LETTERS
Scientific Rivalries: A Sign of Vitality?: F. J. Stech; Jensen's AAAS Fellowship: W. J. McKeachie; S. Yancy-McGuire; M. S. Collins; E. R. Kennedy; Civil Defense and Nuclear Blackmail: E. P. Wigner and C. M. Haaland

EDITORIAL
Science and Technology Strategy for the LDC’s: M. S. Wionczek

ARTICLES
Molecular Metal Clusters: E. L. Muetterties
Science in the White House: A New Start: L. M. Branscomb

NEWS AND COMMENT
Cancer Institute Unilaterally Issues New Restrictions on Mammography
Battle to Legitimize Laetrile Continues Unabated
How the Swedes Live Well While Consuming Less Energy
Smithsonian: “The Nation’s Attic” Undergoing New Federal Scrutiny
Warnke Stuck with Verification Task

RESEARCH NEWS
Critical Phenomena: Experiments Show Theory on Right Track

BOOK REVIEWS
The Healers, reviewed by J. H. Young; The Mathematical Papers of Isaac Newton, M. S. Mahoney; Tree Physiology and Yield Improvement, M. H. Zimmermann; Morphology and Biology of Reptiles, D. B. Wake; Reproduction of Eukaryotic Cells, W. Plaut; Atoms and Molecules in Electric Fields, W. Happer; Books Received and Book Order Service

REPORTS
Geomorphic Degradations on the Surface of Venus: An Analysis of Venera 9 and Venera 10 Data: C. P. Floresky, L. B. Ronca, A. T. Basilevsky
Determining the General Circulation of the Oceans: A Preliminary Discussion: C. Wunsch

SCIENCE is published weekly, except the last week in December, by the American Association for the Advancement of Science, 1515 Massachusetts Ave., NW, Washington, D.C. 20005. Now combined with The Scientific Monthly. Second-class postage paid at Washington, D.C., and additional entry. Copyright © 1977 by the American Association for the Advancement of Science. Member rates on request. Annual subscriptions $60; foreign postage: Canada $10; other surface $15; air-surfaces via Amsterdam $30. Single copies $2 (back issues $5) except Guide to Scientific Instruments $9. School year subscriptions: 9 months $45; 10 months $50. Provide 6 weeks' notice for change of address, giving new and old addresses and postal codes. Send a recent address label, including your 7-digit account number. Postmaster: Send Form 3579 to Science, 1515 Massachusetts Avenue, NW, Washington, D.C. 20005. Science is indexed in the Reader's Guide to Periodical Literature.
Aldehyde Oxidase Compartmentalization in Drosophila melanogaster Wing Imaginal Disks: D. T. Kuhn and G. N. Cunningham

Flavonoids and Other Chemical Constituents of Fossil Miocene Zelkova (Ulmaceae): K. J. Niklas and D. E. Giannasi

The Photosynthetic Unit of Hydrogen Evolution: E. Greenbaum

Competition Between Seed-Eating Rodents and Ants in Desert Ecosystems: J. H. Brown and D. W. Davidson

Covalent Labeling of the Tetrodotoxin Receptor in Excitable Membranes: R. J. Guillory, M. D. Rayner, J. S. D'Arrigo

Allelopathic Influence on Blue-Green Bloom Sequence in a Eutrophic Lake: K. J. Keating

Light and Stomatal Function: Blue Light Stimulates Swelling of Guard Cell Protoplasts: E. Zeiger and P. K. Hepler

Newly Evolved Repeated DNA Sequences in Primates: D. Gillespie


Lymphocyte and Fibroblast Chalone: Some Chemical Properties: J. C. Houck et al.

Suckling as Incentive to Instrumental Learning in Preweaning Rats: J. T. Kenny and E. M. Blass

Prolactin-Like Immunoreactivity: Localization in Nerve Terminals of Rat Hypothalamus: K. Fuxe et al.

Heteromorphic Sex Chromosomes in Male Rainbow Trout: G. H. Thorgaard

Hibernation and Body Weight in Dormice: A New Type of Endogenous Cycle: N. Mrosovsky

Controlling the Pink Bollworm by Disrupting Sex Pheromone Communication Between Adult Moths: L. K. Gaston et al.

Lesch-Nyhan Syndrome: Low Dopamine-β-Hydroxylase Activity and Diminished Sympathetic Response to Stress and Posture: C. R. Lake and M. G. Ziegler

Legionnaires' Disease: Nickel Levels: J. R. Chen, R. B. Francisco, T. E. Miller

The Cell Membrane Sodium Pump as a Mechanism for Increasing Thermogenesis During Cold Acclimation in Rats: D. L. Guernsey and E. D. Stevens

Nomarsky interference-contrast micrographs of the specialized stomatal guard cells from an onion cotyledon. Isolated guard cell protoplasts (above) are obtained after enzymatic digestion of the cellulosic walls. (Actual size of protoplasts, 20 μm in diameter.) See page 887 [Eduardo Zeiger and P. K. Hepler, Stanford University, Stanford, California]
Science and Technology Strategy for the LDC’s

More than 2 years after the U.N. decision to convene a World Conference on Science and Technology for Development in 1979, and less than 2 years before it actually takes place, our understanding of the links between science and technology and the development needs of the Third World is still very slim.

In the advanced countries the position seems to prevail that fostering science and technology for development amounts to establishing modern scientific institutions in less developed countries (LDC’s) and massively transferring modern technology to them, preferably through private channels. On the other hand, many spokesmen for the underdeveloped world understand science and technology for development as abolishing all international barriers that hinder their access to the fruits of scientific and technological progress. It is highly doubtful that either of these two extreme positions offers a solution to the problems of LDC’s. Scientific institutes, massive transfers, and tearing down the barriers to the flow of knowledge will hardly do the trick because the capacity of the poor world to absorb and to use scientific knowledge and technical know-how in a meaningful way is very weak.

What the underdeveloped countries need first and foremost is the buildup of their internal scientific and technological capacity. The achievement of such an objective will depend more on a long-term integrated international and domestic effort than on piecemeal initiatives guided by ideological preferences or by magic thinking. This rather simple proposition seems to be forgotten by many, if not most, diplomats, scientists, and international bureaucrats participating in the preparatory stages of the U.N. Conference on Science and Technology. At least this is the impression one has after the most recent meeting of the U.N. Committee on Science and Technology for Development (New York, February 1977).

One of the major obstacles to the advancement of science and technology in the underdeveloped world originates from the divorce between local R & D activities and the educational and productive systems and from the lack of general scientific and technological culture. Consequently, whatever knowledge is produced domestically is used neither to improve the quality of education nor for productive purposes. Moreover, the supply of internally produced scientific knowledge and technical know-how does not automatically create a demand, because the little demand that exists is historically directed to the outside world.

Thus, the advancement of science and technology in the poor countries will depend more on establishing permanent and strong links between the R & D system, education, and the economy than on the volume of imported knowledge and an increased allocation of human and financial resources for research institutions. In the absence of domestic demand for their output, a corollary to the absence of scientific culture, modern scientific institutions set up in the LDC’s with help from outside wither away or become sources for brain drain. On the other hand, dependence on massive imports of technology through traditional channels leads to the emergence of advanced technology enclaves that perpetuate themselves in the context of general technological backwardness.

Unfortunately, while scientific communities in the advanced countries know very little about the nature of underdevelopment, the links of most diplomats and bureaucrats from the poor world with their own societies are very often incidental. Given that scientific and technological policy for the development of the LDC’s must be put in the framework of the overall development policy and must build bridges between R & D and the educational and productive systems, the U.N. Conference on Science and Technology for Development, manned mostly by scientists from the North and diplomats from the South, will be facing the most serious handicaps.

—MIGUEL S. WIONCZK, El Colegio de México, Mexico 7, D.F.