

AMERICAN ASSOCIATION
FOR THE
ADVANCEMENT OF SCIENCE

Board of Directors

CHAUNCEY D. LEAKE, *Retiring President, Chairman*
THOMAS PARK, *President*
PAUL M. GROSS, *President Elect*
HARRISON BROWN DON K. PRICE
HENRY EYRING ALFRED S. ROMER
H. BENTLEY GLASS WILLIAM W. RUBEY
MARGARET MEAD ALAN T. WATERMAN
PAUL A. SCHERER, *Treasurer*
DAEL WOLFLE, *Executive Officer*

Editorial Board

KONRAD B. KRAUSKOPF H. BURR STEINBACH
EDWIN M. LERNER WILLIAM L. STRAUS, JR.
PHILIP M. MORSE EDWARD L. TATUM

Editorial Staff

DAEL WOLFLE HANS NUSSBAUM
Publisher Business Manager

GRAHAM DUSHANE
Editor

JOSEPH TURNER ROBERT V. ORMES
Associate Editor Managing Editor
ELLEN E. MURPHY, *Assistant Editor*

NANCY TEIMOURIAN, *Assistant to the Editor*

News: HOWARD MARGOLIS, DANIEL S. GREENBERG, PATRICIA D. PADDOCK

Book Reviews: SARAH S. DEES

Editorial Assistants: SUE E. BERKE, NANCY S. HAMILTON, OLIVER W. HEATWOLE, EDGAR C. RICH, JOHN E. RINGLE, CONRAD YUNG-KWAI

Staff Assistants: LILLIAN HSU, GENEVIEVE M. QUADA

Advertising Staff

EARL J. SCHERAGO, *Director*

BERNICE SCHWARTZ, *Production Manager*

Sales: RICHARD L. CHARLES (New York, N.Y., PE 6-1858); C. RICHARD CALLIS (Old Bridge, N.J., CL 4-3680); HERBERT BURKLUND (Chicago, Ill., DE 7-4973); DILLENBECK-GALAVAN (Los Angeles, Calif., DU 5-3991)

SCIENCE, now combined with THE SCIENTIFIC MONTHLY, is published each Friday by the American Association for the Advancement of Science at National Publishing Company, Washington, D.C. SCIENCE is indexed in the *Reader's Guide to Periodical Literature*.

Editorial correspondence should be addressed to SCIENCE, 1515 Massachusetts Ave., NW, Washington 5, D.C. Manuscripts should be typed with double spacing and submitted in duplicate. The AAAS assumes no responsibility for the safety of manuscripts. Opinions expressed by authors are their own and do not necessarily reflect the opinions of the AAAS or the institutions with which the authors are affiliated. For detailed suggestions on the preparation of manuscripts, see *Science* 125, 16 (4 Jan. 1957).

Advertising correspondence should be addressed to SCIENCE, Room 1740, 11 West 42 St., New York 36, N.Y.

Change of address notification should be sent to 1515 Massachusetts Ave., NW, Washington 5, D.C., 4 weeks in advance. Furnish an address label from a recent issue. Give both old and new addresses, including zone numbers.

Annual subscriptions: \$8.50; foreign postage, \$1.50; Canadian postage, 75¢. Single copies, 35¢. School year subscriptions: 9 months, \$7.00; 10 months, \$7.50. Cable address: Advancesci, Washington.

Copyright © 1961 by the American Association for the Advancement of Science.

Investment in Education

"Economic growth is generated not only by real capital in the form of tools and machinery, but also by men. And just as technological improvement increases the efficiency of machinery, so education increases the efficiency of manpower. Indeed, recent statistical investigations tend to show that the improvement in the 'human factor' accounts for a major part of economic growth."

The quotation is from one of the working documents for the Conference on Economic Growth and Investment in Education, held last week in Washington by the Organization for Economic Cooperation and Development. If the initials of that organization—OECD—are unfamiliar, the organization itself is very new, having come into being on September 30. But OECD has a longer history as OEEC—the Organization for European Economic Cooperation which was established in 1948 to administer Marshall Plan aid in the economic reconstruction of Europe following World War II.

The change of name and the location of the conference both mark the fact that in OECD Canada and the United States have joined 18 European countries in planning for the economic development not only of the West but also of the less developed regions of the world. The topic selected for the first OECD conference reflects the growing recognition that money spent on education is an investment in a nation's future.

The evidence that education constitutes a profitable form of investment adds a powerful dimension to educational thinking, but does not, let it be immediately agreed, depreciate other values of education. Assistant Secretary of State Philip H. Coombs reminded the delegates that "we can today talk candidly and openly about the practical economic contribution of education without seeming to betray, belittle, or ignore its other vital purposes."

Considering education as a national investment leads directly to the question of how the educational budget can be invested most profitably. How much of the total budget should be devoted to education? How should the educational fraction be divided among elementary, secondary, and higher educational levels? How much should go to technical education? Belgium and Brazil, Germany and Greece must answer such questions in terms of their own individual assets, problems, and aspirations. In the decentralized educational system of the U.S., these questions can also be studied on a state-by-state basis.

The repeatedly recognized fact that economic growth is increasingly dependent on specialized competence in science, technology, and their industrial and social management leads directly to the conclusion that educational planning must pay special attention to the development of these kinds of competence. And this conclusion, in turn, raises several demanding implications for scientific and technical education. The research approach must be more widely applied to education itself. Long-range educational planning is essential, but the planning must allow flexibility to adjust means and details to the changes that take place in science itself. Planning should be cooperative. Economists will carry part of the responsibility, for economic analysis and planning lie in their area of special competence. But scientists, pure and applied, must share the responsibility, for science and its problems, progress, and applications constitute their area of special competence.—D.W.