Science

19 January 1990 Volume 247 Number 4940

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: Richard S. Nicholson

Editor: Daniel E. Koshland, Jr.

News Editor: Ellis Rubinstein

Managing Editor: Patricia A. Morgan Deputy Editors: Philip H. Abelson (Engineering and Applied Sciences); John I. Brauman (Physical Sciences)

EDITORIAL STAFF

Assistant Managing Editor: Monica M. Bradford Senior Editors: Eleanore Butz, Martha Coleman, Barbara Jasny, Katrina L. Kelner, Phillip D. Szuromi, David F. Voss Associate Editors: Keith W. Brocklehurst, R. Brooks Hanson, Pamela J. Hines, Linda J Miller Letters Editor: Christine Gilbert Book Reviews: Katherine Livingston, *editor* Contributing Editor: Lawrence I. Grossman Chief Production Editor: Ellen E. Murphy Editing Department: Lois Schmitt, *head*, Mary McDaniel, Patricia L. Moe, Barbara P. Ordway Copy Desk: Joi S. Granger, Margaret E. Gray, MaryBeth Shartle, Beverly Shields Production Manager: Kathleen C. Fishback Art Director: Yolanda M. Rook Graphics and Production: Holly Bishop, Julie Cherry, Catherine S. Siskos

NEWS STAFF

Correspondent-at-Large: Barbara J. Culliton Deputy News Editors: John M. Benditt, Jean Marx, Colin Norman

News and Comment/Research News: Mark H. Crawford, Constance Holden, Richard A. Kerr, Eliot Marshall, Joseph Palca, Robert Pool, Leslie Roberts, Marjorie Sun, M. Mitchell Waldrop European Correspondent: Jeremy Cherfas West Coast Correspondent: Marcia Barinaga

BUSINESS STAFF

Circulation Director: John G. Colson Fulfiliment Manager: Marlene Zendell Business Staff Manager: Deborah Rivera-Wienhold Classified Advertising Supervisor: Amie Charlene King

ADVERTISING REPRESENTATIVES Director: Earl J. Scherago Traffic Manager: Donna Rivera Traffic Manager (Recruitment): Gwen Canter Advertising Sales Manager: Richard L. Charles Marketing Manager: Herbert L. Burklund Employment Sales Manager: Edward C. Keller Sales: New York, NY 10036; J. Kevin Henebry, 1515 Broadway (212-730-1050); Scotch Plains, NJ 07076; C. Richard Callis, 12 Unam Lane (201-889--4873); Chicago, IL 60914: Jack Ryan, 525 W. Higgins Rd. (312-885-8675); San Jose, CA 95112: Bob Brindley, 310 S. 16th St. (408-988-4690); Dorset, VT 05251: Fred W. Dieffenbach, Kent Hill Rd. (802-867-5581); Damascus, MD 20872: Rick Sommer, 11318 Kings Valley Dr (301-972-9270); U.K., Europe Nick Jones, +44(0647)52918; Telex 42513; FAX (0647) 52053.

Information for contributors appears on page XI of the 22 December 1989 issue Editorial correspondence, including requests for permission to reprint and reprint orders, should be sent to 1333 H Street, NW, Washington, DC 20005. Telephone: 202-326-6500. Advertising correspondence should be sent to Tenth Floor, 1515 Broadway, New York, NY 10036 Telephone 212-730-1050 or WU Telex 968082 SCHERAGO, or FAX 212-382-3725.

Andrei Sakharov, 1921–1989

eroes are essential to the improvement of society. They represent humankind at its best, a distillation of the diverse qualities that lead a person to behavior that teaches and inspires. In the modern world of media hype and investigative reporting, heroes are hard to find. Either they are suspected of being ordinary souls with good public relations agents or statuesque figures whose feet of clay will be exposed just when schoolchildren are being asked to emulate them. In this age of skepticism a man who became a hero, who never disappointed his followers, and whose influence was consistent and increasing at the time of his untimely death was Andrei Sakharov. He was a distinguished scientist and a great human being.

Sakharov received the kudos of his country for his outstanding work in physics, which led to, among other things, the Soviet hydrogen bomb. Whether the world was better off with that application is a matter for speculation, but in the eyes of the Soviet Union it provided "the equalizer." The stalemate between the superpowers produced an era of relative world peace (defined as the absence of a major war) for an unprecedented period in modern times. Sakharov could have spent the rest of his life basking in the tributes of his countrymen; but when he saw abuse of power, he chose instead to use his prestige to fight the authorities who had recently honored him.

He was treated with unbelievable indignity and cruelty. He and his family were constantly harassed, as were visitors to his Moscow home. He was not allowed to continue his scientific work. His papers and personal effects were stolen from him by order of the state. He was exiled, and he and his wife were denied needed medical attention. Throughout this period he acted with steadfastness and will. His words became rallying points for scientists worldwide, and Sakharov became their symbolic leader in the cause of scientific freedom. When praised for his courage, he replied with modesty, naming others less well known who had been imprisoned for similar actions and statements.

To the credit of Mikhail Gorbachev, this disgraceful situation was reversed. Sakharov was allowed to return to his home, to speak freely, and even to travel abroad. Again that would have been a time to relax. Instead, Sakharov responded in characteristic fashion, praising acts of democracy, returning from trips abroad even though he could never be sure of his future in his homeland, and continuing to criticize where he saw only partial movement toward the democracy for which he yearned. His enormous stature stemmed not only from his past as a physicist, but also from the excellence of his judgment in dissent. He never simply railed against the system, but always had constructive alternatives to propose.

In the modern world, integrity and courage are usually expressed in intellectual and moral terms. We moderns are rarely subjected to the physical hardships and dangers that challenged our ancestors. Even challenges to moral courage can be daunting, as the McCarthy era in this country proved only too well. At that time Edward R. Murrow, a distinguished journalist, and Herbert H. Lehman, a governor of New York, stood out as individuals willing to risk careers by speaking out when too many others were silent. Sakharov risked not only a career but physical harm. Nevertheless, his conscience, not his welfare, guided his actions. His acts of dissent started when the most confirmed optimist considered them hopeless, symbolic gestures devoid of any chance of success. The events of recent days in Eastern Europe and the Soviet Union changed the picture. How much of this change was generated by Sakharov's courageous idealism, how much by the stark reality of economic disaster, and how much by the new ideas of Gorbachev only history can decide. At this time all three appear to have played major roles. Andrei Sakharov set a standard for the modern hero. Few will achieve his level, but many will fight injustice more fiercely because of his example. —DANIEL E. KOSHLAND, JR.