplinary and multi-disciplinary; for teaching, research, or both.

Of course there will be resistance to this proposal. There would be resistance at any time, but the 1970's offer an unusual opportunity for university reorganization. In the current buyer's market, young Ph.D.'s will respond to nontraditional opportunities in good universities. Growth in size will continue through the decade, and thus new appointments can be made. Universities are under severe financial, political, and intellectual stress; disadvantageous as that stress is in other respects, it is in times of crisis that new procedures and organizational forms are likely to be accepted, for it is then that outworn habits are most easily broken.—DAEL WOLFLE, *University of Washington, Seattle*

* Lindsey R. Harmon, *Profiles of Ph.D.'s in the Sciences* (National Academy of Sciences—National Research Council, Washington, D.C., 1965).