

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

1970

GUSTAF O. ARRHENIUS	RICHARD C. LEWONTIN
FRED R. EGGAN	ALFRED O. C. NIER
HARRY F. HARLOW	FRANK W. PUTNAM
MILTON HARRIS	

1971

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

Editorial Staff

Editor

PHILIP H. ABELSON

Publisher
DAEL WOLFLE

Business Manager
HANS NUSSBAUM

Managing Editor: ROBERT V. ORMES

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

Assistant to the Editor: NANCY TEIMOURIAN

News Editor: JOHN WALSH

Foreign Editor: DANIEL S. GREENBERG*

News and Comment: LUTHER J. CARTER, PHILIP M. BOFFEY, ANDREW HAMILTON, NANCY GRUCHOW, SCHERRAINE MACK

Research Topics: ROBERT W. HOLCOMB

Book Reviews: SYLVIA EBERHART

Editorial Assistants: JOANNE BELK, ISABELLA BOULDIN, ELEANORE BUTZ, GRAYCE FINGER, NANCY HAMILTON, CORRINE HARRIS, OLIVER HEATWOLE, ANNE HOLDSWORTH, MARSHALL KATHAN, PAULA LECKY, KATHERINE LIVINGSTON, MARGARET LLOYD, VIRGINIA NUESSE, PATRICIA ROWE, LEAH RYAN, LOIS SCHMITT, BARBARA SHEFFER, RICHARD SOMMER, YA LI SWIGART, ALICE THEILE, MARLENE TUCKER, MARIE WEBNER

* *European Office:* 22 Mulberry Walk, London, S.W.3, England (Telephone: 352-9749)

Advertising Staff

Director
EARL J. SCHERAGO

Production Manager
KAY GOLDSTEIN

Advertising Sales Manager: RICHARD L. CHARLES

Sales: NEW YORK, N.Y. 10036: Robert S. Bugbee, 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: Herbert L. Burklund, 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. Phone: 202-387-7171. Cable: Advancesci, Washington. Copies of "Instructions for Contributors" can be obtained from the editorial office. See also page xviA, *Science*, 27 March 1970. ADVERTISING CORRESPONDENCE: Room 1740, 11 W. 42 St., New York, N.Y. 10036. Phone: 212-PE-6-1858.

Shortage of Caviar

The U.S.S.R. has assigned top priorities to armament, space, and capital goods. Only a few luxury consumer goods, such as caviar, are produced for export. But even this item is now disappearing, and its price has risen sharply.

Natural caviar is derived from the roe of the sturgeon. Most of these fish dwell in the Caspian Sea and the Volga River. Pollution of these waters has led to attenuation of the fisheries. A Novosti Press Agency release states: "Off-shore drilling operations keep expanding, and, as a result of a purification bungle and an irresponsible approach to this problem by the oil-extracting plants and refineries, the Caspian Sea . . . is becoming badly polluted. Add the industrial sewage discharged into the sea and the contamination by intensive shipping, and you will not be surprised to learn that the sturgeon catch is falling sharply." Supplementing these remarks is a passage in *Soviet Life*:* "The Caspian's prime polluter is oil. Until recently all the off-shore oil installations, which use great quantities of water, dumped the contaminated water into the sea. Hundreds of tankers carry oil derivatives across the Caspian. The holds of the tankers were cleaned en route, and the waste water emptied into the sea."

Examination of Soviet publications indicates that their water pollution problem is widespread and serious. Oils, phenols, alkalis, acids, and organic wastes are dumped in streams and lakes, and only a small fraction of plants have adequate facilities for waste treatment. A passage from *Izvestia* states, "there are more than fifteen thousand milk, butter and cheese factories and separator departments in the country . . . they consume millions and millions of cubic meters of water. The number of fish factories, tanneries, linen factories, regional food combines and industrial complexes is still greater . . . nearly all of these enterprises have no waste water purifying installations."

The Soviet government is now moving toward abating pollution, but the problem will not be solved quickly. Huge capital investments in treatment facilities are required, and construction will extend over many years. The Soviet government must also cope with its plant managers. A quotation from *Izvestia*† illustrates the problem. In a discussion of the failure of management to construct purification installations, the item says, "the Voskresensky Chemical Combine managed not to spend one kopek on this construction, although the money had been allocated. They explain how, waving their arms, the design organization did not turn over the drawings on schedule. But why did the combine director, Comrade Doktorov, instead of trying to obtain the designs, begin to fuss about to have himself relieved of all these unnecessary headaches, the installations of all kinds of filters and sediment traps?"

In commenting on this quotation, Myron Tribus pointed out that the problem of managing pollution is "universal, characteristic of all technological societies and in the end reflects the value judgments of those people who are creating the wastes." Senator Muskie summarized the matter in another way when, in speaking of the Russian and American approaches to pollution, he said, "It is not so important who owns the means of production as how they are managed."

Both the U.S.S.R. and the United States have been careless in despoiling the environment. Both now seem to be moving toward a more responsible posture. If the two nations were to compete in the clean-up process, that would be constructive. If they were to cooperate, that would be a welcome miracle.—PHILIP H. ABELSON

*A. Simonov, "Cleaning up the seas," *Soviet Life* (January 1970), p. 59. †Statement of Dr. Myron Tribus at hearing of U.S. Senate Committee on Public Works regarding S2005 and amendment 153 to the Solid Waste Disposal Act (1 October 1969), p. 813.