

Exploring the Earth by CD-ROM

Earth Explorer, a new multimedia CD-ROM encyclopedia of the environment developed with the help of AAAS, has all the standard features of a major reference work for children.

Designed for families and students in grades 5 through 9, it's full of factual information, with hundreds of articles and more than 1000 pictures, charts, maps, "data sets," and graphics.

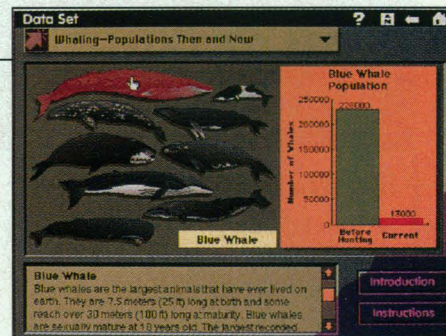
But most of the components in Earth Explorer are interactive. Users can manipulate data, play a variety of games, and weave in and out of topics.

In the game "Hot Topics," children must analyze arguments related to hypothetical situations based on a number of controversial environmental issues. In each scenario, 16 protagonists weigh in with a wide range of viewpoints. Players "win" by finding the strongest arguments on each side of the issue. They must discriminate among strong and weak arguments, as well as some that are false, misleading, and irrelevant.

In one "Hot Topics" case, Farmer Torvaldson has a daughter headed for college, and the tuition bills will be high. He has

an idea. There's a 50-acre wetland at the north edge of his property. He can drain it and grow beets, then sell the produce for added income.

He describes his plan to friends and neighbors, and everyone has a response. An outdoorsman is unhappy because he hunts ducks there. One engineer says drain the land now and reflood it in 4 years; another worries about flood control. The local grocer knows the farmer needs the money and thinks he should do what he has to.



Fact finding. CD-ROM helps kids learn to assess and apply environmental information.

Should Farmer Torvaldson plow the area or not?

Jerry Bell, a program director in AAAS's Directorate for Education and Human Resources Programs, says "Hot Topics" was designed as a critical thinking game to help children understand the complexity of environmental decision-making. "We don't give them definitive answers," he says. "The game presents the arguments and leaves it up to the users to draw their own conclusions."

AAAS reviewed the content for accuracy. Grant support came from the National Science Foundation.

Earth Explorer was created by Sonic Images, now part of Enteractive Inc., a developer of educational software. It is being distributed by Apple Computer.

The design team was led by Michael Alford, a former environmental policy analyst for the U.S. government and now Enteractive's vice president for product development.

"There was no comprehensive reference work on the environment for families and students," he says. "It's vital for students to think about where science stops and policy begins."

Earth Explorer "combines solid science with a discussion of environmental issues that avoids advocacy," Alford says. "It goes beyond the usual 'recycle-and-don't-use-ivory' approach to environmental education."

Earth Explorer comes in versions for Macintosh and Windows-based IBM-compatible personal computers. Priced at about \$56, it can be obtained from retail software outlets or Apple Computer (call 1-800-769-2775, ext. 5924). A teacher's edition (now in Mac version only, \$99) is available from Apple.

New Sponsor for Science Journalism Awards

Over the course of half a century, the AAAS-Westinghouse Science Journalism Awards came to be regarded as the top prize of science writing. So when Westinghouse Electric Corp. decided last year to shift its philanthropic support into new areas, officials at The Whitaker Foundation quickly agreed to sponsor the program for 1995.

To understand Whitaker's enthusiasm, it helps to hear the story behind an award-winning television report on facilitated communication.

The controversial technique is thought to enable conversation with some formerly unreachable autistic persons. Many parents, teachers, and mental health professionals around the world endorsed facilitated communication with an almost evangelical fervor.

But Jon Palfreman, a senior producer for Frontline based at WGBH-TV in Boston, was dubious. In 1993 he produced an hour-long show that examined the scientific basis of facilitated communication—and found it wanting. As part of the story, he included an excerpt from a well-known television news "magazine" that praised the technique's ability to unlock the autistic mind, without exploring whether it actually worked.

The television news magazine won an Emmy. The Frontline report, "Prisoners of Silence," won a 1994 AAAS-Westinghouse Science Journalism Award.

"Many people have won Emmys for stories that are completely wrong," says Palfreman, a two-time AAAS award winner who studied physics and the history and philosophy of science in his native England. "The standards for the AAAS award are much higher because it's juried by scientists and by my peers in science journalism. I consider it the most valuable award I've won."

Officials at The Whitaker Foundation viewed that kind of dedication to providing the public with accurate information about science and technology as compatible with their organization's own interests. Founded in 1975 and based in the Washington, D.C., area, the private, non-profit foundation primarily supports research and training in biomedical engineering.

"Without public support, a lot of important research won't get done," says Frank Blanchard, Whitaker's director of communications. "And the public gets most of its information about science and technology through the news media. So it's in everyone's best interest to have high standards for science journalism, which the AAAS awards help set."

Members of the National Association of Science Writers proposed the awards in 1945 as a way to foster excellence and interest in their fledgling profession. Westinghouse agreed to fund the awards as part of a centennial tribute to the company's founder; to preserve impartiality, AAAS was asked to administer them.

The awards are given for magazines, small- and large-circulation newspapers, television, and radio. Nearly 300 journalists have been honored.

Blanchard says Whitaker is sponsoring the awards in 1995 and will consider whether to continue the funding in future years.

Palfreman, for one, hopes the awards live on. "People today are deluged with claims that play on their hopes and fears, and that aren't actually based on anything of substance," he says. "Science journalists aren't afraid to engage the details of science, to go in and bring some reason to these areas. [The AAAS awards] recognize this."

Ecological Problems and Conflict

When the Zapatista rebellion erupted in Mexico's Chiapas region last year, many observers who reported on the situation cited age-old grievances over unequal land distribution as a major cause.

Researchers at the University of Toronto who analyze the causes of conflict agree it's essentially a fight over land. But they say there are also important demographic and ecological causes most analysts don't take into consideration.

In Chiapas, unequal land distribution pushed indigenous groups into ecologically vulnerable highland and tropical forest areas. High population growth and land degradation in these subsistence areas led to ever-greater marginalization and poverty, fueling social tensions that catalyzed the insurgency.

"There are probably several hundred million people around the world now being affected by similar processes," says Thomas Homer-Dixon, director of the Peace and Conflict Studies Program at the University of Toronto. "Given the environmental scarcities we're seeing in many developing regions, we can expect that the frequency of this kind of conflict will increase too."

Homer-Dixon is heading a joint project of AAAS and the University of Toronto to compile evidence on linkages among environment, population, and security in various countries, then analyze and summarize the data and disseminate the findings to policymakers and others.

One aim, Homer-Dixon says, is to bring consistent methodology to this relatively new field of research. That might help analysts identify common patterns of causation across diverse societies and fashion lasting solutions that take environmental and demographic factors into account.

Philip Howard, a member of Homer-Dixon's team, says researchers are seeing connections between ecological problems and

the nature of conflict in developing regions. The situation in Chiapas has "striking parallels" to recent insurgencies in Peru, the Philippines, and other countries, he says.

"Environmental scarcities are never the sole cause of the conflicts," Howard says. "There's always a political and economic context. But scarcities are certainly an important cause that tends to be overlooked."

The project will produce case studies on population, environment, and security linkages in South Africa, Pakistan, Rwanda, and Chiapas and thematic reports on related issues, such as urban

violence and mechanisms of social adaptation to environmental and population pressures.

The materials are being distributed—in printed and electronic forms—by AAAS and the Canadian Centre for Global Security in Ottawa. A series of briefings also is planned.

AAAS project coordinator Brian Smith says the project, supported by the Global Stewardship Initiative of the Pew Charitable Trusts, is an effort to take a balanced and objective look at an issue often politically charged.

"There's a tendency among a number of analysts to issue apocalyptic alarms about environmen-

tal degradation or to dismiss environmental factors entirely out of hand," he says. "We need to emphasize that serious and destructive changes are happening, but over the long term, and to look realistically at their impact, resolution, and prevention."

The documents of the project are available, free of charge, through AAAS's Program on Science and International Security and by subscription from a mailing list on the Internet. An electronic forum for discussion of the issues has been set up. For information, call 202-326-6652 or send an e-mail message to: psis@aaas.org

Seminar Looks at New Directions in S&T Policy, U.S. Collaboration in South Africa

As South Africa faces new directions after decades of apartheid, science and technology (S&T) will be a vital engine for national reconstruction and development. But that requires reshaping a science system that for 47 years worked mainly to serve the security needs of the white minority population, according to South African S&T leaders who spoke at a seminar this month in Washington, D.C.

Organized by AAAS's Sub-Saharan Africa Program, the seminar—the ninth in a "Science in Africa" series—focused on the changing S&T framework in South Africa and expanding opportunities for U.S. collaboration. Support came from the National Science Foundation.

Baldwin Ngubane, minister of the Department for Arts, Culture, Science, and Technology, outlined critical policy issues that must be addressed, including a lack of clearly defined national S&T goals, budget allocations that are essentially frozen, an educational crisis "at all levels," and an S&T community that has been out of touch with the country's most pressing needs.

Although South Africa conducts 50 percent of the continent's research and development (R&D), he noted, its system is still very small by world standards and as a percentage of its own GDP. In 1991, total R&D expenditure in South Africa was about \$1 billion.

Ngubane said "no textbook has yet been written" to guide the unique process of development South Africa faces, but the country is open to learning from experiences both in the region and the rest of the world.

Other South African speakers were David Jacobson of Altron, a large electronics corpora-

tion; Neo Moikangoa of the Council for Scientific and Industrial Research; Khotso Mokhele of the Foundation for Research Development; Njabulo Ndebele of the University of the North; and Mala Singh of the Human Sciences Research Council. Singh stressed that the social sciences will be as important as any other in creating the new South Africa.

The speakers said the Reconstruction and Development Program put in place by President Mandela embraces the role of S&T in reaching the program's goals, and it recognizes the international nature of the S&T enterprise as well as the desire to address local needs.

In 1992, anticipating the transition ahead, leaders of the democratic movement turned to Canada for help. They asked Canada's International Development Research Centre (IDRC) to assess South Africa's S&T policy infrastructure. Brent Herbert-Copley of IDRC briefed attendees on the findings.

The seminar coincided with plans for collaboration being forged by a U.S.-South African Binational Commission. Created as an outgrowth of presidential talks between Nelson Mandela and Bill Clinton last October, it is co-chaired by Vice Presidents Gore and Mbeki.

Deanna Behring of the White House Office of Science and Technology Policy told participants the commission's committee for S&T—headed by Ngubane and U.S. presidential science adviser John Gibbons—is working to finalize an umbrella agreement for cooperative S&T projects.

The seminar proceedings will be available from AAAS. Call 202-326-6730, or send an e-mail message to: africa@aaas.org