AIP in 1972—Planning for the future

The Annual Report of the American Institute of Physics, 1972.

The temptation to affix characteristic labels to a report of a year immediately past is too great to be denied. The Annual Reports of the American Institute of Physics bear such labels: 1968 was a year of "a nation in transition"; 1969 was a year of "too few employment opportunities"; in 1970 we saw "economic turmoil for science"; 1971 was remembered for "sobering reflection." What of 1972? What followed the recognition of the employment crisis, where did the economic turmoil leave us, and what was the result of the sobering reflection? As the accompanying Report will show, AIP in all its many programs has turned from reflection on the difficulties of the immediate past and can characterize 1972 as the year of "Planning for the future."

Some of these plans for the future were generated within the Institute; some had their origins elsewhere. In the second category were two reports from the National Academy of Sciences, both completed in 1972. "Physics in Perspective," the Physics Survey Committee Report, contained recommendations on how the profession might develop during the 1970's. AIP contributed substantially to the chapters on Manpower and Science Information. And the NAS report "Astronomy and Astrophysics for the 1970's" recommended programs by which astronomers and astrophysicists could capitalize on recent developments in their discipline. Also in 1972 the national election for the Presidency laid the basis for new science and technology policies not yet completely enunciated.

Within AIP and its member societies, plans for the future proceeded on two time scales. At the short-term scale, those in charge of day-to-day operation of ongoing programs had to change and modify their efforts in the light of changing circumstances, and at the other time scale committees were set up to look further ahead and lay plans for the more distant future.

Directors of the publications and information-services divisions A. W. Kenneth Metzner (left) and Arthur Herschman (right) talk with AIP's associate director for publishing and information, Robert H. Marks (second left) and AIP director H. William Koch.

Discussions evolving from AIP's Annual Assembly of Society Officers, which met in September, gave impetus to consideration of some programs on the short-term scale. At the Assembly, motions were presented for the formation of committees to concern themselves with such matters as physics and national domestic problems, postdoctoral fellowships and industrial internships, a symposium on problems in industrial science and technology, and a committee concerned with gathering data related to NSF support of physics, which could provide an early-warning system when changes were occurring. A particularly active committee, formed by the Governing Board in response to the discussions, was the AIP Ad Hoc Committee on Physics and National Problems. This committee's first thrust was to interact with the director of the National Science Foundation to identify problems that the physics community could assist in solving. On the matter of industrial internships, in 1972 the Institute gave considerable attention to a national program of industrial internships in physics and astronomy in proposals to NSF, revisions to which were still under way as the year closed.

Looking further ahead, a newly appointed Long-Range Planning Committee of AIP took on its assigned task of developing recommendations for the future of the Institute. At its meeting the Committee named the following as the areas it would consider: the locations of AIP offices; society memberships and AIP structure; finances; institutional memberships; AIP programs; minimum obligations to the community of societies on the part of any one society; the need for the societies and AIP to work more closely, and for the societies to couple with one another, for the joint development of new sources of income and to work on programs of mutual interest; and the need to bring universities into closer association with industries and with the federal government.

Also part of "Planning for the Future" is the further development of the physics-information program at AIP. No longer a separate research and development organization, the physics information division has now joined forces with the publications division to produce both the primary journals and the information products derived from them as an integrated, and more economical, operation.

The Institute's programs had to respond to the dual pinch of decreasing journal subscriptions and rising cost.

Submitted by the Director and accepted by the Governing Board of the American Institute of Physics as its annual report to the Member Societies of the AIP, 31 March 1973.

The necessary restrictions took effect most sharply in the areas of education programs, public information, and physics history—details will be found in this Report—and it is ironic that members of AIP societies were clamoring for more programs of just this type.

When the National Science Foundation discontinued funding for the National Register of Scientific and Technical Personnel, it was fortunate that APS agreed to provide some of the supplemental financial support required for AIP's manpower division to carry on the physics (and related sciences) section of the Register. APS is also helping to support other manpower programs, as AIP funds for this work decrease and other societies cannot provide assistance.

The Institute stands ready to serve the needs of its member societies and the physics and astronomy community they represent. With the approval of the Governing Board, the AIP staff is prepared to develop and undertake whatever programs are dictated by plans for the future now being considered. A prerequisite to success, however, will be the endorsement and financial support of those programs by the member societies and their constituencies.

Publications

Publishing is of course still the major business of the Institute. But it is not a static business—every year sees innovations and improvements in the manner in which the journals are produced.

In 1972 steps were taken toward integration of the work of the publications division with the AIP's physics-information activities, as the Current Physics Information program grew from its development stages to full production. Besides publishing *Current Physics Advance Abstracts* and *Current Physics Titles* (on which more later) the publications division began a "heads and tails" computer photocomposition program in coordination with the physics-information division. "Heads and tails" are the opening and closing sections of an article accepted for publication in an AIP journal, and these are the sections—title, author, affiliation, receipt date, abstract and bibliographical references—that the information division needs for the main computer file central to its Current Physics Information program. This information can be keyboarded from the author's manuscript, deposited in the computer bank, and then used both for the information division's products and for the appropriate parts of the published journal article.

This joint program started with the September 1972 issue of the *Journal of Applied Physics*, and plans call for its extension to all AIP-published journals

American Institute of Physics, Inc — **Balance She**

ASSETS

Operating Fund			
Cash in banks and on hand		$ 522 413.76	
Fixed time deposits	$ 997 904.07		
Add: Accrued interest receivable thereon	4 782.49	1 002 686.56	
Other time deposits		20 109.53	
Due from member societies:			
Acoustical Society of America	$ 22 238.49		
American Association of Physics Teachers	77 697.16		
American Astronomical Society	12 523.79		
American Crystallographic Association	3 716.82	116 176.26	
Due from affiliated societies:			
American Association of Physicists in Medicine	$ 4 486.75		
American Vacuum Society	6 159.92	10 646.67	
Sundry debtors		1 149 004.82	
Deposits		5 075.00	
Deferred charges:			
Engraving costs applicable to 1973	$ 698.75		
Printing costs applicable to 1973	101 699.18		
Translation costs applicable to 1973	17 216.00		
Computer installation expense	170 983.53		
Leasehold improvements	52 466.67		
Stationery, office and printing supplies—inventory	13 031.57		
Prepaid insurance	5 481.63		
Prepaid postage	6 662.11		
Other deferred charges	102 250.41	470 489.85	$3 296 602.45
Special Purpose Funds			
Karl Taylor Compton Fund:			
Cash	$ 116.27		
Investments—mutual funds	11 003.94	$ 11 120.21	
John T. Tate Memorial Fund:			
Cash	$ 563.45		
Investments—mutual funds	17 127.66	17 691.11	
Albert A. Michelson Memorial Fund—Cash		1 381.93	
Meggers Coin Collection—appraised value	$ 47 887.25		
Less: Expense of coin collection (Due to operating fund)	4 658.67	43 228.58	
Meggers Memorial Fund—cash		3 247.51	
Friends of the Niels Bohr Library Fund—cash	$ 5 355.95		
Less: Due to operating fund	849.32	4 506.63	
Investment Advisory Account:			
Investments—at cost (Market value—$790 734.50)	$ 474 187.20		
Cash	3 296.47		
	$ 477 483.67		
Less: Fee due Bankers Trust Company	1 796.00	475 687.67	
Amounts due for funds expended for special projects for the account of others		85 622.20	
Due from operating fund		885 026.56	1 527 512.40
Property and Equipment Fund			
Land		$ 266 535.36	
Building	$1 339 513.70		
Less: Accumulated depreciation thereon	642 505.65	697 008.05	
Furniture and Fixtures	$ 365 636.49		
Less: Accumulated depreciation thereon	255 682.14	109 954.35	1 073 497.76
			$5 897 612.61

1 December 1972

LIABILITIES

Operating Fund			
Trade accounts payable		$ 531 443.89	
Commissions payable		16 484.76	
Accrued interest payable		1 409.18	
Advertising rebates payable		1 907.50	
Sundry creditors		73 640.55	
Due to member societies:			
The American Physical Society	$ 75 254.40		
Optical Society of America	28 224.11		
Society of Rheology	22 578.57	126 057.08	
Due to affiliated societies:			
Society for Applied Spectroscopy		3 973.38	
Deferred credits:			
Subscriptions received applicable to issues of journals to be published subsequent to December 31, 1972	$1 477 233.64		
Dues—corporate—year 1973	54 836.00		
Dues—Society of Physics Students —year 1973	6 634.00		
Sundry receipts—re 1973 activities	112 347.50		
Other deferred credits	1 044.26	1 652 095.40	
Due to special purpose funds		879 518.57	
Accumulated income		10 072.14	
			$3 296 602.45
Special Purpose Funds			
Carl Taylor Compton Fund		$ 11 120.21	
John T. Tate Memorial Fund		17 691.11	
Albert A. Michelson Memorial Fund		1 381.93	
Meggers Fund		43 228.58	
Meggers Memorial Fund		3 247.51	
Friends of the Niels Bohr Library Fund		4 506.63	
Amount received for special projects for the account of others (net after expenditures thereon)		635 597.21	
Reserve for replacement of building		660 739.22	
Publications reserve		150 000.00	
			1 527 512.40
Property and Equipment Fund			
Mortgage payable, 5 5/8% due 1 November 1977, amortization quarterly		$ 150 313.44	
Property and equipment capital		923 184.32	
			1 073 497.76
			$5 897 612.61

Audited by Conroy, Smith & Company, Certified Public Accountants

by early 1973. Another way in which the Current Physics Information files are useful to the publications division is in the preparation of annual indexes. Year-end indexes for 1972 volumes of *Journal of Applied Physics, Applied Physics Letters, Journal of Mathematical Physics, Journal of Chemical Physics* and *Physics of Fluids* were computer photocomposed in this way; the savings in time resulted in the indexes of three of these journals being bound into December issues.

Typewriter composition has been employed by *Physical Review* C and D since 1971, and this work continued in 1972 with the composition of 11 500 pages at the Institute's typewriter-composition facility at Brookhaven National Laboratory. After catching up lagging schedules for the first part of the year, the Brookhaven operation published *Physical Review* C and D punctually for the rest of the year. Costs were dramatically lower in 1972 after the predictably high start-up expenses of this new development in 1971.

The typewriter-composition operation in the publication division's New York City office has also progressed smoothly. After starting in 1971 with the composition of *Applied Physics Letters, Journal of Applied Physics, Bulletin of the American Physical Society, Bulletin of the American Astronomical Society* and various newsletters, pamphlets, indexes and brochures, the section has now added *The Physics Teacher* to its list of in-house composed periodicals. As well as composition, AIP now handles the layout and artwork for this re-designed magazine as an in-house procedure.

Because of the switch to offset printing in 1972, some journals were late in mailing during the first part of the year. However, most were on schedule by the end of the year and a few were even early. The need to keep close track of the honoring of publication page charges complicated scheduling for most of the journals; in a few publications, authors not honoring page charges saw their article delayed for between six and twelve months. For AIP-owned journals, the number of nonhonored pages that could be published in 1972 was fixed in advance; for most of the society journals, the number of nonhonored pages was budgeted at 15% of the cumulative honored pages.

In 1972 AIP began publishing a new quarterly, *Journal of Physical and Chemical Reference Data*, as a joint venture with the American Chemical Society, for the National Bureau of Standards. Editing and typesetting of the journal are done by the National Bureau of Standards; its contents are drawn primarily from the Bureau's Na-

Summary Statement of Operations—Year Ended 31 December 1972
Including Activities Carried on for Member Organizations

Income	*Total*	*American Institute of Physics, Inc*	*For Account of Member Societies*
Subscriptions	$ 3 815 142.02	$2 091 290.50	$ 1 723 851.52
Contributions for the Dissemination of Research Information	3 439 004.31	1 368 929.16	2 070 075.15
Reprint Sales	200 085.77	84 072.43	116 013.34
Back Number Sales	199 947.49	130 804.59	69 142.90
Microfilm Sales	115 688.90	57 660.10	58 028.80
Advertising	654 985.35	495 803.44	159 181.91
Contributions from Member Societies	61 446.00	61 446.00	—
Corporate Associates Dues	105 005.00	105 005.00	—
Income from Investments	43 862.22	43 862.22	—
Income from Special Projects, Administrative Fees, Royalties, etc.	2 929 787.03	2 929 787.03	—
Miscellaneous Income	94 331.41	94 331.41	—
Other Receipts for Accounts of Member Societies	1 633 637.32	—	1 633 637.32
Total Income	$13 292 922.82	$7 462 991.88	$ 5 829 930.94
Expenses			
Printing, Illustrations and Mailing Journals	$ 3 827 253.24	$1 590 401.90	$ 2 236 851.34
Printing and Mailing Reprints	94 398.78	41 939.89	52 458.89
Handling Costs—Reprint Sales	40 738.46	16 335.91	24 402.55
Expense re Dissemination of Research Information	334 962.02	143 521.85	191 440.17
Back Numbers, Reprinting, Handling and Distribution	73 103.24	33 251.86	39 851.38
Microfilm Production, Handling and Distribution	57 445.13	24 239.26	33 205.87
Translation, Composition, Printing and Mailing Soviet Journals	855 843.18	775 448.92	80 394.26
Advertising—Printing, Distribution and Selling	296 643.02	234 259.63	62 383.39
Editorial and Editorial Mechanics	1 384 986.92	787 416.94	597 569.98
Marketing	5 422.88	5 422.88	—
Corporate Associates Expense	18 631.83	18 631.83	—
Subscription Handling	433 584.80	229 425.74	204 159.06
Administrative and Organizational Services	968 965.74	968 965.74	—
Special Projects	2 613 941.04	2 613 941.04	—
Other Disbursements for Accounts of Member Societies	529 643.64	—	529 643.64
Total Expense	$11 535 563.92	$7 483 203.39	$ 4 052 360.53
Net Charge to Societies to Balance Accounts	1 777 570.41	—	1 777 570.41
	$13 313 134.33	$7 483 203.39	$ 5 829 930.94
Net (Expense) Transferred to Accumulated Income	($ 20 211.51)	($ 20 211.51)	

tional Standard Reference Data System. AIP is responsible for production and printing, and ACS handles promotion and subscriptions.

With the addition of *Current Physics Advance Abstracts* and *Current Physics Titles*, the number of journals published by AIP rose to 24. The total number of pages printed was 73 572 for these journals and the five society bulletins. An additional 28 450 pages were translated from Russian journals, resulting in 23 496 English pages. Two new Russian journals were acquired by AIP for translation and publication, increasing the number of AIP-translated journals to 15; they are *Soviet Journal of Particles and Nuclei* and *Soviet Journal of Quantum Electronics*.

PHYSICS TODAY, AIP's news magazine for physicists, continued to attract the attention of its 61 000 readers with feature articles such as "Eugene Wigner—a tribute on his seventieth birthday" by Frederick Seitz, "Einstein on the firing line" by Clifford Will and "Physics looks at solar energy" by Aden and Marjorie Meinel. Four special issues appeared throughout the year: "Electro-optics" in March; "Physics for children" in June; "Vacuum" in August, and "International physics" in September to commemorate the 50th anniversary of the International Union of Pure and Applied Physics.

Although advertising income for PHYSICS TODAY increased in 1972 (18% higher than in 1971 and 10% over the 1972 budget), this gain was offset by increased expenses, and it was necessary to hold the editorial page budget to 600 pages for the year.

This magazine is one of seven publications carrying advertising sold by AIP's advertising division. In 1972, the total of 1306 pages in these seven was 9% higher than in 1971, after an adjustment for the fact that sales responsibility for *Applied Spectroscopy* ended with the March–April issue. A special program supplement for distribution at the Fall meeting of the Optical Society of America carried 44 pages of advertisements. The Spring and Fall programs of the Acoustical Society of America carried a total of 28 advertising pages.

The advertising division also sold and supervised four scientific exhibits for member and affiliated societies: The Physics Show, The Acoustical Show, The Vacuum Show and the traditional book exhibit held at the APS Spring meeting.

Books published by the Institute during 1972 included seven more volumes in the Conference Proceedings series; the third edition of *AIP Handbook*, prepared under the editorship of Dwight E. Gray, was published in October by the McGraw-Hill Book Company.

Physics information

With continued support from the National Science Foundation, AIP's Current Physics Information Program matured during 1972 into a diversified

set of services and products, some of which have been briefly mentioned above. The change in emphasis from research and development to production was formalized toward the end of the year by a restructuring of the physics-information division, which had been responsible for the planning, development and implementation of the program, into a new information services division, responsible for production and system maintenance.

The integrated system by which both the regular journals and the new information products are produced begins with the acceptance of a manuscript by an editor for publication. The author is then requested to prepare an abstract in camera-ready form and send it along with an indexing of his paper according to the classification scheme developed for this program. At AIP the indexing is checked and the abstract used in the preparation of *Current Physics Advance Abstracts* by the Institute's publication division. The "heads and tails" are then sent to the information services division for further indexing and keyboarding into the computer data base.

Also added to the computer bank is about an equal number of records (consisting of titles, authors, affiliations, abstracts, indexing and selected references) from important non-AIP journals, as well as a cross reference by cartridge and frame number to *Current Physics Microform*, a monthly microfilm edition of AIP-published journals. The augmented file provides the material for a monthly magnetic-tape alerting service, *Searchable Physics Information Notices*, from which a monthly titles journal, *Current Physics Titles*, is photocomposed, as well as selected abstracts used in the production of *Nuclear Science Abstracts*. As mentioned earlier, the file is also used to compile author and subject indexes for the AIP-published journals.

The Current Physics Information program was designed to provide timely and economical access to physics information, and each of its products is a key element toward that goal:

▸ *Current Physics Advance Abstracts* (CPAA) provides a monthly preview of upcoming articles in AIP-published journals (including the Russian translation journals) and a growing number of journals published by others, in three subject-oriented sections: *CPAA—Nuclei and Particles, CPAA—Atoms and Waves* and *CPAA—Solid State*. CPAA contains author-generated abstracts, the majority of which appear two months ahead of the journal publication.

▸ *Current Physics Microform* (CPM) provides the full text of all AIP-published journals on a monthly basis (for the month just preceding) on 16-mm searchable microfilm cartridges, as a backup for both *Current Physics Titles* (CPT) and SPIN.

▸ *Searchable Physics Information Notices* (SPIN) is a monthly computer tape containing in each issue, the computer-searchable records of about 2500 articles culled from the world's leading physics journals, along with appropriate cross references to CPM. It may be searched by subscribing institutions, according to the special interests of their staff members, in several different ways to provide tailored lists of items of direct use to each member.

During 1972 selected sets of these products were shown at the APS–AAPT joint meeting in San Francisco, at the APS meeting in Washington and at the Special Libraries Association meeting in Boston, and the concept was favorably received.

An essential element in providing these computer-based services economically is multiple use of the items keyboarded into the computer. Joint use of the same keyboarded material for preparing journal "heads and tails" and for producing SPIN is a step in the right direction. A contract from the US Atomic Energy Commission to provide camera-ready copies of abstracts from US physics journals for *Nuclear Science Abstracts* (within the subject scope of that publication) is a further step. Negotiations were continued in 1972 with the Institution of Electrical Engineers (in London) for a similar US input to *Physics Abstracts* and for the INSPEC operation of IEE to provide non-US input to SPIN. At present AIP is the US marketing agent for three IEE products: *Physics Abstracts, Current Papers in Physics* and the INSPEC magnetic-tape service. IEE is the European marketing agent for all Current Physics Information products.

Education

The director of the Society of Physics Students, Dion W. J. Shea, assumed additional responsibility as director of AIP's education division in the fall of 1972. He succeeded Arnold A. Strassenburg, who had directed the division since it took on an identity separate from the manpower division during 1971.

The Institute's education activities were among those most severely affected by financial stringencies in 1972, and several of its programs have been drastically reduced or terminated. Still proceeding with full vigor, however, is the Society of Physics Students. With about 4500 active members at nearly 450 campus chapters, SPS serves to provide opportunities for undergraduate students to develop a sense of professional participation in physics and to obtain experience in so doing. In 1972 it placed emphasis on the task of making students aware of both research and employment developments within the physics community. Regional meetings, arranged by 11 host chapters in cooperation with the national office, supplemented SPS programs held at three of the national AIP–society meetings. A new option offered in 1972 gave combined membership in both APS and SPS and in AAPT and SPS. The Bendix Corporation continued to support student research projects at twelve SPS chapters, as it has for the last ten years.

The primary effort of the education

Press conference, organized by the public-information division, at the meeting of the Optical Society of America in San Francisco. Panelists are (left to right) Alfred Kastler, Gerhard Herzberg, Luis Alvarez, Arthur Schawlow and Dennis Gabor.

division remains the Consultants Program and Information Pool, although this work had to be very much curtailed by the end of the year. Assistance on undergraduate physics education problems is available to departments or individual faculty members by mail, telephone or personal visits. The information pool contains selected conference reports, journal articles, computer programs and summaries of other useful information; more than 500 requests for help were filled from this collection during 1972.

The Tech Physics program continues to make progress, with the support of its individual NSF grants at four regional centers. This is a major physics curriculum project to produce instructional materials, in modular format, to teach physics to prospective technicians at community colleges and technical institutes. The production centers are at Binghamton, N. Y., Cambridge, Mass., Oak Ridge, Tenn. and St. Louis, Mo. A steering committee sponsored by AIP has coordinated these efforts. More than half of the proposed modules are now in final testing stages.

Another NSF-supported project administered by AIP completed its work during 1972; this is the study of physics teaching at some 40 high schools in New England and the mid-Atlantic states conducted by George Ivany of Teacher's College, Columbia University. The final report of the project, entitled "High School Physics Teaching: A Report on Current Practices" (Pub. R-253), was issued in late 1972. AIP has an extension of the NSF grant sufficient to cover dissemination of the report.

As an aid to US physicists interested in employment opportunities abroad, the AIP education division and the AAPT jointly prepared two registries: "Registry of Opportunities Abroad for US Physicists" and "Registry of Physicists Interested in Study, Teaching, and Research Opportunities Abroad." Preparation of the books was undertaken as a pilot project; AAPT expects to continue it.

After 15 years of successful operation, the Visiting Scientists Program in Physics came to an end during 1972 following termination of the NSF grant under which it had been operating. During the 1971–1972 program, some 170 two-year and four-year colleges were visited by outstanding research physicists who lectured, consulted with faculty on research problems and advised students.

Manpower

AIP's multiple activities that are gathered together under the category "Manpower" continued on their broad front in 1972. They included the placement service, a manpower-statistics section, directory publication and the physics postdoctoral information pool. A new operation in 1972 started work on a Register of Physicists and Related Scientists to replace the appropriate parts of NSF's National Register of Scientific and Technical Personnel, discontinued in 1971.

At the placement register, organized by the manpower division, at the American Physical Society–American Association of Physics Teachers joint meeting in San Francisco.

The task of the placement service is to introduce individual physicists to employers who have job openings, with an emphasis on matching the employer's needs with the potential employee's special experience and skills. In 1972, job opportunities for physicists continued to be tight. The number of academic positions (assistant, associate and full professors) decreased slightly, although there were some additions below this level. Some physicists found jobs in junior and community colleges and in secondary schools, and the Presidential Internship program stimulated temporary positions in government-funded laboratories, but the manpower freeze and funding limitations held down new job openings. However, industrial opportunities for physicists in applied work and development began to pick up a little toward the end of the year, and continued improvement is expected.

In this employment pattern, then, it is not surprising that relatively few employer's representatives attended the placement registers organized by AIP at the APS–AAPT joint meeting in San Francisco and the APS meeting in Washington. The year-round placement operation at AIP headquarters continued, with a peak of 1700 physicist registrants in July and 1400 at the end of the year. Nineteen percent of those on the placement register were unemployed when they signed on; 80% have PhD's. All registrants are provided with a quarterly summary of academic job openings, and they may consult the current file maintained at AIP.

The manpower-statistics section of this division was kept busy during 1972 preparing the new edition of *Physics Manpower—Education and Employment Studies.* This book, which discusses the changes in the physics profession and some causes and effects, is scheduled for publication in the Spring of 1973.

The annual statistical surveys contained in 1972 questions on minority-group identification as well as the usual survey of enrollments and degrees; details will be found in the Manpower book mentioned above. The number of physics bachelor's degrees awarded in the US declined during 1972 for the third consecutive year, and for the first time the number of physics doctorates awarded showed a significant decline—1435 in 1972, compared to 1545 in 1970 and 1530 in 1971.

In 1972, APS and AIP, with the cooperation of other member societies, decided to make funds available for a survey of physicists and related scientists that would pick up where NSF's discontinued "National Register" left off in 1971. AIP's manpower division has developed a questionnaire that will obtain two types of information: name and address data suitable for inclusion in society and AIP directories, and statistical data on salaries, subfields, society activities and demographic back-

ground. Answers to this second, statistical, part of the questionnaire will be stored separately from the individual's name, and will provide the basis for a description of the composition and dynamics of the profession.

More than 1200 women active in physics are listed in the *Roster of Women in Physics*, published in 1972 by AIP for APS. It was compiled by the APS Committee on Women in Physics, and includes information on degrees, employees and research interests.

The primary objectives of the Physics Postdoctoral Information Pool are to expedite postdoctoral and junior faculty placement and to reduce the time, effort and paperwork involved by all concerned in these appointments. With support from APS, operation started in 1971 and continued through 1972; the Pool consists of a central information exchange that supplies individuals with news of the available positions and institutions with resumes and reference letters on the candidates. Institutions wishing to make appointments must still contact the candidates and negotiate directly with them.

During its first year of operation, the Pool dealt with 639 individual physicists and 77 institutions; 245 postdoctoral and 16 junior-faculty positions were listed. The response to a questionnaire indicated that 29% of the candidates found employment within the information-pool system, 33% outside the system.

Public information

Among the varied duties that are undertaken by the Institute's public-information division are its regular press-relations work, the handling of requests and inquiries from the public, and the organization required for the annual Science-Writing Awards. New in 1972 were responsibilities in connection with the production of public-education television films, and also for part of the year the division engaged in some promotional activities for other Institute programs.

The press-relations efforts fall into two main categories: press conferences at society meetings and news releases issued throughout the year from the headquarters office. More than 50 press conferences were conducted at six society meetings during the year. These were the joint APS–AAPT meeting in San Francisco; the APS meeting in Atlantic City; the Optical Society of America meetings in New York and San Francisco; the APS meeting in Washington, and the meeting of the American Association of Physicists in Medicine in Philadelphia. Lay-language versions of 205 papers were made available to science writers attending these meetings.

News releases based on papers appearing in AIP and society journals highlighted important developments in physics during the year. The division now has on its staff a PhD physicist to evaluate and select the research projects to be publicized and to prepare the releases. He also prepared *Physics in 1972*, a roundup of developments in physics published as an aid to science writers, which is also distributed to physics-department chairmen and others. In another effort, AIP cooperates in the Weekly Science Series, a joint venture with the American Chemical Society, the American Psychological Association and the American Association for the Advancement of Science. This service provides regular science coverage to 350 newspapers—weeklies, small dailies and campus papers—across the nation.

The public-information division deals each year with thousands of requests and inquiries: from students wanting to know about careers in physics, or wanting help with physics projects and problems, and from the press requiring biographies of physicists in the news or background information on news developments in physics.

Each year since 1968 the United States Steel Foundation has supported the Science Writing Awards in Physics and Astronomy. Two categories are judged; in 1972 the award for a journalist or nonscientist went to Jerry Bishop of the Wall Street Journal, and Dietrich Schroeer of the University of North Carolina won the award for a scientist.

Two films to be shown on public television, supported by an NSF grant as part of its program for public understanding of science, were planned during 1972. The first, "The Birth and Death of a Star," which traces stellar evolution, was completed by the end of the year; the script for the second, called "The Structure of Life," was finished, and filming was due to go ahead in 1973. AIP produces these films in cooperation with Public Broadcasting Station KCET in Los Angeles.

Promotion of AIP's Current Physics Information program and some other Institute publications was handled by the public-information division through the third quarter of the year before being handed on to a new department created within the publications division. Promotional efforts included direct mailings, advertisements, exhibits and special demonstrations.

Center for History of Physics

In 1972 the Niels Bohr Library of the Center for History of Physics (formerly the Center for History and Philosophy of Physics) celebrated its tenth anniversary. The emphasis of the Center's programs during the year was on making resources that had been developed during the initial decade more widely known and more useful for educational and public-understanding purposes. This was reflected throughout the year in publications, lectures and exhibits directed to diversified audiences.

Staff publications in 1972 ranged from scholarly to general interest. "Exploring the History of Nuclear Physics," (*AIP Conference Series no. 7*) is the record of two exploratory conferences in which physicists who played a role in the development of nuclear physics were brought together with historians, philosophers and sociologists to examine possibilities for historical research and documentation of the field. "The Legacy of George Ellery Hale" (The MIT Press) includes a biographical essay, a selection of five of Hale's papers, and scholarly reviews, all illustrated with historical photo-

Niels Bohr Library of the Center for History of Physics. Stefan Rozental, Mrs Rozental and Aage Bohr (left to right) visited the library on 29 September, three days after its tenth anniversary. Portrait on wall is of Aage Bohr's father, Niels.

graphs and documents. During the year articles on aspects of 20th-century physics were published in PHYSICS TODAY and in "History in Teaching of Physics" (University Press of New England). Two issues of the Center's *Newsletter* were published and were received by more than 2500 readers.

Exhibits and talks by the staff during the year made use of Center resources to increase understanding of the development of physics. A major exhibit, "Physics in 1922," was prepared for the 50th-anniversary meeting of the International Union of Pure and Applied Physics. This exhibit was displayed at three additional institutions in 1972 and will continue to tour during 1973.

Despite the increased interest in and need for the Center's resources and services, AIP budget stringencies made necessary a reduction of the Center staff during 1972. At the same time, efforts were initiated to obtain the additional funds needed to realize the full potential of the Center's programs. The AIP Governing Board authorized the formation of a "Council of Friends of the Center for History of Physics," which was asked to launch a campaign to obtain financial support supplementary to that provided by AIP. Contributions from the physics community and other individuals and institutions concerned with the aims of the Center were to be solicited.

A Council of 26 eminent physicists was formed under the chairmanship of Elmer Hutchisson, Director Emeritus of AIP. In the initial phase of the campaign, a brochure describing the purposes of the Center's programs was sent as part of a mail solicitation to physicists. The number of individual Friends rose from 161 in 1971 to 640 in 1972; contributions from the Friends increased from $5800 in 1971 to almost $15 000 in 1972.

Manuscript collections deposited in the Niels Bohr Library in 1972 included the papers of Henry Crew, George Southworth and Lewi Tonks. The papers of Lester Germer were placed on temporary deposit for evaluation and cataloging. Assistance was provided in arranging for the preservation, at appropriate archival institutions, of papers of a number of other physicists—including Robley D. Evans, Frederick V. Hunt, Leonard Loeb, Merle Tuve, George Uhlenbeck and Robert Van de Graaff—and the records of the American Crystallographic Association.

Oral-history interviews were conducted with Hans A. Bethe, Lee A. DuBridge, Robley D. Evans, William A. Fowler, Edwin M. McMillan, Seth Neddermeyer and Milton G. White. Earlier interviews processed in 1972 included those with Walter Brattain, Vern O. Knudsen and Earl K. Plyler.

During 1972 substantial use of the Library's collections and information resources was made through visits by more than 160 individuals from over 60 domestic and ten foreign institutions.

Fiscal branch

During 1972, the Institute completed the redesign of its over-burdened subscription-fulfillment system. The first phase of the conversion was completed in time to enable the 1973 renewal billing to be made on schedule. The remainder of the redesign, involving a conversion of the existing "Master History Record File" to the new system requirements, produced difficulties which were, unfortunately, not foreseen. These resulted in an inability to process new member applications, new subscriptions, or to make changes in the existing records for some months. This occurrence has had negative effects on some 5500 members, out of a total of 52 500, and on many society officers, which AIP sincerely regrets. An all-out effort was devoted to correcting the problem. When the change-over difficulties were identified and resolved, during December, total attention was directed to processing the outstanding billing returns.

The workload of the fulfillment operation continued to increase. With an addition of four in the number of publications and products for which subscriptions are handled, the total grew to 68. Dues billing and collection activities were performed for nine societies, and additionally for 12 divisions of two member societies. Approximately 52 000 joint member renewal bills were mailed, covering about 75 000 membership and 56 800 billed member subscriptions, totaling some $1 925 000. In addition, joint nonmember renewal notices were mailed covering approximately 116 000 subscriptions, totaling almost $4 000 000. In 1972, about 20 000 orders for back numbers resulted in approximately $328 000 in sales income.

The data processing division produced 75 programs for the new fulfillment system during 1972. They also produced about 5½ million mailing labels for publications and other mailings. The Institute's computerized accounting system operated successfully in its second year, and the new edition of "Directory of Physics and Astronomy Faculties" was assembled and composed by computer for the second year.

The accounting division disbursed approximately $20 000 000 (including short-term investments) in over 20 000 checks in the year. More than 900 financial statements were issued, and accounts were maintained for ten societies, 57 publications, 36 organizational units, 12 grants and contracts and 17 special projects. In addition, approximately 13 000 publication charge and reprint orders were processed, covering 21 journals, resulting in a billing of $3 726 500.

Office-services division produced approximately seven million impressions, through its reproduction facilities, including offset journal reprints for the Institute and member societies. The Institute's mail rooms handled about one million pieces of mail.

Administration and special activities

The total AIP staff numbered 333 at the end of the year, down from 355 at the end of 1971. This reduction reflects the changes made during 1972 to effect the economies and changes in emphasis within programs mentioned above. The Institute continued to operate in six locations: three in New York City, two on Long Island—one at Stony Brook, one at Brookhaven National Laboratory—and the office in Washington, D.C.

The Institute's Washington representative continued to provide liaison during 1972 with those in the capital, and the *Washington Office Newsletter* was a valuable asset throughout the year. However, AIP's financial situation made further operation of this office impossible, and its closure was planned for early 1973.

In association with the AIP Annual Assembly of Society officers mentioned earlier, the AIP Corporate Associates met in a dinner session on 20 September that featured a panel discussion on stimulating industrial research and development. The AIP meetings were held in conjunction with the 14th General Assembly of the International Union of Pure and Applied Physics, during which the Union celebrated its 50th anniversary.

The Institute administers the Dannie Heineman Prize for Mathematical Physics in cooperation with APS, and in 1972 the award was made to James D. Bjorken. The third John Torrence Tate International Gold Medal for distinguished service to the profession of physics was awarded—most appropriately, at the IUPAP meeting—to Gilberto Bernardini of Pisa.

Finances

The Institute ended the year 1972 with a net expense of $20 212; details can be seen on the accompanying Summary Statement of Operations.

Total income, including activities carried on for member organizations, amounted to $13 292 923, while total expenses amounted to $13 313 135. The publishing operations accounted for the bulk of income and expense.

The total assets of the Institute amounted to $5 897 613, as reflected on the accompanying audited Balance Sheet. □