

AIP in 1986: An annual report

Long-range planning for the American Institute of Physics focuses on providing an expanding range of services and products for its member societies and the physics community.

As in the past five years, this annual report of the American Institute of Physics is organized into sections describing output products and services produced by AIP.

Highlights of 1986 include:

- ▶ A new chief executive officer, Kenneth W. Ford, was named to replace H. William Koch, who retired in March 1987 after 20 years.
- ▶ The opening of a larger office in Washington, DC, indicates new emphasis on education and public affairs.
- ▶ On-line electronic services called Pi-NET and Pi-MAIL were initiated.
- ▶ AIP's staff continued to grow and the number of journal pages produced continued to increase as the number of subscriptions continued to rise. (See

the table on page 55.)

▶ A tenth member society—the American Geophysical Union—joined AIP.

▶ AIP began reassessing its needs for increased space for both its publishing and its New York headquarters operations.

To AIP's new Executive Director and to the 18 000 members of AGU, we wish a most hearty welcome. They portend a bright future for AIP and for the services it and its member societies supply to the physics community throughout the world.

Publication production services

Several AIP divisions using two computer-based photocomposition systems (Atex and Unix) are at the heart of publication production.

Publishing I Branch, which includes Production I and Composition I Divisions, produced 6 AIP-owned archival journals; 7 journals owned by 5 AIP member societies; 1 journal owned by an affiliated society; 19 Russian trans-

lation journals; 2 Chinese translation journals; and the *Journal of Physical and Chemical Reference Data*, published by the American Chemical Society and AIP for the National Bureau of Standards. Two of these journals were new in 1986: *Chinese Physics—Lasers* (published jointly with the Optical Society of America), a translation of the *Chinese Journal of Lasers*; and the *Journal of Materials Research*, published for the Materials Research Society. In all, these journals contained about 85 000 pages in 1986; they were composed at AIP with the Atex operating system.

An increasing number of manuscripts were scanned by the Kurzweil optical character reader, both for transmission to the Atex system for composition, and for transfer to a personal computer in the Physics History Division for further editing. The amount of work available for the Kurzweil reader by year's end was such that plans were made to acquire a second machine.

The translation program continued

Submitted by H. William Koch, Executive Director (retired as of 28 March 1987), and accepted by the Governing Board of the American Institute of Physics as its annual report to the member societies of AIP on 27 March 1986.

Headquarters activities of AIP include the Niels Bohr Library and the Books Program.

In the library (left-hand photo) are Jean Hrichus, archivist and librarian, sitting behind her desk, and Elisabeth Elkind, assistant archivist. In the photo at far right are Rita Lerner, manager of the Books Division, and Michael Hennelly, book production editor. The photo at center shows the headquarters building at 335 East 45 Street in New York City.



to improve its timeliness. Some 223 issues were published altogether, and by year's end nearly all of the journals were meeting the goal of publication within six months of receipt of the foreign-language original.

Special projects sections in the production and composition divisions have responsibility for nonjournal publishing activities, both for the institute and for the member societies. The sections handled a total of about 60 projects in 1986, including 17 titles in the AIP *Conference Proceedings* series alone, as well as several volumes in the AIP-Tomash *History of Modern Physics* series, reprint books, monographs and translations. The sections also produced monographs, membership directories, indexes, SPS publications, AVS short courses and the *Third Annual PHYSICS TODAY Buyers' Guide*.

Publishing II Branch. The Production II and Composition II Divisions are responsible for editorial mechanics, production and composition on publications of The American Physical Society: all sections of *Physical Review* (A, B, C, D), *Reviews of Modern Physics*, *Bulletin of The American Physical Society*, the biennial *APS Membership Directory* and *Physical Review Abstracts*. These journals contained approximately 45 000 pages in 1986, 40 000 of which were produced and composed in Branch II. In addition, the divisions are responsible for APS special projects, including various newsletters and gazettes. In 1986, the divisions ventured into book publishing, with their first nonjournal production for the APS. The book, *My Daughter*

Beatrice, is a personal account of the life and career of the noted astronomer Beatrice Tinsley. Production II Division also worked on the verification and development of the editorial database throughout the year.

Composition II Division performs the composition for all APS publications and special projects using a Digital VAX 11/780 computer running under the Unix operating system. An Imagen Imprint-10 laser printer is used to produce proofing copy for the journals. New software made all fonts on the VideoComp 500 accessible to Unix users in late 1986. The division implemented procedures—including a math-translation program—for supplying each issue of *Physical Review Abstracts* to the Pi-NET database. Epitomes of meetings and indexes published in the *Bulletin* were also made available to Pi-NET on a regular basis.

Several of the APS journals continue to accept author-prepared articles as camera-ready copy, ready for paste-up; magnetic tape prepared on the author's Unix system; or floppy disks prepared on an IBM-PC running dos.

The APS Liaison Office, based in Woodbury, NY, coordinates the development of Unix software. A substantial part of the editorial database of the APS office in Ridge, NY, was incorporated into the Woodbury system, enabling editorial access to manuscript data. This database contains records of pertinent data on each manuscript, such as issue, scheduled deadline date, title, authors, number of manuscript pages, PACS numbers, and copyright and publication-charge status. Addi-

tional records and updates are received from Ridge on a daily basis, via a dedicated phone line. We are developing software for logging and tracking manuscripts throughout the production cycle and automatically generating article line-ups and reports pertaining to issue deadlines.

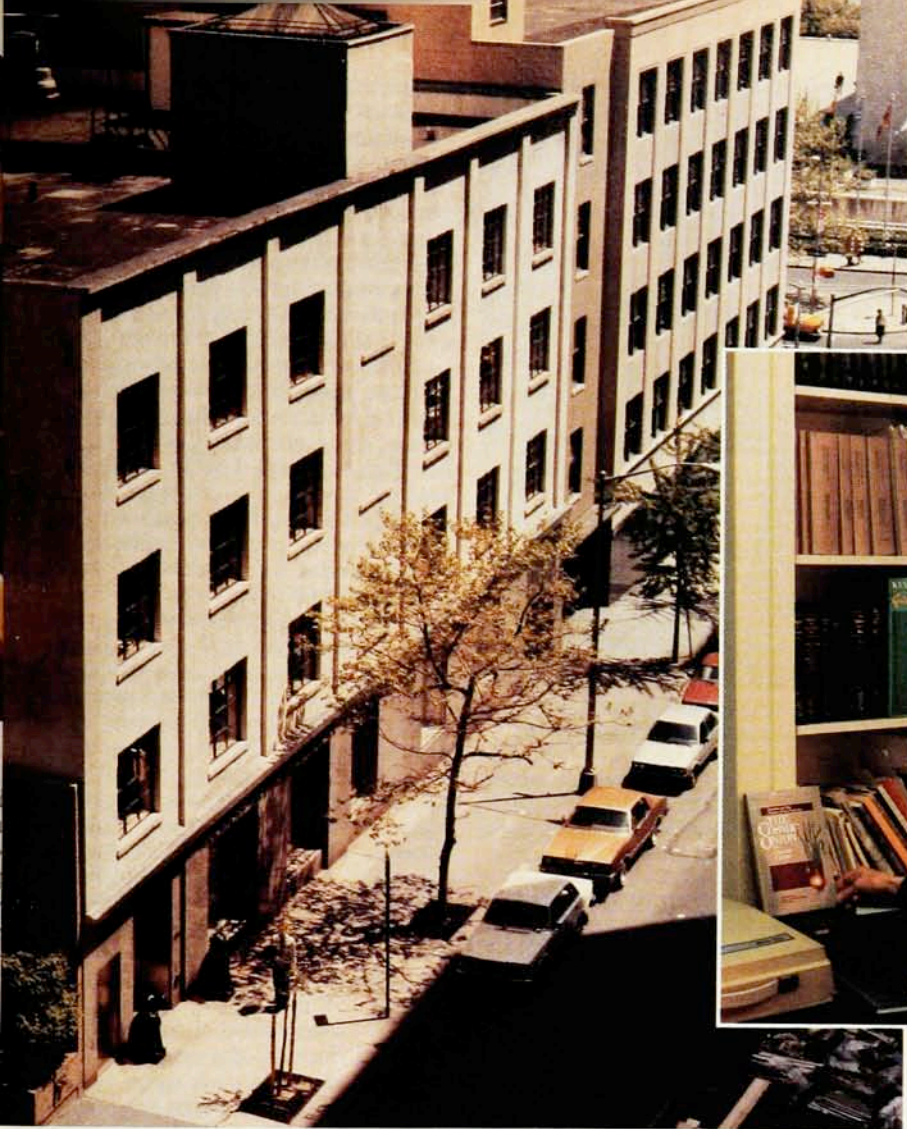
Research and education news

The main source of net revenue available to AIP comes from the primary and translation journals and other publications owned by AIP. (The publishing work for member societies is done at cost, and generates no net revenue for AIP.)

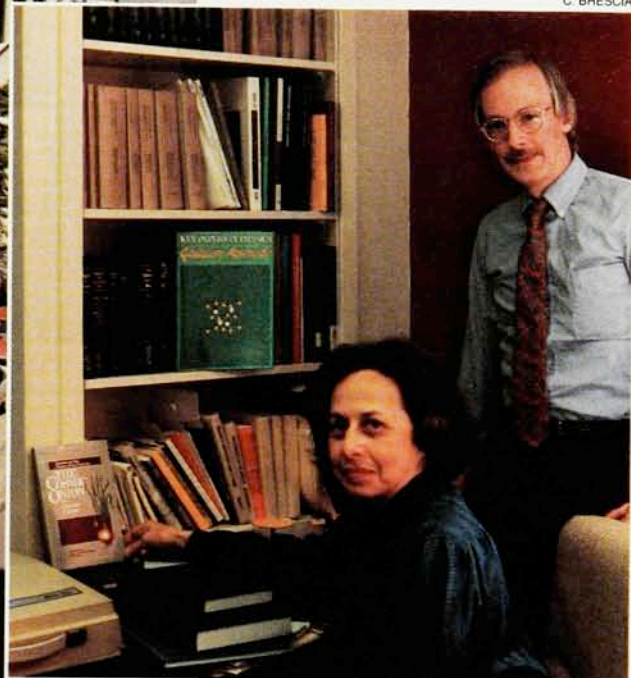
In 1986 publication charges were eliminated for the *Journal of Mathematical Physics*, which now joins the *Review of Scientific Instruments* as an AIP journal free of publication charges. Publication charges remained at the 1985 level for the other four archival AIP journals: *Applied Physics Letters*, *Journal of Applied Physics*, *The Journal of Chemical Physics* and *The Physics of Fluids*.

Following a trend set in 1983, the page budgets for the AIP-owned journals were set at such a level as to eliminate delay for papers whose authors (or their institutions) fail to honor publication charges. Subscriptions for most AIP-owned journals are slowly decreasing.

In addition to the usual conference proceedings, AIP published several books of more general interest in 1986. These included *The Cosmic Onion: Quarks and the Universe* by Frank Close, and a new *PHYSICS TODAY* reprint



C. BRESCIA



book, *Optics Today*, edited by John Howard. The AIP-Tomash series acquired two new books: *Physics for a New Century: The St. Louis Congress of 1904*, and *Basic Bethe: Seminal Papers in Nuclear Physics, 1936-1937*. And AIP published one book translated from Japanese, *Optical Glass* by T. Izumitani. Among the many titles scheduled for 1987 is *Radar in World War II*, a history of the MIT Radiation Laboratory, by Henry Guerlac.

PHYSICS TODAY continued as the official monthly newsmagazine for the entire physics and astronomy community. With the American Geophysical Union becoming AIP's tenth member society in April 1986, the print run for PHYSICS TODAY is now over 100 000 copies per month. Special issues were published in 1986 on superconductivity (March), *Physics Through the 1990s* (April), the education of the professional physicist (June) and the science of VLSI (October). In addition, the January issue carried *Physics News in 1985* and the August issue contained the

Third Annual PHYSICS TODAY Buyers' Guide.

With the February issue PHYSICS TODAY began carrying a column of opinion, Reference Frame, written by regular contributors who are eminent physicists. In 1986 the columnists included Leo Kadanoff, Herman Feshbach and Sheldon Glashow.

In January Maruzen Co began publishing *Parity*, the Japanese-language monthly magazine that carries translations of many PHYSICS TODAY articles and news stories, in addition to original material written in Japanese especially for *Parity*.

Distribution and marketing

The planned new subscription fulfillment system moved closer to completion. A small testing group was involved in "debugging" the major modules over the last half of 1986. AIP and society offices can now call up membership records and journal subscriptions on-line.

The Subscription Fulfillment Divi-

sion performed dues billing for eight member societies, and handled journal subscriptions for 71 publications in paper editions and for 38 publications in microfiche editions. During the first nine months of 1986, the Publication Sales Division processed orders for approximately 50 000 copies of various journal back issues, books and microfilms.

With direct-mail and journal advertising campaigns the Marketing Services Division helped launch three new journals: *Chinese Physics—Lasers* (for AIP), *Journal of Materials Research* (for the Materials Research Society) and *Semiconductor Science and Technology* (for the Institute of Physics). To its list of journals marketed in North America it added *Physica Scripta*, published by the Royal Swedish Academy of Sciences. AIP continued its agreement with Fachinformationszentrum Energie, Physik, Mathematik to market both the journal and the on-line database *Physics Briefs* in North America and it extended the contract ap-



Flu shots at AIP's Woodbury publishing facility. Mary Narky is administering the shot to Larry Feinberg, Assistant Manager of Production I Division, while Matthew Mulé of the building facilities staff waits his turn.

American Institute of Physics Incorporated Balance sheets

	31 December	
	Unaudited	
	1986	1985
Assets		
Current assets		
Cash and short-term cash equivalents	\$14 857 600	\$13 018 659
Short-term investments, at cost	49 878	45 204
Accounts receivable, net of allowance for doubtful accounts of \$39 400 (\$60 000 in 1985)	1 481 102	1 279 595
Due from member societies	28 966	316 793
Other current assets	1 056 282	819 820
Total current assets	17 473 828	15 480 071
Deferred production expenses	818 611	629 618
Property, plant and equipment, at cost, less accumulated depreciation of \$5 819 346 (\$4 899 075 in 1985)	6 743 792	7 202 158
Long-term investments, at cost	13 920 645	8 705 989
Other assets	283 233	20 295
Total assets	\$39 240 109	\$32 038 131
Liabilities and fund balances		
Current liabilities		
Trade accounts payable	\$ 193 536	\$ 354 616
Accrued expenses	2 829 201	2 519 427
Due to member societies	2 088 147	994 986
Current maturities of long-term debt	41 234	41 292
Other current liabilities	3 703 171	2 229 206
Total current liabilities	8 855 289	6 139 527
Deferred subscription income	7 691 716	7 183 237
Long-term debt	1 928 651	1 973 482
Total liabilities	18 475 656	15 296 246
Fund balances		
Designated for special purposes	14 412 371	10 102 900
Net equity in property, plant and equipment	4 773 907	5 187 384
General fund	200 000	200 000
Restricted funds	1 378 175	1 251 601
Total fund balances	20 764 453	16 741 885
Total liabilities and fund balances	\$39 240 109	\$32 038 131

pointing the Kinokuniya Co as the exclusive marketing agent in Japan for nonmember subscriptions until June 1987.

As part of the division's efforts to market AIP archival and translation journals, it used journal ads and direct-mail campaigns to announce to the optics and materials research communities the expansion of *Applied Physics Letters* to 52 issues. A campaign directed to libraries promoted new discount package plans for the translation journals. Another campaign featured a special issue of *Soviet Astronomy Letters* that compiled data from the Vega balloon project. A variety of journal and direct-mail ads kept pace with the growing books program, and the division expanded its schedule of exhibits at professional meetings.

By the end of 1986, some 1840 pages of advertising had appeared in the six AIP and member society publications managed by AIP. Sales increased about 4% over the 1770 pages of 1985. The Advertising Division also sold ads in *Parity*. In addition, the division continued to organize, sell and manage exhibits for The American Physical Society, the Materials Research Society, the Acoustical Society of America, and the American Vacuum Society. The AVS Show was held in conjunction with the 10th International Vacuum Congress, the 6th International Conference on Solid Surfaces and the 33rd National Symposium of the American Vacuum Society; the show was the largest in the society's history. In 1987 the division will manage the exhibit held in conjunction with the spring meeting of MRS.

Fiscal and administrative services

Computerization of AIP's investment monitoring and reporting was completed after a thorough review of the software. In addition, the software for invoicing advertising insertions, which was written by an AIP programmer, was in the debugging stage by the end of 1986. Specialized software for the Publication Sales Division is also being debugged.

AIP's new Washington, DC, office, located on the second floor of the AGU building, was readied for occupancy in summer 1986. Educational Programs and PHYSICS TODAY staff are in residence there along with APS staff. In New York the PHYSICS TODAY and Advertising and Exhibits Divisions were moved into newly rented space at 140 East 45 Street, vacating their overcrowded quarters at 216 East 45 Street. Plans were under way to relieve the space pressure at Headquarters by moving additional staff to 140 East 45 Street.

The Personnel Division participated in planning adjustments in Woodbury staff starting salaries made in the fall of 1986. The division also worked on the wellness program, accomplished another successful blood drive and arranged for refresher courses on cardiopulmonary resuscitation. The programs of new health maintenance organizations were introduced during a health fair. The division organized management training meetings focusing on effective communication, equal employment opportunity and affirmative action, and substance abuse in the workplace. At the end of 1986, AIP had a total staff of 518, with 112 in New York City, 403 in Woodbury and 3 in Washington, DC.

Information collection and analysis

During 1986 the Education and Employment Statistics Division (formerly called the Manpower Statistics Division), in its five annual statistical surveys, queried 800 academic department chairs, 15 000 students and new degree holders, and a random sample of over 12 000 current and former society members. Reports on degrees awarded in 1984-85 showed a marked increase in bachelor's degrees, which numbered more than 5000 for the first time since 1972. An increasing proportion of these new bachelors were headed toward immediate employment. Masters and PhDs remained stable at somewhat over 1500 and 970, respectively. Nearly one-third of the new PhDs are foreign citizens.

Two special studies were conducted and completed in 1986. One, a study of spot academic shortages in selected physics subfields, done in cooperation with the APS Panel on Public Affairs, indicated an inadequate supply of qualified candidates in experimental solid-state physics and optical science. The other study queried department chairs about the impact of foreign teaching assistants on their departments and about the adequacy of language testing and remedial language programs. A report on that survey is forthcoming in 1987.

The division's major new survey initiative in 1986 concerned secondary schools. Working closely with a group from AAPT, the division developed a 12-page questionnaire covering the backgrounds, responsibilities, activities and attitudes of secondary school physics teachers. The questionnaire was pretested in the spring of 1986 and drew an enthusiastic response from 80% of the AAPT teachers queried. In the fall and winter of 1986, the division contacted state and local educational representatives across the nation, and their responses were uni-

formly encouraging and supportive of our survey plans. We made up a stratified random sample of public, private and parochial schools for the national survey and sent requests for the names of physics teachers to the principals of the sample schools. The survey itself will be conducted in the spring of 1987. The level of cooperation thus far has been high.

In 1986 the division was also involved in several major publications. For the overview volume of the National Academy of Sciences' *Physics Through the 1990s* we prepared a chapter on the education and supply of physicists. It outlined significant issues in physics employment and education, analyzed relevant data and presented projections of supply and demand through the remainder of the century. In the summer, we made available a special lecture packet, "Physics trends: Graphic resources for speakers," illustrating trends in the training and employment of physicists and related scientists. Late in the year, we published a special 40-page report profiling society membership and the pattern of subfield associations. In addition to the formal-

ly published material, selected tabular material of interest to society members is available on Pi-NET.

Improved understanding of how the physics community carries out its work is one goal of the AIP Center for History of Physics. The diversity of work in physics makes understanding hard to reach without looking from a variety of viewpoints, so the center participated in four different research projects (while planning still more). The newest project studies the way scientists have participated in national policy-making since the Second World War—advising government on how science can be used toward national goals, and also on how science itself should be funded and conducted. Surprisingly little historical work has been done on this crucial activity of physicists. With funding from the Sloan Foundation and the National Science Foundation, an AIP historian studied manuscript collections and tape-recorded oral history interviews with more than 30 people; he has been studying both general policy matters and, as a case study, the Jason group, which gave technical advice on nation-

American Institute of Physics Incorporated Statements of revenue and expense

	Year ended 31 December	
	Unaudited	
	1986	1985
Operating revenue		
Publishing operations		
Subscriptions	\$13 261 608	\$12 905 409
Voluntary page/article charges	1 382 494	1 457 824
Advertising sales	2 431 142	2 479 011
Back number and microfilm sales	1 029 438	918 759
Member society dues	186 872	167 500
Other	1 094 380	862 647
	<u>19 385 934</u>	<u>18 791 150</u>
General operations		
Grant and contract activities	386 856	369 439
Educational activities	265 410	232 652
Corporate Associates dues	131 047	126 408
	<u>783 313</u>	<u>728 499</u>
Other operations		
Special projects	36 018	44 108
Other	327 558	309 436
	<u>363 576</u>	<u>353 544</u>
Total operating revenue	<u>20 532 823</u>	<u>19 873 193</u>
Operating expense		
Publishing operations	15 601 717	14 437 654
General operations	2 295 605	2 159 148
General and administrative	1 134 087	914 992
Other	348 959	291 950
Total operating expense	<u>19 380 368</u>	<u>17 803 744</u>
Net operating revenue	<u>1 152 455</u>	<u>2 069 449</u>
Non-operating revenue		
Net investment income	2 743 538	1 374 034
Excess of revenue over expense	<u>\$ 3 895 993</u>	<u>\$ 3 443 483</u>

al security questions.

Geophysics, which holds particular interest as an example of the interdisciplinary character of modern research, is another area where historical study is only beginning to get under way. The center is cooperating with the AGU History Committee to develop projects to remedy this deficiency. Meanwhile William Glen's detailed case study, managed by AIP, of the controversy over possible astronomical or geophysical causes of mass extinctions is continuing under NSF funding.

In the Laser History Project, for which the center provides advice and partial support, nearly all the planned oral history interviews were completed. The writing of a book on laser history is well under way, with renewed government and private funding. Virtually all the research done for the International Project in the History of Solid State Physics was written up; some articles have been published, and a book is being edited. In both projects, final processing of oral history interviews and the location of unpublished correspondence and other historical documentation is continuing. Once such documents are located, they are described in the center's *International Catalog of Sources for History of Physics and Allied Sciences* so that future scholars will be able to find the raw data they need. A substantial fraction of the *Catalog* has been fully computerized, and during 1986 a major project was designed to put the entire *Catalog* on-line as part of a national archival database. Similarly, the center made progress in designing a project to study ways to preserve the diverse and scattered historical record of multi-institutional team research. Fund-raising for both those projects got under way.

Fund-raising was, in fact, an important part of the center's work; among the results were significantly increased donations from the Friends of the Center and a \$56 000 Challenge Grant from the National Endowment for the Humanities, which will give the center one dollar for each three dollars raised for its endowment or other long-term needs. The fund-raising process itself was supported by a grant from the Lounsbery (Richard) Foundation Inc.

Public dissemination

The Public Information Division acts as a conduit for physics information. Information flows via the division from the physics community to the media—in the persons of news editors and television producers—and finally, on to a public that ranges from scientifically sophisticated people to schoolchildren. A listing of major projects in 1986 and the audiences they serve follows.

D. KALSON



Inauguration festivities at the AIP Washington office. From left are Karl Kessler of NBS; William J. Condell, manager of the Washington office; and H. William Koch, then AIP's Executive Director.

Through the AIP-funded television project "Science TV Report" (now in its eighth year), short science news reports are produced and placed on commercial and local news shows in the larger US cities. Tens of millions of viewers of some 70 local television stations see the two-to-three-minute reports; such an audience would probably not tune in a "Nova"-type program on the educational channel, so these reports are often their only contact with science news. Currently in production is a series of reports on physics and food.

AIP has sponsored the radio program "Science Report" for nine years. Heard on some 500 commercial and noncommercial radio stations, each two-minute report highlights the work of physicists. Researchers themselves describe what they do, why they do it and how their work might affect people. The audience for "Science Report" is hard to profile, except to say that it is wide and diverse.

The annual publication *Physics News in...* summarizes the most significant research in physics and astronomy in a given year. The publication appears both as a special report in the January issue of *PHYSICS TODAY* and as a reprint booklet. As such, *Physics News* addresses physicists and other scientists and engineers, and it caters to science writers, who traditionally welcome a concise guide to physics. Some ancillary use for the booklet is found in the classroom. The text of *Physics News in 1986* is now electronically accessible on Pi-NET.

The division runs several newsrooms

a year in connection with meetings of the APS. Newsroom audiences consist primarily of journalists.

The division writes and distributes news releases, primarily to serve science writers and editors, but some releases may convey announcements appropriate for the physics community or to specific kinds of publications. Depending on the announcement, the distribution may be tailored to reach specific groups or to reach the widest possible audience.

The division arranges up to four seminars a year. These seminars, designed to enable science writers to hear a panel of scientists speak on particular timely scientific topics, have been held for 18 years, and have covered such topics as particle physics, food irradiation, chaos, condensed matter, astronomy and cosmology.

AIP sponsors three writing awards. Each consists of \$3000 and certificates to both the writer and the publisher. The newest, established to honor writing aimed at children, was instituted in 1986; the other two are presented to a scientist and to a professional writer. Winning entries must communicate about physics and astronomy to the general public. In 1986, two awards were given: Arthur Fisher won in the professional writer's category for his article "Chaos: The ultimate asymmetry," published in *Mosaic* magazine, and Donald Goldsmith won in the scientist's category for his book *Nemesis: The Death Star and Other Theories of Mass Extinction*.

High school teachers can receive free

of charge posters designed to induce students to think about the role of physics in their futures; others can buy them from AIP. The division completed a new "Careers in physics" brochure that was sponsored by APS. High school students were the primary audience. Publicity for the Physics Olympiad, which AIP cosponsors with other societies, is likely to become an annual task for the division, especially in light of the US team's excellent first-time performance in this international event in 1986.

Education publications. The 1986-87 *Graduate Programs in Physics, Astronomy and Related Fields* included information about 303 departments in the US, Canada and Mexico. Over 3500 copies were distributed, including 2400 free copies to departments offering bachelor's degrees in physics, astronomy and several related fields. The 1986-87 edition of the biennial *Directory of Physics and Astronomy Staff* listed some 31 000 scientists at universities, colleges, and government and industrial laboratories. Copies of the directory were sent to all APS members as part of the December 1986 issue of the *Bulletin of The American Physical Society*; to reduce confusion with the APS membership directory, the name of the publication was changed by replacing "Staff Members" with "Staff."

Liaison activities

The institute maintains close ties with its corporate associates, its member societies and individual physicists—including physics students.

With corporate members. In 1986 there were around 110 members in AIP's Corporate Associates program. The group's annual meeting was held in October 1986 at Exxon Research and Engineering Co in Annandale, NJ. It was attended by over 180 leaders from industry, heads of graduate physics departments and government officials. The meeting's general theme, the physics of complex materials, was enhanced by tours of Exxon's research laboratories. Videotapes of talks from this year's (and several past) meetings were made available through AIP's Public Information Division.

With member societies. The 1986 Dannie Heineman Prize for Mathematical Physics was awarded jointly by AIP and APS to A.M. Polyakov of the Landau Institute for Theoretical Physics in Moscow; the Dannie Heineman Prize for Astrophysics was awarded jointly by AIP and AAS to Hyron Spinrad of the University of California at Berkeley.

With the academic community. The institute established a Visiting Scien-

Size and growth of AIP and member society operations

Year	Total society membership	Journal pages	Journal subscriptions	Building floor areas (rentable square feet)	Volume of AIP business* (dollars)	Staff
1943	6 500	4 800	18 000	6 200	18 000	25
1955	17 500	18 000	68 000	17 000	1 220 000	60
1965	44 000	70 000	199 000	35 000	6 600 000	165
1975	60 000	100 000	260 000	65 000	14 300 000	360
1985	77 000	125 000	270 000	95 000	36 000 000	505
1986	105 445	140 000	280 000	103 000	42 000 000	518

*Including activities for member organizations

tist Program in Physics, which enables distinguished leaders in physics research and postgraduate education to visit four-year colleges for one and a half to two days at a time. Schools lacking the resources of universities can thus gain, if only briefly, the expertise of well-known university physicists. In the 1960s and early 1970s NSF had supported a similar program at AIP. The new program operates with funds from AIP and from the visited institutions; it is based in AIP's Washington office.

With students. Membership in the Society of Physics Students increased to 7400; over 500 of those members took advantage of the joint-membership arrangements SPS has with many AIP member societies. There are now 530 collegiate chapters in the US and Canada, with over 363 of those chapters also having a chapter of Sigma Pi Sigma, the physics honor society.

In 1986 SPS presented two awards to individuals. The 1986-87 SPS Scholarship, which supports a student in the final year of undergraduate study, went to T.M. Slaweki of Lycoming College. The great popularity of the SPS Scholarship in its first two years resulted in the program's being expanded to three \$1000 scholarships starting with the 1987-88 scholarships. The Outstanding SPS Chapter Adviser Award (which includes a \$500 grant) was presented to J. Steve Browder of Jacksonville University. Both awards are supported by the Sigma Pi Sigma

Trust Fund and AIP. SPS instituted a leadership training seminar for officers and advisers in 1986, the first of which was very successful. Several seminars are scheduled for 1987. Four SPS chapters received SPS-Allied Awards to support research projects, and eight SPS chapters received Marsh W. White Awards to promote interest in physics among students and the general public. SPS further expanded the *SPS Information Book*, and published the 14th edition of *Speakers, Tours and Films*.

The *Journal of Undergraduate Research in Physics*, sponsored by SPS and published by Guilford College for SPS and AIP, entered its fifth year of publication. The journal encourages undergraduates to publish results of their research and provides a forum for undergraduate concerns. Start-up costs were supported through a grant from AIP, and the journal has been self-supporting for the past four years.

With government. AIP continued to send PHYSICS TODAY to all members of Congress, thus alerting them to important developments in physics and the physics community. The institute participated in activities of such organizations as the Council of Engineering and Scientific Society Executives, the National Federation of Abstracting & Information Services, the International Union of Pure and Applied Physics, the International Council for Scientific and Technical Information, the Association of American Publishers, the American National Stan-

Subscription-fulfillment billing statistics for 1986

	Number of invoices	Number of subscriptions	Value of billing*
Members billed			
Spring	37 000	24 000	\$ 2 800 000
Fall	32 000	18 000	2 100 000
On membership (included in dues)	—	173 000	—
Nonmembers billed			
Subscription agency	9 100	44 600	19 100 000
Direct to AIP	3 100	34 000	9 600 000
Total	81 200	293 600	\$33 600 000

* Includes dues



Offices at 140 East 45th Street in New York City provide room for expansion of Headquarters activities. Pictured here are Arnold Schweitzer, standing in the doorway, Susan Wasoff and Robert Finnegan of the Advertising Division.

dards Institute, the Commission on Professionals in Science and Technology, and the Association of Information and Dissemination Centers.

With employers. The Career Placement Division (formerly called the Manpower Placement Division) conducted placement centers at the January AAPT-APS meeting in Atlanta, at the March APS meeting in Las Vegas, at the spring MRS meeting in Palo Alto, at the spring APS meeting in Washington, at the summer AAPT meeting in Columbus, at the APS Division of Plasma Physics annual meeting in Baltimore, and at the fall MRS meeting in Boston. At these centers the ratio of jobs to applicants remained about the same as the previous year's average of $1\frac{1}{2}$ applicants per job. A survey of employers participating in the 1985-86 placement centers revealed that 160 applicants were either hired or offered positions as a result of contacts made at the centers. (About 750 applicants are registered in the employment referral service.) A new form meets the special needs of BS and BA degree recipients, who were not well served by the form for PhD physicists. A new resume form allows registrants to identify clearly their interests and areas of concentration. About 2800 copies of the *Summary of Open*

Positions and the accompanying newsletter to chairs and employment information officers of physics departments are distributed each month. The announcements in the *Summary* are also advertised on Pi-NET, and have proven to be very successful. The division provided some personal career counseling, including programs for the physically handicapped.

Information services

Timely information services are direct byproducts of the AIP publishing efforts. Computer-based typesetting allows the original keyboarding to produce not only the article title, authors and abstract published in the journal, but also the information for the journal's table of contents; for the journal's subject and author indexes, both annual and cumulative; for the semimonthly *General Physics Advance Abstracts*, which contains abstracts of articles to be published in AIP and member society journals; and for the semimonthly SPIN tape, available for on-line searching throughout the world. *Current Physics Index*, a quarterly retrospective abstracts journal, and its annual index are both derived from the SPIN tape. Selected items are also computer processed on a semimonthly schedule for the US Department of Energy's

Energy Research Abstracts. The complete AIP data base is sent to the German Fachinformationszentrum Energie, Physik, Mathematik (FIZ) to become part of the abstracts journal *Physics Briefs*.

Chemical Abstracts Service and FIZ are engaged in a joint enterprise known as Science and Technology Network International, a computer network linking CAS in Columbus, Ohio, with FIZ in Karlsruhe, West Germany. The AIP tapes that are sent to FIZ become part of PHYS, a database available on STN International. Users throughout the world can connect their computer terminals to the system through their local telephone systems, thus giving physicists easy and economical access to physics information on PHYS and to a wide variety of other literature available from CAS and FIZ.

Two new electronic services were successfully instituted in 1986. In April the physics information network Pi-NET went on line. This copyrighted electronic database service was developed by AIP as an on-line source of selected AIP and society information for the physics community. It is free to members of AIP member societies. In August Pi-MAIL was instituted to serve the entire physics and astronomy community. This new electronic mail service operates on Telenet's Telemail system. There is no registration fee or monthly charge; users pay only for access charges and connect time. In addition to accepting major credit cards, Pi-MAIL also allows payment through institutional accounts.

In the History Center's Niels Bohr Library, the cataloging and indexing work needed to produce a guide to the archival collections was completed under a grant from the Dannie Heineman Foundation. A number of preliminary computer printouts were produced that have already proved useful to library users. Meanwhile the most used resource in the library, its collection of photographs, was enhanced with the incorporation and cataloging of several thousand pictures from the PHYSICS TODAY files, along with gifts from a number of individual donors.

Finances

The significant increase in 1986 assets on the balance sheet results from increased revenue.

Net revenue from operations amounted to \$1 152 455 and net investment income amounted to \$2 743 538, producing a total 1986 revenue of \$3 895 993. The large investment income resulted from the liquidation of two aggressive equity portfolios. The total net revenue was used to build up our liquid reserves. □