

AIP DIRECTOR BRODSKY PROMISES EVOLUTION, NOT REVOLUTION

Marc H. Brodsky, who became executive director and chief executive officer of the American Institute of Physics last November (see *PHYSICS TODAY*, June 1993, page 79), foresees evolutionary rather than revolutionary change at AIP. But that "does not mean we're not making big changes at AIP. We have a solid institute, but we are making changes."

AIP has to change, Brodsky asserts, because the world is changing. Specifically, the physics community must adjust to the reality of post-cold-war funding priorities. Therefore, by both choice and necessity, Brodsky is moving to meet problems (and opportunities) on several fronts. In an interview with *PHYSICS TODAY*, he described the essence of his goals for AIP, which he has bottled in three one-word mnemonics: umbrella, pricing and image.

Ten within one

AIP, with its ten member societies, is a "society of societies." As the umbrella organization, AIP fills two roles, says Brodsky. First, the institute must take on tasks that no one society can accomplish alone—that is, tasks that span societies. For example, AIP often acts as a broker between two or more societies, convening meetings of officers to discuss common problems. The societies appreciate AIP's facilitating this communication, Brodsky says.

Brodsky notes that AIP was created in 1931, during the Depression, "with an agreement that the societies would turn to a central source for economy of scale in publishing." Now AIP produces 250 000 pages a year.

AIP must also assist the physics community in ways that the individual societies do not. For example, some of AIP's journals cross disciplines. Most recently, the need was perceived for an international, interdisciplinary forum for studies of nonlinear phenomena. In response, *Chaos*, AIP's newest journal, was born.

Journal prices have been rising steeply in the last few years, more steeply than library budgets. In the previously standard way of establishing prices in almost any business, costs dominated. In publishing scientific journals, recent price increases have arisen from greater production expenses, from the pressure to pub-

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Marc H. Brodsky

lish more pages and from the vacuum created by fewer library subscriptions. In the past, these publishing costs were combined to determine a journal price that was becoming difficult for libraries to accept. As Brodsky puts it: "The process was right and the answer was wrong."

In the more modern way of looking at the problem—a way becoming more popular as it becomes more necessary across a spectrum of production processes—"one starts with the answer and forces the system to adjust." Here the ultimate answer will be a final cost lower than that of the previous year. AIP's immediate goal is to slow the rate of increase of the price of the archival journals. "It's a tough problem," says Brodsky. "We don't know how we're going to do it."

It does not automatically mean we're going to cut back on programs. It does mean we're trying to do things better."

Electronic publishing

Since publishing is "by far AIP's prime activity," Brodsky thinks often about the changes to come as electronic technology advances further into the publishing process. He believes that "the world of publishing will change dramatically." Further, as someone who has spent his whole career involved in science and new technologies, he says that "when" is always the toughest question about new technologies.

Brodsky stresses that the issues involved are not just technological ones. Our society is a complex system with many interactions, and when it changes, "you can't necessarily reason it out ahead of time." (As an example, Brodsky mentioned the competition in the 1970s between the Betamax and VHS forms of videocassette recorders.)

As the information explosion continues, Brodsky agrees that the need for "filters" will become paramount, and thus publishers may become even more valuable to the scientific enterprise. More value rarely comes without costs. "We will have to pay for it eventually, but we don't know how. No one has come up with a sensible, acceptable pricing mechanism for electronic delivery of scientific publications." Brodsky does suspect that more of the burden of publishing will be picked up by page charges or their electronic equivalent.

Views of physicists

Part of AIP's mission is to disseminate information about physics to the public. Brodsky started the discussion of the third component of his triad—image—by remarking that society's image of physics and physicists is at times "less positive" than he thinks justified, "based on how positive physics's influence has been and continues

to be."

The great funding available to physics during the cold war reflected how a society spends willingly on its military functions when it perceives a strong adversary. Brodsky points out that this relationship of physics to society has been true throughout the history of physics. (Archimedes and Count Rumford lived long before the nuclear age.)

Now AIP has to help physicists explain to the public that physics is in everyday life, too. As an example, Brodsky mentioned medical instrumentation and diagnostic tools, adding that the American Association of Physicists in Medicine is the fastest-growing member society of AIP. Brodsky wants AIP to help physicists remind the public that "physics underlies all the conveniences of the modern age, from electricity to electronics, from automobiles to airplanes." AIP attempts to convey the fundamental science and the technological significance of physics by producing radio and video spots, publishing books and magazines, distributing announcements on e-mail and sending out press releases. AIP also has educational programs, including one that assists physicists who want to make presentations in elementary schools.

Information should flow the other way, too. AIP must fulfill its responsibility of conveying the public's impression of physicists back to physicists, Brodsky says, "to help them relate better to the public."

Government is a particular part of the public that physicists must relate to. In 1991-92, as an Executive Branch Fellow at the Department of Commerce, Brodsky advised on issues of US competitiveness in regard to high-technology industries. When asked if he would try to improve AIP's interaction with government, Brodsky explains, "AIP has to have better connections with government in order to communicate with government." He tells of meeting recently with a congressman and discussing the debate about the Superconducting Super Collider. The congressman told Brodsky that scientists had sent him letters that he read and reread carefully. In the end, he couldn't decide whether some were for or against the SSC! Why had they written? asked this slightly frustrated congressman. To tell him he had a tough choice?

Future physics funding

Along with many other observers, Brodsky sees a fixed ratio of about two orders of magnitude between the amount of money spent on military

and industrial "deployment" and the amount spent on fundamental scientific research. That is, about 10% of the total spent on deployment goes for development and about 1% is spent on the underlying science. As the defense industry shrinks, the money it spends on science shrinks.

Brodsky feels strongly that the "golden age" of physics has not passed, but the era where physics depended mostly on national security has ended "and hopefully won't come back again." Further, Brodsky believes physics not only will survive but is likely to flourish, "embedded in other technological needs of society besides military ones."

In Brodsky's way of thinking, the targets of "strategic research" are more easily hit if they surround you. As he wrote earlier this year in a briefing paper prepared for a meeting on US leadership in science, sponsored by the White House Office of Science and Technology Policy (see PHYSICS TODAY, March, page 41), "fundamental research is valuable and affordable only if it is done in a larger context of economic activity that has significant technological content." As examples of that activity, Brodsky mentioned not just manufacturing, but also health care, urban planning, transportation and the environment. AIP has a role here, too.

AIP will work more aggressively with companies through its Corporate Associates program, says Brodsky. Originally, the program was designed so the associates could help AIP. Now Brodsky and AIP's advisory committee will reverse the emphasis, "to try to figure out better ways to serve companies and to help physics and physicists serve companies." Through their connection to AIP, the companies will also learn about physics-related activity in other companies.

How will Brodsky measure the success of his three goals for AIP? About the umbrella role, he hopes to hear people saying, "That's what AIP should be doing." The pricing goal is easily measured, if not easily attained: Journal subscription prices eventually should not rise faster than library budgets. As for image, "If AIP finds itself with enough good ideas that result in programs," and if, with its finite resources, AIP then finds money to effect those programs, Brodsky will know that physicists are working to tell people who they are and the value of what they do.

AIP has a \$42 million annual budget and bills an additional \$18 million in at-cost services to member societies. Brodsky believes strongly in a service orientation for AIP, but

he recognizes the complexity of interactions between those one might characterize in modern business lingo as customers, vendors, partners and competitors. Roles change; the person AIP deals with one day as customer may come back another day wearing the hat of competitor.

Brodsky has few competitors when it comes to defending AIP. "I respond," he says, when anyone complains about problems with AIP's services. "We think we're good and we're determined to improve," he continues. "I tell people: Keep me informed. Write to me anytime you have a complaint." His e-mail address is brodsky@aip.org.

—DENIS F. CIOFFI

TWO PHYSICS JOURNALS TO GO ONLINE IN 1995

If all goes according to plan, 1995 will see the online debut of the American Institute of Physics's *Applied Physics Letters* and the American Physical Society's *Physical Review Letters*.

Unlike some texts where communication occurs almost exclusively through words (for example, law reviews), physics journals present unique challenges to any online system: Text is interspersed with equations, graphs and halftone figures on virtually every page. Tim Ingoldsbey, AIP's director of new product development, promises accurate reproduction of the equations on most display screens. AIP has contracted with the Online Computer Library Center of Dublin, Ohio, to put online the electronic version of *APL*, which is called *APL Online*. It is scheduled to begin in January.

Robert A. Kelly, APS's director of journal systems, told PHYSICS TODAY that APS hopes to select a vendor for *PRL* by the end of June, with *PRL*'s online appearance targeted for mid-1995. The vendor chosen may be different from the one selected by AIP. If this is the case, there will be an opportunity to compare two approaches and systems during this pilot phase. In any case, APS and AIP are planning to exchange information and evaluations on a continuing basis, Kelly says.

Prior to the start of the subscription term, *APL Online* subscribers will be sent a user's manual, a copy of the software that will enable them to access the journal, and full instructions on its use. Ingoldsbey hopes that in the first year AIP will capture "at least 25%" of current print subscrib-