

353-03360

353-00

000

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

ROBERT L. BOWMAN	WILLARD F. LIBBY
MELVIN CALVIN	GORDON J. F. MACDONALD
JOSEPH W. CHAMBERLAIN	EVERETT I. MENDELSON
FARRINGTON DANIELS	NEAL E. MILLER
JOHN T. EDSALL	JOHN R. PIERCE
DAVID R. GODDARD	COLIN S. PITTENDRIGH
EMIL HAURY	KENNETH S. PITZER
ALEXANDER HOLLAENDER	ALEXANDER RICH
ROBERT JASTROW	DEWITT STETTEN, JR.
EDWIN M. LERNER, II	EDWARD L. TATUM
CLARENCE M. ZENER	

Editorial Staff

Editor

PHILIP H. ABELSON

Publisher

DAEL WOLFE

Business Manager

HANS NUSSBAUM

Managing Editor: ROBERT V. ORMES

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

Assistant to the Editor: NANCY TEIMOURIAN

News and Comment: DANIEL S. GREENBERG, JOHN WALSH, ELINOR LANGER, MARION ZEIGER, ROSEMARY GALLI

Europe: VICTOR K. McELHENY, Flat 3, 18 Kensington Court Place, London, W.8, England (Western 5360)

Book Reviews: SARAH S. DEES

Editorial Assistants: ISABELLA BOULDIN, ELEANORE BUTZ, BEN CARLIN, SYLVIA EBERHART, GRAYCE FINGER, NANCY HAMILTON, OLIVER HEATWOLE, ANNE HOLDSWORTH, MARCIA JODLBAUER, RUTH KINGERLEE, KATHERINE LIVINGSTON

Advertising Staff

Director

EARL J. SCHERAGO

Production Manager

RAYMONDE SALAMA

Sales: New York, N.Y., 11 W. 42 St. (212-PE-6-1858): RICHARD L. CHARLES, ROBERT S. BUGBEE
Scotch Plains, N.J., 12 Unami Lane (201-889-4873): C. RICHARD CALLIS

Chicago, Ill., 6 W. Ontario St. (312-DE-7-4973): HERBERT BURKLAND

Los Angeles 45, Calif., 8255 Beverly Blvd. (213-653-9817): WINN NANCE

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. ADVERTISING CORRESPONDENCE: Rm. 1740, 11 W. 42 St., New York, N.Y. 10036. Phone: 212-PE 6-1858.

School Laboratory Supplies

Much money and much effort have gone into the improvement of science teaching in the elementary and secondary grades. One area that now needs special attention is the provision of larger budgets for supplies and equipment, for there is a great gap between the amounts that are available in most schools and the amounts that should be available.

The several groups of scientists and teachers who have been working to improve science teaching have been ingenious in developing inexpensive laboratory equipment and teaching materials. For example, materials for the first four grades of the elementary science teaching program being developed under AAAS auspices cost only about \$1 a year per pupil. Costs for the new junior and senior high school programs are substantially higher, but still modest. In contrast, one large midwestern city in a recent year budgeted 6½ cents per child for science teaching materials in the elementary grades. A large eastern city, in one of the states that rates high in its overall budget for teaching supplies, this year has less than 25 cents per pupil for elementary science teaching materials. In another large eastern city the superintendent of schools asked for 54 cents per pupil to cover all laboratory and shop supply and equipment costs (38 cents in the elementary grades, up to 94 cents for the 12th grade), but the Board of Education was unable to appropriate that much.

If these amounts seem atypical, the annual analysis in *School Management* of expenditures in the nation's public elementary and secondary schools provides a broader picture. For 1964-65 the median amount available for teaching materials of all kinds is \$14.15 per pupil. Some wealthy districts provide over \$36 per pupil, and in three northern states the median is \$20.1. But in four southern states the average is \$5.60, and in the 10 percent of the poorest districts that spend the least on school supplies it is only \$2.11 per pupil. (Strictly speaking, these figures are not on a "per pupil" basis, for there are adjustments for the greater cost of secondary over elementary education and of small over large schools, but the distortion is small.)

These greatly different amounts provide the children of different towns and cities with whatever they have of textbooks (no wonder so many outworn ones are in use!), library books, art and music supplies, shop equipment and materials for vocational education, and whatever equipment and supplies are used for teaching science.

The gap between the amount necessary to provide adequate materials for good science instruction and the amounts now budgeted can perhaps be partially closed by even more ingenuity in developing inexpensive materials. But more money is necessary. Some parent-teacher associations collect funds to supplement school budgets. The National Defense Education Act and other federal legislation provide special funds for science equipment, but the amount for each child is small; federal assistance for all purposes this year amounts to \$2.16 out of an average total cost of \$373 per pupil. Legislation now being considered in Congress would give additional help, but the major effort must be made locally, for local and state taxes will remain as the chief source of funds for science teaching, as for other school expenses. If there are school children in whose education you have a special interest, you may stimulate improvement by finding out how much is budgeted for science teaching in the schools they attend.

—DAEL WOLFE

Science

School Laboratory Supplies

Dael Wolfle

Science **147** (3660), 827.
DOI: 10.1126/science.147.3660.827

ARTICLE TOOLS <http://science.sciencemag.org/content/147/3660/827.citation>

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. 2017 © The Authors, some rights reserved; exclusive licensee American Association for the Advancement of Science. No claim to original U.S. Government Works. The title *Science* is a registered trademark of AAAS.