

REPORT ON AIP—1969

Publishing activities continued to grow, and efficient information retrieval is a step closer. Meanwhile, concern deepened over decreasing federal support and the looming job shortage.

John T. Scott

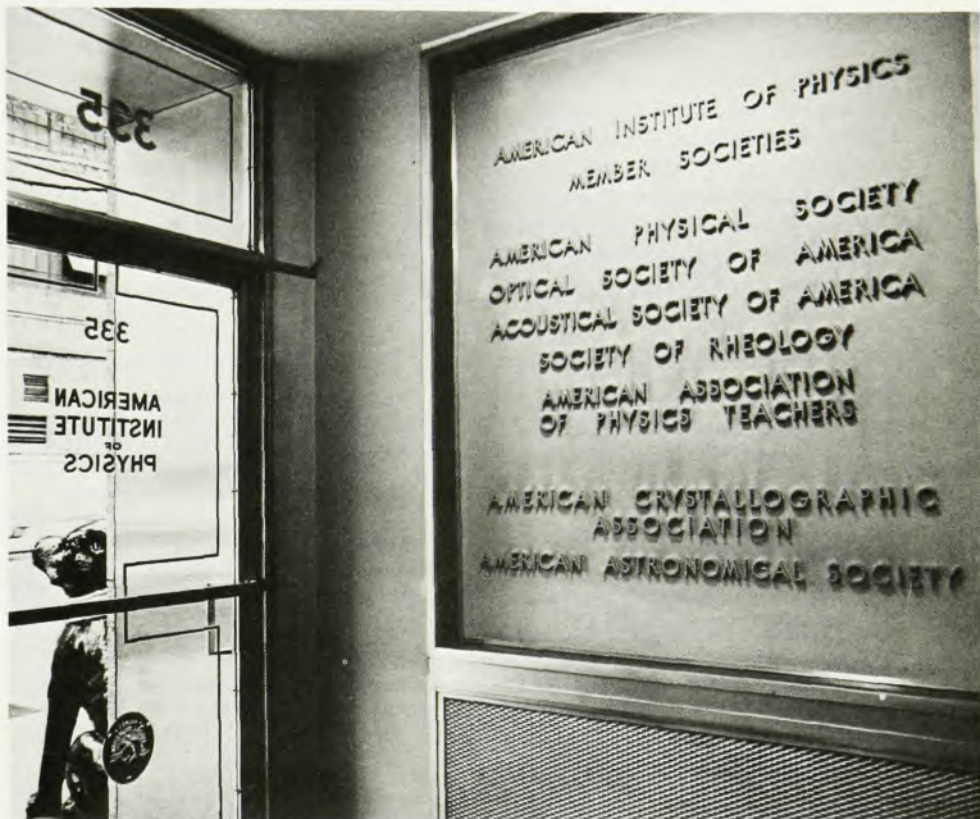
TRENDS BECAME REALITIES, and 1968's plans turned into 1969's achievements. This was the kind of year it was for the American Institute of Physics, as procedures started or planned during 1968 matured and tendencies observed earlier showed up more strongly.

In 1969 the Publication Division put into effect new rules to offset loss of page-charge income and continued to develop new methods for speedier publication. The Information Division completed the first stage of its plans for a National Information System for Physics, was awarded an NSF grant that will run until 1973, and is well ahead with further plans. The Education and Manpower Division reported on the worsening employment situation for physicists during the year, by conducting surveys among graduates and employers.

AIP's Public Relations Division continued their annual Science Writers' award, started in 1968; the Center for History and Philosophy of Physics added to its collection of source materials on 20th-century physics, and services provided by AIP for its member societies, which continue to grow, could be measured by the enormous number of subscriptions and mailings handled.

A decade closes

In his introduction to the AIP Annual Report, director H. William Koch drew attention to the shift of aims, priorities and conditions that has occurred during the 1960's. He pointed out that "the decade began with physics and physicists riding on the wave of support that followed Sputnik and ended on critical notes of decreased Federal



PHOTOS BY ROSEMARY GAFFNEY

support and decreased employment opportunities, and with a challenge to expand efforts toward improving the human condition."

Koch continued by identifying the three major problem areas to be faced during the 1970's, with the hope that AIP members could judge, from the progress detailed in the 1969 report, the importance to the institute and themselves of their support of current and future programs. His three areas are:

- **Research facilities.** Many physics and astronomy facilities built at great financial cost and human effort, as well as those of smaller scale, are being closed for lack of operating funds.

AIP's survey of graduate departments in 1970 will determine the extent to which these reductions will affect the physics community.

- **Employment opportunities.** All indications suggest an impending crisis in the education, employment and application of physicists. Unwise decisions now could irreparably damage the physics situation later if, for example, students are turned away from entering the eight-year pipeline because of present conditions. Careful attention to the whole physics-education process should result in the production of PhD's who have a broad and flexible approach to their subject.

- **Publishing economics.** AIP be-

John T. Scott is managing editor of PHYSICS TODAY.

believes that the concept of page-charge support is of key importance to continued improvement of its publishing and information programs. The institute's task is to spread this belief among all users of these programs.

Publications

The Publications Division has long been accustomed to handling more and more archival journal and translation pages each year. The rise from 1968 to 1969, however, was the smallest for many years, amounting to 3%. The numbers were: 67 482 text pages and 2362 advertising pages in 17 journals and 5 society bulletins, and 26 932 pages of translation from 14 Russian journals.

During 1969 two new publications were added to the list (*Bulletin of the American Astronomical Society* and *Quarterly Bulletin of the American Association of Physicists in Medicine*) and *Ukrainian Physics Journal* was dropped, after one year of experimental operation, for lack of subscriptions.

The "two-track" system of publica-

tion, announced in 1968 and brought into operation at the beginning of 1969, proved successful in its goal of increasing page-charge income. Under this system, any author whose institution declined to honor the publication charge for his paper was made to wait an extra two or three months beyond the normal publication date set by the editor. During the year the honoring of page charges improved dramatically. By the end of 1969 the delay had been reduced to zero, but the situation will be watched carefully in case payment of publication charges decreases again.

Foreign authors, not accustomed to page charges, are traditionally delinquent when it comes to honoring them. Prices of foreign subscriptions for AIP-owned journals have therefore been increased to 50% above the domestic rates.

Delays in the production of some of the journals still occur. Copy editors were in short supply during the year, and training newly employed copy editors took up supervisors' time. One

way to improve this situation lies with typewriter composition instead of the traditional, slower, typesetting methods. During 1969 AIP's editorial section added a new typewriter-composition group; the first AIP journal set by this method appeared at the beginning of 1970 (*Applied Physics Letters*, 1 Jan. 1970 issue).

PHYSICS TODAY's own schedule was somewhat upset at the beginning of 1969 when our printers went out on strike. By April we were once again mailing on time, however. This magazine's circulation rose to more than 60 000, 5% more than in 1968; subscribers now include 6300 members of the Society of Physics Students, as well as 47 500 members of other AIP societies and 6600 nonmembers.

The Advertising Division (which takes care of exhibits and journal promotion as well as selling advertising space) are as close to the problems of the shortage of research and development funds as any professional scientist—perhaps closer. They saw the total number of advertising pages in the

American Institute of Physics Governing Board, Committees and Representatives for 1969

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11 journals they handle fall 12% between 1968 and 1969.

There were major personnel changes in these two divisions during the year. Theodore Vorburger, advertising manager, retired in May after 24 years with the institute, and R. Hobart Ellis Jr resigned in November from his position as editor of *PHYSICS TODAY*. Replacements were Edward Greeley as advertising manager and Harold L. Davis as *PHYSICS TODAY* editor.

Information

While the Publication Division turns out thousands more journal pages, the Information Division continues to make progress towards its aim of making this material, and the rest of the world's physics literature, more readily accessible to its users. A plan for the first stage of the National Information System for Physics was submitted to the National Science Foundation in 1969, with the result that funds for the three-year period 1 March 1970 to 28 February 1973 were approved by the National Science Board of the NSF.



TYPEWRITER COMPOSITION, by which AIP hopes to improve publication speed. The complex typewriter-like machine is operated by Wallace Ross in this photo.

This grant follows the division's first NSF grant, which ran from 1 January 1968 to 28 February 1970.

Details of the new program were announced in a recent article by Arthur Herschman, Franz Alt and Koch

(*PHYSICS TODAY*, December 1969, page 29). Bibliographic data for about 2000 articles per month, taken from about 50 journals—half the world's physics-journal literature—are recorded on magnetic tape, for subsequent en-

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Committee of Judges: Vincent E. Parker (chairman), Kenneth Goldstein, W. Lewis Hyde, Karl G. Kessler, Hillier Kriehbaum, Martin Mann, L. Slack (ex officio).

Science Writing Award in Physics and Astronomy for Scientists

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nack, Albert Rosenfeld, Fay Ajzenberg-Selove, L. Slack (ex officio).

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tering into computer files at the State University of New York at Stony Brook and at Massachusetts Institute of Technology. Appropriate classification and indexing allows for speedy retrieval of the information.

Towards the end of 1969 a pilot group of typical users started to experiment with the first of these *Searchable Physics Information Notices* (SPIN) tapes and to advise the AIP Information Division on their experiences. SPIN will go into operation during 1970, providing monthly tapes for those institutions (including libraries and data centers) that have computers capable of handling them.

Other plans in 1969 included the preparation of a new current-aware-

ness journal to be called *Current Physics Titles* (CPT), which is scheduled to appear in 1970. Produced as a printout from the SPIN tapes, the journal will represent an up-to-date index of physics literature, suitable for scanning or browsing. Material obtained from AIP journals will go into CPT when the original article is still in page proof; therefore the reference in CPT will appear quite early, possibly at about the same time as the original journal article.

The Information Division is also busy with plans for later developments of the National Information System for Physics. These include: selective searching and notification services for those institutions who can not them-

selves use SPIN; the supply of microfilm copies of articles to those SPIN and CPT users who ask for them; finding ways to promote the writing of reviews and compilations, and seeking methods for better access to the less formal physics literature.

Education and manpower

Two sections of AIP's Education and Manpower Division were concerned with the current tight employment situation in physics. The placement service was involved very directly, as they saw a large increase in the number of registrants—physicists who signed on at the placement registers and who were included in the qualifications books that are sold to pros-

Summary Statement of Operations—Year Ended 31 December 1969

Income	Total	American Institute of Physics	For Account of Member Organizations
Subscriptions	\$ 2 774 193.81	\$ 1 588 159.43	\$ 1 186 034.38
Back Subscriptions	36 207.46	36 207.46	
Contributions for the Dissemination of Research Information	3 137 611.08	1 181 747.79	1 955 863.29
Reprint Sales	216 808.83	92 564.18	124 244.65
Back Number Sales	166 794.21	89 201.79	77 592.42
Advertising Sales	899 283.94	657 132.90	242 151.04
Member Societies Dues	50 815.00	50 815.00	
Corporate Associates	145 755.00	145 755.00	
Interest Earned on Investments	34 355.81	34 355.81	
Grant and Contract Activities, Royalties, Exhibits and Other Income	2 154 734.03	2 154 734.03	
Miscellaneous Income	81 482.35	81 482.35	
Other Receipts for Accounts of Member Organizations	1 776 678.64		1 776 678.64
Total Income	\$11 474 720.16	\$ 6 112 155.74	\$ 5 362 564.42
Expense			
Composition, Printing, Engraving and Mailing Journals	\$ 3 876 139.87	\$ 1 592 376.69	\$ 2 283 763.18
Translations, Composition, Printing and Mailing Soviet Journals	705 808.51	638 218.98	67 589.53
Expense re Dissemination of Research Information	217 494.07	94 722.11	122 771.96
Printing and Mailing Reprints	94 673.02	41 008.67	53 664.35
Reprint Sales Handling	34 041.39	13 747.72	20 293.67
Back Numbers Handling and Distribution	53 580.47	22 282.88	31 297.59
Reprinting Back Issues	4 780.83	4 443.32	337.51
Editorial and Editorial Mechanics	1 065 720.24	645 033.02	420 687.22
Subscription Handling	297 931.07	157 041.99	140 889.08
Circulation Promotion	5 238.13		5 238.13
Advertising—Printing, Mailing and Selling	339 146.06	214 819.03	124 327.03
Corporate Associates	31 171.64	31 171.64	
Administrative and Organizational Services	792 483.95	792 483.95	
Special Projects	1 941 471.95	1 941 471.95	
Other Disbursements for Accounts of Member Organizations	581 003.27		581 003.27
Total Expense	\$10 040 684.47	\$ 6 188 821.95	\$ 3 851 862.52
Net Charge to Organizations to Balance Accounts	1 510 701.90		1 510 701.90
	\$11 551 386.37	\$ 6 188 821.95	\$ 5 362 564.42
Net Income or (Expense) Transferred to Accumulated Income	(\$ 76 666.21)	(\$ 76 666.21)	

ASSETS

LIABILITIES

Operating Fund

Cash	\$ 589 461.12
Short-term Investments	900 000.00
Add: Accrued Interest Receivable Thereon	4 930.81
Savings Account	17 588.62
Accounts Receivable:	
Due from Member Organizations:	
Acoustical Society of America	40 611.87
American Association of Physicists in Medicine	4 033.62
American Association of Physics Teachers	29 115.70
American Crystallographic Association	8 047.41
American Vacuum Society	2 543.44
Society for Applied Spectroscopy	13 036.40
Other Accounts Receivable:	
Publication Charges and Reprint Sales	1 696 419.66
Advertising	186 447.05
Miscellaneous Accounts Receivable	9 681.34
Deposits	1 715.00
Deferred Charges:	
Changeover Accounts to Magnetic Tape System	77 418.45
Engraving Costs Applicable to 1970	46 121.72
Leasehold Improvements and Architect's Fees at 304 East 45th Street	71 190.47
Printing Costs Applicable to 1970	1 622.65
Translation Costs Applicable to 1970	13 592.00
Prepaid Insurance	5 810.93
Prepaid Postage	7 799.74
Stationery, Office and Printing Supplies Inventory	13 745.18
Other Deferred Charges	21 555.26
Total Operating Fund	\$3 762 488.44

Special Purpose Funds

Karl Taylor Compton Fund:	
Savings Account	\$ 1 835.69
Investment in Mutual Fund (Market Value \$13 421.16)	11 003.94
John T. Tate Memorial Fund:	
Investment in Mutual Fund (Market Value \$15 841.32)	17 555.68
Albert A. Michelson Memorial Fund:	
Savings Account	1 208.76
The Meggers Coin Collection (Appraised Value)	29 919.75
Deduct: Expenses of Coin Collection (Due to Operating Fund)	(3 511.39)
The Meggers Memorial Fund: Savings Account	2 840.47
Friends of the Niels Bohr Library Fund:	
Savings Account	11 380.26
Deduct: Purchase of Books (Due to Operating Fund)	(1 554.97)
Investment Advisory Account:	
Cash	587.90
Investments in Securities (Market Value \$602 671.00)	434 597.46
Less: Due Bankers Trust Company	(1 340.99)
Due from Operating Fund	437 055.60
Amounts Due for Funds expended for Special Projects for Accounts of Others	42 639.56
Total Special Purpose Funds	\$ 984 217.72

Property and Equipment Fund

Land	\$ 266 535.36
Building	1 331 503.70
Less: Accumulated Depreciation	(483 367.79)
Furniture and Fixtures	297 024.32
Less: Accumulated Depreciation	(155 311.21)
Total Property and Equipment Fund	\$1 256 384.38
	\$6 003 090.54

Operating Fund

Accounts Payable:	
Due to member organizations:	
American Astronomical Society	\$ 7 141.22
American Physical Society	315 927.14
Optical Society of America	19 095.31
Society of Rheology	15 942.00
Other Accounts Payable	1 275 831.87
Commissions Payable	17 611.12
Accrued Interest Payable on Mortgage	2 084.06
Advertising Rebates Payable	120.94
Sundry Creditors	10 422.66
Unallocated Receipts	22 017.17
Deferred Credits:	
Subscriptions Received Applicable to Issues of Journals to be Published Subsequent to 31 December 1969	1 472 129.85
Corporate Associate Dues Received Applicable to 1970	74 751.00
Student Section Dues Received Applicable to 1970	15 089.50
Sundry Receipts—re 1970 Activities	74 878.75
Other Deferred Credits	1 038.86
Due to Special Purpose Funds	431 989.24
Accumulated Income	6 417.75

Total Operating Fund

\$3 762 488.44

Special Purpose Funds

Karl Taylor Compton Fund	\$ 12 839.63
John T. Tate Memorial Fund	17 555.68
Albert A. Michelson Memorial Fund	1 208.76
The Meggers Fund	26 408.36
The Meggers Memorial Fund	2 840.47
Friends of the Niels Bohr Library Fund	9 825.29
Reserve for Replacement of Building	459 023.73
Amounts Received for Special Projects (Net after Expenditures Thereon)	454 515.80

Total Special Purpose Funds

\$ 984 217.72

Property and Equipment Fund

Mortgage Payable, 5%, due 1 November 1977	
Amortization Quarterly	\$ 222 300.22
Property and Equipment Capital	1 034 084.16
Total Property and Equipment Fund	\$1 256 384.38
	\$6 003 090.54

Decimals: Autopoint and scientific notation.

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SUSANNE ELLIS of the Education and Manpower Division, who conducted the Work Complex Study, and Henry Small, seen here with part of the Oppenheimer reprint collection.

pective employers—together with a parallel decrease in the number of employers using the two services. The manpower-statistics section obtained more quantitative information about the same problem from their annual surveys of new physics baccalaureates and of graduate students. They found that, in general, these new graduates were receiving fewer job offers than did graduates in earlier years. A follow-up study showed that, although nearly all new graduates did find employment, about half of them were in jobs they did not regard as satisfactory. Details of these surveys (together with a summary of interviews with employers published as *The Work Complex Study* and the results of an investigation into the effects of selective service on graduate enrollments) are included in an article by Arnold Strassenburg, *PHYSICS TODAY*, April, page 23.

The education branch of this division was busy in diverse areas. A report issued in May 1969, *Pressing Needs in School Science*, urged efforts to design secondary-school science courses for a wider ability range than is now the case. The less academically successful students are not well catered to at present.

Strong interaction between AIP education staff and high-school counselors was also recommended, and the *Student's Guide to Undergraduate Physics Major Departments*, published last year by AIP, was a first step in this direction.

The broadening of college-level courses is another aim of the Education section. In cooperation with the Commission on College Physics, it is planning to develop new teaching materials for courses designed to train

technicians. CCP held a conference on this subject last May, AIP has formed a steering committee to guide the effort, and a grant from the Esso Education foundation supports the committee meetings that started in January 1970.

The education office has continued the successful joint AAPT-AIP Visiting Scientists Program, with the addition of specialist teachers as well as research men to the program and with more two-year colleges visited than previously. In 1969 AIP arranged about 170 "visits"; a typical visit includes lectures, consultation with faculty and administration, and conferences with students.

The Society of Physics Students continues to grow. Nearly 60 new chapters were added during the year, and the Bendix Corporation increased its support of cash awards for student projects.

Public relations

The AIP-US Steel science-writing awards go to the journalist with the year's best science story and to the scientist with the best physics article written for lay readers. Prizes for 1969 were awarded to Walter Sullivan of *The New York Times* for his reporting of the Apollo 8 flight around the moon, and to Kip S. Thorne of Cal Tech for an article on relativistic astrophysics, titled "Death of a Star," in the 1968 *Science Year*.

These awards are just part of the regular program of the AIP Public Relations Division, whose aim is to further the better understanding of physics by the community at large. These activities include science-writers' seminars, the management of press rooms and press conferences at

society meetings, and the preparation of news releases.

History and philosophy

During 1969, the use of source materials for research into the development and social implications of 20th-century physics came into increasing emphasis at AIP's Center for History and Philosophy of Physics. The Center continued to add to its materials on the period; the variety extends to manuscript collections, interviews (both tape recorded and in transcript), photo and biographical files and physics-department histories.

The primary research program of the Center staff is the study of the development of nuclear physics since the 1930's. In addition to the study of correspondence, manuscripts and other historical and sociological material, tape-recorded historical interviews were conducted and a small conference was held to explore the role of theorists in the history of nuclear physics. This project is supported by NSF and sponsored jointly by AIP and the American Academy of Arts and Sciences.

During 1969 the Niels Bohr Library also acquired the large collection (80 feet of shelf space) of reprints assembled by Robert Oppenheimer between the early 1920's and his death in 1967.

Services and staff

Services provided by AIP to its member societies and the physics community in general include subscription fulfillment, collection of dues, data processing, society mailings, and all kinds of miscellaneous administration.

This story is best told in numbers. The total number of subscriptions ser-

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viced (54 publications) in 1969 was 251 460; 78 500 society and divisional membership bills were processed; approximately one million pieces of outgoing mail were handled, and more than six million labels were produced for the publications, society mailings, and so on.

The permanent staff employed by the institute in 1969 numbered 265, an increase of 18% over the previous year. The number of places where these people can be found working has increased, too. The typewriter-composition group of the publication division is housed in the fourth, and newest, New York City location. Education activities continue to be directed from offices at Stony Brook, Long Island, and AIP staff in the Washington office provide information on the progress and implications to physics of relevant bills in Congress, and report on the activities of various Federal agencies committees and panels.

The Washington office also has coordinating editorial responsibility for the third edition of the *AIP Handbook*; at the end of 1969 McGraw Hill had seven of the nine major sections, and publication is expected in early 1971.

Finances

The institute's financial position at the end of 1969 reflected the general weaknesses in the economy and decreased Federal support for basic research. The year ended with a deficit of \$76 666; details can be seen in the accompanying balance sheet and summary statement of operations.

Total expenses, including activities for member societies, came to \$11 551 386 (\$9 598 525), whereas equivalent income was \$11 474 720 (\$9 569 458). The numbers in parentheses are those for 1968.

Publishing is still the AIP's principal function. The expenses of AIP archival publications, translations, *PHYSICS TODAY*, advertising and exhibits together amount to 69.2% of the institute's expense. The general activities branch (public relations, education and manpower, center for history and philosophy of physics) adds 9.1%.

Income is derived from: AIP publications (59.4% of the total); advertising and exhibits (15.0%), and, in smaller amounts, from the member societies, Corporate Associations, royalties, investments and so on. □

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