

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.

Publisher: WILLIAM D. CAREY

Editor: DANIEL E. KOSHLAND, JR.

Deputy Editors

PHILIP H. ABELSON (*Engineering and Applied Sciences*), JOHN I. BRAUMAN (*Physical Sciences*), GARDNER LINDZEY (*Social Sciences*)

Editorial Board

PHILIP W. ANDERSON, DAVID BALTIMORE, ANSLEY J. COALE, JOSEPH L. GOLDSTEIN, LEON KNOPOFF, SEYMOUR LIPSET, WALTER MASSEY, OLIVER E. NELSON, ALLEN NEWELL, RUTH PATRICK, VERA C. RUBIN, HOWARD E. SIMMONS, SOLOMON H. SNYDER, ROBERT M. SOLOW

Board of Reviewing Editors

JAMES P. ALLISON, QAIS AL-AWQATI, LUIS W. ALVAREZ, DON L. ANDERSON, KENNETH J. ARROW, C. PAUL BIANCHI, ELIZABETH H. BLACKBURN, FLOYD E. BLOOM, MICHAEL S. BROWN, JAMES H. CLARK, STANLEY FALKOW, NINA V. FEDOROFF, GARY FELSENFELD, DOUGLAS I. FUTUYAMA, THEODORE H. GEBALLE, STEPHEN P. GOFF, PATRICIA S. GOLDMAN-RAKIC, RICHARD M. HELD, GLORIA HEPPNER, JOHN IMBRIE, ERIC F. JOHNSON, KONRAD B. KRAUSKOPF, PAUL E. LACY, JOSEPH B. MARTIN, JOHN C. MCGIFF, MORTIMER MISHKIN, JOHN S. PEARSE, YESHAYAU POKER, FREDERIC M. RICHARDS, JAMES E. ROTHMAN, RONALD H. SCHWARTZ, OTTO T. SOLBRIG, ROBERT T. N. TJIAN, VIRGINIA TRIMBLE, GERRAT J. VERMEU, MARTIN G. WEIGERT, GEORGE M. WHITESIDES, WILLIAM B. WOOD, HARRIET ZUCKERMAN

Editorial Staff

Managing Editor: PATRICIA A. MORGAN
Assistant Managing Editors: NANCY J. HARTNAGEL, JOHN E. RINGE
Production Editor: ELLEN E. MURPHY
News Editor: BARBARA J. CULLITON
News and Columns: COLIN NORMAN (deputy editor), MARK H. CRAWFORD, CONSTANCE HOLDEN, ELIOT MARSHALL, R. JEFFREY SMITH, MARJORIE SUN, JOHN WALSH
European Correspondent: DAVID DICKSON
Research News: ROGER LEWIN (deputy editor), RICHARD A. KEAR, GINA KOLTA, JEAN L. MARX, ARTHUR L. ROBINSON, M. MITCHELL WALDROP
Administrative Assistant, News: SCHERRAINE MACK; **Editorial Assistant, News:** FANNIE GROOM
Senior Editor: ELEANORE BUTZ, RUTH KULSTAD
Associate Editors: MARTHA COLLINS, SYLVIA EBERHART, CAITLIN GORDON, WILLIAM GREAVES, BARBARA JASNY, STEPHEN KEFFLE, EDITH MEYERS, LOIS SCHMITT
Assistant Editor: LISA MCCULLOUGH
Book Reviews: KATHERINE LIVINGSTON, **Editor:** LINDA HEISERMAN, JANET KEGG
Letters Editor: CHRISTINE GILBERT
Contributing Editor: RUTH L. GUYER
Production: JOHN BAKER, HOLLY BISHOP, KATHLEEN COSIMANO, ELEANOR WARNER, ISABELLA BOULDIN, SHARON RYAN, BEVERLY SHIELDS
Covers, Reprints, and Permissions: GRAYCE FINGER, **Editor:** GERALDINE CRUMP, CORINNE HARRIS
Guide to Scientific Instruments: RICHARD G. SOMMER
Manuscript System Analyst: WILLIAM CARTER
EDITORIAL CORRESPONDENCE: 1333 H Street, NW, Washington, D.C. 20005. Telephone: 202-326-6500. For "Information for Contributors" see page xi, *Science*, 27 September 1985.

Business Staff

Chief Business Officer: WILLIAM M. MILLER III
Business Manager: HANS NUSSBAUM
Assistant to Chief Business Officer: ROSE LOWERY
Business Staff Supervisor: DEBORAH JEAN RIVERA
Membership Recruitment: GWENDOLYN HUDDLE
Member and Subscription Records: ANN RAGLAND

Advertising Representatives

Director: EARL J. SCHERAGO
Production Manager: DONNA RIVERA
Advertising Sales Manager: RICHARD L. CHARLES
Marketing Manager: HERBERT L. BURKLUUD
Sales: New York, N.Y. 10036: J. Kevin Henebry, 1515 Broadway (212-730-1050); SCOTCH PLAINS, N.J. 07076: C. Richard Callis, 12 Unami Lane (201-889-4873); CHICAGO, ILL. 60611: Jack Ryan, Room 2107, 919 N. Michigan Ave. (312-337-4973); BEVERLY HILLS, CALIF. 90211: Winn Nance, 111 N. La Cienega Blvd. (213-657-2772); SAN JOSE, CALIF. 95112: Bob Brindley, 310 S. 16 St. (408-998-4690); DORSET, VT. 05251: Fred W. Dieffenbach, Kent Hill Rd. (802-867-5581).
ADVERTISING CORRESPONDENCE: Tenth floor, 1515 Broadway, New York 10036 (212-730-1050).

Arms Control and Intricacy

This meditation is prompted by the recent passing of Herbert Scoville. His career, in and out of government, in pursuit of balanced national security tempered by arms control went a very long way in defining and exemplifying the idea of scientific responsibility. The best years of his life, and all of his dwindling time, went into building the case for the arms control process and elucidating the differential impacts of weapons systems on the fragile texture of what we term stability.

Much that assails the eye and the ear, relative to reining in the risk of nuclear conflict, is at the level of rhetorical jousting. Our adversary calls for a mutual moratorium on tests. We invite the adversary to observe a weapons test. Deadlock follows. But below the surface rhetoric is an intricacy that grows more complex with time and with weapons innovations, and it is here that the specialists have so critical a role.

The likelihood that nuclear weapons will disappear is small. We read in Shevchenko's confessional autobiography* that Soviet policy-makers dismiss true nuclear disarmament because, in that event, the Soviet Union would cease to be a superpower. If that is to be taken on its face, the puzzle of Soviet intransigence is given a new twist, since it seems to say that in their case nuclear overkill has evolved into a nonnegotiable geopolitical asset. The burden on arms control efforts thus becomes staggering, and the focus has to be on measures for conflict avoidance and negotiations to put a cap on weapons systems competition. But with trust on both sides near the zero point, the course is all uphill.

The quality of public opinion in matters of arms control and the requirements of national security are very important to a society based upon the principles of representative government. Nowhere is this problem more troublesome than where controversy arises regarding new starts on weapons systems and confidence levels in the verifiability of arms agreements. The parade of disputes over weapons systems in the past decade alone says much about the confusion that afflicts public opinion. Each new weapons initiative has generated arguments as to need, efficacy, cost, reliability, survivability, and consistency with ratified or unratified arms control treaties. Not everyone can follow these trails without a guide, and Scoville's legacy to his fellow citizens will long survive in the educational work of the Arms Control Association.

Because intricacy besets this whole area, great oversimplifications are of no help. Thus, the AAAS thought it timely to publish this year a glossary of terms and concepts that bear on problems of verification in nuclear arms control matters. It runs to 38 pages, without counting even more pages listing key official documents, treaties in force, and "suspended arms control negotiations." It is a mouthful. "SLAR" stands for Side-Looking Airborne Radar. "Pave Paws Radar" is a phased array radar to warn of submarine-launched missiles. "Molniya" are Soviet satellites for military communication. "Exoatmospheric" refers to antiballistic missiles that operate outside the atmosphere. Thus we begin to glimpse a patch of the intricacy that suffuses the nuclear weapons culture and hampers public opinion in staying in step with the arms control debate.

Now a summit meeting is in prospect. It ought to be more than a spectacle of personalities on a world stage. It ought to bring into focus the full dimensions of the terror that holds us hostage. Whatever may be its outcomes, the genuine work of pursuing arms control will be done, as always, offstage. It will be done in the quiet zone of the cold war, and those who work honestly at it are unlikely to be singled out for peace prizes. The unfinished work of Scoville challenges us profoundly.—WILLIAM D. CAREY

*A. N. Shevchenko, *Breaking with Moscow* (Knopf, New York, 1985), p. 163.

Science

Arms Control and Intricacy

WILLIAM D. CAREY

Science **230** (4722), 125.
DOI: 10.1126/science.230.4722.125

ARTICLE TOOLS

<http://science.sciencemag.org/content/230/4722/125>

PERMISSIONS

<http://www.sciencemag.org/help/reprints-and-permissions>

Use of this article is subject to the [Terms of Service](#)

Science (print ISSN 0036-8075; online ISSN 1095-9203) is published by the American Association for the Advancement of Science, 1200 New York Avenue NW, Washington, DC 20005. The title *Science* is a registered trademark of AAAS.

1985 by the American Association for the Advancement of Science.