

World Lab Promotes Research in the Third World

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democratized governance and streamlined management. Reminded of another United Nations leader who came to grief when he tried to lead faster than the world's major powers wished to follow—Dag Hammarskjöld—Mayor pointed out how different the times are in which we now live: The Cold War is ending, and with it, the superpower rivalries that have rendered UN organizations so ineffective through much of their history; new powers such as Japan have emerged, and are ready to assume global responsibilities; UN peace-keeping actions have been accepted as indispensable in places like Iran-Iraq, Afghanistan and the Middle East; and we are faced with global

problems of obvious urgency—the ozone problem, the threatened melting of the Polar caps.

Mayor served his political apprenticeship in Spain, a country that has moved in just 20 years from an autocratic dictatorship, based in an aristocratic-agrarian society, to a full-fledged social democracy based in an industrial economy. It was a good setting, perhaps, in which to learn the art of political reconciliation. In the interview, Mayor seemed intent on setting a moderate path for UNESCO that will satisfy North and South, East and West, old and new. But having set that course, he left no doubt that he intends to steer.

—WILLIAM SWEET

WORLD LAB PROMOTES RESEARCH IN THE THIRD WORLD

Speaking in French to an assembly at the World Lab last May, the institution's president and founding father, Antonino Zichichi, drew attention to the fact that today in the world one billion privileged people—most of his audience among them—consume ten times as much as another four billion. What sense does it make, he asked, to offer science to people who are dying of starvation or tuberculosis?

Answering his own question, Zichichi told a Confucius story. To somebody who asked for a fish to relieve his hunger, Confucius said, "If I give one to you, you'll just come back tomorrow and ask me for another; that is why I say no, and instead teach you to fish." If one were to address only the urgent nutritional and medical needs of poor countries, Zichichi continued, one would be contenting oneself with the fish of Confucius. "To provide scientific instruction," on the other hand, "would indicate that one has understood the profound meaning of his maxim."

Acting on the inspiration of that story, several years ago Zichichi persuaded like-minded scientists at CERN and others in Europe and around the world to create a new institution with the mission of training scientists from poor countries and improving opportunities for them to do constructive work in their native lands. The World Lab was formally established on 12 July 1986 in Geneva. It now is based in Lausanne, Switzerland, and already it has an operating budget of 100 million Swiss francs—more than \$50 million. The lion's share of the funding comes directly from the Italian government: Prime Minister Giulio Andreotti was

persuaded that the developing countries need science and culture in addition to food and medical care.

As the major sponsor of the International Centre for Theoretical Physics in Trieste and of the World Lab in Lausanne, the Italian government can now safely be characterized as the world's leading benefactor of physics for development. And with the Italian government's \$50 million contribution secured, the World Lab can be said to have eclipsed UNESCO as the world's leading organization fostering advanced physics education.

As presently constituted, the World Lab has four major programs:

- ▷ Archimedes, a program of global monitoring and modeling in seismology, volcanology, climate and environment, as well as in education and health

- ▷ Eloisatron, encompassing plans for establishment in the People's Republic of China of advanced science and technology centers; for neutrino and cosmic-ray studies at Italy's Gran Sasso laboratory and elsewhere; and for a visionary project to build a giant collider, perhaps 100 on 100 TeV, perhaps in Sicily

- ▷ Improvement of Modern Life, a series of projects in food technology, medicine, environmental science and ecology, and new resource and energy technologies

- ▷ Controlled nuclear fusion.

Already the World Lab has been instrumental, with crucial guidance from T. D. Lee of Columbia University, in setting up China's Center for Advanced Science and Technology in Beijing. With guidance from Ahmed Ali at DESY, the lab is helping set up something similar to CCAST in Paki-

stan. The World Lab also sponsors a large group of third world students—23 from China, 13 from India and 11 from Pakistan—working on the L3 detector at LEP, headed by Sam Ting, a founding member of the World Lab.

Perhaps its most important current program provides 1000 postdoctoral scholarships enabling students from third world countries to spend one or at most two years at institutions in advanced industrial countries. In principle, students are to return to their native labs after a year, unless renewal is recommended by their sponsoring instructors. In cases of exceptional first-year performance, students may be recommended for participation in projects the World Lab is inaugurating.

Applications to the scholarship programs should be addressed to A. Zichichi, President of the World Laboratory, Palais de Rumine, Place de la Riponne 6, CH-1005 Lausanne, Switzerland.

—WILLIAM SWEET

TEXAS INSTRUMENTS RECEIVES CHIP PATENT IN JAPAN

After a nearly three-decade ordeal, Texas Instruments Inc has been awarded the Japanese patent for the integrated circuit. The patent, first applied for in 1960 and finally issued on 30 October 1989, credits Jack S. Kilby with being the sole inventor of the integrated circuit. Kilby was an engineer with Texas Instruments when he devised the IC.

Integrated circuits, or chips, are now used in nearly all sophisticated electronic devices, from computers to toaster ovens to automobile parts. At the time the patent application was filed, however, few people had a clue to their full potential. "I don't think anyone imagined it would be as significant as it turned out to be," Jim Comfort, a lawyer in the Texas Instruments patent office, told us. "Nobody is smart enough to tell you what technology is going to be the prevailing technology 10 years from now."

That the Japanese patent office took 29 years to award the integrated circuit patent is not surprising: Credit for the integrated circuit was long disputed in the United States. The US patent application for the "miniaturized electronic circuit"—an electronic circuit with all of its components integrated on a piece of semiconducting material—was first filed by Kilby in January 1959. Robert N. Noyce of Fairchild Semiconductor,