# AIP annual report 1962

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, March 16, 1963.

## 1. INTRODUCTION

The objectives of the American Institute of Physics are stated broadly in its charter as "the advancement and diffusion of the knowledge of physics". Over the years, the actual tasks that are undertaken by the Institute in furthering these objectives shift materially, depending upon their interpretation and the interests and responsibilities of physicists at any given time. The AIP Governing Board and the staff have the obligation at all times to be alert and responsive to the needs of physicists. However, if the Institute is truly to serve physicists, physicists themselves must learn something of the Institute's capabilities and must participate in the establishment of its program of activities. To assist in this task, annual reports are made to the Member Societies and are published in *Physics Today*. Some of the activities presented in this year's report are traditional, others have evolved only recently and require critical examination and, if acceptable, support of physicists so that these activities may be nurtured and may survive.

Let me comment specifically on a few of the activities which are described more fully in the body of this report. First, as I am sure many physicists know, the Institute has been going through a costly and agonizing period of modernizing its subscription-fulfillment operations. The size of this operation becomes apparent when one realizes that in November alone, journal and other society mailings amounted to over 350 000 pieces. Insufficient personnel and equipment in 1961, combined with a veritable explosion in the number and complexity of our operations, left us at the beginning of 1962 with an avalanche of back orders, address changes, and some justifiably irate letters from subscribers. The unraveling of the monstrous traffic jam that had developed took much of the year in spite of the large number of temporary helpers who were added to our staff. By the end of 1962, completely new stencils had been prepared, all 1963 bills had been sent out, and the backlog of correspondence had been reduced to manageable proportions. Purging of earlier errors will continue into the early months of 1963 but should almost disappear when the cut-offs are made in March. Further details of subscription handling are included in Section 5 of this report.

So much for this side of our operations. It is far more pleasant to report that, in spite of the "information explosion", our editorial operations are current and our printing operations, which lagged somewhat on some journals in 1962, are nearly back to normal schedules for most journals. A vigorous documentation research program is developing better information search and retrieval tools for physicists. These activities are covered in Section 2. Public information services (Section 3) are another broad area of our operations, and it is fair to say that we have never had a more active and effective year than the one just past. Education and manpower activities continue to flourish. The variety and magnitude of these latter operations will be apparent from Section 4 of this report.

A major event of 1962 for the Institute was the completion of the second wing of its headquarters building. We now have a modern, efficient, and strategically located home for American physics. It is the hope of the staff that this building will become a national headquarters in more than just name. In the building, well-furnished conference rooms are available for group meetings of physicists. A feature of the new wing is the handsome Niels Bohr Library of the History of Physics made possible by a gift of the late Dannie Heineman. This library will specialize in biographies of physicists and books relating to the history and philosophy of physics. It is open at reasonable hours to physicists, historians of science, and other serious scholars. In the corridors surrounding the library are galleries of Nobel laureates in physics, presidents of all of the Member Societies and many photographs of

The AIP headquarters building at 335 East 45th Street in New York City

historical interest. A noteworthy recent development is the establishment of "information centers" concerning physicists and their activities. For example, the Institute has what is probably the nation's most complete file of statistics on physics manpower, educational enrollments, and physics curricula. With the establishment of a new AAPT-AIP Apparatus Center and with material collected in connection with the recently completed project on apparatus design, very complete information is available on teaching equipment. Likewise, considerable information is available on physics-building design as a result of the completed project in this field. A large library of material related to physics documentation is being accumulated, as is a very useful file of public information contacts. It is expected that an information center on physics organizations and activities abroad will be built up in the near future.

These information centers are necessary adjuncts to the work of the Institute. We believe, however, that they can serve a much wider purpose if they become better known. As mentioned, it is our hope, therefore, that the AIP building will increasingly become a truly national physics headquarters and that physicists, when they come to New York, will use it often. Suggestions for making the headquarters still more useful are always welcome.

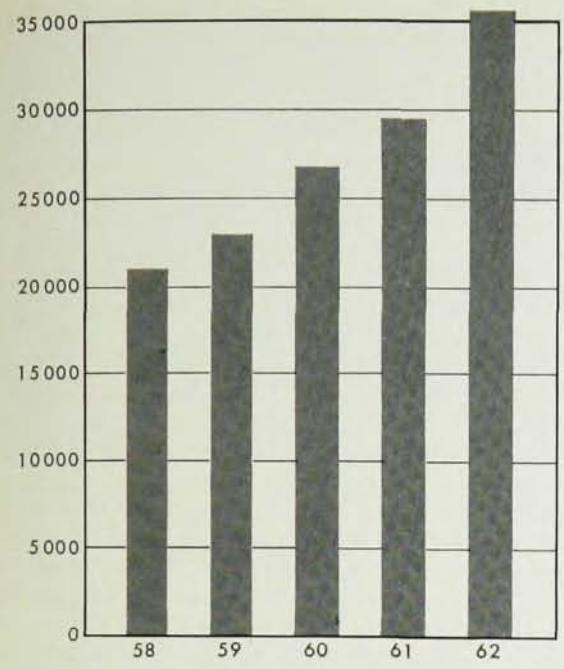
Finances for the year 1962 are covered in Section 7 and Appendix II. It will be noted that the new wing has been built without recourse to a fund drive. Instead, building reserves have been used and a mortgage of $350 000 acquired, which will be amortized over a fifteen-year period. Because of the abnormally high cost of subscription-fulfillment operations and the absorption of some of these costs by the Institute, a substantial deficit occurred in 1962. Strenuous efforts are being exerted to increase unrestricted income to reduce the accumulated deficit as quickly as possible. The Institute is in strong financial condition, and it is necessary that it remain so.

## 2. PUBLISHING ACTIVITIES

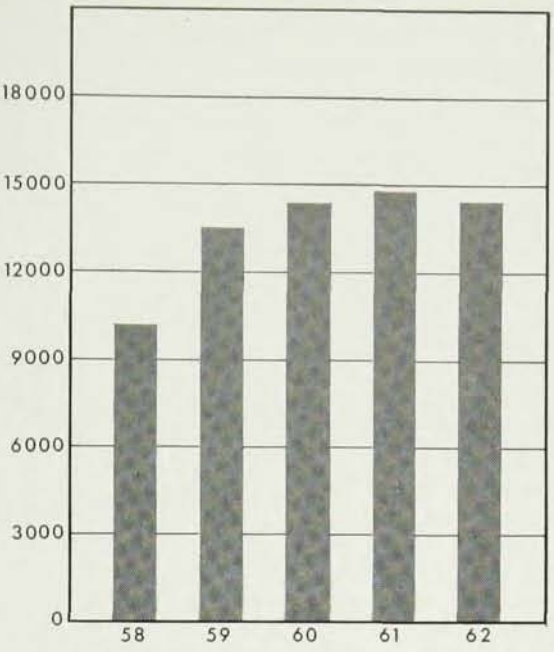
The need for economical and efficient publishing, abstracting, storage, and retrieval of information is the focus of the Institute's efforts in its journal and documentation research operations. As is natural, these operations are expanding with the growth of physics. New sources of composition and printing had to be found in 1962 for two of the journals, and new composition techniques are being investigated.

**Journals.** At the present time, the Institute publishes eight journals for its Member Societies and seven journals, including *Physics Today*, under its own name. The total number of pages published in these fifteen journals during 1962 was approximately 35 000. As shown by the graph, this represents an increase of about 19 percent over 1961 and includes one additional journal—*Applied Physics Letters*, for which the National Science Foundation provided initial underwriting. The first four issues of *Applied Physics Letters* (September, October, November, and December 1962) were furnished on a complimentary basis to subscribers of the *Journal of Applied Physics*. Starting in January 1963, *Applied Physics Letters* is being published semimonthly on a regular subscription basis. Publication for the Acoustical Society of America of *Sound—Its Uses and Control* commenced with the January–February 1962 issue. It is the successor to *Noise Control*. Another new journal that appeared in 1962, *Applied Optics*, is published by the Optical Society of America with distribution handled by AIP. During 1962, the total number of subscriptions for the fifteen journals published by the Institute plus those handled for two other journals published independently by Member Societies exceeded 170 000.

Three special supplements to journals were published




Total number of journal pages published annually (exclusive of translations)




Russian pages translated and published in the years 1958 through 1962

in 1962. (1) The supplement to the January issue of the *Journal of Applied Physics* carried papers presented at the International Conference on Chemical Physics of Nonmetallic Crystals, August 28–31, 1962. (2) The supplement to the March issue of the *Journal of Applied Physics* carried papers presented at the Seventh Conference on Magnetism and Magnetic Materials, November 13–16, 1961. (3) The supplement to the September issue of *The Journal of The Acoustical Society of America* was dedicated to Georg von Békésy and is identified as "The Békésy Commemorative Issue on the Occasion of His Nobel Laureateship". Another special issue, although not a supplement, was the October issue of *Reviews of Modern Physics,* dedicated to Eugene Wigner on the occasion of his sixtieth birthday.

A portion of the Institute's Editorial Department, which is responsible for the editorial processing of journals published by the AIP for itself and its Member Societies

**Translated journals.** The Institute, with financial underwriting from the National Science Foundation, translates eight Russian journals. A total of 14 481 Russian text pages were published in translation during the calendar year 1962, down slightly from the 1961 figure. The total number of subscriptions for translated journals, including one whose circulation AIP handles for the Optical Society of America, exceeded 7900. A special half-rate subscription was initiated during 1962 for subscribers whose organizations already had subscriptions, and an extensive promotion campaign was carried on.

**Physics Today.** As the one publication of the Institute that is intended for all physicists, *Physics Today* serves as a means of circulating information throughout the physics community. The number of pages devoted to articles, reviews of current books, and news of activities of interest to physicists has increased nearly sixty percent during the past five years, and there is evidence that the magazine is steadily finding more use as a general medium of communication within the profession. Its circulation is now approximately 40 000.

**Advertising.** Seven of the journals (including *Physics Today*) published by the Institute carry advertising. The advertising in the Institute-owned publications is

a major source of financial support for the general activities of the Institute. The number of advertising pages carried in 1962 increased by approximately 6 percent over the number carried in 1961. Comparative figures for the past five years are given below:

| *Year* | *Number of pages of advertising* |
|---|---|
| 1958 | 1625 |
| 1959 | 1921 |
| 1960 | 2008 |
| 1961 | 2151 |
| 1962 | 2275 |

**Documentation research.** During the past year, the AIP Documentation Research Project, under a National Science Foundation grant, continued work on the development of improved reference tools for physicists. Data on indexing requirements were collected from over 1000 research physicists. These data are being analyzed to determine what improvements are necessary for more efficient literature searching. Plans to improve existing indexing systems are under way. Several AIP journal editors are working in cooperation with the Documentation Research Project staff to implement these improvements.

Other documentation activities include: a study of citation indexing and bibliographic coupling; a study of the coverage given to three types of journals by *Physics Abstracts;* the development of a "current-awareness" journal and a combined index for all Institute and Member Society journals. Several guides to the literature of physics were published or prepared for publication. An *Annual Physics Book List—1961,* which cited book reviews from three physics journals, was issued in September 1962. A *Check List of Books for the Undergraduate Physics Library* was issued in October. Its contents were prepared by the Education and Manpower Department in cooperation with several college libraries.

### 3. PUBLIC INFORMATION SERVICES

Keeping pace with the burgeoning national interest in science, the AIP public information activity in 1962 was accelerated in behalf of the Member Societies, the Institute, and the physics community. The year's program encompassed three major areas: (1) bringing advances in physics to the attention of the public through the media of mass communications; (2) encouragement and support of physicists' activities through public recognition; and (3) maintenance of a public information center to answer questions and disseminate career and other literature relating to physics.

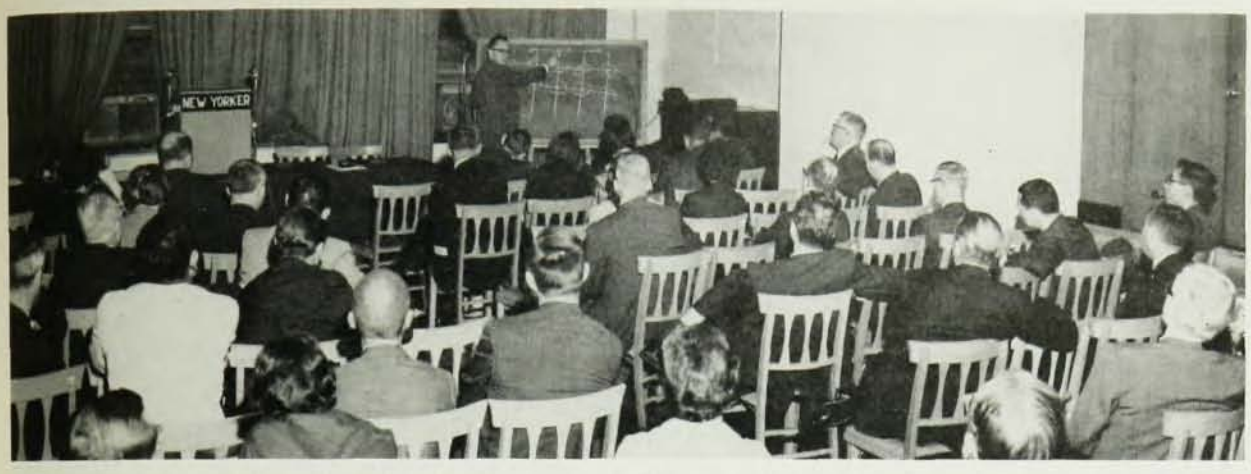
**Service through the media of mass communications.** Advances in research and education were dramatized by means of press rooms established at various society meetings in different geographic areas. Press rooms at major national meetings of the Member Societies were staffed by Institute personnel; other meetings were serviced by cooperative arrangements with the public relations officers of universities. Two techniques are used to highlight research news which is significant and newsworthy—(1) popular versions of research papers written by physicists are made available, and (2) two to four press conferences are held each day. Press room arrangements were made for the following meetings: The American Physical Society (New York, Washington, Baltimore, and Cleveland); American Association of Physics Teachers (New York); Society of Rheology (Baltimore); Optical Society of America (Rochester and Washington); Acoustical Society of America (New York and Seattle).

Continuing its program of providing useful background information to the nation's science writers by means of day-long seminars on advanced areas of physics, the Institute held three regular seminars as well as an international seminar at the Seattle World's Fair for four days. The following seminars, supported with a grant from the National Science Foundation, were held in cooperation with the National Association of Science Writers: Radio Astronomy on January 23 prior to the APS-AAPT New York meeting; Physics and Computers on May 22 prior to the ASA meeting in New York; and Physics of Oceanography at the Institute's headquarters on November 20. The Institute, in association with the US Science Exhibit, conducted an International Seminar for Science Writers, August 13 through 16, at the Seattle World's Fair. Cooperating in the selection of subjects and speakers were the American Chemical Society, American Institute of Biological Sciences, University of Washington, National Association of Science Writers, and the Council for the Advancement of Science Writing. This interdisciplinary event, the first held in the United States for sixty of the nation's leading science writers, included discussions by distinguished scientists on cryogenics (physics), protein chemistry (chemistry), nucleic acids, DNA-RNA (biology), and science communication (an interdisciplinary subject).

Glossaries of terms were issued for each of the seminars and distributed to all of the nation's leading science writers. In addition, the previously issued glossary of terms in optics and spectroscopy was completely revised with the aid of the Optical Society, and other glossaries were reprinted as the result of requests.

The American Institute of Physics was honored in 1962 for its contribution to the public understanding of science through these seminars by the Public Relations Society of America which conferred its highest award, the Silver Anvil, on the Institute.

Under a three-year National Science Foundation grant, which will be matched in part by the Institute, a new program has been started to provide a steady flow of research information based on journal articles to the nation's science writers. All of the journals issued by the Member Societies and the Institute will be reviewed carefully, with the aid of competent physi-




One of the Institute's seminars for science writers (on Physics and Computers, with Donald O. Smith of the Lincoln Laboratory at the blackboard). This and similar sessions on other topics were arranged by the AIP in cooperation with the National Association of Science Writers and with the support of the National Science Foundation.

cists, for significant and newsworthy articles, and news releases will be issued to coincide with publication. Considerable interest has been shown by science writers, and that interest is expected to intensify as the program continues.

**Encouragement and support of physicists' activities through public recognition.** An organized public information campaign was used to announce the visits of physicists under the AAPT-AIP Visiting Scientists Programs to colleges and universities, as well as the visits of foreign physicists to universities and some of the area visits to high schools. The number of news releases issued amounted to 125 and were distributed to area newspapers and radio stations, college publications, and alumni magazines. Articles based on these releases, and the radio and TV programs which often resulted from them, served to acquaint the public of the significance of these visits and in many ways increased their effectiveness.

Coincident with annual meetings of Member Societies, detailed news releases were issued with biographies and photographs of the principal officers elected to serve the societies. In addition, society awards of medals and prizes to distinguished physicists were publicized at the time of such presentations.

To support the educational work of the Regional Counselors throughout the fifty states, releases of their appointments and their activities are issued from time to time. The public interest aroused as a result of articles based on these releases facilitates greatly their contacts with state and local educational administrators and helps them materially in carrying out their objectives.

**Public Information Center.** The distribution of booklets and pamphlets is one of the responsibilities of this center. On behalf of the Education and Manpower and other Institute departments, the public information office sent out a total of 51 000 pieces of literature. This included career booklets of various types, from high school through graduate school, pamphlets on women in physics, bibliographies, and related materials, as well as the glossaries of terms for science writers.

Other information services took many forms: meetings with television producers and writers about the content and cast of characters for special shows; answers to telephone inquiries from science writers, encyclopedia editors, and magazine staff members; suggestions of names of physicists to provide help concerning research inquiries; and cooperation with other scientific societies, such as the American Association for the Advancement of Science, the National Academy of Sciences, the Biophysical Society, and the American Chemical Society, in mutual public relations endeavors.

### 4. EDUCATION AND MANPOWER ACTIVITIES

The program of the Institute's Department of Education and Manpower can be briefly stated: it is to propose goals for education in physics at all levels, to set into motion programs for achieving accepted goals, and to measure in some numerical way progress toward them. Although the objectives are clear, achieving them is a task that strains the resources of the Institute and, indeed, those of the entire community of physicists. A profession that is almost literally exploding in its growth, physics demands more and better teachers, more and better ideas about how to teach, more and better apparatus, more and better laboratories, more and better means of evaluating what is happening.

Fortunately, resources for attacking these problems have been made available by public and private foundations and—to an extent not generally realized—by the general funds of the Institute itself. Again fortunately,

the Institute is not alone in its concern that these problems be solved. Some of the most effective educational projects of recent years have been carried on jointly by the Institute and the American Association of Physics Teachers, the Member Society that by its charter has a fundamental concern for good physics teaching.

With support from many sources, with the cooperation of the AAPT and other organizations in physics and related sciences, and with the assistance and patient understanding of many individual physicists, the Institute has carried forward its program in education and manpower during the past five years until many elements of the educational process in physics have been touched by it. The high-school physics course, film-television teaching, the design of physics buildings, apparatus for teaching, career choices by students, physics libraries, staff for the smaller physics departments, the education of high-school teachers, research in small colleges—these are just some of the areas in which projects have been carried out. It is against this background of activities during the last five years and against a future that seems to hold even greater educational and manpower problems, that the report of activities in 1962 must be viewed.

**Regional Counselor Program.** This program was launched more than a year ago by the American Association of Physics Teachers and the American Institute of Physics. It is designed to promote local cooperation for better physics teaching. During 1962, forty-eight Regional Counselors throughout the country and in Puerto Rico provided help and advice in local situations.

A first conference to review the status of the program and report on activities was held January 27, 1962. "Regional Counselor Reports" pooling the experience of the counselors as reported to the Regional Counselor Office are distributed regularly. The first opportunity for all the Counselors to meet has been provided by the scheduling of a national conference in St. Louis in March 1963.

**Project on Physics Faculties in Colleges.** A joint American Association of Physics Teachers—American Institute of Physics Committee has been appointed to study the problems of small colleges, including staffing and the provision of research opportunities, as well as to take steps toward their solution. The objective of this study, which is supported by a National Science Foundation grant, is to help to produce better physicists. Attention is given to such problems as providing students with backgrounds which will make them effective in graduate schools and attracting competent physicists to the faculties of smaller colleges. During the fall of 1962, committee members visited 21 institutions of all kinds to gain special information that will aid in the study.

**Visiting Scientists Programs in Physics.** Two programs, one for the college level and one for the high school level, enable distinguished physicists to visit institutions where they exchange ideas on physics education and research and stimulate interest in physics among undergraduates and their teachers. A third program, the Visiting Foreign Scientists Program in Physics, enables physicists from other countries to visit institutions in the United States. During the 1961–1962 academic year, at the college level, 89 physicists, including 11 foreign participants, visited a total of 179 institutions, while 209 physicists visited 329 high schools.

The Visiting Scientists Programs are supported by the National Science Foundation and sponsored jointly by the American Association of Physics Teachers and the American Institute of Physics. One example of the fine cooperation by physicists in these programs is given by the activities which took place in Detroit on October 19, 1962. During this one day, 21 physicists from industry, colleges, and universities visited all 19 city high schools, meeting 36 physics teachers and 2348 students studying physics.

**Center for Educational Apparatus.** The American Association of Physics Teachers and the American Institute of Physics have received support from the National Science Foundation to set up a Center for Educational Apparatus at the Institute's headquarters building. The staff of the Center will implement the program of the American Association of Physics Teachers' Committee on Apparatus by stimulating the development of new apparatus for physics teaching and by providing physics teachers with information about apparatus. During 1962, with support from the National Science Foundation, the AAPT-AIP Apparatus Drawings Project completed its work, preparing a portfolio and 289 pages of shop drawings and construction notes on thirty pieces of apparatus. The drawings were published by Plenum Press early this year.

**Publications.** During 1962 three new career booklets, all prepared under a National Science Foundation grant, were made available to the public. Titles of these booklets were: *Rewarding Careers for Women in Physics*, *Careers in College Physics Teaching*, and *Careers in High School Physics Teaching*.

A revised edition of *Graduate Physics Research Specialties* was published to provide up-to-date information on research activities of graduate physics departments in 217 institutions. The third edition of the *Directory of Academic Physics Departments* was published in January of 1962 by the American Association of Physics Teachers and the American Institute of Physics. This edition, unlike earlier editions, includes the physics departments of Canadian academic institutions.

The *Educational Newsletter*, a monthly publication to coordinate education activities and to encourage widespread cooperation for improving physics education, continues to be distributed to over 3000 key people.

**Student Sections.** The Institute's Student Sections are self-governing organizations composed predominantly of undergraduate students of physics. The Sections make

The AIP Placement Service Register in operation at a joint meeting in New York City of the American Physical Society and the American Association of Physics Teachers

it possible for students with like interests and ideas to get together for discussing common problems and aspirations. In addition, members of Student Sections receive official status in the American Institute of Physics and benefit from services offered by the Institute.

The latest tally shows an enrollment of about 5000 students in 212 Sections. The "Student Section Newsletter" informs members of activities of interest. Material specifically prepared for the Sections has been updated for the current academic year. Such materials include: (1) "American Institute of Physics Member Society Information", (2) "Speakers for Student Sections", and (3) "Lists of Movies and Film Strips".

Special Student Section sessions were held at society meetings to help students understand various reports which were to be given in later sessions of the meetings. To stimulate activity and special programs for students at their Section meetings, a number of cash awards are to be made each year to the Sections. Funds for these cash awards were presented to the Institute by the Bendix Corporation in the summer of 1962.

**Placement Service.** The Institute continues to operate its Placement Service which acts as an intermediary for physicists seeking employment and employers from government, industry, and academic institutions. The applications of physicists seeking jobs are compiled four times a year in registrants' qualification books which are available to employers. The Placement Service also distributes job listings, which during 1962 included "Summary of Academic Openings" and "Summer Employment for College Physics Students and Teachers or High School Science Teachers".

Placement Service Registers were held twice during 1962, first in January during the joint meeting of the American Association of Physics Teachers and The American Physical Society, and then during the spring meeting of The American Physical Society. The Registers were set up in the hotels where the meetings took place. Physicists and employers from all over the country had the opportunity for interviews, and the registrant's qualification books were made available to the employers. Placement Register activity for the past three years during the New York joint meetings is shown below.

**Placement Register Activity**

| | *February* 1961 | *January* 1962 | *January* 1963 |
|---|---|---|---|
| Physicists registered | 421 | 356 | 449 |
| Organizations registered | 232 | 231 | 257 |
| Positions open | 955 | 591 | 638 |
| Interviews scheduled | 2903 | 3020 | 3573 |
| Salary ranges offered | $5000–23 000 | $4500–18 000 | $5300–20 000 |

**Manpower Studies.** Statistical information about physics manpower, such as the number of new physicists, their training, competencies, and the salaries they can expect to receive, is needed by industry, government, academic institutions, and by physicists' own organizations. During 1962, under a National Science Foundation grant to compile such data, the Institute prepared a draft for a statistical yearbook. The draft was then reviewed, revised, and published under the title *Physics Manpower and Educational Statistics—1962*. Plans were made for a 1963 yearbook which would include additional data and would update information in the earlier edition.

A report on a survey of graduate study and the situation of graduate students was published under the title "Survey of Graduate Students in Physics" in the June issue of *Physics Today*. Work was begun on an ex-

panded survey of enrollments and degrees awarded annually in physics. This survey will provide additional information on the mathematics and physics course requirements for bachelors' degrees, types of introductory physics courses offered, and the enrollments in these introductory courses.

In another area of work, the first phase of a supply-demand study for physicists was completed. The study projected to the year 1970 the number of physics degrees to be granted at all levels and compared the number of degrees with the anticipated demand for physicists.

In yet another area of work—that performed for the National Register of Scientific and Technical Personnel under contract with the National Science Foundation—45 000 questionnaires were mailed out in the spring of 1962 to update information in the National Register. Of these 37 500 were processed and 31 000 were returned to the National Register for the Physics Register. The 1962 Physics Register will include about 25 percent more persons than in 1960.

**Conference on Technicians in Physics.** Twenty-eight persons attended a conference in May 1962, on Recruitment and Training of Technicians in Physics. Among the topics considered were the demand for technical assistants in physics, their duties, educational preparation, recruitment, and the problems facing two-year technical institutes. Conferees preferred a two-year post-high-school education for technicians in physics. An article reporting the conference appears in the March 1963 issue of *Physics Today*.

**History of Physics.** Under a National Science Foundation grant, the American Institute of Physics has made progress in locating source materials that document significant work by 20th century physicists, and steps are under way to organize a locator file of historical source materials. Over 500 physicists of an initial group of 625 persons have responded to requests for biographical and bibliographical materials. A publication entitled *Notebook, Correspondence, Manuscripts: Sources for the Fuller Documentation of the History of Physics* was prepared to help obtain additional documents. It contains information on why such materials should be saved, the kind of materials to save, and how to save them.

Outstanding on the Institute's list of events for 1962 was the dedication of the Niels Bohr Library of the History of Physics. The task of collecting books for the library was begun, and a brochure was prepared to publicize the library and create interest in donations of books or funds for purchasing books.


The Institute's recently opened Niels Bohr Library of the History of Physics, a central repository for works on the history and philosophy of science, collected writings of individual physicists, general and specialized reference volumes, biographies, and other materials relating to the history of physics

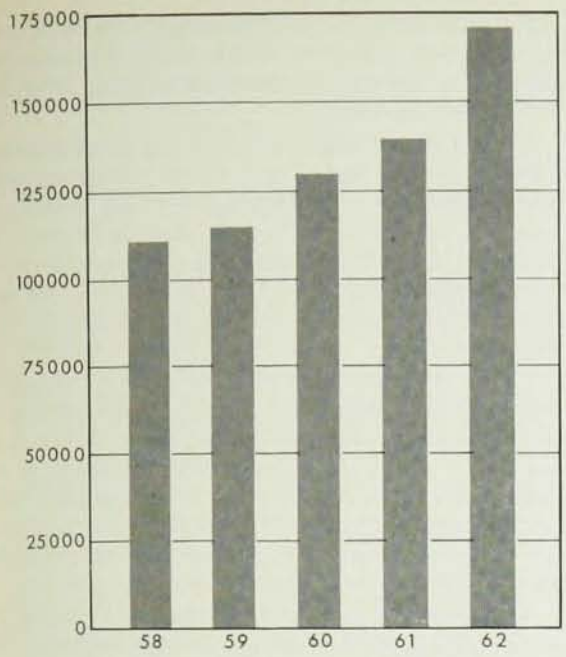
### 5. SERVICE OPERATIONS

Handling journal subscriptions and dues records is a large and complex operation. Detailed records must be kept up to date for approximately 32 000 members, many of whom are members of more than one society, and subscriptions handled for 28 different publications. In addition to automation provided by data-processing machines, these operations in 1962 required the services of a staff of approximately 50 employees.

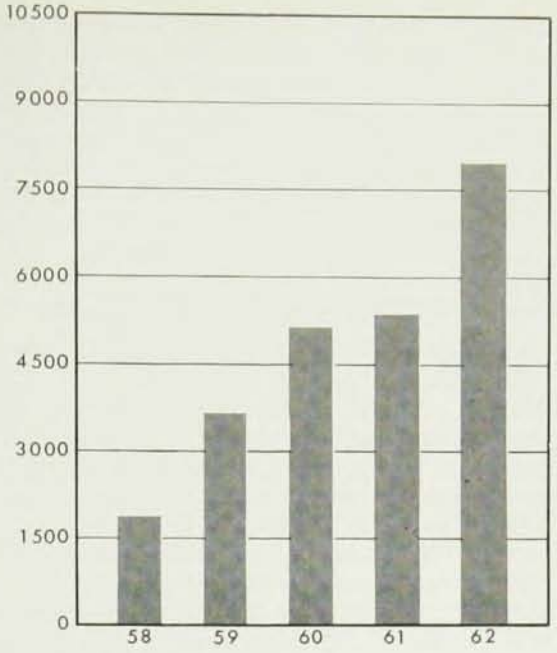
The rapid growth of journal circulation during the last five years is illustrated on the accompanying charts and indicates the present size of the subscription fulfillment operation. This operation includes the storing of information necessary for billing, processing invoices, allocating cash receipts by class of dues to each society and subscriptions to each journal, imprinting mailing labels, and answering a constantly growing flow of inquiries. Mailing labels for the journals alone constitute a monthly load of about 200 000 on the addressing system—a system which must allow for approximately 12 000 address changes annually.

Both dues records and subscription fulfillment procedures are unusually complex because of the variety of memberships existent in each society and the multiple subscription rates applicable to each of the journals. As extreme examples, one society has twelve different kinds of memberships, and one journal has eight different subscription-rate categories.

Further complications are created by the peak nature of the work load. Approximately 95 percent of all journal subscriptions expire in December. Renewal billing of members was done in September–October, and of nonmembers in October–November. Other renewal billings included Soviet translation journals during April–May; and June nonmember expirations during May–June. Consequently, there occurs during the short span of time from October to February, an overlapping of peak work loads for billing, processing and editing of remittances as they come in, notifying delinquent subscribers, and handling an increased volume of address changes, inquiries, and other types of correspondence.




Total numbers of subscriptions handled annually (exclusive of translations)




Circulation of translated journals for the years 1958 through 1962

Clerical functions involving the handling of subscriptions to journals are carried out by the AIP's Subscription-Fulfillment Department

A view of the tabulating section of the Institute's Data Processing Department. High-speed scriptomatic addressing machine (on the right) prepares journal mailing strips; the electronic collator (left) is being used to assemble the next mailing list to be run.

During 1962 vigorous efforts were made to solve any unresolved problems created during the period of converting dues records and subscription fulfillment procedures to a punch-card system. The number of complaints received during the latter part of 1962 decreased greatly in comparison to those in a similar period in 1961. We are glad to note that letters of apology were also received from individuals who found that their causes for complaint were not attributable to the Institute.

During 1962, the Institute engaged the services of the management consulting firm of Cresap, McCormick and Paget to conduct an appraisal of subscription-fulfillment procedures. The purpose of this study was to streamline procedures, minimize subscriber complaints, and produce a more efficient system to give optimum subscriber service at a reasonable cost. Procedural improvements included the creation of separate member services and nonmember services departments, the creation of a cashiering unit capable of coping with the complex dues and journal-rate structure; the assignment of permanent account numbers to facilitate member and/or subscriber identification; and installation and use of a second high-speed scriptomatic addressing machine. These changes made possible an early fall renewal billing for society dues and for journal subscriptions expiring in December.

In addition to handling journal subscriptions and dues records, the Institute provides many other services for societies. During 1962 it acted as fiscal agent in the administration of grants for various projects of several Member Societies; handled special mailings such as announcements, programs, journal promotions, and ballots for each of the Member Societies; took

charge of the space and administrative arrangements for the joint APS-AAPT meeting in New York, and assisted with other society meetings in New York. The Institute also serviced approximately 2500 requests for information about society memberships, compiled a roster of the Society of Rheology, and prepared a new APS membership list, which was published in the April issue of the *Bulletin of The American Physical Society.*

## 6. SPECIAL ACTIVITIES AND AWARDS

**Headquarters Expansion.** In September of 1962, one year after the start of construction, the finishing touches were put on the addition to the Institute's headquarters building. The new wing provides about 70 percent more floor space, which was badly needed for the expanded editorial and circulation-handling activities. It also houses the Niels Bohr Library of the History of Physics and a new smaller conference room with its own outside entrance so that it may be used at times when the main building is closed. Together with the Karl T. Compton Board Room, these rooms provide three meeting places in the Institute for conferences of from 10 to 50 people.

**Special Meetings.** The Fourth Assembly of Society Officers and the Governing Board was held at Arden House, September 26–28, to discuss Institute and Member Society programs, problems, and procedures. Coinciding with part of the Assembly was the Fifth Annual Meeting of Corporate Associates. Featured at this meeting were reports on Institute activities, and on three frontiers in physics, as well as a talk on Government Research and Industry. More than half of the Institute's 187 Corporate Members attended.

The Eighth Conference on Magnetism and Magnetic Materials was held in Pittsburgh, Pa., November 12–15. The Conference was sponsored jointly by the American Institute of Physics and the American Institute of Electrical Engineers. Conference statistics showed 786 registrants attending.

**Award.** On April 25, 1962, in cooperation with The American Physical Society, the Institute awarded the Dannie Heineman Prize for Mathematical Physics to Léon Van Hove of the European Organization for Nuclear Research. The award was made in recognition of Dr. Van Hove's contributions to statistical mechanics and field theory.

## 7. FINANCES

The total expenditures of the Institute for the year 1962 were $4 776 669. To balance these expenditures, the Institute receives both restricted and nonrestricted income. Restricted income includes that received for subscriptions, page charges, etc., applicable directly to publishing operations, as well as income for specific projects sponsored by NSF or other foundations. Unrestricted income includes principally that received as a percentage (10%) of society dues, Corporate Associate dues, and the net advertising income from Institute-owned journals.

Ordinarily the unrestricted income is not needed to balance society and AIP archive journal operations which should be self-supporting. In 1962, however, because of the abnormally high member-servicing and subscription-fulfillment costs, the Institute absorbed all charges above those computed under 1961 unit rates. This contributed to an over-all deficit of $37 795 in 1962 operations.

It will be noted below that many of the nonpublishing operations, including a number of the public information services, education and manpower activities, and the general liaison and development activities, are covered by the unrestricted income of the Institute. Except for the traditional tithe from society dues, no part of the cost of these very substantial undertakings is charged against the Member Societies.

A summary of the operating costs for 1961 and 1962 is shown on page 49. More detailed information and the balance sheet from the auditor's report are given in Appendix II.

## 8. ACKNOWLEDGMENTS

The work of the American Institute of Physics is made possible by a devoted staff of 160 people. To them we extend hearty thanks. Special acknowledgment is due to Wallace Waterfall and Henry A. Barton and to the division heads: Hugh C. Wolfe for publications, Eugene H. Kone for public information services, William C. Kelly for education and manpower, and Gerald F. Gilbert in charge of service operations.

Sincere appreciation is expressed to the large number of committee and board members who, by their voluntary help, guided and assisted the Institute in its many projects and activities during the past year. The membership of the 1962 AIP committees is given in Appendix I.

Particular thanks are due the following members of the Governing Board who retired during 1962 or early in 1963 after serving the periods indicated:

| | |
|---|---|
| Wallace R. Brode | 1960–1963 |
| R. H. Bolt | 1957–1963 |
| Harvey Brooks | 1959–1962 |
| Dirk Brouwer | 1960–1963 |
| Winston E. Kock | 1957–1963 |
| H. Victor Neher | 1960–1963 |
| Ray Pepinsky | 1960–1963 |
| Francis W. Sears | 1960–1963 |

A warm welcome is extended to their successors: Laurence Batchelder, James Hillier, Richard C. Lord, Vincent E. Parker, Paul M. Routly, Horace M. Trent, Frank Verbrugge, and Elizabeth A. Wood.

Respectfully submitted,
**Elmer Hutchisson,** *Director*

## American Institute of Physics

### Combined Statement of Expenditures and Net Charge Against Nonrestricted Income

| | 1961 | | 1962 | |
|---|---|---|---|---|
| | *Total Expenditures* | *Net Charge Against Non-restricted AIP Income* | *Total Expenditures* | *Net Charge Against Non-restricted AIP Income* |
| ***1. Publication Activities*** | | | | |
| Society Journals | $ 967 049 | — | $1 262 293 | $ 57 479 |
| AIP Archive Journals | 819 628 | $ 2 449 | 1 106 252 | 17 846 |
| AIP Translation Journals | 471 587 | — | 451 930 | — |
| Documentation Research, etc. | 34 962 | — | 68 219 | — |
| *Physics Today* | 143 963 | 130 252 | 174 857 | 160 610 |
| *Subtotal* | 2 437 189 | 132 701 | 3 063 551 | 235 935 |
| ***2. Public Information Services*** | | | | |
| Public Relations Department | 46 670 | 43 963 | 58 513 | 56 970 |
| Seminars for Science Writers | 10 588 | — | 51 062 | — |
| Publicizing of Journal Articles | — | — | 1 140 | — |
| *Subtotal* | 57 258 | 43 963 | 110 715 | 56 970 |
| ***3. Education & Manpower Activities*** | | | | |
| Education & Manpower Department | 63 840 | 56 703 | 86 339 | 79 973 |
| Sponsored Projects | 151 148 | — | 217 838 | — |
| Regional Counselor Program | 1 900 | 1 000 | 10 662 | 9 162 |
| Student Sections Program | 20 938 | 20 938 | 22 003 | 22 003 |
| Placement Service | 21 288 | 7 006 | 16 542 | 8 030 |
| *Subtotal* | 259 114 | 85 647 | 353 384 | 119 168 |
| ***4. Society Services & Related Activities*** | | | | |
| Special Society Services | 98 470 | — | 131 384 | 1 881 |
| Fiscal Services on Grants | 19 890 | — | 80 036 | — |
| Symposia Sponsorship & Awards | 9 087 | — | 20 526 | — |
| Trans. to Socs. from Dues, Mem. Subscript. | 144 539 | — | 713 396 | — |
| *Subtotal* | 272 986 | | 945 342 | 1 881 |
| ***5. Admin., Liaison, & Dev. Activities*** | | | | |
| General Administration | 64 042 | 64 042 | 78 519 | 78 519 |
| Advertising Expense—AIP Journals | 178 033 | — | 205 512 | — |
| Misc. Expenses | 14 259 | — | 21 966 | — |
| 1961 Audit Adjustment | 8 592 | — | — | — |
| *Total* | $3 291 473 | $326 353 | $4 778 989 | $492 473 |
| ***Sources of Nonrestricted Income*** | | *Income* | | *Income* |
| 1. Percentage of Mem. Soc. Dues | | $ 38 226 | | $ 45 117 |
| 2. Corporate Associate Dues (Net) | | 75 616 | | 111 703 |
| 3. Advertising—AIP Journals (Net) | | 191 231 | | 247 839 |
| 4. Investments & Misc. Income | | 20 802 | | 25 744 |
| 5. Transfer from Reserve | | 2 449 | | 24 275 |
| *Total* | | $328 324 | | $454 678 |
| Excess or (Deficit) of Nonrestricted Income Over Charges | | $ 1 971 | | ($ 37 795) |

APPENDIX I

# *American Institute of Physics Governing Board, Commi*

### Governing Board

Ralph A. Sawyer, *Chairman*
Stanley S. Ballard
R. H. Bolt
Wallace R. Brode
Dirk Brouwer
Malcolm Correll
Herbert A. Erf
John D. Ferry
N. S. Gingrich
S. A. Goudsmit
W. W. Havens, Jr.
James Hillier
W. V. Houston
Winston E. Kock
R. Bruce Lindsay
David L. MacAdam
John C. Miller
H. Victor Neher
Leonard O. Olsen
Ray Pepinsky
S. L. Quimby
Francis W. Sears
Frederick Seitz
C. Guy Suits
Mary E. Warga

### Executive Committee

Ralph A. Sawyer, *Chairman*
Wallace R. Brode
S. A. Goudsmit
W. W. Havens, Jr.
R. B. Lindsay
S. L. Quimby
Francis W. Sears

### Publication Board

J. B. H. Kuper, *Chairman*
Dirk Brouwer
E. U. Condon
J. H. Crawford, Jr.
R. R. Davis
Herbert A. Erf
F. N. Frenkiel
S. A. Goudsmit
Elmer Hutchisson
Deane B. Judd
R. B. Lindsay
W. C. Michels
Elliott Montroll
S. Pasternack
J. W. Stout
Wallace Waterfall
Hugh C. Wolfe, *Secretary*

### Advisory Board on Translations

Robert T. Beyer, *Chairman*
J. George Adashko
Freeman J. Dyson
Dwight E. Gray
Morton Hamermesh
David Harker
Harold F. Weaver

### Science Abstracts Committee (Joint APS-AIP)

F. G. Brickwedde, *Chairman*
D. E. Gray
Conyers Herring
Elmer Hutchisson
H. H. Nielsen
S. L. Quimby
H. C. Wolfe, *Secretary*

### Advisory Committee on Documentation Research Program

Serge A. Korff, *Chairman*
Harvey Brooks
Paul Camp
J. C. R. Licklider
K. G. McKay
Robert T. Beyer (*ex officio*)
J. B. H. Kuper (*ex officio*)
F. G. Brickwedde (*ex officio*)

### Committee to Study Objectives and Performance of Physics Today

W. W. Havens, Jr., *Chairman*
S. S. Ballard
Donald Cunningham
Karl K. Darrow
Klaus Dransfeld
Cyril M. Harris
Bryce Maxwell
Paul M. Routly
Lewis Slack
Frank Verbrugge

### Advisory Committee on Public Relations

Harry F. Arader
John Hastings
Francis Pray
Harold Renne
Walter Sullivan

### Advisory Committee on AIP Education Program

Frank Verbrugge, *Chairman*
Samuel K. Allison
Stanley S. Ballard
R. Bruce Lindsay
Arthur B. Metzner
Vincent E. Parker
Jerrold R. Zacharias

### Advisory Committee on Manpower

John N. Shive, *Chairman*
Lindsey R. Harmon
L. G. Parratt
Harold S. Stewart
C. W. Ufford
Katherine Way
Marsh W. White
Thomas J. Mills—*observer*

### Advisory Committee on Student Sections

R. S. Shankland, *Chairman*
S. S. Ballard
W. W. Havens, Jr.
A. C. Helmholz
Jess Josephs
Thomas Ward
Leonard O. Olsen
C. J. Overbeck

### Panel of Judges for Student Section Awards

Edward U. Condon
Peter Franken
George W. Hinman
John K. Major

# l Appointed Representatives for 1962

**Committee on History and Philosophy of Physics**

Gerald Holton, *Chairman*
W. C. Kelly
R. Bruce Lindsay
Raymond J. Seeger
G. E. Uhlenbeck
Harvey E. White

**Advisory Committee for the Project on the History of Recent Physics**

Gerald Holton, *Chairman*
Sanborn C. Brown
Derek J. de Solla Price
Charles C. Gillispie
Thomas S. Kuhn
R. Bruce Lindsay
Cyril Stanley Smith
Hilliard Roderick
George E. Uhlenbeck
Raymond J. Seeger

**Committee on Physics Faculties in Colleges** (AAPT)

Robert B. Brode, *Chairman*
Fay Ajzenberg-Selove, *Secretary*
H. H. Barschall
Peter Bergmann
W. C. Elmore
Charles Fowler
Ronald Geballe
Stanley Livingston
George Pake
G. C. Phillips
K. Strauch
W. W. Watson

**Committee to Administer Grant from Asia Foundation**

Edward Thorndike, *Chairman*
William R. Rarita
Harry Soodak

**Committee of Society Secretaries and Treasurers**

Karl K. Darrow
Joseph R. Dillinger
Herbert A. Erf
A. I. Mahan
John C. Miller
Mary E. Warga
Wallace Waterfall
Ralph P. Winch
S. L. Quimby

**Pension Committee**

Mark W. Zemansky, *Chairman*
B. S. McCutchen
Kathryn Setze
Theodore Vorburger
Wallace Waterfall, *Secretary*

**Property Committee**

Mark W. Zemansky, *Chairman*
W. W. Havens, Jr.
Elmer Hutchisson
B. S. McCutchen
Ralph A. Sawyer
Wallace Waterfall

**Committee to Nominate Chairman, Executive Committee and Director-at-Large**

Wallace R. Brode, *Chairman*
W. V. Houston
Winston E. Kock

**Advisory Committee on Corporate Associates Program**

E. R. Piore, *Chairman*
James B. Austin
R. A. Charpie
Herbert I. Fusfeld
Peter C. Goldmark
C. Lester Hogan
Sidney Millman
Van Zandt Williams
Clarence Zener

**Representatives**

*Div. of Physical Sciences, National Research Council*
Elmer Hutchisson
Ralph A. Sawyer

*ASA Sectional Committee Y-10 Letter Symbols*
David Biesel

*AAAS Cooperative Committee on the Teaching of Science and Mathematics*
W. C. Kelly

*Scientific Manpower Commission*
Elmer Hutchisson
Henry A. Barton

*USANC of IUPAP*
Elmer Hutchisson

*ASA Acoustical Standards Board*
F. V. Hunt

*American Council on Education*
W. C. Kelly
Leonard O. Olsen
Bancroft W. Sitterly
M. H. Trytten
Frederick W. Van Name
Frank Verbrugge

*AAAS Council*
Malcolm C. Henderson
Mary E. Warga

*US National Commission for UNESCO*
Elmer Hutchisson

*Advisory Board of the Office of Critical Tables of the NRC*
Dwight E. Gray

*Board of Acta Metallurgica*
R. L. Sproull

*Conference on The Teacher Education Program*
Paul F. Bartunek
S. Winston Cram
Ralph Dressel
Glenn W. Giddings
Thomas J. Parmley

*US National Committee of FID*
Elmer Hutchisson

*Chairman of Physicists Group, NBS Advisory Panels*
John H. Dillon

*Steering Committee for 1962 Magnetism Conference*
J. F. Dillon, Jr.
J. S. Smart
H. C. Wolfe
J. A. Osborn

*Channel 13 Coordinating Committee*
W. Reeves Tilley

*ASA Sectional Committee N6, Reactor Safety Standards*
Harry Soodak

# APPENDIX II

## AMERICAN INSTITUTE OF PHYSICS, INCORPORATED

### Summary Statement of Operations

*Including Activities Carried on for Member Societies*

*Year Ended December 31, 1962*

| | *Total* | *American Institute of Physics* | *For Account of Member Societies* |
|---|---|---|---|
| *Income:* | | | |
| Subscriptions | $ 951 725.83 | $ 447 094.16 | $ 504 631.67 |
| Publication charges and reprint sales | 1 125 024.63 | 558 898.85 | 566 125.78 |
| Back number sales | 109 266.35 | 45 172.05 | 64 094.30 |
| Contracts for publication | 37 968.20 | 37 968.20 | — |
| Advertising | 512 828.40 | 453 350.21 | 59 478.19 |
| Support from member organizations | 45 116.69 | 45 116.69 | — |
| Associate (corporation) dues | 111 703.00 | 111 703.00 | — |
| Income from investments | 1 841.42 | 1 841.42 | — |
| Income from special projects, administrative fees, royalties, etc. | 925 142.65 | 925 142.65 | — |
| Miscellaneous income | 44 527.43 | 44 527.43 | — |
| Receipts for accounts of member societies | 851 773.81 | — | 851 773.81 |
| *Total* | $4 716 918.41 | $2 670 814.66 | $2 046 103.75 |
| *Expense:* | | | |
| Printing, engraving, and mailing journals | $1 653 442.44 | $ 793 097.18 | $ 860 345.26 |
| Printing and mailing reprints | 101 985.40 | 54 766.84 | 47 218.56 |
| Handling publication charges and reprint sales | 31 615.04 | 16 572.50 | 15 042.54 |
| Back numbers handling and distribution | 42 055.70 | 17 113.49 | 24 942.21 |
| Advertising—printing, distribution, and selling | 241 134.90 | 205 511.69 | 35 623.21 |
| Editorial and editorial mechanics | 364 119.33 | 261 294.16 | 102 825.17 |
| Subscription handling | 241 950.41 | 124 744.97 | 117 205.44 |
| Administrative and organizational services* | 444 898.96 | 444 898.96 | — |
| Special projects | 811 596.54 | 811 596.54 | — |
| Taxes and investment expense | 3 288.57 | 3 288.57 | — |
| Disbursements on behalf of member societies | 129 505.17 | — | 129 505.17 |
| | $4 065 592.46 | $2 732 884.90 | $1 332 707.56 |
| Net to societies to balance accounts | 713 396.19 | — | 713 396.19 |
| | $4 778 988.65 | $2 732 884.90 | $2 046 103.75 |
| Net deficit before transfer from operating reserve | ($ 62 070.24) | ($ 62 070.24) | |
| Transferred from operating reserve | 24 275.32 | 24 275.32 | |
| Net amount transferred to accumulated deficit | ($ 37 794.92) | ($ 37 794.92) | |

* Includes rebates to societies.

### Balance Sheet—December 31, 1962

#### *Assets*

| | | | |
|---|---|---|---|
| *Operating fund:* | | | |
| Cash | | $ 744 919.25 | |
| Investments in U. S. Government securities | $ 28 968.75 | | |
| Add: Accrued interest receivable thereon | 138.60 | 29 107.35 | |
| Due from member organizations: | | | |
| Acoustical Society of America | $ 31 373.03 | | |
| American Crystallographic Association | 727.50 | 32 100.53 | |
| Accounts receivable: | | | |
| Publication charges | $ 255 988.07 | | |
| Reprint sales | 23 626.46 | | |
| Advertising | 57 385.42 | | |
| Miscellaneous | 29 801.37 | 366 801.32 | |
| Deposits | | 925.00 | |
| Deferred charges: | | | |
| Contribution to retirement plan applicable to 1963 | $ 7 845.93 | | |
| Engraving costs applicable to 1963 | 25 428.74 | | |
| Prepaid insurance | 4 064.94 | | |
| Prepaid group life and major medical insurance | 3 534.85 | | |
| Other | 5 448.09 | 46 322.55 | $1 220 176.00 |
| *Special purpose funds:* | | | |
| Karl Taylor Compton Fund: | | | |
| Cash | $ 1 445.17 | | |
| Investments | 11 003.94 | $ 12 449.11 | |
| John T. Tate Memorial Fund—cash | | 15 329.08 | |
| Cash—Investment Advisory Account—net | | 468.81 | |
| Investments | $ 103 073.97 | | |
| Add: Accrued interest receivable thereon | 282.97 | 103 356.94 | |
| Due from operating fund | | 260 497.00 | |
| Amounts due for funds expended for special projects for accounts of others | | 37 933.40 | 430 034.34 |
| *Building and equipment fund:* | | | |
| Land | | $ 266 535.36 | |
| Building (original) $623 573.83 | | | |
| Building addition (cost to date) 666 301.69 | $1 289 875.52 | | |
| Less: Accumulated depreciation | 162 910.05 | 1 126 965.47 | |
| Furniture and fixtures | $ 134 919.83 | | |
| Less: Accumulated depreciation | 39 390.78 | 95 529.05 | 1 489 029.88 |
| | | | $3 139 240.22 |

#### *Liabilities*

| | | | |
|---|---|---|---|
| *Operating fund:* | | | |
| Trade accounts payable | | $ 347 525.46 | |
| Commissions payable | | 13 594.18 | |
| New York State income tax withheld | | 5 466.80 | |
| Accrued interest payable | | 3 281.25 | |
| Due to member organizations: | | | |
| American Physical Society | $ 87 787.89 | | |
| Optical Society of America | 40 640.18 | | |
| American Association of Physics Teachers | 12 330.48 | | |
| Society of Rheology | 6 907.81 | | |
| American Astronomical Society | 4 552.52 | 152 218.88 | |
| Sundry Creditors | | 13 587.23 | |
| Unallocated receipts | | 8 153.15 | |
| Deferred credits: | | | |
| Subscriptions received applicable to future years | $476 882.39 | | |
| Dues—corporate—year 1963 | 76 725.50 | | |
| Dues—Student Sections—re 1963 activities | 3 670.00 | | |
| Sundry receipts—re 1963 activities | 33 075.96 | 590 353.85 | |
| Due to Special Purpose Funds | | 260 497.00 | |
| Accumulated deficit | | (174 501.80) | $1 220 176.00 |
| *Special Purpose Funds:* | | | |
| Karl Taylor Compton Fund | | $ 12 449.11 | |
| John T. Tate Memorial Fund | | 15 329.08 | |
| Special gift fund | | 1 268.60 | |
| Amounts received for special projects for accounts of others (net after expenditures thereon) | | 400 987.55 | 430 034.34 |
| *Building and Equipment Fund:* | | | |
| Mortgage payable, 5 5/8% due 11/1/77, amortization quarterly | | $ 350 000.00 | |
| Building and equipment capital | | 1 139 029.88 | 1 489 029.88 |
| | | | $3 139 240.22 |