

AIP in 1973—a year of publishing



The Annual Report of the American Institute of Physics, 1973

A year of publishing—this is how the American Institute of Physics would characterize 1973 if asked to summarize its many-faceted activities during that year in a single phrase. This may seem surprising, when some such statement as “publishing is still the major business of the Institute” has become a cliché in these annual reports. But in 1973 the number of interlocking trends and changes in AIP programs connecting in some way with publishing activities was unusually high. Examples range from expected to unexpected changes and include instances involving the publishing effort both directly and indirectly.

Of direct impact was the expected withdrawal of National Science Foundation funding of AIP's computer-based information-indexing system; also expected, and with a direct effect on the publishing program, was the surmounting of problems in our subscription-handling system. Unexpected developments were the emergence of copyright questions and important issues on the international publishing scene. Unexpected as well was the rapidity of acceptance of the AIP's new Conference Proceedings series. A continuing negative trend, the apparent lack of support from many of our societies for AIP involvement in non-publishing activities, had the result of further increasing the relative emphasis on publishing in comparison with these other programs. Let us review these developments and the effects they have had, and will continue to have, on AIP's role as a publisher.

For five years AIP has been receiving substantial NSF funding—of the order of one million dollars per year—to design and test our communications systems in physics publishing. With this money we developed computerized secondary services, designed secondary journals and simultaneously improved the primary journals, making up an integrated system. As prerequisites for computerization a common classification scheme was drawn up to organize all physics and astronomy literature, the primary-journal operations were made computer-compatible and greater standardization of journal size and printing techniques was achieved. Among the indirect results was the realization that such coupling and coordination enabled the formerly independent journal operations to add up to more than the individual parts; in fact, what they add up to is a user-oriented information system.

In 1973 AIP, as expected, reached the end of the period of large grant allocations. It became, therefore, a year of deci-

sion for the Institute and its societies. Should we continue, alone, the work on physics communications systems started with NSF support? Would such a plan be financially viable? The prospects appear good; the plan is viable, and the operation is growing.

Essential to the publishing program is an effective journal-distribution system. Major problems in 1972 and early 1973 with the subscription-handling procedures had to be overcome. These are now largely past, and we have a well monitored system for distributing the journals, which is being improved further with the two aims of lower costs and a fail-safe performance.

Unexpected developments during the year were the emergence of the copyright issue, partly the result of the signing of the Universal Copyright Convention by the USSR during 1973 and the temporary halt of negotiations with the Institution of Electrical Engineers that aimed for joint secondary information products. However, there is reason to hope for eventual agreement with IEE; the relationship proposed by AIP to IEE appears to be a natural consequence of the operations of these two complementary and compatible organizations.

The Institute's work in such nonpublishing areas as public education, manpower activities and student programs has traditionally been financed through a number of sources. Among these are support from outside grants and from AIP income including parts of that from Corporate Associates dues, net income from some publishing, and the \$1-per-year member assessment charge from the societies. Most of these sources have diminished noticeably in recent years; the assessment charge shows no signs of being increased even after months of discussion. Accordingly, prospects for AIP programs of a community or professionally-oriented nature do not appear promising. On the other hand, the societies are feeling increased pressure from their memberships to be identified more directly with such programs. The future role for AIP in these areas may well be like its role in the societies' publishing programs, with the full-time staff of AIP supplying the services necessary to accomplish the programs adopted by the individual societies on behalf of their memberships—as is now being done for APS in the manpower division.

The effect of these various trends on the AIP publishing activities is to expand an operation that already publishes more pages in primary research journals in a single science discipline than any other in the world. With its modernization, by computerization and micropublishing methods, the program is being increasingly used as a model by other disciplines, by other institutions, and in other countries.

This success is due in no small measure to the dedication and conscientiousness of the AIP staff and the support supplied by society officers and members through various AIP committees. These various contributions are gratefully appreciated and hereby recognized.

Publishing

The costs that all publishers must meet rose sharply in 1973, with the result that AIP's publishing program—which continued at substantially the same volume as in the previous year—had to be examined at all points for possible economies. Most of the changes that took effect during the year, or were planned for 1974, were made for this reason. Unfortunately, the savings achieved, though substantial, were not sufficient to meet cost increases, and higher subscription prices in 1974 are necessary to balance budgets. The major organizational change during the year was the merger of the physics-information division into the publications division (in September): When NSF support for physics-information activities came to an end, the staff of that division was appropriately reduced, and its work moved from development to production.

Paper—its availability and cost—became a major problem. The paper grades most popular for journals were in short supply, and when available they cost from 50% to 100% more than in 1972. Shortages appear likely to continue through 1974 and prices are bound to remain high.

To help counteract increased costs, certain economies have been effected in journal production. *The Journal of Chemical Physics* was switched from monotype to typewriter composition in midyear; *Physical Review A*, already typewriter composed, was removed from an outside supplier to AIP's Brookhaven publishing office, and composition of *The Journal of the Acoustical Society of America* by typewriter is planned to start in January 1974. Parts of *The Physics Teacher* and *Journal of Mathematical Physics* are typewriter composed at the New York City office, as are *Journal of Applied Physics*, *Applied Physics Letters*, *Bulletin of The American Physical Society*, and most of *Bulletin of the Astronomical Society of America*. Computer photocomposition (at costs comparable with typewriter composition) was tried with some articles in *The Physics of Fluids*, and that journal together with *Reviews of Modern Physics* will move completely to this method in 1974. Other journals will probably follow their lead later in 1974.

Economies can also be made by achieving greater standardization among the journals, with the added

American Institute of Physics, Inc

Balance Sheet

ASSETS

Operating Fund

Cash in banks and on hand		\$ 544 223.09	
Fixed time deposits	\$ 800 000.00		
Add: Accrued interest receivable thereon	3 788.42	803 788.42	
Other time deposits		21 081.84	
Due from member societies:			
Acoustical Society of America	\$ 32 735.57		
American Association of Physics Teachers	16 699.68		
American Crystallographic Association	13 247.06		
American Association of Physicists in Medicine	5 826.48	68 508.79	
Sundry debtors		1 495 377.86	
Deposits		5 075.00	
Deferred charges:			
Composition costs applicable to 1974	\$ 171 250.40		
Printing costs applicable to 1974	30 007.75		
Translation costs applicable to 1974	18 624.00		
Information grant costs applicable to 1974	79 892.17		
Computer installation expense	135 871.53		
Leasehold improvements	46 838.99		
Stationery, office and printing supplies—inventory	18 055.60		
Prepaid insurance	5 596.24		
Prepaid postage	4 949.60		
Other deferred charges	41 570.87	552 657.15	\$3 490 712.15

Special Purpose Funds

Karl Taylor Compton Fund:			
Cash	\$ 560.98		
Investments—mutual funds	11 003.94	\$ 11 564.92	
John T. Tate Memorial Fund:			
Cash	\$ 591.96		
Investments—mutual funds	17 754.50	18 346.46	
Albert A. Michelson Memorial Fund—Cash		1 448.72	
Meggers Coin Collection—appraised value	\$ 49 942.75		
Less: Expense of coin collection (Due to operating fund)	4 745.67	45 197.08	
Meggers Memorial Fund—Cash		3 414.51	
Friends of the Center for the History of Physics Fund:			
Cash	\$ 5 614.89		
Investments	303.75		
Add: Due from operating fund	5 918.64	40 929.37	
	35 010.73		
Sigma Pi Sigma Trust Fund:			
Cash	\$ 57.09		
Investments	19 966.94		
Accrued interest receivable	112.24	20 136.27	
Investment Advisory Account:			
Investments—at cost (Market value—\$636 454.75)	\$ 526 258.24		
Cash	4 325.49		
Accrued interest receivable	1 611.32		
Less: Fee due Bankers Trust Company	532 195.05	529 765.14	
	2 429.91		
Amounts due for funds expended for special projects for the account of others		177 164.73	
Due from operating fund		409 295.36	1 257 262.56

Property and Equipment Fund

Land		\$ 266 535.36	
Building	\$1 384 539.48		
Less: Accumulated depreciation thereon	701 146.87	683 392.61	
Furniture and fixtures	\$ 369 587.41		
Less: Accumulated depreciation thereon	273 886.30	95 701.11	1 045 629.08
			\$5 793 603.79

LIABILITIES

Operating Fund

Trade accounts payable	\$ 891 088.37	
Commissions payable	15 612.16	
Accrued interest payable	1 157.90	
Advertising rebates payable	3 416.43	
Payroll taxes payable	36 214.61	
Sundry creditors	53 399.10	
Due to member societies:		
The American Physical Society	\$ 271 072.36	
Optical Society of America	27 137.84	
Society of Rheology	7 918.42	
American Astronomical Society	3 553.37	309 681.99
Due to affiliated society:		
American Vacuum Society		27 552.91
Deferred credits:		
Subscriptions received applicable to		
issues of journals to be published		
subsequent to December 31, 1973	\$1 638 106.29	
Dues—corporate—year 1974	50 801.00	
Dues—Society of Physics Students—1974	12 512.50	
Sundry receipts—re 1974 activities	126 432.83	
Other deferred credits	165.57	1 828 018.19
Due to special purpose funds		439 560.42
Accumulated income (deficit)		(114 989.93)
		<u>\$3 490 712.15</u>

Special Purpose Funds

Karl Taylor Compton Fund	\$ 11 564.92	
John T. Tate Memorial Fund	18 346.46	
Albert A. Michelson Memorial Fund	1 448.72	
Meggers Fund	45 197.08	
Meggers Memorial Fund	3 414.51	
Friends of the Center for the History of		
Physics Fund	40 929.37	
Sigma Pi Sigma Trust Fund	20 136.27	
Amount received for special projects for		
the account of others (net after		
expenditures thereon)	246 844.79	
Reserve for replacement of building	719 380.44	
Publications reserve	150 000.00	
		<u>1 257 262.56</u>

Property and Equipment Fund

Mortgage payable, 5 $\frac{5}{8}$ % due November 1,		
1977, amortization quarterly	\$ 123 509.55	
Property and equipment capital	922 119.53	
		<u>1 045 629.08</u>
		<u>\$5 793 603.79</u>

Audited by Conroy, Smith & Company, Certified Public Accountants

advantage that adequate quality standards are then easier to maintain. Planning for page-size and layout changes due to take effect in 1974, together with work toward a revised edition of the Style Manual, went forward during 1973 with standardization as the aim.

The cost-control procedure that impinges most directly on authors and readers, however, is still the system of limiting the numbers of pages that are published without receipt of publication charges from the authors' institutions. This number is determined by the subscription price and production cost for each journal. As percentages of the total pages published, these numbers work out to be: *Applied Physics Letters*—10%; *Journal of Applied Physics*—15%; *The Journal of Chemical Physics*—15%; *The Physics of Fluids*—15%; *Review of Scientific Instruments*—15%, and *Journal of Mathematical Physics*—20%. Journal editors have, in previous years, accepted more nonpaying papers for publication than the budget allows for (except in the case of *Applied Physics Letters*) and such papers are, therefore, subject to an additional delay. During 1973 the delay held approximately constant at five or six months for *Journal of Applied Physics*, *The Physics of Fluids* and *Review of Scientific Instruments*, while it decreased from 14 to 7 months for *The Journal of Chemical Physics* and increased from 14 to 22 months with *Journal of Mathematical Physics*. Presumably some would-be *The Journal of Chemical Physics* authors are finding alternative publications (without page charges), whereas *Journal of Mathematical Physics* authors have no such alternative. To keep papers in the *Journal of Mathematical Physics* reasonably current, it will be necessary to allow for more nonpaying papers, and the subscription price will, therefore, have to be increased for 1975. Most of the journals published by AIP for its member societies were delaying nonpaying papers for the same reason by up to seven months at the end of 1973.

New publications and services planned in 1973 to start in 1974 are: *Medical Physics*, a quarterly journal to be published by AIP for the newest member society, the American Association of Physicists in Medicine (which will simultaneously discontinue its *Bulletin*); *Chinese Physics*, translated from *Acta Physica Sinica*, which is resuming publication in Peking after a lapse of some eight years; and *Current Physics Reprints*, a single-copy reprint service through which physicists can order reprints of articles from *Current Physics Advance Abstracts* in advance of journal publication (to arrive at about the same time libraries get their



Composer at the keyboard. The "head" of this physics article, here being typed onto a cassette recording tape via a DATAPOINT video editing terminal, will be composed by computer typography to appear in one of the AIP-published physics journals.

own copies of the primary journals).

Products derived from the Current Physics Information data base of secondary information now constitute a routine part of the publication division's activities. The data base itself is assembled as a byproduct of primary journal composition; "heads" of articles (title, abstract, authors and date) and "tails" (footnotes and references) are computer photocomposed in one operation to meet the dual requirements of the primary journals, where they appear in printed form in their usual place with the article text, and the data base, into which they are entered in digital form on magnetic tape. The data base also contains similar entries from about thirty of the most important non-AIP physics journals. Cost factors will lead to the elimination of "tails" from the data base in 1974.

Once assembled, the data base is sold "as is" (the monthly "SPIN" tapes) and also used to derive the three monthly classified titles listings (*Current Physics Titles*) and journal indexes. Many of the 1973 indexes were not produced in time for inclusion in December issues, as hoped, but a systems redesign will have the 1974 indexes produced issue-by-issue throughout the year. The major aspect of this systems redesign is the physical relocation of the computer terminals (stand-alone 8k DATAPOINT video editing terminals with cassette recording tapes) into the various Editorial Sections to allow for the closest possible integration of editorial and production functions with copy editors and computer typists working side by side.

Closely related to this information-processing work is the further develop-

ment of AIP's *Physics and Astronomy Classification Scheme*. The 1974 version of this scheme, scheduled for appearance during 1973, was held up by last-minute efforts to reach agreement with other secondary services in Europe on a worldwide common classification system. Now rescheduled for March 1974, this version of the scheme will be followed by the 1975 version in the late summer of 1974.

Current Physics Advance Abstracts, produced from author-composed abstracts, was expanded during 1973 to cover more journals than formerly (now including those designated "Europhysics Journals" by the European Physical Society), and it appeared on schedule or even ahead of schedule throughout 1973.

For the second year all AIP-published journals appeared in the microfilm version called *Current Physics Microform*. Subscriptions to this service increased, following promotion and demonstrations of the program at the Annual Physics Show in New York and the Annual Meeting of the Special Libraries Association in Pittsburgh. Sales of "archival microfilm" (back issues of AIP-published journals) increased also, exceeding the 1974 sales by 85%. A special discount rate was offered to those institutions that purchased the complete backlist of AIP publications on microfilm—a 1973 innovation that will continue in 1974.

The AIP Conference Proceedings series has moved into the black: Volumes 10 through 15 were published during 1973, and nearly 200 libraries have taken standing orders.

Efforts to develop a working agreement for joint production and marketing of secondary-information products

with the Institution of Electrical Engineers, the British organization that publishes *Physics Abstracts*, ran into unexpected difficulties during 1973 and came to a halt. Both sides in the dispute have expressed the hope that the breakdown in negotiations represents only a temporary delay. Meanwhile AIP has discontinued its marketing operation of IEE products (*Physics Abstracts*, *Current Papers in Physics* and the INSPEC tape service) in the US.

Several matters were encountered during 1973 connected with copyright policy. One relates to the wholesale use of AIP abstracts taken verbatim from its journals, which violates AIP's copyright. Another, and quite different matter, comes about by virtue of the fact that the USSR has signed the Universal Copyright Convention. As a result, AIP is negotiating for its member societies and itself to obtain royalty payments from the Soviets for their photocopying and translations of AIP and society journals, and conversely to obtain rights to translate Soviet journals from Russian to English.

Together with other professional societies, AIP cosponsored a study, "Omnibus Copyright Revision—Comparative Analysis of the Issues," conducted by the Cambridge Research Institute, to examine current copyright law and make recommendations for revision. Steps are currently being taken to develop a uniform copyright policy for AIP and its member societies that could protect the property rights represented by the journals.

Subscriptions to *PHYSICS TODAY*, AIP's news magazine for physicists, climbed to 62 500 in 1973. In addition to commemorating its 25th anniversary in the May issue, *PHYSICS TODAY* published three other special issues during the year: "Astrophysics," "Nuclear Energy," and "Superconductivity," the latter featuring the Nobel Prize speeches of J. Robert Schrieffer, Leon N Cooper and John Bardeen. A new service for AIP member societies was begun in *PHYSICS TODAY* with the regular publication of an "APS News" page; the magazine offers to edit and publish news for any member society at a fixed rate per page. Society news of more general interest will continue to appear in "Physics Community."

PHYSICS TODAY, one of eight publications carrying advertising sold by AIP's advertising division, carried 11% more advertising pages in 1973 than in the previous year. Total pages sold by the division amounted to 1364 for the eight publications, a slight increase over the 1972 figure of 1348 pages in nine publications. In addition the Spring and Fall programs of the Acoustical Society of America carried 37 advertising pages. This division also sold and supervised three scientific-instrument

shows for member and affiliated societies.

Education

The Institute's education activities continued throughout 1973 to provide services for physics educators at the maximum level possible consistent with the severe curtailment of funds. The programs of this division include a consulting service (supplemented by an information pool), the Tech Physics program (a curriculum project) and the Society of Physics Students.

The consultants program, supported by a National Science Foundation grant, provides information and advice on various problems in undergraduate physics education both to individual faculty members and to physics departments at colleges and universities through the US. Assistance is made available by letters, telephone calls and campus visits.

The AIP information pool in education is an important supplement to the consultants program. Operating under partial NSF support, the information pool is both a library and a document source for such things as conference reports, reports on educational studies, journal articles and computer programs related to undergraduate physics education. From this collection, continuously updated and expanded as new items become available, some 1200 requests for material were filled during 1973.

The Tech Physics program continues to show progress, with support from NSF grants to four regional centers where this major curriculum project is producing instructional materials in modular format for the teaching of physics to prospective technicians at community colleges and technical institutes. Each module uses the operation of a technological device to illustrate basic physics principles; the devices range from toasters to photometers. Modules are in the final field-testing and rewriting stage. Negotiations are underway with publishers and equipment manufacturers to make the modules available for classroom use. A project director and a steering committee, sponsored by AIP, coordinate the efforts of centers at Binghamton, N.Y., Cambridge, Mass., Oak Ridge, Tenn. and St. Louis, Mo.

The Society of Physics Students continued its vigorous program with about 4500 active members at more than 450 campus chapters. Sigma Pi Sigma, the physics honor society within SPS, is now active on 270 campuses; its alumni, many of whom continue to support the Society with annual contributions, number almost 40 000. The 1973-74 SPS Chapter Resource Book was published to provide a nationwide listing of sources for speakers, labora-



Last-minute check. The Anniversary Calendar, produced by the Center for History of Physics for The American Physical Society and distributed to all APS and SPS members, here undergoes final approval as original photographs are compared with page proofs.

tory tours and films about physics.

Both APS and AAPT offered combined memberships with SPS for 1973. Eleven SPS chapters, working in cooperation with the national office, arranged regional meetings that supplemented SPS programs held at two of the national meetings of AIP societies. Marsh W. White Awards were created to provide grants to SPS chapters for "projects designed to promote interest in physics among students and the general public," and the Bendix Corporation continued its practice of the last eleven years of supporting student research projects by awarding, in 1973, a total of \$3000 to 14 SPS chapters.

Manpower

The activities of AIP's manpower division were carried out in 1973 against the background of a somewhat improved employment situation for physicists—unemployment in the profession was down to 1.5% after having reached 3.9% in 1971. Programs of this division include the operation of the placement and doctoral employment-information services, collection and analysis of statistics for the APS-AIP "Register of Physicists and Related Scientists" and the APS *Roster of Women in Physics*, and the four annual surveys of physics enrollments and degrees, bachelor's-degree recipients, graduate students and employment of new graduates.

Registration in the year-round employment-referral service of the division's placement program reached a peak of 1500 in the Fall. Of these, 17% were unemployed. More than a dozen searches per month were made through the file on behalf of employers with specific job openings, and quar-

terly listings of academic openings were distributed. The number of academic openings listed in November 1973 showed a substantial increase from the previous year, but the academic job market is still very slim. As usual, special placement registers were held at the APS-AAPT joint meeting, in New York, and the APS meeting in Washington; there was no marked change in the number of employers participating compared with the previous year.

The APS doctoral employment information service, an expansion of the physics postdoctoral information pool operated in previous years, provides institutions with data covering areas of specialization, years of experience and qualifications of candidates for employment. Differences between this service and the information pool it replaced include a lifting of the restriction to postdoctoral and junior faculty positions, and a more extensive indexing and cross referencing of the nine resource volumes supplied to employers to help them select candidates with a specific competence. Individual enrollment is over 600 and continues to grow; of the academic institutions using the service, 173 have received the complete nine-volume set of resource books and 20 have one or more volumes of it.

In February, questionnaires for the APS-AIP "Register of Physicists and Related Scientists" were mailed to all AIP society members and additional physicists. More than 50 000 of them were returned. Data obtained from these questionnaires are divided into two types: directory information (names, addresses, etc.) and statistical information (salaries, subfields, society

Summary Statement of Operations—Year Ended 31 December 1973
Including Activities Carried on for Member Organizations

Income	Total	American Institute of Physics, Inc	For Account of Member Societies
Subscriptions	\$ 3 811 728.48	\$2 110 141.74	\$1 701 586.74
Contributions for the Dissemination of Research Information	3 632 840.27	1 364 602.74	2 268 237.53
Reprint Sales	204 608.64	82 044.38	122 564.26
Back Number Sales	266 332.26	167 541.69	98 790.57
Microfilm Sales	207 883.20	93 877.20	114 006.00
Advertising	692 630.47	560 242.65	132 387.82
Contributions from Member Societies	60 989.00	60 989.00	—
Corporate Associates Dues	101 005.00	101 005.00	—
Income from Investments	120 680.45	120 680.45	—
Income from Special Projects, Administrative Fees, Royalties, etc.	2 320 450.85	2 320 450.85	—
Miscellaneous Income	100 932.40	100 932.40	—
Other Receipts for Accounts of Member Societies	2 142 483.21	—	2 142 483.21
Total Income	\$13 662 564.23	\$7 082 508.10	\$6 580 056.13
Expenses			
Printing, Illustrations and Mailing Journals	\$ 3 899 892.23	\$1 571 811.63	\$2 328 080.60
Printing and Mailing Reprints	90 829.02	36 208.87	54 620.15
Handling Costs—Reprint Sales	43 081.46	16 951.64	26 129.82
Expense re Dissemination of Research Information	325 705.23	136 575.10	189 130.13
Back Numbers, Reprinting, Handling and Distribution	69 378.44	31 163.92	38 214.52
Microfilm Production, Handling and Distribution	84 975.75	36 877.34	48 098.41
Translation, Composition, Printing and Mailing Soviet Journals	915 477.92	803 308.29	112 169.63
Advertising—Printing, Distribution and Selling	331 118.79	274 675.62	56 443.17
Editorial and Editorial Mechanics	1 395 003.68	801 836.47	593 167.21
Marketing	22 634.54	22 141.61	492.93
Corporate Associates Expense	18 588.70	18 588.70	—
Subscription Handling	622 618.64	337 982.04	284 636.60
Administrative and Organizational Services	923 247.17	923 247.17	—
Special Projects	2 138 625.34	2 138 625.34	—
Other Disbursements for Accounts of Member Societies	678 773.84	—	678 773.84
Total Expense	\$11 559 950.75	\$7 149 993.74	\$4 409 957.01
Net Charge to Societies to Balance Accounts	2 170 099.12	—	2 170 099.12
	\$13 730 049.87	\$7 149 993.74	\$6 580 056.13
Net (Expense) Transferred to Accumulated Income	(\$ 67 485.64)	(\$ 67 485.64)	

activities, demographic background ...). A computer tape containing the first kind of data is now available to societies for directory construction. The other data, containing statistical details, have been used to obtain preliminary figures on unemployment, minority-group participation, salaries and distribution of physicists by subfield and type of employer. More detailed analysis will continue through 1974.

The manpower-statistics section conducted its four annual surveys: Survey of Physics Enrollments and Degrees; Survey of Physics Bachelor's Degree Recipients; Graduate Student Survey, and the Employment Survey (a follow-up of 1973 physics-degree recipients entering the job market for the first time). The combined distribution of the summary reports of these surveys exceeds 17 000 each year. Particular requests, by telephone and mail, again exceeded 1000 in 1973 and ranged from inquiries about enrollment data for a particular region of the US to questions concerning minority groups among physicists.

Among the publications of the manpower division issued in 1973 were: a supplement to the *Roster of Women in*

Physics published for APS; the book *Physics Manpower 1973*, which contains updated material, including 1972-73 education data as well as a new section on employment information about minority groups; and the 1973-74 edition of the *Directory of Physics and Astronomy Faculties*.

Public information

In its regular program the Institute's public-information division works with science journalists of the press, radio and TV, responds to direct inquiries and requests from the general public, organizes the annual science-writing awards and prepares an annual popular summary of some advances in physics for the past year. Special activities with outside groups have included the TV film project, the Weekly Science Series, and participation on programs of the National Association of Science Writers and the APS.

The division's services to science writers consist of lay-language versions and press releases of papers published in AIP journals, and, at society meetings, lay-language summaries of selected papers together with press conferences and provision for interviews with

physicists when requested. During 1973 more than 130 press conferences were arranged at society meetings; the largest number took place at the January APS-AAPT meeting and the APS Washington meeting, but the APS solid-state meeting in San Diego and the ASA meetings in Boston and Los Angeles attracted good attention from the press also.

Thousands of students write annually for career and other information. Those requests that cannot be answered by brochures and career booklets are referred to AIP staff or to physicists elsewhere.

For the sixth year the US Steel Foundation gave its support to the Science Writing Awards in Physics and Astronomy. In the category for writing by a journalist the 1973 winner was Edward Edelson, science editor of the New York *Daily News*, for his five-part series "The Mystery of Space." The winner in the category for writing by a scientist was Banesh Hoffmann, professor of mathematics at Queens College, for his biography "Albert Einstein, Creator and Rebel."

Physics in 1973, like its nine predecessors, was assembled to provide a

summary of work in physics during the year. Not intended as an all-inclusive compendium, it is aimed at giving science writers and editors a précis of many of the newsworthy developments of the year. For the first time all member societies were formally invited to participate in the preparation and selection of the material to be included.

"The Weekly Science Series" is a cooperative effort on the part of the American Institute of Physics, the American Association for the Advancement of Science, the American Psychological Association and the American Chemical Society. Each group supplies one or two brief stories per month for distribution to editors of some 350 weekly newspapers throughout the nation.

The film "Birth and Death of a Star" was released during January 1973. This is the first of two films to be supported by the National Science Foundation and produced by TV station KCET-Channel 28 in Los Angeles under the sponsorship of AIP. It was twice distributed to all 138 public-television stations by the Public Broadcasting System, and shown by nearly all of them the first time; more than 60 showed it a second time and some have presented it three times. At the end of the year arrangements were being concluded to have the film distributed for both sale and rental by a commercial distributor. It is particularly gratifying to note that this film was transmitted by NBC to its 131 affiliate stations for public-service broadcast and that it was requested for showing at the 1973 Congress of the International Astronomical Union.

History of physics

During 1973 the resources of the Center for History of Physics were used in several new ways to increase understanding of the development and applications of twentieth-century physics. This year's activities included a project to make the historical materials in the Center's Niels Bohr Library more accessible to educators and to others concerned with public understanding of science, documentation of postwar physics in the US, and increased services to help AIP member societies in their historical activities. These activities—together with the Center's continued work with exhibits, publications, the oral-history program, and the enrichment of the Niels Bohr Library collections—attracted some much needed financial support from foundations, industry and individuals through the Friends of the Center for History of Physics to supplement the basic AIP support of the Center.

The project to make historical resources more accessible for educational

and public-understanding purposes was initiated in July through the support of the Friends of the Center and received new impetus at the end of the year by a grant from the National Science Foundation. The project draws upon original historical materials to illuminate the human and social aspects of the development of recent physical science. These materials (including tape recordings, illustrations and archival documents) are being selected, organized for presentation on audio-tape cassettes and related booklets and slides. The NSF grant supplements support for the project provided by the AIP and by the Heineman Foundation through the Friends of the Center.

Physics in 1922, an exhibit prepared by the Center in 1972 for the International Union of Pure and Applied Physics, continued its tour; it was viewed at 13 educational institutions and was duplicated for permanent display by several departments of physics in 1973. Center staff presented invited talks at 14 universities and professional societies in 1973. Publications during the year included: "How the Transistor Emerged" (*IEEE Spectrum*, January 1973); "Physics Today and the Spirit of the Forties" (*PHYSICS TODAY*, May 1973); two issues of the Center's *Newsletter* received by more than 3000 readers, and a feature in *Applied Optics*.

As part of its services to AIP member societies, the Center prepared an historical calendar for APS to commemorate its 75th anniversary in 1974. Historical photographs and documents used throughout the calendar provide glimpses into the world of physics since the society was founded in 1899; the

calendar was distributed by the society to its entire membership and to members of SPS. Staff of the Center continued to provide assistance to AIP member societies in preserving their historical records and in planning historical sessions at national and regional meetings.

The collections of the Center's Niels Bohr Library were enriched during the year by deposits of historical source materials, including personal papers of physicists, tape recordings of talks and collections of candid photographs. The Center continued to assist physicists and their families in arranging for the preservation of historically significant records. Oral-history interviews were initiated with five physicists and interviews with five others were continued in 1973.

The Center extended its preservation activities by initiating a project to document post-World War II developments of physics and astronomy in the US. It will focus on the search for historical source materials, particularly in those fields that have grown rapidly during the period, and arrange to place undeposited materials in appropriate archives.

Demands on the Center's collections and information resources through correspondence, telephone conversations and personal visits to the Niels Bohr Library increased in 1973, both in number and diversity. During the year, more than 150 individuals from 54 domestic and 7 foreign institutions did historical research at the Library.

The Council of Friends of the Center for History of Physics succeeded this year in obtaining contributions from individuals and industrial firms total-



Undivided attention. Members of the Society of Physics Students concentrate on the speaker during the SPS session of the APS-AAPT meeting in New York, January 1973.

ling over \$53 000. In 1974 the appeal will be extended to additional industries, individuals and foundations.

Fiscal branch

Operating problems encountered in 1972 in the subscription-fulfillment area produced a backlog of work in 1973. As a result, the processing of new members met with untimely delays. An overall effort, with additional temporary staff, was devoted to cleaning up the backlog, which was virtually eliminated by August 1973.

As a result of a motion passed at the Governing Board meeting in March 1973, an Advisory Committee on Dues Billing and Subscription Fulfillment, consisting of Board members, was charged with the responsibility of reporting periodically to the Board on AIP philosophy, policies, and procedures concerned with dues billing and subscription-fulfillment operations. One of the committee's recommendations, approved by the Board, was the hiring of a subscription-fulfillment consultant to make a work-flow study of the fulfillment operation. Accordingly, the consulting firm of McCaffery, Seligman and von Simson, Inc. was employed to undertake such a study, which started in December.

Renewal invoices covering dues and subscriptions for AIP member societies were handled differently in 1973 than in the past, when single, joint renewal invoices had been used for all member societies. Starting in 1973, a number of societies used separate renewal invoice mailings for 1974 in order to ask their members about specific society-related questions, to gather statistics and to solicit voluntary contributions. The Institute mailed such separate renewal invoices to members of The American Physical Society, the American Association of Physics Teachers, the Optical Society of America and the Acoustical Society of America. Traditional joint renewal invoices were mailed only to members of the Society of Rheology, the American Crystallographic Association, the American Astronomical Society, the American Association of Physicists in Medicine and the American Vacuum Society. Billing returns based on the 1974 renewal invoices are being processed smoothly, confirming that the subscription-fulfillment and data-processing operations for 1974 are running efficiently.

The workload of the fulfillment operation continued to be substantial. Dues billing and collection were performed for nine societies, and additionally for twelve divisions of two member societies. Approximately 58 000 member renewal bills were mailed, covering about 75 700 memberships and 56 600 billed member subscriptions, totalling some \$2 million. In addition, joint

nonmember renewal invoices were mailed to about 17 000 subscribers, covering about 80 000 subscriptions totalling almost \$4 million. In 1973 about 21 000 orders were processed for back numbers, covering a total of approximately 75 000 copies of publications and microfilm editions.

The data-processing division has accomplished its goal of updating the subscription-fulfillment records on a weekly basis. The second shifts added to the data input and computer-operations sections for this purpose have been a marked success; throughput is increased and turnaround time reduced. Approximately six million mailing labels for publications and other mailings were produced by this division.

The accounting division disbursed approximately \$20 600 000 (including short-term investments) in over 22 000 checks in 1973. More than 900 financial statements were issued, and accounts were maintained for nine societies, 59 publications, 47 organizational units, 10 grants and 20 special projects. In addition, approximately 13 500 publication-charge and reprint orders, covering 20 journals, were processed, resulting in a billing of about \$3 750 000.

The office-services division produced approximately seven million impressions, including offset journal reprints, through its reproduction facilities. The Institute's mailroom handled about one million pieces of mail.

Administration and special activities

The Institute's membership in 1973 consisted of eight member societies, 16 affiliated societies, approximately 50 000 individual members of member societies and about 4500 student members of the SPS. The society that became the eighth member society in the AIP federation is the American Association of Physicists in Medicine, elected in March. AIP Corporate Associates numbered 91, down from 100 in 1972. Total AIP staff at the close of the year numbered approximately 350 in five locations (one fewer location than in the previous year, because of the closing of the Washington office).

A major committee activity in 1973 was that of the AIP Long-Range Planning Committee. The committee was formed in 1972 to reexamine both the missions of the Institute and its relationships to the public and to the constituent societies. The committee in turn created four subcommittees to focus on major issues bearing on the work of the Institute: (1) Charter, Purpose, Membership, and Governance; (2) Intersociety Communications and Public Relations; (3) AIP Finances, Programs and Operations, and AIP-Society Relationships, and (4)

AIP Locations. Committee and subcommittee deliberations yielded a draft report that was the principal topic of discussion at the AIP Assembly of Society Officers, 15-16 November. A revised version of the report of the Long-Range Planning Committee will be submitted to the AIP Governing Board at its March 1974 meeting.

In response to a recommendation of one of the subcommittees of the Long-Range Planning Committee, AIP's Corporate Associates meeting in 1973 was held separate and apart from the Assembly of Society Officers. It was held on 2-3 October, with its principal aim to promote a dialogue between those in industry and those in universities for the purpose of encouraging interaction on topics of mutual interest.

Another committee, active early in the year, was the AIP Ad Hoc Committee on Physics and National Problems. In March, the committee met with Guyford Stever, head of NSF, whose duties incorporate those of President's Science Advisor, on the linkage the societies can provide the government both as channels of communication and for mobilizing scientific effort toward solution of national problems. As responses to the two broad areas of interest that emerged from this meeting, a July subcommittee report (submitted informally to NSF) proposed ways for improving the interaction between industrial and academic institutions in physics, and a recommendation was made for a summer study on energy problems, which the APS agreed to undertake. While AIP has found it necessary to decrease certain activities dealing with issues involving physics and society that it pioneered, these are being pursued by the member societies.

Among the awards made in 1973 was that of the Dannie Heineman Prize for Mathematical Physics, which AIP administers in cooperation with APS. It was presented to Kenneth G. Wilson, on 31 January 1973, for his studies of scaling behavior in quantum field theory and statistical mechanics, as an example of outstanding work in the field of mathematical physics.

Finances

The Institute ended the year 1973 with a net expense of \$67 486; details can be seen on the accompanying Summary Statement of Operations.

Total income, including activities carried on for member organizations, amounted to \$13 662 564, while total expenses amounted to \$13 730 050. The publishing operations accounted for the bulk of income and expense.

The total assets of the institute amounted to \$5 793 604, as reflected on the accompanying audited Balance Sheet. □