

Viewing AIP in 1974



The Institute's Annual Report shows emphasis both on improved services and on negotiations related to publishing, two vital areas of AIP operations.

For the American Institute of Physics, 1974 was a year in which great effort was concentrated on service operations—those connected with subscription fulfillment and data processing, with fiscal reporting and with publishing. The Governing Board, several of its committees, and outside consultants all provided input to the AIP staff to bring about changes that would give physicists and the physics societies improved essential services. On the whole, AIP services by the close of 1974 were on a sound basis.

As you read the following pages, you will note the return to normal operation of the all-important subscription-fulfillment service. It didn't happen overnight. Day-to-day monitoring of activities, concentration on problem areas, system changes and reorganizations brought subscription fulfillment back to a satisfactory level of operation; attention is being directed toward further refinement and improvement. You will also become acquainted with a system called "quoted prices," which was initiated to permit AIP and the societies to predict their costs with reasonable confidence in advance of the receipt of financial statements and thus budget with greater ease. And you will learn of the innovative changes going on in the publishing area—some successful, some that fell short of expectations.

At the same time that service problems were being resolved, a number of separate negotiations with other organizations and with outside suppliers promised changes in the publishing

field. Particularly important are negotiations with organizations that want to republish all or part of AIP and member-society journals and books. The growing interest in republishing our material is expected to increase royalty income over the next few years. Arrangements negotiated with republishers will encourage their role in disseminating physics and astronomy literature while continuing to protect both the scientific integrity of the republished material and the original financial investments.

Among the external negotiations, a significant accomplishment was the conclusion of an agreement with the Soviet foreign-trade organization *Mezhdunarodnaja Kniga*, on photocopying and translating rights in 1973 and 1974 involving copyrighted primary journals. The agreement has resulted in the payment of a substantial royalty by the Soviets to AIP and its societies. The net royalty was for the greater volume of the republication of AIP and society journals by the Soviets compared with AIP translation of Soviet journals during 1974 and part of 1973. It provides the pattern, regardless of the direction of flow of royalties, for an agreement in 1975 and thereafter currently being negotiated with the new Copyright Agency in the USSR. [The agreement was signed on 8 April 1975; see *PHYSICS TODAY*, May, page 71.]

In another aspect of copyright negotiations, the door is being reopened for possible discussions between AIP and the (British) Institution of Electrical Engineers (publisher of *Physics Abstracts*) on the subject of secondary-information services. After negotiations had been at an impasse for more than a year, the two mediators (Edward L.

Brady of the National Bureau of Standards for the US and Harry T. Hookway of the British Library Board for the UK) submitted their report in November 1974. The basic principles they consider essential are acceptable to AIP, and there is considerable hope for a future agreement.

As for negotiations with other external organizations, the uncertain world economic situation focussed attention on the critical importance of negotiations with contractors who supply goods and services to AIP and its societies. With the cost of paper, composition and printing rising steeply, it has been essential that AIP negotiate the best possible terms for the publishing of its own and the society journals. Productivity improvement is the key element in our successful efforts to hold publication costs to a minimum.

Negotiations were not limited to relationships with other countries and organizations, but were also involved in the relations of AIP and its member societies. For example, during 1974 the American Association of Physics Teachers, AIP's second largest member society, negotiated a new service relationship with AIP, to be tried on an experimental basis. Beginning in 1975, the staff at AAPT headquarters and at *The Physics Teacher* magazine offices will be supplying certain functions of non-member journal subscription handling and editorial mechanics for *The Physics Teacher* that were formerly performed by AIP. The intent is to make multiple use of AAPT staff and thereby provide economies for that society.

Not only were services on a sound basis by the close of 1974, but so was AIP's financial picture, with the financial statement showing a net income of

\$233 237. The outlook for 1975 is equally positive and demonstrates the successful cooperation of society officers and AIP staff in making programs efficient and well within budget, even though the national and international economic outlooks are dismal. Continued vigilance and cooperation are going to be essential. Fortunately, society officers who are understanding and cooperative, and a staff that is dedicated and effective, are making these goals possible. To both groups, AIP management is appreciative and grateful.

Publishing

Publishing costs continued to rise in 1974 at an accelerating rate, outdistancing even the general inflation in such areas as the cost of paper for printing the journals and distribution costs—particularly for overseas mail. Despite these increases, productivity improvements over the past five years have kept the cost of producing a typical journal page in 1974 at about the same level as it was in 1970. Publishing output continued at the level of about 100 000 pages per year, which has remained steady now for a number of years; it came in very close to the budget established for the year. To give added direction to this major AIP effort, a publishing policy committee was established to serve the publisher's role in the same way as the AIP Publication Board serves the editor's role. The committee will thus serve to provide added society viewpoints on publishing policies and problems.

The event with perhaps the greatest impact on the publications division was the phase-out of NSF support for the former information-services division. The latter division ceased to exist at the end of 1973. Key personnel were transferred to the publications division, which continued to produce secondary information publications and services.

The computer-assisted publishing effort at AIP has two basic aims. The primary aim is to provide for timely and low-cost dissemination of physics research results to the physics community. A secondary aim is to provide efficient means—not just for physicists, but for the wider technological community—to access, search and retrieve information from the mass of published physics literature. In furthering its primary "mission," AIP in 1974 started or participated in several new ventures, continued ongoing ones and revised others.

Primary journals. After much negotiation and testing, including the trial setting of several 1973 journal articles, a contract was signed for computer typesetting of *Reviews of Modern Physics* and *Physics of Fluids* in 1974. The contractor had already done satisfactory work for other publishers and his

ASSETS

Operating Fund

Cash in banks and on hand		\$ 445 119	
Fixed time deposits	\$2 100 000		
Add: Accrued interest receivable thereon	11 051	2 111 051	
Other time deposits		22 158	
Due from member societies:			
Acoustical Society of America	\$ 14 066		
American Association of Physics Teachers	6 132		
American Astronomical Society	7 802		
American Crystallographic Association	6 147		
American Association of Physicists in Medicine	1 346	35 493	
Sundry debtors		1 288 586	
Inventory of paper and office supplies		79 006	
Deposits		5 100	
Deferred charges:			
Composition costs applicable to 1975	\$ 167 148		
Printing costs applicable to 1975	9 358		
Translation costs applicable to 1975	22 970		
Computer installation expense	100 751		
Leasehold improvements	37 626		
Prepaid insurance	7 844		
Prepaid postage	5 383		
Other deferred charges	54 342	405 422	
Investment advisory account:			
Investments—at cost (market value \$513,307)	\$ 550 863		
Cash	2 034		
Accrued interest receivable	2 885		
	\$ 555 782		
Less: Fee due Bankers Trust Company	2 093	553 689	\$4 945 624

Special Purpose Funds

Karl Taylor Compton Fund:			
Cash	\$ 75		
Investments—mutual funds	11 004		
	\$ 11 079		
Less: Due to operating fund	1 222	\$ 9 857	
John T. Tate Memorial Fund:			
Cash	\$ 622		
Investments—mutual funds	18 441	19 063	
Albert A. Michelson Memorial Fund—Cash		1 523	
Meggers Coin Collection—appraised value	\$ 49 943		
Less: Expense of coin collection (Due to operating fund)	4 823	45 120	
Meggers Memorial Fund—Cash		3 589	
Friends of the Center for the History of Physics Fund:			
Cash	\$ 17 613		
Investments	450		
	\$ 18 063		
Add: Due from operating fund	12 143	30 206	
Sigma Pi Sigma Trust Fund:			
Cash	\$ 2 351		
Investments	19 967		
Accrued interest receivable	22	22 340	
Amounts due for funds expended for special projects for the account of others		28 527	
Due from operating fund		108 436	268 661

Property and Equipment Fund

Land		\$ 266 535	
Building	\$1 385 890		
Less: Accumulated depreciation thereon	765 831	620 059	
Furniture and fixtures	\$ 395 917		
Less: Accumulated depreciation thereon	297 616	98 301	984 891
			\$6 199 180

LIABILITIES

Operating Fund

Trade accounts payable	\$ 852 860	
Commissions payable	19 367	
Accrued interest payable	892	
Advertising rebates payable	2 359	
Sundry creditors	178 627	
Due to member societies:		
The American Physical Society	\$ 64 175	
Optical Society of America	29 198	
Society of Rheology	288	93 661
Due to affiliated society:		
American Vacuum Society		16 297
Deferred credits:		
Subscriptions received applicable to		
issues of journals to be published		
subsequent to December 31, 1974	\$2 427 224	
Dues—corporate—year 1975	50 521	
Dues—Society of Physics Students—1975	12 613	
Sundry receipts—re 1975 activities	143 756	
Amounts received from publications and		
societies applicable to 1975	63 895	
Other deferred credits	12 896	2 710 905
Due to special purpose funds		114 534
Reserve for replacement of building		784 064
Publications reserve		150 000
Accumulated income		22 058
		<u>\$4 945 624</u>

Special Purpose Funds

Karl Taylor Compton Fund	\$ 9 857	
John T. Tate Memorial Fund	19 063	
Albert A. Michelson Memorial Fund	1 523	
Meggers Fund	45 120	
Meggers Memorial Fund	3 589	
Friends of the Center for the History of		
Physics Fund	30 206	
Sigma Pi Sigma Trust Fund	22 340	
Amounts received for special projects for		
the account of others (net after		
expenditures thereon)	136 963	
		<u>268 661</u>

Property and Equipment Fund

Mortgage payable, 5% due November 1,		
1977, amortization quarterly	\$ 95 166	
Property and equipment capital	889 729	
		<u>984 895</u>
		<u>\$6 199 180</u>

Audited by Conroy, Smith & Company, Certified Public Accountants

prices were competitive. After producing the first two 1974 issues of *Rev. Mod. Phys.* and *Phys. Fluids*, however, he essentially went bankrupt. Several succeeding issues were in various stages of production and had to be switched back to overcrowded monotype composition facilities, resulting in unfortunate delays. In 1975 *Rev. Mod. Phys.* will continue to be set by monotype, and *Phys. Fluids* will be switched to type-writer composition to take advantage of its lower cost. As a result of this experience, AIP decided in December to engage an outside consultant to advise on computer typesetting for physics journals, with particular emphasis on reliability and economy.

AIP began the publication of the new bimonthly journal *Medical Physics* for the American Association of Physicists in Medicine. This journal has become a success in its first year, with both library subscriptions and advertising revenue running ahead of predictions.

In 1974 the Chinese Academy of Sciences in Peking resumed publication of *Wuli Xuebao (Acta Physica Sinica)* with Volume 23 (Volume 22 was the last one to appear in 1966 before the "cultural revolution"). AIP resumed its translation as the *Chinese Journal of Physics*, the first issue being Volume 23, No. 1 (July/August 1974), which actually appeared in January 1975.

AIP worked with the new editor of *Reviews of Modern Physics* (an APS publication) to devise a program of sales of individual article reprints. Physicists and others can now buy *Rev. Mod. Phys.* articles as individual monographs.

Another service, started in March 1974, was "Current Physics Reprints." The service offers photocopy tear sheets of articles from AIP and member-society journals. The only exceptions are articles from the *Journal of Physical and Chemical Reference Data* and *Reviews of Modern Physics*, which have their own stocked reprints. Complete articles cost 25¢ per page (\$1.00 minimum) plus postage. Orders are filled the day they are received, and requests have been coming in from all over the world.

Conference Proceedings continued to be published with growing success; volumes 16 through 22 were added to the series in 1974. Standing orders exist for the volumes from about 220 US and foreign libraries, in addition to individual orders received throughout the year covering all volumes.

The Brookhaven publishing operation, which provides typewriter-composition services for *Physical Review A, C* and *D*, added *Physical Review B* in 1974. The total composition output for these journals amounted to almost 70 000 pages in 1974, an increase of 17% over 1973. Composition costs were



Data processing

Applications status board
Data entry by key-discs
Program loading
Fulfillment updating
Address-label printout

again favorable, actually declining from 1973 despite inflation. Editorial mechanics on almost 13 000 published pages were also handled for *Physical Review C* and *D*.

The *Journal of the Acoustical Society of America* was switched to typewriter composition under outside contract in 1974, and the physical dimensions of the journal page were slightly increased to an economical standard size. Beginning in 1975 both the *American Journal of Physics* and *The Journal of the Optical Society of America* will also be typewriter composed.

The switch to typewriter composition is the main reason why AIP has been able to keep page charges from increasing for a number of years. In 1975 inflation finally made it necessary to raise the page charge for *Applied Physics Letters* to the same rate as for *Physical Review Letters* (\$80) and to raise the rate for *Journal of Applied Physics*, *Journal of Chemical Physics* and *Journal of Mathematical Physics* to the same as for *Physical Review* (\$70). The journal budgets continue to allow for the publication of fixed percentages of those papers for which page charges are not honored. Because the supply of nonpaying papers has, at times in the past, exceeded available space, there is a continuing, but reduced, backlog of such papers.

The typewriter-composition section in the publication division in New York added *JETP Letters* and the *Soviet Journal of Optical Technology* to its work load. This switch from outside contractors also improved the appearance and readability of these journals.

As a result of the difficult problems in paper supply, the Institute now purchases paper directly for PHYSICS TODAY, *The Physics Teacher* and *Applied Optics* rather than through its printer, to maintain desired paper quality at minimum cost.

AIP has been receiving an increasing number of complaints on the receipt of journals damaged in the mails. Tests were, therefore, conducted on journal wraps other than the heavy paper cover presently used. Results indicated that shrink-wrapped plastic practically guarantees protection of a journal until it is received by the subscriber. Plans were made to adopt that type of wrapper in 1975.

Secondary services. The emphasis of the secondary-information program has shifted so that it is clearly subordinate to and a by-product of the AIP primary archival physics publishing activities. In the course of 1974, the decision was made to discontinue *Current Physics Titles* and *Current Physics Advance Abstracts* and to reduce the number of journals included in the monthly "SPIN" tapes by dropping all non-US physics journals. Thus SPIN will be-

come in essence a machine-readable index to the journals published by AIP and its member societies, and its annual subscription price will be reduced from \$2500 to \$500. In 1974, AIP made plans to produce a new quarterly *Current Physics Index* by computer photo-composition from this SPIN tape. The first issue is expected to be March 1975. CPI will list abstracts classified by subject and will include an author index. An annual cumulation is planned that will omit the abstracts but will list the complete titles and authors both by subject and alphabetically by author.

The data incorporated in SPIN, usable in a number of ways, are the "Heads" (titles, authors, bylines, abstracts, indexing). The first use of these Heads is to photocompose them in the format required for the primary journal pages, in the production of which they are treated like illustrations. The final use of the data base is in the production of the journal indexes at the end of the year.

Between the first and the final use, most items in the data base are available for other purposes. Thus, starting in July 1974 all heads for *Physical Review A-D* were collected in semimonthly batches and used to photocompose *Physical Review Abstracts*. Also in semimonthly batches, all articles selected by AIP's indexing staff for *Nuclear Science Abstracts* are collected, rephotocomposed in the required format and sent to the AEC Technical Information Center in Oak Ridge; in the course of 1974 the time delay involved in this effort was cut in half.

Two grants from the National Science Foundation's Office of Science Information Service were received during 1974. One, called "Development of Data-Descriptive Records for the Physical Sciences," is for a study of the requirements for aiding users to find needed data in AIP primary journals. The other grant has been awarded to AIP in cooperation with Engineering Index for a project called "Interchange of Data Bases." This project is intended to develop methods by which the two organizations can reduce costs by eliminating some duplication of effort and processing for their journals and secondary services.

In the summer of 1974 agreement was finally reached by the members of the Physics Working Group of the Abstracting Board of the International Council of Scientific Unions on the use of a common physics classification scheme. The 1975 edition of AIP's *Physics and Astronomy Classification Scheme* incorporates that common system for the core areas of *Physics Abstracts*.

Production of membership directories, a new service for AIP's member so-

cieties, has been developed by the publications division as a byproduct of its computer operations, with editorial help of the manpower division. Pages for the alphabetical and geographical sections of a directory can be photo-composed in a variety of formats. The first directory to be produced this way was for the American Association of Physicists in Medicine in the fall of 1974.

Other activities. In 1974, subscriptions to *PHYSICS TODAY* rose by 5% to over 65 000. Three special issues were published during the year: "Geophysics," "Public Interest Science" and "Physics in Europe." *PHYSICS TODAY* was the subject of a mail survey to determine reader interest and subject-matter preferences. Results, based on a high-percentage response, showed an exceptionally high degree of reader interest, with 85% reporting they read every issue or every other issue. Those surveyed are members of an AIP Publications Panel, established in 1974, composed of 3000 society members who have agreed to respond to questionnaires about AIP publications. Other surveys about *PHYSICS TODAY* as well as about other publications will be made in 1975.

Other marketing services provided by AIP related to the promotion of such new publications as *Medical Physics*, *Current Physics Index* and *Chinese Journal of Physics*. Exhibits displaying AIP and society publications were manned at the joint annual APS-AAPT meeting in Chicago, at the APS-OSA meeting in April in Washington, and at the Special Libraries Association meeting in Toronto in June.

During 1974, about 1350 pages of advertising appeared in the eight publications handled by the advertising division, off about 1% from the 1973 figure. *PHYSICS TODAY*, up 1% over the 1973 figure, included a substantial increase of classified ads in its "Information Exchange" section.

The advertising division also sold space and supervised the three traditional scientific instrument exhibits (Acoustics, Physics and Vacuum/Thin Films) for member and affiliated societies and also organized the first Physics/Optics Show held in conjunction with a joint meeting of The American Physical Society and the Optical Society of America.

Fiscal branch

The services provided by the fiscal branch, particularly those of subscription fulfillment, data processing and fiscal reporting, came under direct scrutiny of the Governing Board and several of its committees throughout the year. The backlog in subscription fulfillment created in the 1973 billing period, problems in programming and in computer equipment, as well as the need of mem-

ber societies for prompt financial statements, combined to create a situation that called for a major effort toward improvement in these very basic and vital areas of the Institute's operation. By mid-year, subscription fulfillment was functioning satisfactorily. Before the close of the year, AIP's computer configuration was under review and a system of "quoted prices" was meeting the needs of societies for cost figures on which to base their own budgets.

At the suggestion of the Board's advisory committee on dues billing and subscription fulfillment, the firm of McCaffery, Seligman and von Simson, Inc. was retained to undertake a study of the systems in operation. As consultants, they issued a report in February that contained various recommendations covering work-flow, program changes, systems changes, reorganization of sections, establishment of new sections and changes in programming philosophy. Many of the specific steps recommended toward improved service were taken, and when McCaffery, Seligman and von Simson's representatives returned for a one-day review in the fall they reported significant progress. The membership section had achieved 80% of targeted savings; nonmember coding was better organized with no significant backlog; the cashiering section had made enormous progress and had, in fact, ceased to be a bottleneck in customer service; a newly established control section appeared to be working smoothly; nonmember correspondence had made progress, but was still an area of real concern, and the data-processing division was commended for many program changes implemented. The most important issue that still remained concerned problems involving the processing of orders received from subscription agencies.

The advisory committee on dues billing and subscription fulfillment, in its October report to the Governing Board, listed some society complaints and questions, but concluded that "... the subscription fulfillment system now operates with reasonable efficiency at costs that are lower than last year." It expressed hope that AIP would continue to make improvements.

Dues billing and collection activities for the 1975 period were performed by AIP for nine societies. APS members were billed for a six-month period only, to meet new fiscal-year requirements; they will be billed again in March 1975 for the fiscal year commencing 1 July 1975. Members of the Optical Society of America, the Acoustical Society of America, the American Association of Physics Teachers and the American Astronomical Society were each billed separately; a joint billing encompassed the American Crystallographic Association, the Society of Rheology, the American



Journal production

"Typositor" for display typography
IBM Executive typewriter composition
"Datapoint" video editing terminal
Paste-up of pages
Process camera for illustrations

Summary Statement of Operations—Year Ended 31 December 1974
Including Activities Carried on for Member Organizations

Income	Total	American Institute of Physics, Inc.	For Account of Member Societies
Subscriptions	\$ 4 993 218	\$2 925 573	\$2 067 645
Contributions for the Dissemination of Research Information	3 391 436	1 281 741	2 109 695
Article Charges	76 154	76 154	—
Abstract Charges	194 864	152 260	42 604
Reprint Sales	204 671	83 108	121 563
Back Number and Microfilm Sales	509 316	300 014	209 302
Advertising Sales	723 435	589 739	133 696
Charges to Publications and Societies in Excess of Actual Costs	63 895	63 895	—
Contributions from Member Societies	62 438	62 438	—
Corporate Associates Dues	97 240	97 240	—
Income from Investments	197 239	197 239	—
Income from Special Projects, Administrative Fees, Royalties, etc.	1 655 505	1 655 505	—
Miscellaneous Income	108 792	108 792	—
Other Receipts for Accounts of Member Societies	1 941 873	—	1 941 873
Total Income	\$14 220 076	\$7 593 698	\$6 626 378
Expenses			
Prerun Publication Expense	\$ 4 451 197	\$2 449 641	\$2 001 556
Runoff Publication Expense	2 230 301	1 268 281	962 020
Distribution Expense of Publications	1 328 204	723 448	604 756
Expense Re Dissemination of Research Information	299 630	132 883	166 747
Reprint Expense	132 457	55 025	77 432
Back Number and Microfilm Expense	164 026	72 259	91 767
Advertising Expense	378 059	320 565	57 494
Royalties Paid to Society Journals	5 115	5 115	—
Corporate Associates Expense	20 000	20 000	—
Administrative and Organizational Services	859 712	859 712	—
Special Projects	1 453 532	1 453 532	—
Other Disbursements for Accounts of Member Societies	637 490	—	637 490
Total Expense	\$11 959 723	\$7 360 461	\$4 599 262
Net Charge to Societies to Balance Accounts	2 027 116	—	2 027 116
	\$13 986 839	\$7 360 461	\$6 626 378
Net Income Transferred to Accumulated Income	\$ 233 237	\$ 233 237	

Association of Physicists in Medicine and the American Vacuum Society. Approximately 60 500 member renewal bills were mailed, totalling \$1 605 000. Joint nonmember renewal notices, for two subscription periods, were mailed to about 23 000 subscribers, covering about 88 000 subscriptions totalling almost \$6 600 000.

Data processing. Experience with handling journal subscriptions in 1974 demonstrated the need to upgrade AIP's seven-year-old computer facilities. The subscription workload has increased very substantially since the present tape-oriented computer was acquired in 1968. Computer costs generally have been decreasing, and AIP should take more advantage of these decreases in its labor-intensive services where the costs are steadily increasing. An AIP staff working group is developing specifications for various alternatives, in particular for a disc-oriented, multiprogrammable and expandable computer or computers. It is expected that AIP management will make a final recommendation to the Executive Committee and Board in March 1975, and if approval is obtained, AIP will have one

year in which to accomplish the conversion of programs and the installation and application of the new facilities.

In the interim, existing data-processing systems and facilities continue to be improved in every way possible. The data-processing division acquired a scanner, (an OPSCAN-17 by Optical Scanning Corp.) in 1974 for processing returning invoices paid as billed. This technique resulted in increasing throughput while eliminating the need for a second shift in the data-input section. Additionally, the scanner was used to process and count election ballots for AAPT and APS.

A new dimension in fiscal activities at AIP was the appointment in 1974 of the AIP fiscal-policy committee. Its purpose is to develop candid and informal discussions between AIP management and society officers in an effort to formulate Institute financial policy. The most significant accomplishment resulting from efforts of this committee was the development and adoption of a system of quoted prices for accounting. Under this plan, the Institute quotes prices for each of the continuing services it provides for a society and for it-

self, and issues quarterly financial statements based on these prices. In the spring of each year, actual costs are to be ascertained and detailed variance statements prepared showing the difference between quoted prices and actual costs. Thus societies will continue to pay only actual costs. This system helps the preparation of realistic budgets and prompt financial statements, and provides a mechanism for the control of expenses. Quoted prices were used as the basis for closing the Institute's books for 1974 and for the preparation of quarterly statements thereafter.

As well as the responsibilities detailed above, the fiscal branch also contains the office services that provide essential assistance in typing and in clerical work, in the handling of mail, in in-house printing, in building maintenance and so on.

Manpower

The employment environment for the 1974 activities of AIP's manpower division continued in an improved condition over the critical period from 1970 to 1973. The employment in applied-

physics areas increased somewhat, due in part to a shortage of engineers; however, conditions became somewhat unsettled during the last few months of the year because of the declining level of the economy.

Placement centers were held at the Annual Joint Meeting of the APS-AAPT in Chicago, at the Spring meeting of the APS-OSA in Washington, and at the Fall meeting of the Acoustical Society of America in St. Louis. More employers were present at the APS-OSA Meeting in 1974 than in recent years, in part because of increasing employment needs in optics.

The year-round employment referral service continued to assist employers in filling specific job requirements. Of the 1000 registrants in the service, 70% were PhD's; 83% of the registrants were currently employed and are seeking a change in their employment situation. The qualifications of 40% of the registrants were referred to one or more employers for specific job openings in a six-month period.

The number of openings listed in the quarterly "Summary of Academic Openings" increased substantially in 1974. A special category for opportunities outside the US has been added to these summaries.

A doctoral employment information service is operated for APS by the Institute to expedite the placement of PhD physicists at all levels. It provides widespread distribution of information on candidates to all US physics departments with doctoral programs as well as to national research and development laboratories. In the 1973-74 academic year, 700 individuals participated and more than 225 academic institutions and industrial employers were supplied with information. During the 1974-75 academic year there were fewer registrations and a smaller number of demands by the academic institutions. Accordingly, it was decided to phase out the program in its present form during the spring of 1975; some of its functions will become part of the employment referral service.

The manpower-statistics section conducted its usual 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 1974 physics-degree recipients entering the job market for the first time). A new annual Faculty Survey asks for data on staff members and includes projections on academic employment in physics. The survey includes data from 1 400 physics and related-field departments of four-year institutions. The annual surveys examine the flow of new physics degree recipients into the labor force and make possible an analysis of physics sub-

fields, types of employers, work activity, salary and other factors. A new and expanded format, under the title *Physics Manpower Report*, was developed for reporting the results of the annual surveys and other physics manpower information. These reports are issued four times a year.

Throughout 1974, detailed analysis of the 1973 APS-AIP Register survey of physicists and related scientists was carried out. First results from the analysis were published in an article in the April issue of *PHYSICS TODAY*, with particular attention to shifts in employment, salaries and composition of the physics community. In September the manpower division provided detailed data on mobility and teaching from the survey to the National Academy of Sciences' COSPUP Mini-Astronomy panel, which was concerned with problems of employment in astronomy.

The 1974-75 issue of the annual *Directory of Physics and Astronomy Faculties* contains an expanded appendix, which includes a new table giving the research specializations of doctoral programs in physics, astronomy and related fields.

AIP manpower activities were the focus of review by the Governing Board at its October meeting and by the advisory committee on manpower. A six-year program was presented that would provide a long-term framework within which to examine placement and employment services, continuing annual surveys and the Register of Physicists. The consensus was that manpower should remain among the Institute's chief concerns, with both placement and manpower statistics vital areas of AIP involvement, in close collaboration with its member societies and with other national agencies. The decision on the degree of effort on the Register was not so clear cut. While data analysis should go forward, address files might be updated only if funds are available; the 1976 Register survey is to be postponed, awaiting decisions on overall continuance of the collection of

science manpower data at the national level by other groups.

Education

The programs of the education division include a consulting service (supplemented by an information pool), the Tech Physics program (a curriculum project), and the Society of Physics Students. The division is undertaking a study of means to provide expanded educational services in the future to physics educators, AIP member societies, and the general public.

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 throughout the US. From the library collection of the AIP Information Pool, continuously updated and expanded as new items become available, some 1200 requests for material were filled during 1974.

The Tech Physics program aims to provide instructional materials for teaching physics at community colleges and technical institutes to prospective technicians. Some of the equipment especially designed for the program was available in 1974; publication of modular texts will begin in 1975 with twelve appearing by January. With support from the National Science Foundation, a project director and a steering committee sponsored by AIP coordinate the efforts of the four production centers at Binghamton, N.Y., Cambridge, Mass., Oak Ridge, Tenn. and St. Louis, Mo.

The Society of Physics Students program showed renewed vigor, with membership increasing by more than 13% in 1974. About 5000 SPS members are active in 450 campus chapters. Sigma Pi Sigma, the physics honor society within SPS, is active on 274 campuses. The strong financial support of contributions from many of its almost 40 000 alumni, provides approximately one quarter of the budget. Fourteen SPS chapters, working in cooperation with



the national office, were hosts for regional meetings that supplemented the SPS programs presented at four of the national meetings of AIP member societies.

The Optical Society of America and the American Vacuum Society agreed to join The American Physical Society and the American Association of Physics Teachers in offering combined memberships with SPS for 1975. The first Marsh W. White Awards were made to seven 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 twelve years of supporting student research projects by awarding, in 1974, a total of \$3000 to twelve SPS chapters. A new edition of the "SPS Chapter Resource Book" provided an up-to-date nationwide listing of sources for speakers, laboratory tours and films.

Physics history

The increasing need to help those people interested in the history of modern physics find what they need among the accumulated raw materials now piling up in libraries and archives was a main concern of the Center for History of Physics during 1974.

The Center began a survey of more than 2000 institutions, searching for audiovisual historical materials that educators and the public could use. Most of the information from the hundreds of replies has been cataloged for the Center's *National Catalog of Sources for History of Physics and Astronomy*. Selected materials that may be useful to educators or the public will be described in a *Guide to Historical Resources for Public Understanding of Physics and Astronomy*.

The photograph collection now contains some 7500 items, up from about 5200 last year. Tape recordings received during 1974 included talks by Henry Barschall, Hans Bethe, Niels Bohr, Max Born, Albert Einstein, Leo Esaki, Murray Gell-Mann, Otto Hahn, Werner Heisenberg, Max von Laue, Charles Lauritsen, Linus Pauling, Leo Szilard, George Wald and Steven Weinberg.

The Center is becoming more and more the repository chosen for historical tapes and oral-history interviews on 20th-century physics. With support from the Heineman Foundation and the National Science Foundation, the Center is developing three experimental resource units, including photographic packages, tape cassettes with excerpts from interviews and speeches and so on, that will eventually be available for public use. The core of the Center's program, however, is still the location and preservation of documents and manuscript materials on modern physics



ics and astronomy. The Center's Niels Bohr Library became the fourth library of deposit of the Archives for History of Quantum Physics, an extensive microfilm and interview collection.

For the first time interviews by the Center staff included some with a number of scientists involved in industry. This important, but long neglected, branch of physics history is receiving increasing attention from the Center.

The Center began a study of the patterns of preservation and destruction of the records of postwar physics and astronomy, and to this end Center staff visited physics-oriented institutions across the country to exchange information and plan for the care of surviving documents.

In 1974 the Center staff assisted some 155 researchers in the Niels Bohr Library and helped a still greater number through letters and telephone calls. They also aided historical activities at regional and national meetings of AIP member societies and presented four invited talks.

Beyond basic AIP financial support, the Center's work was greatly helped by donations to the Friends of the Center for History of Physics; during 1974, 396 individuals, one foundation and three industrial corporations gave support in this way.

Charles Weiner, who received a Distinguished Service Citation from the American Association of Physics Teachers, left this year for another post; he was replaced as director by Spencer Weart, while Joan N. Warnow, after five months as acting director, became associate director.

Public relations

In May 1974, the public information division was renamed the "public relations division." Audrey Likely, who had been director of press relations within the division, became its director.

The division's service to science writers includes establishing press rooms at society meetings, providing lay-language summaries of selected papers and arranging interviews with physicists when requested by newsmen. Acting

on member-society requests, the division set up press rooms in 1974 at the APS-AAPT February meeting in Chicago, the APS March meeting in Philadelphia, the APS-OSA April meeting in Washington and the ASA November meeting in St. Louis. This activity resulted in numerous newspaper and magazine articles and spot-news announcements on local TV channels and radio stations about research reported at meetings.

The "Weekly Science Series," a joint effort containing brief stories from the American Institute of Physics, the American Association for the Advancement of Science, the American Chemical Society and the American Psychological Association, was distributed once a month to 350 weekly newspapers throughout the nation for use by their science editors.

The annual summary of new developments in physics and astronomy, assembled with the cooperation of AIP member societies, continues to elicit interest from a wide range of recipients. Written in easy-to-understand language specifically for science writers, *Physics in 1974* was also distributed to congressmen, physics department chairmen, industrial-research managers, librarians, students and others known to be interested.

In an effort to encourage good science writing, the division administers two science-writing awards in physics and astronomy, with support from the United States Steel Foundation. One contest is open to journalists, the other to scientists. The prize for writing by a journalist was awarded in 1974 to Patrick Young, science writer for *The National Observer*, for his article, "A Quake is Due At..." The award to a scientist went to Robert D. Chapman of NASA/Goddard Space Flight Center for his pamphlet, "Comet Kohoutek, 1973-1974."

The second of two films for television being produced under a grant to AIP from the National Science Foundation neared completion in 1974. A preliminary version of the film, titled "Life and the Structure of Hemoglobin," was

shown to science writers at a meeting of the Council for the Advancement of Science Writing in November.

Administration and special activities

Both the AIP Governing Board and its Executive Committee played more active roles in 1974, with a major emphasis on improved services to the societies. In Board meetings, in Executive Committee meetings, in advisory-committee meetings, "service" was the key word.

For example, the AIP Long-Range Planning Committee focussed on the missions of the Institute and its relationships to the member societies and to the public. It considered such matters as AIP charter, purpose, membership, governance, programs, finances, and so on. When referred to the governing bodies of the member societies for comment, many of the statements in this committee's report were criticized by society officers, and their responses reflected dissatisfaction with services provided by AIP in 1974 and in the prior year. The Board agreed that questions of what AIP should be and how it should operate must be postponed until service functions are running smoothly, and it directed AIP management to give top priority to service operations. The Executive Committee accordingly assumed a more active role in AIP affairs. Also, member societies not represented on the Committee are being invited to send a non-voting representative to its meetings.

Following discussion of the section of the Long-Range Planning Committee report dealing with AIP governance and operation, the Board recommended that the entire committee structure of AIP be examined and a mode of operation proposed. That assignment became the charge to a Committee on Committees appointed before the year was out.

Another effect of society reaction to the Long-Range Planning Committee report relates to the use of the word "federation" in connection with the Institute (in journal mastheads, leaflets and so on). The word was, in fact, misused, and it no longer appears in reference to the AIP. The Institute is "chartered as a membership corporation with leading societies in the field of physics and astronomy as members. The Institute combines into one operating agency those functions which can best be done by the societies jointly." The description of AIP wherever it occurs now reads that way. The change has been made to emphasize the role of AIP as a service organization to the societies. No society autonomy or prerogative is intended to be transferred to AIP, as might have been implied by the word "federation."

Aside from Governing Board and

committee meetings, the two principal functions on the AIP calendar are the Assembly of Society Officers and the Corporate Associates meeting. The principal topic considered by the Assembly at its October meeting was the interaction of scientific societies with the National Science Foundation and with government and society generally. The Annual Meeting of AIP Corporate Associates was held in November, with the general theme of international science and technology. In the interest of promoting an exchange of views, invitations were extended to chairmen of physics departments, to government officials, and to scientific-affairs personnel attached to foreign embassies in Washington, in addition to Corporate Associates representatives and AIP Governing Board members. A report on the meeting appears in the January 1975 issue of PHYSICS TODAY.

In 1974 the Institute's membership continued to number eight member societies comprising about 50 000 individual members, sixteen affiliated societies and 5000 student members of SPS. AIP Corporate Associates numbered 85, down from 91 in 1973. Total AIP permanent staff amounted to nearly 350; well over half of them are in the publishing branch. Personnel turnover declined in 1974. To make for more efficient record keeping, personnel records for all employees are being computerized.

Sidney Millman was elected Acting Secretary of AIP by the Governing Board on 23 March 1974 and Secretary on 4 October 1974. He succeeds Wallace Waterfall, who became Secretary Emeritus in March after having served as Secretary continuously since March 1945. Waterfall died 21 August; his loss is keenly felt by his colleagues in the Institute and many friends in the physics community.

In cooperation with APS, the Dannie Heineman Prize for Mathematical Physics was awarded to Subrahmanyan Chandrasekhar on 6 February 1974. The Karl Taylor Compton Medal for Distinguished Statesmanship in Science was awarded to Samuel A. Goudsmit on 15 November 1974.

Finances

The Institute ended the year 1974 with a net income of \$233 237; details can be seen in the accompanying Summary Statement of Operations.

Total income, including activities carried on for member organizations, amounted to \$14 220 076, while total expenses amounted to \$13 986 839. The publishing operations accounted for the bulk of income and expense.

The total assets of the Institute amounted to \$6 199 180, as reflected on the accompanying audited Balance Sheet. □

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