
BACKGROUND BOOKS

RESOURCES AND ECONOMIC GROWTH

At the 1976 meeting of the Club of Rome, founder Aurelio Peccei (former managing director of Olivetti) told the scholars and businessmen in his "invisible college" that the report they had commissioned from Dennis L. Meadows and coworkers at MIT for the Club's "Project on the Predicament of Mankind" had "served its purpose" of "getting the world's attention" focused on the threat to humanity of continued uncontrolled expansion of population and industry.

To say the least. Since 1972, that report, published as **THE LIMITS TO GROWTH** by Donella H. Meadows, Dennis L. Meadows, Jorgen Randers, and William W. Behrens III (Universe Books, with Potomac Associates), has reportedly sold more than 2 million copies worldwide (375,000 in U.S. cloth and paper editions). **LIMITS** helped to spawn dozens of new books on growth (pro, con, exponential, sustainable, zero) and has been responsible for a renewal of interest in early Doomsday writers.

These include, most notably, T. R. Malthus, the British parson-economist whose pessimistic study, **AN ESSAY ON THE PRINCIPLE OF POPULATION**, first published in 1798 (newly reissued by Penguin in paper, 1976), contains the prediction that the world would exhaust its food supply as its peoples multiplied. Attacked and defended then as later, the essay was described by Karl Marx as "nothing but a sensational pamphlet . . . yet what a stimulus was produced by this libel on the human race!" In November 1972, in the course of the heated new debate on growth, Garrett Hardin, in *Bulletin of the Atomic Scientists*, noting the

attacks of latter-day critics, wrote: "Malthus has been buried again. This is the 174th year in which that redoubtable economist has been interred. We may take it as certain that anyone who has to be buried 174 times cannot be wholly dead."

David Ricardo (1772-1823), a contemporary of Malthus, is another classical economist whose gloomy ideas on resource scarcity and its effects, as developed in his numerous books, are widely discussed in connection with the work of the Meadowses and of Jay W. Forrester, the MIT systems analyst who describes his pioneer model for the Club of Rome project in **WORLD DYNAMICS** (Cambridge, Mass.: Wright-Allen Press, 1971).

Forrester's computer model **WORLD I** provided the basis for the Meadowses' **WORLD II**, which produced the latter's conclusions that then current rates of economic and population growth, if continued, even with advanced technology would lead to catastrophe shortly after the year 2100. Both models are challenged on technical and other grounds by a research team at the University of Sussex in England in **MODELS OF DOOM**, edited by H.S.D. Cole, et al. (Universe Books, 1973).

Additional Meadows studies came in 1973 and 1974, followed in 1975 by the Club of Rome's hortatory **MANKIND AT THE CROSSROADS: An Enquiry Into the Causes of the Global Predicaments and the Means to Overcome Them** by William J. Thorbecke (Leyden: A.W. Sijthoff; Dobbs Ferry, N.Y.: Oceana Publications).

Still other writers dealt with specific topics such as population increase, food

problems, depletion of nonrenewable resources, industrial growth and pollution.

THE LIMITS TO GROWTH can be seen as providing a kind of New Testament for the environmental movement of the late 1960s and the early 1970s.

This period saw the publication of a number of forceful sermons on man's misuse of Earth, such as Gordon Rattray Taylor's **THE DOOMSDAY BOOK** (Fawcett, 1971, paper); Barry Commoner's **THE CLOSING CIRCLE** (Knopf, 1971, cloth; Bantam, 1972, paper); Roberto Vacca's **THE COMING DARK AGE** (Rutgers, 1973, cloth; Doubleday, 1974, paper); Peter Schrag's **THE END OF THE AMERICAN FUTURE** (Simon & Schuster, 1973); Robert Heilbroner's **AN INQUIRY INTO THE HUMAN PROSPECT** (Norton, 1974, cloth & paper); Paul R. and Anne H. Ehrlich's **THE END OF AFFLUENCE: A Blueprint for Your Future** (Ballantine, 1974, paper); and the works of microbiologist René Dubos and economists Barbara Ward and E. F. Schumacher.

Schumacher's **SMALL IS BEAUTIFUL: Economics as if People Mattered** was published in England and later reprinted in the United States (Harper, 1973, paper, 1975, cloth) in response to word-of-mouth acclaim. The author questions many Western assumptions, including the widespread belief that the ultimate production techniques have been mastered and now need only be transferred intact to developing nations. His plea for thinking small shapes his discussion of foreign aid, nuclear energy, education, and patterns of industrial organization and ownership.

In **ONLY ONE EARTH: The Care and Maintenance of a Small Planet** (Norton, 1972, cloth & paper) Ward's views were joined with Dubos's strong holistic philosophy in a study prepared for the U.N. Conference on the Human Environment at Stockholm. Their joint conclusion:

"An acceptable strategy for planet Earth must explicitly take account of the fact that the natural resource most threatened with pollution, most exposed to degradation, most liable to irreversible damage is not this or that plant or biome or habitat, not even the free airs or the great oceans. It is man himself."

Less impassioned writers have devoted themselves to sorting out problems and dangers and suggesting what can be done, through planned growth, to spread technological benefits without undue damage to man and his environment.

One of these is Sterling Brubaker. Among cautiously optimistic general studies none reads better than his lucid **TO LIVE ON EARTH: Man and His Environment in Perspective** (Johns Hopkins, with Resources for the Future, 1972). Another Johns Hopkins book, **ENERGY, ECONOMIC GROWTH, AND THE ENVIRONMENT**, edited by Sam H. Schurr, also holds out hope for moderate growth with minimal damage, provided some technical and institutional "fixes" are made. The authors of this collection of papers from the Washington research center, Resources for the Future, look closely at such immediate problems as the possible impact of environmental standards on the availability (reduced) and cost (increased) of petroleum and examine new legislative, administrative, and judicial processes to reconcile long-range energy policy with other U.S. domestic and international goals.

Individual titles in the specific areas of population and food production and distribution are numerous and best sought in individual bibliographies. Technical books that deal separately with energy sources—oil, natural gas, timber; nuclear, solar, geothermal—are also numerous and easy to locate in libraries and bookstores.

There are, however, a number of

broad energy studies worth noting. These include M. King Hubbert's chapter, "The Energy Resources of the Earth" in the *Scientific American* book, **ENERGY AND POWER** (Freeman, 1971); Hubbert's paper for the Senate Committee on Interior Affairs, "U.S. Energy Resources: A Review as of 1972" (U.S. Government Printing Office, 1974); **ENERGY AND THE FUTURE** by Allen H. Hammond, William D. Metz, and Thomas H. Haugh II (American Association for the Advancement of Science, 1973); and **TIME TO CHOOSE: America's Energy Future**, the final report of the Ford Foundation's Energy Policy Project (Ballinger, 1974). **ENERGY AND HUMAN WELFARE**, three volumes edited by Barry Commoner, Howard Boksenbaum, and Michael Corr (Macmillan, 1975), provide full coverage of environmentalists' views of energy problems. Commoner's own new book, **THE POVERTY OF POWER: Energy and the Economic Crisis** (Knopf, 1976), catalogs the dangers in nuclear power and makes a plea for immediate use of the solar alternative on a modest basis.

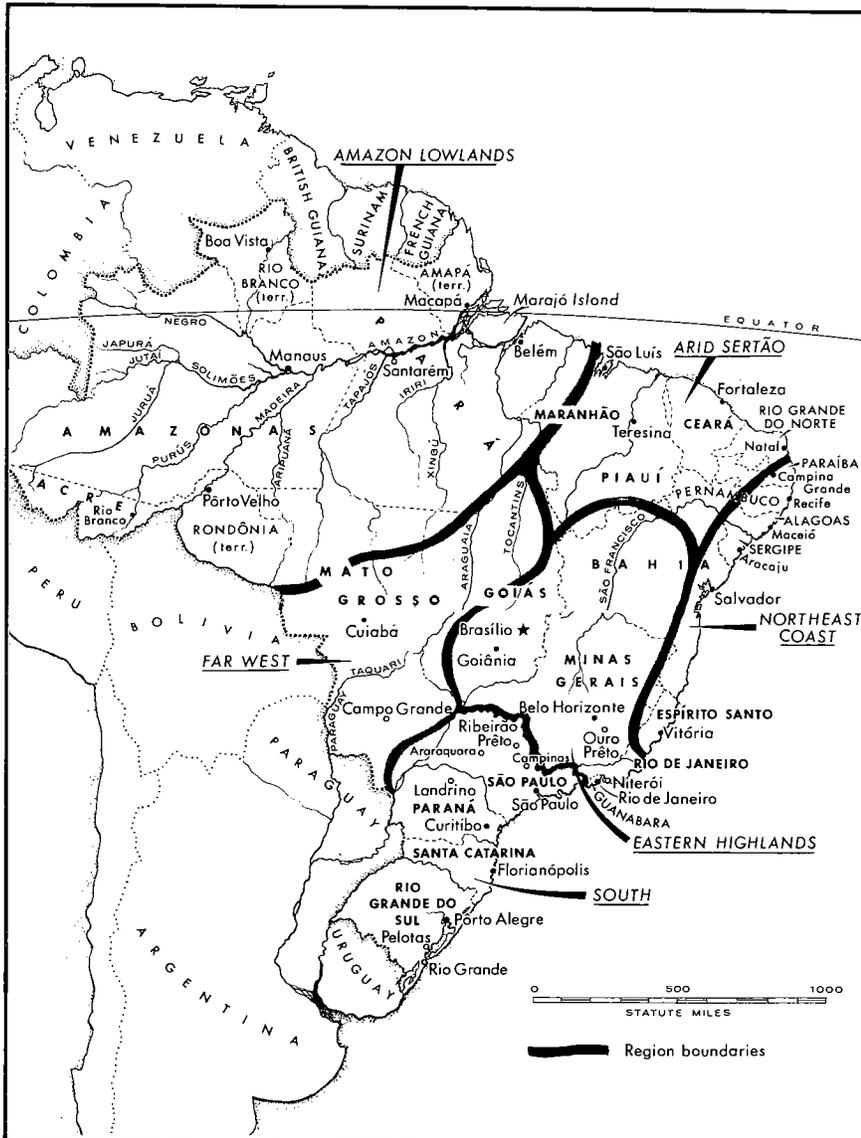
Current statistical information and future projections on the supply of vital minerals and metals are available in three Resources for the Future books: **TRENDS IN NATURAL RESOURCE COMMODITIES** by N. Potter and F. T. Christy, Jr. (Johns Hopkins, 1962); **RESOURCES IN AMERICA'S FUTURE** by H. H. Landsberg, L. L. Fischman, and J. L. Fisher (Johns Hopkins, 1963); and

SCARCITY AND GROWTH: The Economics of Natural Resource Availability by Harold J. Barnett and Chandler Morse (Johns Hopkins, 1963, 1969).

POPULATION, RESOURCES AND THE ENVIRONMENT edited by R. G. Ridker, Vol. III of the U.S. Commission on Population Growth and the American Future (U.S. Government Printing Office, 1972), has valuable chapters on energy, minerals, and metals resources. The committee print of the hearings of the Joint Economic Committee of the U.S. Congress, December 1973, "Resource Scarcity, Economic Growth, and the Environment" includes recent tabular material. The sixth annual report of the President's Council on Environmental Quality—the government's own Whole Earth Catalogue—offers voluminous data on resources (U.S. Government Printing Office, 1975).

The most recent report to the Club of Rome, edited by Jan Tinbergen, winner of the 1969 Nobel Prize for economics, contrasts quite sharply to the Club's 1972 **LIMITS TO GROWTH**. In **RIO: RESHAPING THE INTERNATIONAL ORDER** (Dutton, 1976, cloth & paper), scholars of several nationalities see hope in the possibilities for controlled "organic" growth as opposed to exponential growth fostered by the uncontrolled play of market forces. Like other writers, however, they too stress the need for attention to institutional change in order to cope on a world basis with the growth/resource conundrum.

EDITOR'S NOTE. *Chester L. Cooper of the Institute for Energy Analysis and Harold J. Barnett, professor of economics at Washington University, a 1976 Fellow, were among those providing advice on this book list.*



From *An Introduction to Brazil* by Charles Wagley. © 1963 by Columbia University Press.

Larger than the continental United States (minus Alaska), Brazil is Washington's biggest, richest, and, increasingly, most independent ally in Latin America. The map outlines the country's principal regions, ranging from the empty Amazon lowlands to the bustling, more temperate South.