AIP IN 1987: AN ANNUAL REPORT

The year 1987 was one of substantial growth, executive change and deliberation about AIP's long-term future. Meanwhile, the Institute continued to develop modernized computer tools and services for the member societies.

For physics, 1987 will be remembered as the super year. First came the remarkable supernova 1987a, with its burst of information sent our way via photons and neutrinos. Then came the drama of superconductivity at temperatures above the boiling point of nitrogen, loosing a "Woodstock of physics" at the March meeting of The American Physical Society. The Superconducting Super Collider received the somewhat restrained blessing of Congress in 1987 and set off a searching debate about priorities within the community of physicists. Superstring theory (the "theory of everything") was a cover story of *The New York Times Magazine*.

The "supers" are symbols of the vitality of physics. There was more—much more—in 1987 that demonstrated this vitality: from single-atom spectroscopy to double beta decay to the dynamics of protein vibrations. AIP's *Physics News in 1987* (*Physics Today*, January 1988; also available separately from AIP) paints a picture of a discipline no less exciting than at any time in this century. A report on the joint meeting of the International Union of Pure and Applied Physics and the AIP Corporate Associates, held in September 1987,[1] will carry the same message.

Yet physics is fragile. Its two driving forces, intellectual creativity and sophisticated instrumentation, can easily be eroded. Will there be sufficient talent drawn to physics in the years ahead? Will there be adequate funding to ensure sustained momentum for our science and its applications? If the answers are to be Yes, physicists and the organizations serving them must become even more effective educators—of students, of the general public and of government officials.

The welfare of the American Institute of Physics, which has been serving physics, astronomy and allied sciences since 1931, is tied to the welfare of the scientific enterprise. For AIP 1987 was another year of substantial growth, indeed a percentage growth greater than that of physics as a whole. This was a result of a combination of factors: more journal pages published for the member societies, more pages in AIP journals, more books, continued growth in the membership of the societies and increased activity in education and other physics programs, some of it made possible by growth in outside grants. Measured in published pages, AIP grew by 6 percent in 1987 (to 150 000 pages); in total dollar volume of business (including money collected for the societies) it grew by 10 percent (to $46 million); and in number of employees it grew by 2 percent (to 530). Continuing a trend of recent years, more than half of AIP's financial activity was for its own programs, somewhat less than half for society programs. AIP is governed by its member societies, and everything it does is intended, directly or indirectly, to serve these societies and their individual members.

Comings and goings. Two officers of AIP retired in 1987, both after 20 years of service: H. William Koch as Executive Director and Lewis Slack as Director of Educational Programs. During Koch's tenure AIP grew almost sixfold in dollar volume of activity (a 60 percent increase after correcting for inflation); it doubled in number of pages published and in the number of society members served; and it tripled in number of employees and in space used for its activities (more activities were brought in-house).

Kenneth W. Ford joined the Institute in March 1987 as Executive Director, and John S. Rigden joined in August as Director of Physics Programs, replacing Lewis Slack. A new senior position, Director of Information Technology, was authorized in 1987 and filled in January 1988 by Timothy Ingoldsby. Sallie Watkins joined AIP in 1987 as its first Senior Education Fellow. Robert Borchers was named Editor of the new magazine–journal *Computers in Physics*, and Alexander Wolfe became Managing Editor. In the publishing branches, Lawrence Feinberg was advanced to Manager of Production I and James Donahue to Manager of Production II.

AIP's mission. In September 1987 the AIP Governing Board approved the following statement of the mission of the Institute:

> *It is the mission of the Institute to serve the sciences of physics and astronomy by serving the Societies, by serving individual scientists, and by serving students and the general public.*

This statement is significant. It emphasizes that AIP is a service organization, and it establishes that although service to the societies is the Institute's first responsibility, service to wider audiences is also expected. How this mission is related to planning, to goal setting for the Institute and to the division of responsibilities among AIP and the member societies is one of the issues discussed later in this report.

Information technology. The pervasive, ever growing impact of the computer on the work of AIP has required changes in the structure of the Institute's organization and management. The new Director of

Submitted by Kenneth W. Ford, Executive Director, and accepted by the Governing Board of the American Institute of Physics as its annual report to the member societies of AIP on 18 March 1988.

JOE ORLANDO

AIP trade-show exhibit is shown here at the November 1987 meeting of the American Vacuum Society in Anaheim, California. The new exhibit, introduced in 1987, features shelf space for a variety of journals and books, poster slots, display counters for special products and a computer terminal to demonstrate AIP's on-line databases.

Information Technology will have two responsibilities: he will manage programming and other computer-support functions, and he will plan and lead all aspects of the ways computers are incorporated into AIP functions. AIP will use computers to get its job done, and it will market new electronic products.

Human resources. For the general welfare of the staff, one of the most important activities of 1987 was a survey of employee opinion, conducted by an outside firm. Nearly every employee participated. A significant finding was that the percentage of employees who feel underpaid is higher, on average, at AIP than it is at other organizations. The survey also brought to light a substantial amount of other useful information, including the high rating employees give to AIP's benefits. In 1988 a special committee made up of nonsupervisory employees will help AIP management respond to the results of the survey.

Design. In 1987 the graphic image AIP presents to the world was modified through the adoption of a new logo (see figure on page 59), which is being implemented in a great variety of applications. The old logo, with its classical representation of mass, length and time, served AIP well for many years, but it seemed dated both in design and in its view of physics. The new logo, composed of specially designed lettering without pictorial content, has been well received. (It may even help make clear that AIP and APS are distinct organizations!)

ISSUES FACING THE INSTITUTE

This annual report, the first for the new Executive Director, affords an opportunity to examine some of the larger, long-range issues facing the Institute. The following sections provide a brief look at a dozen important issues—how they were dealt with in 1987 and, for each, what may lie ahead.

Locations and space for AIP activities. How and where (and whether) to consolidate AIP activities have been matters of discussion for some years. In 1987, important steps were taken toward resolving the issues. The Governing Board approved the idea of retaining a publishing center on Long Island, and it approved the idea of consolidating AIP activities now in New York City into a single building owned by the Institute, either in New York or elsewhere. In March a consulting firm delivered a report that provided cost data for New York and Washington. In May an *ad hoc* committee appointed by the Board recommended, by a narrow margin, that AIP headquarters be retained in New York City. In September the Executive Committee supported a major move of AIP activities to Washington. In the same month the Governing Board decided to postpone action until all of the societies were able to study and comment on the question. During the fall and into January 1988 the societies responded, and they reported substantial divergence of opinion.

Thus in 1988 the Board must find a solution that meets the needs of the member societies and of AIP programs, with minimal damage to staff morale and to AIP's ability to serve the societies. Unfortunately AIP cannot simply acknowledge the divided opinion by doing nothing. The driving force behind the space issue is simply this: that the status quo is a bad choice. It will lead to higher costs and to fragmented operations, because more and more space would need to be rented in other buildings in New York.

Impact of the computer. The computerization of

CECELIA M. BRESCIA

Three new senior staff members came to AIP within a year of one another. Kenneth W. Ford (center) joined the institute in March 1987 as Executive Director. John S. Rigden (standing) joined in August as Director of Physics Programs, replacing Lewis Slack. Timothy Ingoldsby assumed the new senior position of Director of Information Technology in January 1988; the position was authorized in 1987.

AIP's publishing operation has been a trend for some years. The Institute's policy is to stay at, but not ahead of, the leading edge of cost-effective technology. Computer-driven equipment is added when it can reduce costs, not just "because it is there." In 1987 another Kurzweil optical scanning device was added, and a new optical composition unit was ordered. Ongoing studies, looking to the future, focused on automatic page-makeup equipment and on the prospects of accepting author-prepared manuscripts on disks. Developments in laser disk technology and Cauzin strips were also monitored.

Handling member records and fulfilling subscriptions also demand major computer hardware and software systems. In 1987 AIP stopped work on a records and fulfillment system that had fallen far behind schedule and run well over budget. This set the stage for a new development in 1988 using more modern tools. For such major database applications, hardware costs continue to fall as a percentage of total costs, opening the way for computers of great power.

Another major impact of the computer on AIP is in the development and transmission of electronic products. In 1987 Pi-NET, the Institute's database service, reached an early plateau of usage; meanwhile, Pi-MAIL grew modestly and became self-supporting. A new Gould computer delivered in 1987 will be the "platform" for expanded Pi-NET and Pi-MAIL service in 1988. AIP intends to become a major provider of electronic products for the physics community. This goal will require a sophisticated marketing effort to assess need.

One important initiative of 1987 was the launch of the new magazine-journal *Computers in Physics*. Another was a new program called Physics Academic Software. Under this program an AIP editor will assess software submitted for research and teaching applications and then arrange for the publication and distribution of the best of it.

Planning: Goals to match the mission. A critical issue is the division of responsibilities among AIP and the member societies. Questions surrounding this issue were examined seriously in 1987, and they will come under further scrutiny in 1988 in the work of a newly formed long-range planning committee. The committee, made up of AIP staff members and headed by Spencer Weart of the Center for History of Physics, is charged with working closely with the Executive Committee.

Such questions arise in part because the full-time staffs of several of the societies have grown in size and competence. This fact together with the declining costs of computer-based technology now make it possible for member societies to undertake some of the activities for which they used to depend on AIP. At the same time, AIP has built a high level of professional competence in various fields, and it also maintains a large and successful publishing operation beyond what it does for the societies. It is essential that AIP keep in close touch with the societies to meet their needs when it can, to help them when they wish to take over certain functions and to facilitate their cooperation with one another.

Other, external factors bear on AIP's need for long-range planning. One is competition from commercial publishers. Another is the steady erosion of library subscriptions. Yet another is the prospect of more exchange of scientific information electronically and less in print. Still another is the sorry state of science education—indeed of all education—in America's public schools, and the implications that holds for the future support of science. These factors, together with others, both external and internal, will be the concern of the long-range planning committee.

Society services and society relations. In 1987 a revived Committee on Society Services began examining how AIP could better fulfill its service role to the societies and how it could facilitate more cooperation among the societies. The subtleties of the relationships require constant attention and nurturing. At issue is to what extent AIP is an independent scientific organization serving the discipline of physics and to what extent it is a creature of the societies, serving society needs. It is, in fact, both.

Organization and management. As an organization that is growing, diversifying and facing new challenges, AIP must constantly assess its organization and management structure. Changes in 1987 included the creation of a new Information Technology Branch and a name change for another branch: from Educational Programs to Physics Programs, to recognize the broad scope of outreach activities now encompassed by this branch.

Committees of outside volunteers make up an important part of AIP's management. 1987 was the year for the revival of the Committee on Society Services, the first meeting of a new Pi-NET Advisory Committee, and the approval of a new Committee on International Affairs. Two subcommittee name changes took effect—from Copyright to Intellectual Property, and from Electronic Publishing to Information Technology—both to recognize broader subcommittee responsibilities. An editorial board for *Computers in Physics* was formed, which is also to function as a general advisory committee for the publication.

Physics education. No one doubts the importance of concerns about the quality of physics education. What is the proper role of AIP? At the undergraduate level, the Society of Physics Students (SPS) remains active and is examining the possibility of expansion to the high school level. For pre-college students, AIP has prepared career literature and posters. There is now consensus that much more needs to be done at the pre-college level (including the elementary level). AIP has the capability to contribute and should devote substantial effort in this direction.

This will require cooperative efforts not only with AIP member societies but also with such other organizations as the American Association for the Advancement of Science, the National Science Teachers Association and the American Chemical Society.

Fund raising. AIP now raises funds from various sources—foundations, corporations, the Federal government and individuals—and for various purposes—the Center for History of Physics, SPS, education programs and prizes. One question that arose in 1987 (and may be resolved in 1988) is whether AIP should add to its staff an experienced professional development officer to assist both AIP and the societies. It seems clear that if AIP is to undertake significant initiatives in education, it must command more funds than can be generated by publishing revenues alone. It seems unwise to have the Physics Programs Branch continue to rely almost exclusively on publications for its revenue.

Public-policy activities. AIP's Washington office was set up to assist AIP in carrying out public-policy activities on behalf of physicists and their societies. It is guided by the Committee on Public Policy, which in 1987 endorsed an AIP Congressional Science Fellowship program, an electronic Federal awareness service and the preparation of a book on the Federal budget process. This is a relatively new area of activity for AIP, and it is essential that the nature and limits of this activity be defined after full consultation with the member societies. One society, APS, has a mature public-affairs office of its own. Other societies undertake limited public-policy activities, and some have few or none. AIP must fit into this mosaic. It can serve as a two-way channel of information between physicists and offices of the Federal government, and, to a limited degree, it can attempt to influence policy.

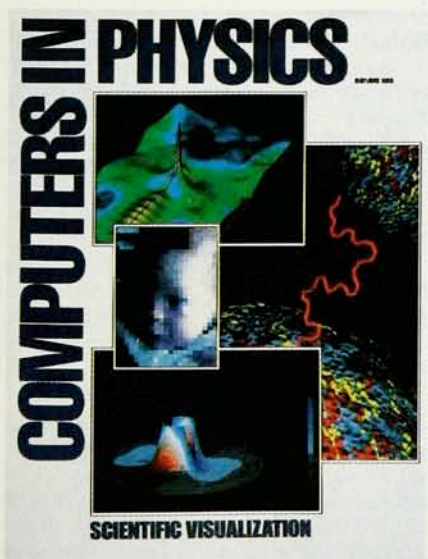
International activities. Physics has long been an activity without political borders. AIP's international links are already strong and should no doubt become stronger. The Institute markets British, Swedish and Israeli literature, translates Russian and Chinese literature and provides material for translation into Russian and Japanese. It publishes the work of foreign authors and sells its journals abroad. In 1987 it joined with the International Union of Pure and Applied Physics in sponsoring a major conference covering frontiers in physics. The new Committee on International Affairs should promote even greater involvement of AIP in international activities.

New products and services. *Computers in Physics* was AIP's principal new product in 1987. There was also substantial expansion in the books program, and the Physics Academic Software program was inaugurated. A new exhibits booth helped in the marketing of products, new and old. For the future, it seems clear that AIP must be on the lookout for electronic and computer-based products to serve physics in ways that supplement the functions of traditional print products.

The office of the Executive Director serves as an "incubator" to get some of the new activities started. For example, it is where Pi-NET and Pi-MAIL temporarily reside, and where the Physics Academic Software program is getting started. Support for the Institute's many new personal computers was also temporarily based in that office in 1987.

Personnel: Human relations. Any organization of any size must give constant attention to meeting the needs of its employees in ways that enhance efficiency and job satisfaction. AIP constantly assesses its benefits and periodically improves them. It also surveys local job markets, and it seeks to pay competitive salaries. Internally, the Institute tries to foster open communication. Fully adequate communication up and down the organizational ladder is one of the hardest things to achieve. AIP is at least aware of the difficulty and the importance of this "vertical" communication, and will continue to seek better ways to achieve it—to keep employees informed and to listen attentively to what they have to say.

Intellectual property rights. In "olden days" scientific publishers were happy to allow publishers of so-called secondary services to help themselves to abstracts and bibliographic information. The idea was to broadcast information on the contents of the primary publications. This practice is no longer appropriate. Abstracts now have a higher dollar value, and according to AIP and its legal counsel, they are the property of the primary publisher. AIP has asserted its ownership of abstracts but has not yet tested this ownership in court. One major abstract service, Fachinformationszentrum (FIZ), recognizes the ownership and purchases abstracts from AIP. These abstracts make up a significant part (about 20 percent) of the FIZ database called PHYS, which is available on-line via the STN International Network and



New graphics for AIP products feature bold, geometric designs. The new magazine/journal *Computers in Physics* was organized in 1987 and the first number bore the cover date November-December 1987. The cover was designed by Rudi Wolff and Robert Supina. A new AIP logo was also chosen in 1987, designed by Michael Dillon of McDill Ltd, Milwaukee, Wisconsin. It has been incorporated into a wide variety of business formats.

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Employee Advisory Committee, a special committee made up of nonsupervisory employees, was formed this year to assist AIP management in responding to the results of an employee opinion survey carried out in 1987. Pictured here are the members of the committee at its first meeting on 24 February 1988. From left to right: Margaret Marynowski, Mark Didriksen, Doreene Berger, Melody Kempen, James R. Berry, Renate Bush, Michael Silverman, Jo Ann Toserri, Grace Blume and Personnel Manager Theresa C. Braun, who attended as an adviser to the committee.

in printed form as *Physics Briefs*. AIP looks forward to a closer working partnership with FIZ as the marketing of journals and electronic services becomes more closely integrated.

1987 PRODUCTS AND SERVICES

Print products

AIP archival journals. The Publishing I Branch of AIP carries out editorial and production work for six AIP-owned journals: *Journal of Applied Physics*, *Applied Physics Letters*, *Review of Scientific Instruments*, *The Journal of Chemical Physics*, *Journal of Mathematical Physics* and *The Physics of Fluids*. Composition in this branch was facilitated in 1987 when a second Kurzweil optical scanning device was acquired. The two Kurzweils are operated on both day and night shifts; more than 30 percent of all journal articles now enter the composition cycle through Kurzweil scanning. These machines are also used to transfer data from typewritten manuscripts to remote PC users in the Physics History, *Physics Today* and *Computers in Physics* divisions.

Society journals. Composition and production for publications of The American Physical Society (except for *Physical Review Letters*) are centered in the Publishing II Branch of AIP. This branch processed approximately 45 000 pages in 1987. Implementation of the device-independent TROFF program was completed in midyear, and a new page-makeup program for *Physical Review Abstracts* was installed.

In 1987 Publishing I Branch published 13 journals and other publications for five AIP member societies and one journal for an affiliated society.

Copublished journals. *Journal of Physical and Chemical Reference Data* was published by AIP and the American Chemical Society for the National Bureau of Standards. *Chinese Physics—Lasers* continued to be published jointly with the Optical Society of America.

Translation journals. Publishing I Branch published 17 translated Soviet journals, one translated Chinese journal (*Chinese Physics—Lasers*) and *Chinese Physics*, a journal of articles selected and translated from Chinese journals. Two translated Soviet journals were produced for the Optical Society of America as well.

Membership directories and special reports. The *Directory of Physics and Astronomy Staff* and *Graduate Programs in Physics, Astronomy and Related Fields 1987–88* were produced by the Special Projects Section of Publishing I Branch. In addition, membership directories were produced for six member societies: the American Association of Physicists in Medicine, Acoustical Society of America, American Vacuum Society, American Astronomical Society, American Physical Society and Optical Society of America.

Publishing II Branch assisted APS in the production of two books. The "Report to The American Physical Society of the Study Group on Science and Technology of Directed-Energy Weapons" was released in the spring. (See *Physics Today*, May 1987.) *High-Temperature Superconductivity*, a reprint collection of articles from *Physical*

Subscription-fulfillment billing statistics for 1987

	Number of invoices	Number of subscriptions	Value of billing*
Members billed			
Spring	39 000	23 000	$ 3 155 000
Fall	32 000	17 000	2 200 000
On membership (including dues)	—	180 000	—
Nonmembers billed			
Subscription agency	8 900	45 000	25 900 000
Direct to AIP	2 900	26 000	8 100 000
Total	82 800	291 000	$39 355 000

* Includes dues

Review Letters and *Physical Review B*, was released in early fall.

AIP books and conference proceedings. The Books Division expanded its activities considerably in 1987. *Civil Defense: A Choice of Disasters* and *Societal Issues: Scientific Viewpoints* were books of general interest.

Edmund Whittaker's *A History of the Theories of Aether and Electricity* and Laura Fermi's *Atoms in the Family* were reprinted in the AIP-Tomash series. The original manuscript of Henry Guerlac's *Radar in World War II* (see *Physics Today*, June 1988, page 75) was also issued as part of this series. Other books published included John S. Blakemore's *Gallium Arsenide* reprint collection, four books translated from Russian and 14 new conference proceedings, bringing the series up to number 162 as of December 1987.

Computers in Physics. The premiere issue of AIP's new magazine–journal *Computers in Physics* appeared in late October. The issue was distributed to the physics community at several important conferences, including the November meeting of the American Vacuum Society and the APS Division of Plasma Physics meeting, and by mail to the charter subscribers. The initial reaction to the publication indicates that the physics community is receiving it with enthusiasm.

Electronic products

SPIN. For a number of years AIP has prepared its printed journal indexes and abstracts as byproducts of its computer-based composition of articles. The digitized information is then made available to database vendors to enable on-line, interactive searches for research information. SPIN, as AIP's tape service is called, is available for on-line searching on the DIALOG Information Retrieval Service. AIP also provides SPIN to FIZ every two weeks at a rate of some 25 000 abstracts annually. This tape is merged into the PHYS database by FIZ and is then available for on-line searching on STN International. AIP continues to provide the US Department of Energy with abstracts of energy-related articles from AIP and member society journals.

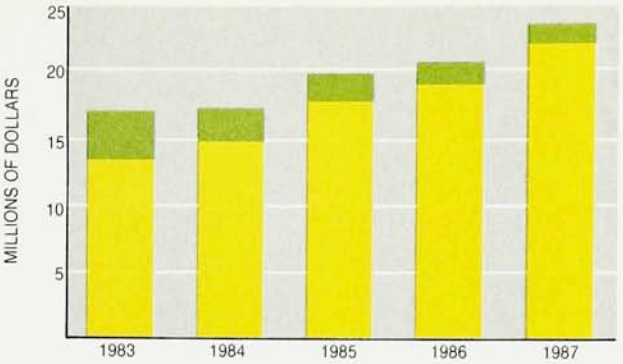
Pi-NET and Pi-MAIL. AIP's two new on-line electronic services, Pi-NET and Pi-MAIL, continue to generate interest in the scientific community. Pi-NET usage was flat in the latter part of 1987: There were about 250 log-ons per week from a regular user base of about 650 people. Pi-MAIL won new users, and it now generates enough revenues to cover its costs. An enhanced version of Pi-NET will be running on a new computer at AIP's Woodbury publishing center in 1988.

A new Federal awareness service on Pi-NET was begun in December for a one-year trial period. Searchable information is available on legislation (such as the status of pending bills and schedules of hearings) and on Federal agencies (such as notices of proposed rule making and requests for proposals).

Physics Academic Software. AIP instituted a new project, Physics Academic Software, to identify, review and publish educational software for college physics. John Risley of North Carolina State University is editor for the project.

Sales and marketing

Advertising and Exhibits. In 1987 about 2000 pages of advertising appeared in the six AIP and society publications managed by AIP. In addition, the premiere issue of *Computers in Physics* carried 20 pages of ads. The fourth annual *Physics Today Buyers' Guide* appeared as a separate entity for the first time. (It was published as part II of the August issue of *Physics Today*.) The Advertising Division continued to organize, sell and manage exhibits for The American Physical Society, Acoustical Society of America, American Vacuum Society and Materials Research Society.



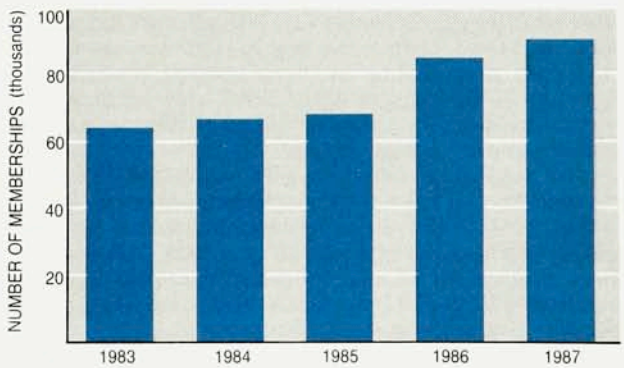
AIP income and expenses (excluding amounts for activities carried out for member organizations) are shown for the past five years. Income is shown in green; expenses are shown in yellow.

Marketing. In 1987 the Marketing Services Division introduced *Computers in Physics* with numerous space ads, direct-mail campaigns and trade-show promotions. It designed and premiered a new trade-show booth with more room for browsing through the publications and for demonstrating on-line products, and it continued to expand its direct-mail and trade-show schedule.

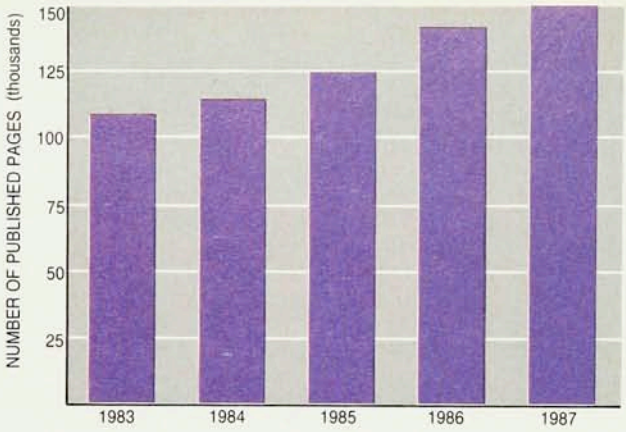
An agreement between AIP and the Institute of Physics, UK, was signed for foreign marketing and distribution of AIP books.

Physics Programs

Education and Employment Statistics. The major new initiative of the Education and Employment Statistics Division in 1987 was to launch the first large national survey of high school physics teachers. (This survey was conducted with the help of the American Association of Physics Teachers.) Principals and teachers at over 3400 public, private and parochial schools throughout the US were contacted. Cooperation was extremely high: 99 percent of the principals provided names of physics teachers and information about physics course offerings,



Memberships in AIP member societies have increased steadily in the past five years. The data have been adjusted to avoid counting duplicate memberships. The American Geophysical Union joined AIP as a member society in 1986, which accounts for the jump in the number of nonduplicated memberships that year.



Number of pages published by AIP in 1987 grew to 150 000 pages, an increase of 6 percent over the preceding year.

and 75 percent of the teachers completed a detailed 12-page questionnaire about their backgrounds, classroom activities, special teaching problems and ongoing professional development. Reports on the data from the survey are scheduled to appear in 1988.

In addition to its core activities of survey and publication, the division conducted a special analysis of a data tape produced by the Department of Education titled "High School and Beyond." The analysis focused on the backgrounds and academic experiences of secondary school students, their exposure to physics and their later educational attainments. The division also worked closely with several APS committees. It conducted an analysis of current and former members, and it helped plan a possible study of the military funding of basic research.

Career Placement. The Career Placement Division managed placement centers at the annual joint meeting of the American Association of Physics Teachers and The American Physical Society in San Francisco in January; at the March APS meeting in New York; at the APS spring meeting in Crystal City, Virginia; at the Materials Research Society (MRS) spring meeting in Anaheim, California; at the AAPT summer meeting in Bozeman, Montana; at the APS Division of Plasma Physics meeting in San Diego; and at the MRS fall meeting in Boston. At these centers the ratio of applicants to jobs increased somewhat from an average of 1.5 applicants per job in 1986 to 1.6 applicants per job in 1987. A survey of employers participating in the placement centers from January 1986 through April 1987 showed that 142 applicants were either hired or offered positions as a result of contacts made at the centers.

At the end of 1987 about 700 applicant files were registered in AIP's Employment Referral Service. Distribution of the *Summary of Open Positions* and the accompanying newsletter to chairpersons and employment information officers of physics departments continued at the rate of 2300 per month. Announcements in the *Summary* were also posted on Pi-NET.

Personal career counseling continued, including programs for the physically handicapped. The division increased its efforts to encourage secondary schools to take an active role in the placement process.

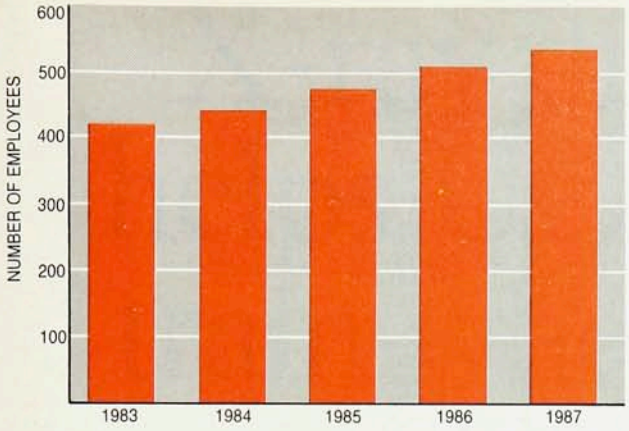
Physics Today. By the end of 1987 the monthly circulation of *Physics Today* was about 102 500 copies, of which 17 percent were shipped outside the US. In 1987 four special issues were published: on Helium-3 and Helium-4 in February, on the Michelson-Morley Centennial in May, on Computational Physics in October, and on Physics in Japan in December. A 16-page special section was added to the May issue that included the complete executive summary and conclusions of the APS directed-energy weapons study, plus a staff-written introduction and postscript. The November issue carried a debate between Gregory Canavan of Los Alamos National Laboratory and the cochairs of the APS Study Group on the Science and Technology of Directed-Energy Weapons, Nicolaas Bloembergen and Kumar Patel. *Physics Today* has a new design, which was put into effect with the November issue.

Public Information. 1987 was punctuated by two important physics events that the Public Information Division publicized with great success: the developments in high-T_c superconductivity, and the release of the APS directed-energy weapons study. "Science TV Report," an AIP-funded television project that produces short science news reports, was sent to commercial television stations throughout the country to be incorporated into local TV news programs. The latest series of television spots were titled "Physics and Food." "Science Report," an AIP-sponsored radio program for the lay public, was broadcast by some 500 radio stations in a new format designed to attract more commercial stations. It was heard weekly by several million persons. The division operated newsrooms at member society meetings, held press conferences, sponsored seminars for science writers and produced the annual *Physics News*. Videotapes of talks from meetings of the Corporate Associates (1983–86) were produced and marketed. Four full-color posters, designed to encourage high school students to study physics, continued to be distributed throughout the country along with other promotional materials.

Center for History of Physics. The History Division began detailed planning for two large-scale projects aimed at preserving source materials: One documents the history of geophysics, and the other documents multi-institutional collaborations in particle physics. Meanwhile, a book-length collection of historical articles on solid-state physics was prepared for the press, and a draft catalog of unpublished source materials in the field was issued. The Laser History Project finished and declassified a history of work funded by the military, while writing continued on other parts of the story. Projects continued on the history of physicists' participation in national policymaking and on the controversy over the physical causes of mass extinctions. Each project led to a number of new oral history interviews. The division also conducted separate mail surveys of eminent nuclear, solid-state and laser scientists.

The Niels Bohr Library. Work continued on the project to prepare information on the library's holdings of manuscript collections for entry onto RLIN, the national on-line library database. This is part of a larger project to publish a guide to the library's holdings and to offer computerized access to unpublished historical source materials at other repositories as well.

Education Division. The principal concern of the Education Division in 1987 was the Society of Physics Students (SPS). Membership expanded to 7600 students in 545 chapters in the US and Canada, including 370 chapters of Sigma Pi Sigma, the physics honor society. More than 75 percent of US physics students had the chance to participate in SPS. Three $1000 SPS Scholarships were awarded for 1987–88. The Outstanding SPS Chapter Advisor Award was presented to Ram P. Chaturvedi of SUNY College, Cortland. SPS continued its SPS Leadership Training Seminars for SPS officers and



Number of employees of AIP grew to 530 in 1987, an increase of 2 percent over the preceding year.

advisors. The 1987 SPS Council and Executive Committee approved sending issues of SPS's *Journal of Undergraduate Research in Physics* to all SPS members as a privilege of membership, starting with 1988 memberships.

Senior Education Fellow. Sallie Watkins joined AIP in August 1987 as the Institute's first Senior Education Fellow. Based in Washington, she was able to establish important links with colleagues in the Federal government and in other organizations. She helped start Project SEER (Science Education Equity Reform), a pilot program for bringing physics materials to children in grades K–5, in a school district in University City, Missouri. The program is also designed to explore issues of equity in the school setting, that is, the extent to which children receive equal treatment and equal opportunity in science learning, regardless of color or sex. Watkins also coordinated the Meggers Award competition in support of high school physics, and she helped manage the AAPT–APS-sponsored Conference of Chairs, held in February 1988.

Corporate Associates. In September 1987 AIP, The American Physical Society and the National Academy of Sciences co-sponsored the XIX General Assembly of the International Union of Pure and Applied Physics. To enhance the program, the assembly was scheduled in conjunction with the annual meeting of AIP's Corporate Associates. The combined meeting, held at the National Academy of Sciences in Washington, was attended by more than 200 leaders from industry, academia and government, and by more than 100 IUPAP delegates. Distinguished speakers from several countries (including AIP Governing Board Chair Hans Frauenfelder) covered current frontiers of physics.

Visiting Scientist Program. The Visiting Scientist Program in Physics was re-instituted in 1987. It enables active researchers and scholars from universities, industry and government to make two-day visits to four-year colleges. The program, formerly funded by NSF, is now managed and principally supported by AIP (there is some cost-sharing by the host institutions).

International Physics Olympiad. In 1987 AIP continued to cosponsor the International Physics Olympiad, and it undertook fund-raising responsibility for the 1988 Olympiad. AIP also pledged major support for the costs of hosting the Olympiad in the US in 1993.

Prizes and awards. At the Corporate Associates meeting in October the AIP Prize for Industrial Applications of Physics was awarded to C. Daniel Gelatt Jr and E. Scott Kirkpatrick for work they did at IBM on simulated annealing (see *Physics Today*, December 1987, page 78).

The 1987 science-writing awards went to journalists Shannon Brownlee and Allan Chen for their article on earthquakes, "Waiting for the Big One," published in *Discover* magazine (see *Physics Today*, June 1987, page 59), and to scientist Clifford Will for his book *Was Einstein Right?*, published by Basic Books (see *Physics Today*, December 1987, page 77). A third science-writing award, for a children's book, was established in 1987. The first-time winners were authors Susan Kovacs Buxbaum and Rita Golden Gelman and illustrator Maryann Cocca-Leffler for their book *Splash! All About Baths* (see *Physics Today*, June 1988, page 73).

The first Andrew Gemant Award (given for significant contributions to the understanding of the relationship of physics to its surrounding culture and to the communication of that understanding) was awarded to Philip Morrison of MIT (see *Physics Today*, June 1987, page 58).

The 1987 Dannie Heineman Prize for Mathematical Physics was awarded jointly by AIP and APS to Rodney James Baxter, a theoretical physicist at the Australian National University (see *Physics Today*, February 1987, page 81); the Dannie Heineman Prize for Astrophysics was awarded jointly by AIP and the American Astronomical Society to David L. Lambert, a professor of astronomy at the University of Texas at Austin (see *Physics Today*, May 1988, page 111).

Financial, administrative and computer services—to the societies and to AIP programs

Accounting. In 1987 AIP began using a versatile new software package to monitor its investment portfolios. The lengthy activity schedules required for annual tax returns are now prepared with minimal effort. The Accounting Division continues to function efficiently, to the satisfaction of member societies and other AIP divisions.

Publication Billing. Now a highly automated billing operation, the Publication Billing Division (formerly Publication Sales) processed invoices throughout the year for Advertising and Exhibits, for the Books Division and for a myriad of other products. An automated system for single-copy sales was also completed. The division can now retrieve information from its database for the Marketing Services Division. The 800 telephone number system became increasingly active. At year's end more than 1500 orders had been placed through it.

Building Facilities. The relocation of several AIP divisions to 140 East 45 Street in New York City was completed in 1987. Education and Employment Statistics, Marketing and *Computers in Physics* joined the *Physics Today* and Advertising and Exhibits Divisions, and the space is now fully occupied by more than 40 staff members. The two New York City locations are about three blocks apart.

Expansion was also needed on Long Island. Space was leased and finished to AIP's specifications in a new building at 255 Executive Drive in Plainview, about a mile from the Woodbury building. The Production I, Publication Billing and Education Divisions (about 80 staff members in all) prepared for the move to the Plainview site in January 1988. Fax capability was installed at all AIP locations.

Personnel administration. In September the Personnel Division worked with an outside consulting firm to

External sources of funding for AIP projects (gifts, grants and dues)

Source	AIP Division or Branch	Total funds	1987 Amount
NSF	Physics History	$ 55 000	$ 36 300
NSF	Physics Programs	110 000	3 300
NSF	Corporate Associates/IUPAP	25 000	2 900
DOE	Corporate Associates/IUPAP	15 500	15 500
Endowment for the Humanities	Physics History	56 200	20 000
Sloan Foundation	Physics History	30 000	10 400
Lounsberry Foundation	Physics History	25 000	16 400
Friends of the Center	Physics History	28 000	28 000
Allied Corporation Foundation	Physics Programs/SPS	5 500	5 500
Corporate Associates	(Dues)	111 000	111 000
Corporate Associates	(IUPAP Contribution)	51 700	51 700
SPS Membership	Education (Dues)	71 000	71 000
Sigma Pi Sigma	Education (Contribution)	66 700	66 700
	Totals	$650 600	$438 700

conduct an opinion survey among all employees of AIP. The results were delivered in December, and plans are under way to gain the more active involvement of all employees in planning and decision making through an employee advisory committee. The committee is made up entirely of nonsupervisory employees, and it is scheduled to meet throughout 1988.

The division also conducted breast cancer and telephone training seminars, and it coordinated employee services and activities such as the Great American Smokeout, free flu vaccinations, Weight Watcher and exercise programs, informal breakfast meetings with the Executive Director, the annual picnic and holiday parties, and workshops by health maintenance organizations. Employee tuition reimbursement was raised from $1500 to $2500 annually, and life insurance was increased from 1.5 to 2 times annual salary. As of December 1987, there were 530 AIP employees, including five in the Washington office.

Data Processing. Two experienced programmer–analysts were added to the staff in 1987, to enable the Institute to develop more software in-house.

Subscription Fulfillment. Billing services were provided in 1987 for nine member societies. Nonmember renewal forms were mailed for calendar year 1988 both to subscription agencies and directly to subscribers. The value of the nonmember billing was approximately $34 million.

AIP explored the possibility of including airfreight service as part of the foreign subscription rates for countries of the Eastern Hemisphere. (The American Chemical Society has been doing this for several years, and the Optical Society of America is instituting the policy in 1988.) Subscription-fulfillment statistics for 1987 are shown in the table on page 60.

Investments. The purpose of the Institute's investment portfolio is to build reserves for designated goals in the Building Fund, Equipment Fund, Physics Programs Fund and Publication Fund. As of 31 December 1987 these goals totaled approximately $27 500 000. The market value of the Institute's investment portfolios amounted to $16 154 389 compared with a cost value of $16 784 983, a paper loss of 3.76%.

Outside funding. Grants, gifts and dues received in 1987 are summarized in the table on this page. At year's end the Institute's endowment funds totaled approximately $1 400 000. During the year the Executive Committee approved a new policy setting a normal limit of 5% on annual spending from endowment funds.

Public and international affairs

Washington office. In 1987 the Washington office was home to five staff members: Senior Associate Editor of *Physics Today* Irwin Goodwin, Senior Education Fellow Sallie Watkins, William J. Condell, manager of the office, and two supporting staff members. Activities in 1987 included managing the Visiting Scientist program, organizing publicity for the Congressional Science Fellowship program, preparing a book on the Federal budget process and initiating the Federal awareness service on Pi-NET.

In the fall of 1988 the new Congressional Science Fellow will begin a yearlong term, fully supported by AIP, in the office of a member of Congress or on the staff of a Congressional committee or subcommittee. This will add to the physics talent on Capitol Hill already in place from APS. The Federal awareness service, recommended by the Committee on Public Policy, is a trial on-line service to see whether up-to-the-minute information on the legislative and executive branches of the Federal government is of value to the societies and their members.

International ties. AIP currently markets 19 journals for the Institute of Physics (UK), and it distributes *Physica Scripta* for the Royal Swedish Academy of Sciences and the *Annals of the Israel Physical Society*.

In 1987 AIP entered into discussions with the Japan Society of Applied Physics and the Physical Society of Japan over the North American marketing rights for several of their English-language journals. Also under discussion is the possibility of translating selected Japanese-language journals into English. (AIP currently prepares English translations of certain Russian and Chinese physics and astronomy journals.) The Japanese-language magazine *Parity*, partly based on *Physics Today*, continues to be successful.

AIP's books program now includes a series of works by Soviet authors, and Soviet scientists are also being invited to contribute more to *Physics Today*. AIP continued to cooperate with the sub-Saharan program of the American Association for the Advancement of Science in order to make it possible for AIP journals to reach libraries in Africa.

The Committee on International Affairs, authorized in 1987, will examine many options for increased ties to foreign scientists, including a possible new category of institutional membership called International Affiliate.

Reference

1. A. P. French, ed., *Physics in a Technological World*, AIP, New York (1988). ■